



# The feasibility of the In My Shoes computer assisted interview for eliciting evaluative content in interviews with young children<sup>☆</sup>

Karin Fängström<sup>a,\*</sup>, Maria Eriksson<sup>b</sup>

<sup>a</sup> Department of Public Health and Caring Sciences, Uppsala University, Box 564, 75237 Uppsala, Sweden

<sup>b</sup> Department of Social Sciences, Ersta Sköndal Bräcke University College, Box 11189, 10061 Stockholm, Sweden



## ARTICLE INFO

### Keywords:

In My Shoes computer assisted interview  
Evaluative content  
Child interviews  
Distress  
Emotions

## ABSTRACT

During the last decade the evaluative content of children's accounts in interviews has attracted growing interest. However, research on methods to further enable such accounts remains scarce, specifically with regard to the youngest children. The present explorative study examined to what extent the computer-assisted interview In My Shoes (IMS) aided preschool aged children in verbalising experiences of distress or discomfort. Children aged 4 and 5 years old ( $N = 28$ ) were interviewed about their annual health visit using IMS. The interviews were analysed qualitatively with a focus on the IMS prompts and children's evaluative statements. The statements were also compared to the coded distress displayed at the video recorded health visit.

The results showed that almost all children who in the interviews verbalised experiences of distress/discomfort at the health visit ( $n = 11$ ) did so in relation to the IMS prompts and questions. These children could describe and distinguish between their emotional reactions and physical sensations. For some of the children who did not verbalise emotional content related to the specific visit, IMS still worked as a prompt to elicit negative emotional experiences associated to other health events ( $n = 10$ , whereof 80% were 4 years of age). All 5-year olds who displayed distress at the health visit also verbalised such experiences ( $n = 6$ ), while almost none of 4-year-olds did so.

The conclusion is that IMS appears to be a feasible method to aid children verbalising emotional and physical aspects of negative emotional experiences.

## 1. Introduction

Within various fields such as social welfare, healthcare, school and government agencies, children's perspectives and experiences are increasingly being viewed as important and the UN Convention on the Rights of the Child (UNCRC) has been ratified in almost all countries in the world (UN General Assembly, 1989). This place new high demands on the way children are heard and has led to an increased need for evidence-based methods for communicating with children. Therefore, researchers and practitioners are turning to the empirically tested child interview methods developed within the field of forensic science (National Board of Health and Welfare, 2015). However, the research on child forensic interviews has mainly focused on interviewing techniques and methods that affect and enhance children's cognitive and factual accounts (Ahern & Lyon, 2013). Less attention has been given to

children's evaluative accounts and recommendations on how to enhance and increase these. There is thus a need to increase knowledge on supportive and reliable interviewing techniques that can be used in various fields and that can aid children to express their emotional and physical reactions to experiences. The interactive computer-assisted interview In My Shoes is a method that was developed to meet the requirements of the forensic process (Calam, Cox, Glasgow, Jimmieson, & Groth Larsen, 2000), and aims to aid children communicating their emotions. However, whether In My Shoes can help young children to communicate their emotions related to negative experiences has not been investigated. The aim of the current study was to qualitatively explore to what extent the computer-assisted interview In My Shoes aids preschool aged children in verbalising negative emotional experiences of a health care visit.

<sup>☆</sup> This research was supported by the common grant of major Swedish research funders termed "Mental health of children and adolescents" (259-2012-68) and by Children's Welfare Foundation Sweden (FB13-0014 and 2019-271). The funders had no role in study design, data collection or analysis, decision to publish, or preparation of the manuscript.

\* Corresponding author.

E-mail addresses: [karin.fangstrom@pubcare.uu.se](mailto:karin.fangstrom@pubcare.uu.se) (K. Fängström), [maria.eriksson@esh.se](mailto:maria.eriksson@esh.se) (M. Eriksson).

<https://doi.org/10.1016/j.childyouth.2020.105522>

Received 10 June 2020; Received in revised form 22 September 2020; Accepted 23 September 2020

Available online 28 September 2020

0190-7409/ © 2020 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

### 1.1. Evidence-based child interview methods

Over the last 30 years there has been a systematic and imperative development of evidence-based methods for interviewing children within the field of forensic science (Ceci & Bruck, 1993; Faller, 2015; Goodman & Melinder, 2007; Lamb, La Rooy, Malloy, & Katz, 2011). A corresponding development of structured and systematic child interview methods is lacking in other fields, which might explain why the interview methods developed within the field of forensic science are increasingly being transferred to other arenas such as social work, health care and school (Brubacher, Gilligan, Burrows, & Powell, 2019; Brubacher & Powell, 2019; Meissner & Lyles, 2019; Silverman, Kurtz, & Draper, 2016; Cederborg, 2005).

Based on research within the field of memory and forensic science, there is a good understanding of how memory works and how children's developmental capabilities and vulnerabilities impact the interview (Hershkowitz, Lamb, Orbach, Katz, & Horowitz, 2012; Lamb & Brown, 2006; Nelson & Fivush, 2004; Peterson, 2012). This knowledge has formed the basis for a core set of evidence-based components to facilitating children's reporting, which are being included in most child forensic interview protocols. These components consists of; question type, ground rules, and narrative practice (Faller, 2015; Lamb, Orbach, Hershkowitz, Esplin, & Horowitz, 2007; Vrij, Hope, & Fisher, 2014).

The main focus of the research in the forensic field, both in analogue and field studies, has been on the factual content of children's statements, i.e. accounts of actions, objects and people and the cognitive factors related to children's ability to retrieve this information (e.g. Goodman, Quas, Batterman-Faunce, Riddlesberger, & Kuhn, 1997; Lamb et al., 2003; Lyon, 2014; Melinder et al., 2010; Schneider & Bjorklund, 1998). Thus, the recommended best practice components and evidence-based interview protocols, such as the National Institute of Child Health and Human Development (NICHD) protocol, have been developed to increase accuracy and completeness of children's statements regarding these aspects of experiences (Lamb et al., 2007). Less attention has been paid to the subjective and evaluative content of children's statements and factors that can affect these.

### 1.2. Evaluative content in child interviews

There are a number of reasons why it is important to aid children in expressing evaluative content in interviews. Children's ability to describe their subjective experiences, including emotions, can impact how the well-being of the child is perceived and, if interventions are offered, to target this (Cross & Hershkowitz, 2017; Schalkers, Dedding, & Bunders, 2015; Wilson, Megel, Enenbach, & Carlson, 2010). This is also one of the main objectives of child interviews in a social work context, i.e. to understand more about children's needs and offer interventions. In addition, the information children provide on their thoughts, emotions and opinions plays an increasingly important role in decision making in contexts ranging from case planning, court proceedings to placement decisions (Boshier & Steel-Baker, 2007; Clark, 2005; Cousins & Simmonds, 2011; Unrau, 2007). In investigative cases, children's accounts of their emotions in relation to abuse are important as they make the narrative seem more coherent (Lyon, Scurich, Choi, Handmaker, & Blank, 2012; Snow, Powell, & Murfett, 2009; Westcott & Kynan, 2006). This in turn can affect the credibility of children's statements (Cooper, Quas, & Cleveland, 2014; Landström, Ask, Sommar, & Willén, 2015; Lyon et al., 2012).

In recent years there has been an increased interest in the evaluative content of children's accounts (Fängström, Sarkadi, Lucas, Calam, & Eriksson, 2017; Karni-Visel, Hershkowitz, Lamb, & Blasbalg, 2019; Lyon et al., 2012) and how interviewers respond to children's reports of such experiences (Iversen, 2019). The evaluative content encompasses children's emotional reactions, cognitive content and physical sensations in relation to their experiences of, for example, violence, abuse or maltreatment (Stolzenberg, Williams, McWilliams, Liang, & Lyon,

2019). It can also include how children experience the interview situation per se. Previous studies have shown that children seldom mention their emotional or physical reactions spontaneously in forensic interviews. For example, Westcott and Kynan (2004) examined investigative interviews with children aged 4–12 and concluded that only 5% of children under 7 years of age spontaneously described their emotional reactions (20% of all children). No child under 7 described their physical reactions unprompted (10% of all children).

In parallel with the fact that the emotional aspects of children's statements have received more attention generally, research in the forensic field has increased on these factors (Ahern & Lyon, 2013; Katz, Paddon, & Barnett, 2016). For example, the NICHD protocol has been revised to also take into account socio-emotional factors that may affect the interview (Hershkowitz, 2009). The revised protocol (RP) was designed to emphasise supportive interviewing in order to increase children's cooperativeness (Hershkowitz, Lamb, & Katz, 2014). More recent studies have focused on specific interviewing protocols or techniques to increase the evaluative information in children's statements. For example, Karni-Visel et al. (2019) investigated whether The Revised NICHD Protocol (RP) could increase children's (age 4–14 years old) communication of emotions. The RP includes techniques for enhanced rapport building, support, and instructions on how to prompt for emotions when they are not spontaneously mentioned. The authors concluded that the RP not only increased children's expression of diverse emotions related to the abuse, but also that the emotional expressiveness was associated with increased informativeness overall. A recent study by Stolzenberg et al. (2019) examined the relation between question type and the subjective content of children's accounts. They showed that "how feel" and "what think" questions were particularly helpful to elicit subjective responses and when these questions were followed up by requests to elaborate on the answer, the productivity increased. Despite the increase in understanding how questions and supportive interviewing can aid children in general, knowledge on how to specifically support the youngest children to express the emotions related to their experiences is still lacking.

### 1.3. Interviewing aids

Previous studies have demonstrated that younger children are less likely compared to older children to generate memory cues on their own, which impacts their ability to provide information in interviews (Lyon, McWilliams, & Williams, 2019). Young children therefore need more scaffolded and focused age appropriate questions (Lamb et al., 2003). In addition to these, they might also benefit from being provided with external retrieval cues, such as visual or verbal cues (Hamond & Fivush, 1991; Saywitz & Camparo, 2013). The cues can assist the re-instatement of the environment in which the input was encoded, and facilitate the recall of an episodic event (Tulving & Thomson, 1973). However, the use of props and cues in child forensic interviews has been criticised as a wealth of research points to the risk of using aids such as dolls, body diagrams and other props (e.g. Brown, Pipe, Lewis, Lamb, & Orbach, 2007; Ceci & Bruck, 1993; Goodman & Melinder, 2007). These props have been demonstrated to decrease the accuracy of children's verbal reports, especially for young children (Bruck, Ceci, Francouer, & Renick, 1995; Hungerford, 2005). The communicative shortcomings of young children have encouraged researchers to continue to explore methods that aid children's memory without compromising accuracy. One method that has been developed for this purpose is the Narrative Elaboration interview technique (NE) (Saywitz & Snyder, 1996). This technique includes external visual cues in the form of pictorial cue cards to aid children to provide the sort of information needed. Four cards are used: participants, setting, actions and thoughts/conversations/affective states. Prior to or at the beginning of the interview, children are trained to use these cards to aid their memory retrieval (Saywitz & Camparo, 2013). Empirical studies have concluded that the NE technique can benefit both elementary school-aged children

(Brown & Pipe, 2003a; Brown & Pipe, 2003b; Camparo, Wagner, & Saywitz, 2001) and preschool-aged children (Bowen & Howie, 2002; Dorado & Saywitz, 2001) to provide accurate and complete information. One study has examined whether NE also aid children to increase the emotionally evaluated recall (Peterson, Warren, & Hayes, 2013). In the study, 52 children aged 3–7 years old, were interviewed about a highly stressful real-life event, whereof half were interviewed with the NE technique and half with a standardised verbal interview. The results demonstrated that the children interviewed with NE provided significantly more information about their emotions and thoughts compared to the children interviewed with the standardised method. The authors discuss that by presenting emotional cues the child is instructed on what information the interviewer wants and the cue remind children to include that information (Brubacher, Peterson, La Rooy, Dickinson, & Poole, 2019). The results are in line with previous research showing that using icons expressing different emotions and labelling emotional reactions can enhance the recall of information that relates to the emotion state (Liwag & Stein, 1995). Studies have also demonstrated that if children are provided with techniques that require less complex verbal or nonverbal responses, their communication of emotions can be enhanced (Measelle, Ablow, Cowan, & Cowan, 1998; Welsh & Bierman, 2003).

A fairly novel approach in child interviews is the use of computers as aids. Today there is a range of techniques including for example computer-assisted self-interviews (Davies & Morgan, 2005; Morgan & Fraser, 2010), computer-assisted personal interviews (Jones, Price, & Selby, 1998), and avatar interviewing aids (Hsu & Teoh, 2017). One advantage of computers is that children find it an enjoyable tool, which can increase their engagement, motivation and attention (Wrzesien & Alcañiz Raya, 2010; Steward et al., 1996). When the computer is used as a party in the conversation between the interviewer and the interviewee it becomes a triadic conversation (Scott & Purves, 1996; Grasso, Atkinson, & Jimmieson, 2013). The triadic conversation as well as the use of an interactive computer software as an aid, is thought to increase a collaborative atmosphere (Coyle, Doherty, & Sharry, 2009), reduce the child's stress (Steward et al., 1996), and allow children to express themselves in various ways (Butler, Gross, & Hayne, 1995; Measelle et al., 1998).

#### 1.4. The computer-assisted interview In My Shoes

The computer-assisted interview In My Shoes is an interviewing tool developed to aid children verbalising their experiences, thoughts and emotions. It was developed to work across services, and it can be used to talk to children about their experiences in various settings and in relation to different people in these settings. In My Shoes consists of a series of modules with stylised icons of places, people, emotions, speech, thoughts and sensations. The icons are a visual support to children's communication as it can aid the memory retrieval and provide children with more ways to express themselves, i.e. they can point to the screen, click with the mouse or write. A trained interviewer sits side-by-side with the child, using In My Shoes together, which means it becomes a triadic interview. The modules give a structure and a scaffold to the interview and the icons also function as a prompt for the interviewer to pose questions in various areas (Grasso et al., 2013).

In My Shoes was developed to aid children to self-express and to provide reliable information and several considerations have been made to achieve this. First, the icons used in the program are based on children's drawings and evaluated stepwise with children to make sure that they capture children's sentiments and support their communication (Grasso et al., 2013). Another important consideration is that the recommended questions posed by the interviewer when using In My Shoes adhere to best practice interviewing to elicit children's experiences in their own words. In addition, the modules move from less emotive to potentially more emotive areas (Calam, Cox, et al., 2000), and the first modules are used to build rapport, while the subsequent

three modules constitute the substantive phase. Another feature of In My Shoes is that all the choices made, the scenes that are created and everything typed into the program is automatically saved into a tamper-proof log, which can be printed and used in investigative or therapeutic contexts (Calam, Cox, et al., 2000). Moreover, the interviewer clearly conveys that the program is not a game or a toy, something which is further emphasised by the simple graphics (Calam, Cox, Glasgow, Jimmieson, & Groth Larsen, 2014).

In My Shoes differs from regular verbal interview protocols as well as from computer-assisted self-interviews in several ways. One of the significant features of In My Shoes is that it includes visual support in the form of icons to aid children's communication. These icons are used interactively by the child and help personalise the interview, e.g. the child chooses a representation for him/herself, the emotion icons fly onto or can be manually placed on people when used etc. (Calam, Cox, et al., 2000). One of the main ideas in In My Shoes is that emotions can be an important starting point for aiding children's memory retrieval. By systematically asking children about both positive and negative emotions as well as providing them with the emotional prompt in the form of emotional icons, children are encouraged and guided to verbalise or graphically demonstrate their experiences (Grasso et al., 2013). In addition, the fact that the interview is conducted as a triadic conversation between the child, the computer and the interviewer, also constitutes an important characteristic.

In My Shoes has been used and evaluated in a range of contexts (Barrow & Hannah, 2012; Calam, Cox, Glasgow, Jimmieson, & Larsen, 2000; Cousins & Simmonds, 2011; Fängström et al., 2016; Fängström, Salari, Eriksson, & Sarkadi, 2017; Böhren & Stabrun, 2013). However, its ability to help children verbalise emotions related to negative experiences has not been previously explored.

#### 1.5. The current study

The purpose of the present study was to qualitatively explore to what extent the computer-assisted interview In My Shoes aids preschool aged children in verbalising experiences of distress or discomfort. The data relating to In My Shoes was gathered in the context of health care. The child's annual health visit at the Child Health Centre (CHC) was video recorded and 14–37 days later the child was interviewed about the visit. We were thus able to compare children's accounts of their emotional experiences relating to the health visit with the observable signs of discomfort or distress in the same visit. We chose to study the health visits for children aged 4 and 5 years, as these visits include procedures that contain interaction and physical contact, which could evoke different emotional reactions.

We specifically focused on the following questions:

- To what extent do children verbalise experiences of distress/discomfort in the In My Shoes interviews?
- How does In My Shoes work as a prompt for emotional experiences?
- What type of evaluative information is included in the children's statements?
- What is the relationship between the distress/discomfort at the health visit and verbalised distress/discomfort in the interviews?

## 2. Methods

### 2.1. Participants

The participants in the present study were extracted from a study in which 54 children aged 4 and 5 years old were interviewed about their annual health visit at the Child Health Centre (CHC). Children were randomised to be interviewed with either In My Shoes or a standard investigative interview protocol, and the aim was to compare the interview methods on various aspects (Fängström et al., 2016). Both the health visit and the interview were video recorded.

The current study included 28 children interviewed with In My Shoes for whom there were video-recorded data from both the health visit and the interview. The sample consisted of children aged 4 years ( $n = 16$ ,  $M = 48.1$ , range 46–50 months) and children aged 5 years ( $n = 12$ ,  $M = 60.6$ , range 59–65 months). Of the 4-year-olds 43.8% were girls and of the 5-year-olds 58.3% were girls. The CHCs which recruited participants were situated in areas with varying socio-demographic characteristics, with respect to ethnic diversity (country of origin in publicly available data in Sweden) and level of education, and they had been selected to increase the likelihood of a heterogeneous sample. Despite this, only 14.3% of the children had at least one parent born outside Sweden (compared to 14.8% for the whole sample in the study, and 34% at a national level) and 21.4% of the parents had a level of education below college/university level (compared to 16.7% for the whole sample and 37% in the target population).

The study was approved by the Regional Ethical Review Board in Uppsala, Sweden, #2012/387.

## 2.2. Procedure

The recruitment of families was carried out at five CHCs in two larger municipalities in Sweden. Written information about the study was sent home to families together with the notice for the routine health visit for children aged 4 or 5 years old. The information was available in Swedish and in the five most common foreign languages in Sweden (English, Arabic, Kurmanji, Somali, and Sorani). Specific child friendly information about the study was produced for parents to read to their children. Nurses were instructed to invite all families with children aged 4 and 5 years as there were no exclusion criteria except child age. For parents who had given their written consent and the child her/his verbal assent, the nurse video-recorded the health visit. Fourteen to 37 days ( $M = 20.6$ ,  $SD = 6.5$  days) after the health visit, the child was interviewed about the visit and the interview was video recorded. Two interviewers conducted all interviews, whereof one is the main author. Each interviewer had a master's degree in psychology or sociology, both had comprehensive experience of conducting child interviews and were Registered In My Shoes Interviewers. The interviewers had general knowledge about what procedures were included in the health visits but had no information about the visit for each specific child prior to the interview.

## 2.3. The health visit at the Child Health Centres in Sweden

The CHCs in Sweden reach 99 percent of all families with children up to age six. Families with children aged 2–5 years, meet the Child Health nurse every year for a health check-up. The visit includes an assessment of the child's general health as well as an evaluation of the child's physical and psychosocial development. In addition, children at age 4 undergo a standardised test for vision which entails identifying certain letters of different sizes at 3 m of distance. Children at age 5 receive a vaccine injection in addition to the general assessment. We chose to include 4- and 5-year old children in the current study as the procedures during their check-ups could be perceived as uncomfortable, distressful, painful, or frightening, which could resemble children's experiences in investigative cases.

## 2.4. Interviews using In My Shoes

All the interviews included in the present study were conducted using the In My Shoes computer-assisted interview. The interview started with the interviewer presenting him or herself, asking for the child's assent and both showed and informed the child how to end the interview whenever the child wished to do so. The four interview ground rules for this specific interview were then explained, e.g. 1) "If I ask a question and you don't understand, you can say 'I don't understand'"; 2) "If I say things that are wrong, you should tell me. Okay?"; 3)

"If I ask a question and you don't know the answer, don't guess - just say 'I don't know'"; 4) "It is important that you only tell the truth, about things that really happened to you. Okay?". Thereafter, the interviewer started the In My Shoes interview. In the first module, the child chose a representation for her/himself. The second module encompasses a palette with icons expressing different emotions and the task was for the child to name the emotions he/she recognised. The following module, module three, allowed the child to practice applying the emotion icons to a child in different set scenes and to expand shortly about the choice. These modules constituted the rapport phase of the interview. The interview was then directed to the visit at the CHC, by the interviewer showing the child two pictures, one of the entrances to the CHC, and one of the CHC waiting room. If the child did not recognise the pictures, a follow up question was posed, "This is the place children go to their 4- or 5-year health check-up. Do you recognise this place?". If this was not sufficient to aid the child, the interview was ended. If the child recognised the CHC from the pictures the interview continued and module six was used in which the child chose a representation for each person present at the CHC visit which she/he could remember. In the last module, module seven, the child was encouraged to narrate in relation to each of the emotions on the emotion palette. The emotion icons were presented in a fixed order for each child, i.e. happy, sad, nervous, a little happy, a little sad, angry, scared. For each emotion, the interviewer posed the question "When you were at the CHC (or the child's name of the place), did you ever feel like this?" or "Here you are at the CHC, and you are happy [pointing to the screen with the child figure with a certain emotion]. Did you ever feel like this?" If the child said "No" the interview proceeded to the next emotion. If the child replied "Yes", the interviewer followed up with "Tell me about that" or a similar invitation or cued invitation. The child could then narrate using the icons of people, thought and speech bubbles, and emotions as visual support. The focus of the interviews was to enable children to provide factual information about the visit and the interviewers made an effort to use the recommended types of questions (i.e. open-ended questions and wh-questions when needed). When the child could no longer reveal more about the visit, or when he/she asked to stop, the interview was finished. The interviewer thanked the child for participating and offered a small gift (a sticker or a stick-on tattoo).

## 2.5. Data analysis

In the first step the In My Shoes interviews were analysed qualitatively focusing on evaluative statements relating to the procedures at the health visit and the In My Shoes prompts or/and interviewer questions preceding these statements. In the second step the video-recorded child health visits were coded for observable signs of discomfort or distress. In the third step the observations were then compared with the evaluative statements for each child. The steps of analysis are further described below.

### 2.5.1. The first step - analysing the interviews

The interviews were transcribed verbatim and all names were removed. When the interviewer or child stated something and referred to it by pointing at the screen, this was added in brackets to the transcript. The two authors systematically read through all interviews focusing on the children's evaluative statements. Evaluative statements were defined as any statement including emotional (i.e. scared) or physical (i.e. hurt) content relating to the examination procedures. Based on the outcome, interviews were categorised into two main groups, those containing statements of distress or discomfort and those not containing any such statements. In the group of interviews containing statements of distress/discomfort, some children provided information on distress/discomfort that was *not* related to the specific health visit nor to the child's own emotions. These interviews were extracted and formed a separate group.

After identifying the two groups if interviews, the next step was to

systematically review all the interview sequences in which children made statements about distress/discomfort. The qualitative analysis drew on conversation analysis in that sense that questions and answers exemplify social action: The initiating first part, for example a question, sets up restrictions for a responding second part, the answer (Iversen, 2012). However, a detailed analysis of the interaction was not performed. Particular attention was paid to the In My Shoes prompts and interviewer questions that preceded the children's evaluative statements. The interviewer questions that preceded the evaluative statements were analysed and coded into 7 categories. Five of these categories were comparable to those used in previous studies (Lamb et al., 2003; Stolzenberg et al., 2019). The categories were 1) Invitations, such as "Tell me all about when you were at the CHC", including cued invitations, e.g. "Tell me more about the shot"; 2) directive, i.e. wh-questions, to invite the child to provide information on the "who", "what", "where" and "when"; 3) Yes/no questions such as "Do you remember what colour she had on her hair?"; 4) leading questions for example "It hurt, didn't it?"; 5) Wh-questions that explicitly focused on evaluative content, such as "How did it feel?", were coded as evaluative questions. Another two categories are specific to the In My Shoes interview protocol and are posed together with the icons of emotions. These were coded as follow; 6) In My Shoes yes/no question, e.g. "Did you ever feel like this, that you were [emotion]?" 7) In My Shoes cued invitation referring to the emotion or information previously mentioned by the child, e.g. "Tell about that". In the present study these categories are discussed in the context of In My Shoes as a prompt for experiences of distress or discomfort. In line with recommended procedure for reporting the interactional aspect of qualitative interviews (Potter & Hepburn, 2005), the interview extracts presented in the results section are illustrative examples of the patterns of interview sequences identified in the data, including variations of the patterns.

#### 2.5.2. The second step - coding observed distress/discomfort at the health visit

The video recorded health visits were analysed using the Observational Scale of Behavioural Distress (OSBD) (Jay, Ozolins, Elliott, & Caldwell, 1983). The OSBD is an ordinarily used instrument to assess observable signs of distress during medical procedures. The child's behaviour was coded from 1 min before the specific age-related procedure to 1-minute post the procedure (e.g. vision test for 4-year-olds and vaccine injection for 5-year-olds). The vision test was not expected to be painful and the behaviours coded thus reflected discomfort. Each behaviour was scored as having occurred or not, the intensity of the behaviour was noted and by summarising this a total score ranging from 1 to 5 was obtained for each child. Based on this coding two groups emerged: those who showed no to minimal signs of distress (score 1–2, named No distress/discomfort in the further analysis) and children with moderate to high distress (3–5, named Distress/discomfort). Two raters conducted the coding and the inter-rater reliability was assessed using Cohen's kappa (Cohen, 1960). Based on the coding of 15 interviews by both raters, the obtained kappa was 0.82, which indicates high agreement (Landis & Koch, 1977).

The mean values and standard deviations were calculated for the total score on OSBD and separately for the two age groups. A Mann-Whitney *U* test was performed to analyse the difference in total distress/discomfort between the age groups.

#### 2.5.3. The third step - comparing the analysed interviews with the observed distress/discomfort

The two authors compared the coded interviews with the coded observable signs of distress/discomfort at the health visit for each child. Four categories emerged: 1) observed and verbalised distress/discomfort; 2) observed but no verbalised; 3) no observed but verbalised; and 4) no observed and no verbalised.

One of the authors both coded the interviews and coded the visits. The other of the two authors was blind to results of the coded visits

before analysing the interviews. Efforts were made to reduce bias, i.e. any name had been concealed in the transcribed interviews and more than 10 months passed between analysing the interviews and coding the visits.

### 3. Results

#### 3.1. The extent of children's verbalisation of experiences of distress/discomfort

During the interviews, in total eleven children (39%) expressed having experienced the specific procedure (i.e. vaccination for the 5-year-olds or vision test, optometric examination, for the 4-year-olds) at the health visit as highly or moderately distressing or causing discomfort. All of these children, except one, were 5 years of age ( $n = 10$ ). The verbalisation of distress or discomfort was linked to the In My Shoes specific structure of the interview as well as different types of interview questions, presented below.

#### 3.2. In My Shoes as a prompt for emotional experiences

What is specific for In My Shoes as an interview method is the way different emotions, illustrated by computer images/icons, are used as points of entry into the exploration of children's experiences (in this case, of the visit to the CHC). The child is presented with a suggestion that she or he might have felt in a specific way (yes/no). In the current set of data, these In My Shoes emotion prompts are mainly combined with open-ended or evaluative follow-up questions, which aid children's verbalisation of negative emotions such as sadness or fear, or negative sensations such as pain.

Almost all children who in the interviews verbalised experiences of distress/discomfort at the health visit ( $n = 11$ ) did so in relation to the IMS prompts and questions. The analysis of all the interview sequences that preceded children's evaluative statements revealed different examples where the interviewer follows the In My Shoes interview structure, by asking the child about ever feeling in a specific way while visiting the CHC, and then by adding an open-ended question as a follow-up question. In some cases, the child elaborates on the emotion and/or sensation. In other examples verbalisation of negative emotions or sensations come after a few follow-up questions, as can be seen in extract 1:

##### 3.2.1. Extract 1, child 5 years old

259. INTERVIEWER: Here you are at the [CHC] and here you are happy [points at the child's figure with a happy face at the screen]. And was it any time you were happy when you were at the CHC?
260. RESPONDENT: Yes
261. INTERVIEWER: Tell about that.
262. RESPONDENT: When I was... after I had had the shot.
263. INTERVIEWER: Mm, then you were happy?
264. RESPONDENT: Yes, since I got a [hard to hear, some kind of Elastoplast]
265. INTERVIEWER: A what kind of Elastoplast?
266. RESPONDENT: A silvery Elastoplast.
267. INTERVIEWER: Silvery Elastoplast. Tell about the shot.
268. RESPONDENT: I thought it hurt a bit.

After the child answers "yes" to the question about feeling happy at the CHC, the interviewer asks for an elaboration by adding the open-ended question "tell me about that" (261). The child then talks about being happy after getting a shot, and in the following dialogue adds that this was due to a silvery Elastoplast that the child had been given. It is only after a second prompt, specifying that the interviewer wants the child to "tell about the shot" (row 267), that the child says that "it hurt a bit".

The data set contains a number of examples showing that the In My Shoes specific way of exploring children's experiences (i.e. using different emotions as points of entry in talking about children's visit to the health clinic) clearly opens up for children verbalising negative emotions or sensations when followed by open-ended or evaluative follow-up questions. However, it can be noted that some cases in this sample also show that with this mode of interviewing, some children only verbalise negative emotions or sensations after multiple open-ended and/or evaluative follow-up questions, as extract 2 exemplifies. This interview interaction comes from the end of the substantive phase of the interview, at the end of the different In My Shoes emotional prompts.

### 3.2.2. Extract 2, child 5 years old

186. INTERVIEWER: No. And then the last question. Did you ever feel that you were scared?  
 187. RESPONDENT: Yes.  
 188. INTERVIEWER: Tell about when you felt scared.  
 189. RESPONDENT: Eh... it was when I got the shot.  
 190. INTERVIEWER: You got a shot.  
 191. RESPONDENT: [nods]  
 192. INTERVIEWER: Tell all you remember about when you got the shot.  
 193. RESPONDENT: Eh... I don't remember anything more.  
 194. INTERVIEWER: No. But who was it that gave you the shot then?  
 195. RESPONDENT: It was she who... eh... she who... I don't remember.  
 196. INTERVIEWER: Okay, she who you don't remember.  
 197. RESPONDENT: Mm.  
 198. INTERVIEWER: Was it she that you... she? [points at a female figure at the screen selected by the child in previous module]  
 199. RESPONDENT: Mm.  
 200. INTERVIEWER: Mm. What clothes did she have?  
 201. RESPONDENT: White clothes.  
 202. INTERVIEWER: Okay. Do you remember what colour she had on her hair?  
 203. RESPONDENT: Eh... No.  
 204. INTERVIEWER: No. It's good that you tell when you can't remember. What did dad do when you got a shot?  
 205. RESPONDENT: He... eh... I don't remember.  
 206. INTERVIEWER: No. How did it feel to get the shot then?  
 207. RESPONDENT: Eh... pain.  
 208. INTERVIEWER: Pain. Okay. What happened after you had had the shot?  
 209. RESPONDENT: She asked if I wanted an Elastoplast and I did want that.

After the first question in this turn of talk, the child agrees to feeling scared at some point at the CHC visit (row 187) and links this emotion to getting a shot (row 189). After that, the interviewer prompts the child with open-ended questions or specifying wh-questions nine times – and gets three “I don't remember” as a response (row 193, 195, 205) – before adding the evaluative “How did it feel to get the shot then?” (row 206), and then the child states that the shot was painful. This example illustrates the level of effort sometimes required from both interviewer and child to enable the child's verbalisation of difficult experiences. It also points to the importance of working through all of the different emotional prompts in the In My Shoes structure, as it may be only the last one that “fits” with the child's experiences.

In addition, it might be the case that none of the In My Shoes prompts resonates with the child. In one such case found in the dataset; the child has answered “No” to all suggested negative emotions. Instead, the child's verbalisation of negative sensations comes after evaluative questions, as can be seen in extract 3:

### 3.2.3. Extract 3, child 5 years old

274. INTERVIEWER: Aa. But tell, what did you do more at nurse [name]? Or what was it that happened?  
 275. RESPONDENT: Got a, I got a... eh, eh, five-years shot.  
 276. INTERVIEWER: You got a shot as well.  
 277. RESPONDENT: Mm, a five-years shot.  
 278. INTERVIEWER: Aha, tell, how was that?  
 279. RESPONDENT: It hurt quite a lot.  
 280. INTERVIEWER: Yees.  
 281. RESPONDENT: Oh, oh... she did... so I shouldn't... well did the shot, there, at that shoulder that I... on the arm that I shouldn't dr... that I should draw with.  
 282. INTERVIEWER: Aha, so she did on the other arm compared to the hand that you draw with.  
 283. RESPONDENT: Yes.

After the child has stated that one of the things which happened at the CHC was getting a “five-years shot”, the interviewer moves slightly away from the interview protocol by immediately adding the evaluative “how was that” after starting off the question with a “tell” (278), and the child then states that it “hurt quite a lot”. It can be noted that the child also narrates how the nurse decided to give the shot in the arm not used to draw with. As the interviewer moves away from the recommendation to first use open ended follow-up questions, it is hard to assess to what extent the evaluative question was needed for the child to verbalise negative sensations.

### 3.3. Types of evaluative information included in the children's statements

In My Shoes uses emotions as prompts to talk about experiences at the CHC, and the children in the data set tend to respond to these prompts by including information about both emotions and physical sensations (such as pain) in their narratives. An example of how the In My Shoes emotion prompts also seem to aid memories and verbalisation of physical sensations can be found in extract 4:

#### 3.3.1. Extract 4, child 5 years old

241. INTERVIEWER: Mm. Eh... now let's see. Did you ever feel this way [points to the screen]? That you were sad when you were there at the child place?  
 242. RESPONDENT: Yes, because I got a shot... I was a bit sad then.  
 243. INTERVIEWER: Okay, you were a bit sad... you got a shot.  
 244. RESPONDENT: Mm.  
 245. INTERVIEWER: Tell everything you remember about the shot.  
 246. RESPONDENT: Eh... I got to collect the things.  
 247. INTERVIEWER: You got to collect the things?  
 248. RESPONDENT: Mm.  
 249. INTERVIEWER: Yes.  
 250. RESPONDENT: And... eh... it fel... and then it was sharp.  
 251. INTERVIEWER: The shot?  
 252. RESPONDENT: Yes.  
 [---]  
 289. INTERVIEWER: But you [name], did you ever feel...  
 290. RESPONDENT: No...  
 291. INTERVIEWER: ... that way??  
 292. RESPONDENT: Eh... Yes. I got a bit scared that it might hurt.  
 293. INTERVIEWER: Okay, you got a bit scared that it might hurt?  
 294. RESPONDENT: Mm.  
 295. INTERVIEWER: Mm. Is it the shot you mean?  
 296. RESPONDENT: Yes.  
 297. INTERVIEWER: Mm. I understand. So, before you were a little... little scared?  
 298. RESPONDENT: Yes.

This extract starts off by the interviewer following the In My Shoes interview structure, asking the child about ever feeling in a specific way (sad) while visiting the CHC. This question prompts the child mentioning both feeling sad at the health visit and the injection. During the interview interaction that follows, the child adds that the injection was “sharp” (Sw. *vass*), which can be interpreted as referring to an embodied experience rather than an emotion. Later in the interview (37 rows omitted), the child adds another emotion, and elaborates even further about the relationship between the emotions and experiences of getting a shot.

An even more explicit example of a distinction between emotions and physical sensations can be found in extract 5:

### 3.3.2. Extract 5, child 5 years old

219. INTERVIEWER: That one [module in the In My Shoes programme] takes a bit longer, right, here you are at the doctor's, at the hospital, was it some time you felt in that way [points at the screen], happy?
220. RESPONDENT: Mm.
221. INTERVIEWER: Tell about that, what happened when you were [there] and felt happy?
222. RESPONDENT: When I got the shot, but it didn't hurt.
223. INTERVIEWER: It didn't hurt?
224. RESPONDENT: [Shakes head].
225. INTERVIEWER: And then you got happy?
226. RESPONDENT: Mm.
227. INTERVIEWER: Tell more about the shot.
228. RESPONDENT: I god sad.
229. INTERVIEWER: You got sad?
230. RESPONDENT: Mm.
231. INTERVIEWER: But it didn't hurt?
232. RESPONDENT: [shakes head].
233. INTERVIEWER: No [agreeing].
234. RESPONDENT: At first, I didn't want to but then I dared to.

In this example, the child gives a short response to the question in line with the In My Shoes structure, “Mm”, and the interviewer then adds another prompt, the open-ended question “Tell about that”. In the interview interaction that follows, the child makes a distinction between embodied experiences (“hurt”) and feeling happy, feeling sad, and possibly also feeling scared although this is only hinted at, in row 234, when the child states that s/he “dared to” have the shot. It can be noted that this example is a bit of an exception in the data set as the child spontaneously elaborates this distinction after an open-ended follow-up question.

In summary, the analysis of the interviews revealed that when children verbalised negative experiences they distinguished between embodied and emotional aspects of these experiences. As the examples above show, some children ( $n = 4$ ) could describe both physical sensations such as pain as well as emotions such as being sad or scared. Other children ( $n = 3$ ) only described emotions, while yet others ( $n = 4$ ) described only physical sensations.

### 3.4. In My Shoes as prompt for other emotional experiences

In the group of children who did not verbalise any negative emotional or sensory experiences relating to the visit at the CHC ( $n = 17$ ), ten children provided statements including distress or discomfort that were related to other health events, context or experiences. The majority of these children were 4 years old ( $n = 8$ ). These experiences included other health visits, the emotions of a sibling during a health visit or some other experiences somehow linked to visiting the health clinic. An example of the latter can be found in extract 6.

#### 3.4.1. Extract 6, child 4 years old

309. INTERVIEWER: Well I think we are done then. But that one. Scared, did you feel scared when you were there at any point?
310. RESPONDENT: Yes, when I walked there... when I walked by myself with the cars I got scared and I ran to dad since I did not want that a car would run me over.
311. INTERVIEWER: No that was good. But when you were at the four-year check-up, were you scared then?
312. RESPONDENT: No
313. INTERVIEWER: No, okay. No, but then we are done, if there isn't anything else you remember from the four-year check-up?
314. RESPONDENT: No there wasn't anything more.

When asked about feeling scared “when you were there at any point?”, the child refers to an event taking place on the way to the health clinic, “when I walked there” (row 310), when the child felt scared and explain that the fear was about being scared about being run over by a car. One interpretation of this narrative provided by the child is that the question about feeling in a certain way “at any point” can be heard by the child as including events leading up to, as well as follow upon, the visit itself. Still, the experiences that the child talks about are linked to the health visits which are the focus for the interview.

Another example of how children narrate negative experiences can be found in extract 8, where the child describes the reactions of a sibling:

#### 3.4.2. Extract 7, child 4 years old

217. INTERVIEWER: Yes, good. So now we will do this one. This one is the last one, but it takes a bit longer time. Here are you and there you are there at the hospital at the four-years check-up, then you feel like not so good [points at the child's figure with a little sad emotion at the screen]. Did you feel like that any time when you were there?
218. RESPONDENT: No, I was feeling good.
219. INTERVIEWER: You were feeling good.
220. RESPONDENT: Yes, since they did not give me a shot, only Smally [younger sibling]. And Smally did not feel so good.
221. INTERVIEWER: He did not feel so good?
222. RESPONDENT: No since he got a shot.

From the dialogue that follows from the question about feeling a specific way at the visit at the CHC, it can be concluded that the child associates the emotion in question to, and is talking about, when a younger sibling – “Smally”- got a shot, and “did not feel so good” (row 220). This could have happened at the same time as the 4-year old visit, or at another visit to a health clinic. In particular, some of the four-year olds in the sample seem to be prompted to talk about other events than the one intended and asked about by the interviewer. However, as argued above, they still stay roughly within the same realm of experiences (of health care) and keep to the context provided by the interview (a health visit).

### 3.5. The relationship between observed signs of distress/discomfort and the verbalisation of such experiences

The examinations of the video-recorded visits to the CHC, revealed that signs of distress/discomfort (scores equal to or above 3 on the 5-point scale) could be observed in 36% ( $n = 10$ ) of the children. Of the 4-year-olds 31% displayed discomfort and the average level of discomfort was 2.0 ( $SD = 1.0$ ). Of the 5-year-olds 42% displayed distress and the average level of distress was 2.3 ( $SD = 1.2$ ). A Mann-Whitney  $U$  test showed no significant difference between the two age groups in level of observed discomfort/distress.

When comparing the observed signs of distress or discomfort with

**Table 1**

Number of children with observed distress/discomfort in relation to age and verbalized distress/discomfort in the interview.

	Interview	
	Verbalised	Not verbalised
Observed distress/discomfort		
4-year-olds (n = 5)	0	5
5-year-olds (n = 5)	5	0
No observed distress/discomfort		
4-year-olds (n = 11)	1	10
5-year-olds (n = 7)	5	2

the verbalisation of these experiences, the following pattern emerges (Table 1). All 5-year-olds who displayed distress also provided evaluative statements relating to these experiences in the interviews, whereas none of the 4-year-olds who showed signs of discomfort verbalised any negative emotional experiences relating to the health visit. In total 18 children showed no clear signs of distress or discomfort at the health visit, however six of these children still reported having experienced procedures at the visit as negative (i.e. as distressing or discomforting).

#### 4. Discussion

There is a need to increase knowledge on supportive and reliable interviewing techniques that can be used in various fields, beyond the forensic context, and that can aid children to express their emotional and physical reactions to experiences. This study was the first to qualitatively explore to what extent the In My Shoes interview aided preschool aged children in verbalising experiences of distress or discomfort related to a health visit. Furthermore, the relationship between observed signs of distress/discomfort at the visit and the verbalisation of such experiences in the interviews was also of interest.

##### 4.1. The extent of children's verbalisation of experiences of distress/discomfort

The results demonstrated that 39% of the children expressed having experienced the specific procedure (i.e. vaccination or vision test) at the health visit as highly or moderately distressing or causing discomfort. All of these children, except one, were 5 years old. This pattern was expected. The specific procedure varied between the age groups and getting a vaccination can be presumed to be more stressful than an optometric examination. The optometric examination is not painful, but it requires the child to understand the task, perform well (to see the letters), and to sit still and focus. This could evoke discomfort and reactions of shame (not succeeding to perform), confusion (not understanding what to perform) or frustration (Stipek, Recchia, McClintic, & Lewis, 1992). The higher degree of distress among the 5-year olds was not unexpected considering the potential pain it causes (Taddio et al., 2009) and that many children are afraid of getting a vaccination (Hart & Bossert, 1994; Taddio et al., 2012).

##### 4.2. In My Shoes as a prompt for emotional experiences

A closer examination of In My Shoes as a context for children's verbalisation revealed several interesting findings. First, the systematic examination of interview sequences showed that almost all children provided their responses in relation to the In My Shoes interview structure where different emotion prompts are followed by open-ended and/or evaluative questions. By providing the child with icons and questions about specific emotions, it seems like the child gets help with assessing if she or he has felt in a specific way. The meaning of this emotion is then explored primarily through open-ended and evaluative

follow-up questions. The results are in line with previous research demonstrating that when interviewers emphasise the importance of evaluative information by adding specific cues or evaluative questions, children respond by including such information in their statements (Lyon et al., 2012; Peterson et al., 2013; Stolzenberg et al., 2019). The In My Shoes interview structure develops this further, as it is even more specific when asking children about various kinds of emotions as well as providing children with pictorial support. Thus, the In My Shoes emotion prompts seem to function both as a point of entry to aid children's memory retrieval and as a means for them to include evaluative aspects of their experiences. These results are in line with previous research investigating Tulving's principle of encoding specificity where context reinstatement, including emotion reinstatement, can aid children's memory retrieval (for example Memon, Meissner, & Fraser, 2010).

The second important finding is that even though children were posed "Yes/No" questions in relation to emotions, i.e. "Did you ever feel this way when you were at the CHC?", children often answered "No" and seemed to wait until an emotional prompt was provided that resonated with them. This is demonstrated with Extract 2 where the child has replied "No" to all emotional questions preceding the extract, before answering "Yes" to the questions about feeling scared. When children answered "Yes" to an emotional prompt, they could often elaborate on and nuance their answers, e.g. they provided nuanced descriptions of their emotions ("I was a bit sad").

##### 4.3. Types of evaluative information included in the children's statements

The third important finding is that children distinguish between emotions and physical sensations and In My Shoes seems to aid some children in including both these aspects of experiences in their narratives. Children's verbalisations of negative emotions were varied as they could narrate feeling sad, scared or even angry. In addition to these emotions, several children also talked about physical sensations, such as pain or hurt, related to the specific procedures at the health visit. In most contexts, social work, health care or investigative, both the emotional and physical aspects of children's experiences are of great importance. Research on standard verbal child investigative interviews have shown that children seldom mention their emotions or physical reactions spontaneously (Westcott & Kynan, 2004) and in order to include them they need specific questions on emotional reactions, specific questions on physical reactions and specific questions on cognitive aspects (Stolzenberg et al., 2019). Thus, it is promising that In My Shoes seems to help some children include both their emotional and physical reactions when narrating their experiences of distress or discomfort.

##### 4.4. In My Shoes as prompt for other emotional experiences

In addition to the findings discussed above, we noted that in a few instances the In My Shoes prompts did not work as intended. Some children verbalised their physical sensations (but not emotions) of distress or discomfort only in relation to evaluative questions. Other children did not verbalise any negative emotional experiences, while others did so, but not in relation to the specific health visit in focus for the interview. The majority of these children were 4 years old. They seldom answered "Yes" to any emotional prompt, except feeling "Happy" and they did not spontaneously include negative emotional or physical aspects in their narratives when asked other questions, such as open-ended questions. Several of the 4-year-olds did however provide narratives on other health care experiences or on their sibling's reaction to a health care procedure, in relation to the In My Shoes negative emotional prompts. However, these narratives could not be confirmed by the video-recordings of the visit to the CHC. Nevertheless, the results could be understood as though the In My Shoes emotional prompts did help the 4-year-olds to retrieve memories that were evoked by the emotion in question. In line with this reasoning, it might have been that the emotional prompts included in the In My Shoes interview did not

resonate with the emotions these children had experienced at the health visit, and thus did not elicit any emotional narratives related to the visit.

#### 4.5. *The relationship between observed signs of distress/discomfort and the verbalisation of such experiences*

As discussed above, the results showed that less than one third of the 4-year-olds displayed clear signs of discomfort related to the optometric examination, and of the 5-year-olds, 42% showed signs of distress related to the vaccination. When comparing the observed signs of distress or discomfort with children's verbalisations of such experiences, some interesting findings emerged. The key finding was that In My Shoes helped all 5-year-olds who displayed distress at the health visit to verbalise their experiences in the interviews. Their narratives contained detailed and nuanced descriptions of the negative emotions and/or physical sensations they had experienced. This is an important finding as it is well known that the level of distress during an event can affect the memory of that event (Fivush, McDermott Sales, Goldberg, Bahrick, & Parker, 2004) and some studies show that children provide less information of lower quality about stressful events (Merritt, Ornstein, & Spicker, 1994). The majority of the 4-year-olds did not show signs of discomfort, neither did they report any such experiences. However, the group of children aged 4 years who did display discomfort did not verbalise their emotional experiences at the visit either. The explanation for this could be that none of the In My Shoes emotional prompts resonated with the experience at the visit. Whether In My Shoes works as intended for 4-year-olds needs to be further examined.

For some of the children there were inconsistencies in the relationship between the displayed and verbalised distress/discomfort. These children, all aged 5 years, showed no clear signs of distress at the visit, but they reported such experiences in the interviews. These children could have had a better ability to regulate their emotions during the health visit, as well as help with coping from parents and/or nurse, which might have affected the extent to which they displayed clear signs of distress. However, studies are needed to further investigate the relationship between different levels of observed distress and verbalised experiences of distress and discomfort using In My Shoes, and whether different patterns in content emerge. Based on our results the conclusion is that it is not sufficient to let children's explicit signs of distress or discomfort guide beliefs about their experiences. Rather, this finding further stresses the importance of posing questions on emotional and physical reactions to all children in order to grasp children's experiences.

#### 4.6. *Leading aspects of the In My Shoes prompts and questions*

Although this study primarily aims to contribute to knowledge on supportive and reliable interviewing techniques that can be used outside of the forensic context, some comments about the leading components of the In My Shoes interview are warranted. The In My Shoes interview was developed to have forensic value and adhere to best practice interviewing regarding, for example, the recommended question types used. Our results demonstrate that when interviewers follow these recommendations by combining the In My Shoes emotion prompts (icon and question) with open-ended or evaluative follow-up questions, children's verbalisation of the emotional and physical aspects of their experiences are benefited. However, the In My Shoes interview also contains questions that, from a forensic perspective, may be seen as problematic. When children are asked about specific emotions in relation to the context in focus for the interview, i.e. "Did you ever feel this way when you were at the CHC?", the interviewer suggests the emotion and poses a yes/no-question. Such procedure is known to enhance the risk of leading the child and increase the number of false statements (Lamb et al., 2007). The current study did not set out to investigate the

occurrence of true or false statements. However, a previous study of In My Shoes demonstrates that the method yielded statements with high accuracy (Fängström et al., 2016). What the results from this study did show, is that children said "No" to emotional prompts when they did not seem to resonate with the child's experienced emotions during the health visit. The findings thus indicate that the pre-school children in this context managed and resisted the leading component of the In My Shoes questions.

## 5. Limitations

There are some important limitations with our study, one of which is the small sample size which affects the generalisability of the results. Studies with larger samples and a quantitative approach are needed in order to further examine In My Shoes as a prompt for children's emotional experiences and the relationship between children's observable signs of distress and their verbalisations of such experiences. In addition, there is a need to investigate whether In My Shoes adds value by comparing the ability of In My Shoes with a standard verbal interview procedure to elicit children's statements on their emotions and physical sensations. Previous research indicates that there are gendered patterns in the way younger children express emotional experiences, however, a larger sample is necessary to explore to what extent such patterns can be seen in In My Shoes interviews. Similarly, it has not been possible to explore to what extent the time frame between the event and the interview plays a part in the way the In My Shoes interview works in relation to evaluative contents. The second important limitation is the homogenous sample. The majority of children in our study had parents who were born in Sweden and who were highly educated. Thus, the sample is not representative to the population from whence it was drawn. A third limitation is the lack of information on children's language, level of speech, IQ and disabilities. It is well known that children with conditions impacting their communicative abilities are over-represented in social services and child protection contexts.

## 6. Conclusions

This study was the first step in exploring to what extent the In My Shoes interview aid preschool aged children in verbalising experiences of distress or discomfort. The results suggest that In My Shoes may be a feasible tool to support children's verbalisation of distress and that it helps some children to make a distinction between emotions and physical sensations and include both these aspects in their narratives. Furthermore, we observed that In My Shoes works as a prompt for emotional experiences, both for experiences at the health visit, and also in other contexts, especially with respect to the 4-year-olds. Finally, all 5-year-olds in this sample who were clearly distressed at the health visit did later verbalise their experiences in the In My Shoes interview, while the majority of 4-year-olds in the sample who showed signs of discomfort did not verbalise any emotional experiences related to the health visit. More research is needed to establish in which contexts and for which children In My Shoes can aid children in expressing their emotional and physical reactions to experiences.

## CRediT authorship contribution statement

**Karin Fängström:** Conceptualization, Methodology, Formal analysis, Investigation, Writing - original draft, Writing - review & editing.  
**Maria Eriksson:** Conceptualization, Methodology, Validation, Formal analysis, Writing - original draft, Writing - review & editing.

## Declaration of Competing Interest

The authors have no conflicts of interest to declare.

## Acknowledgement

We thank all children who participated in the study and the nurses at the Child Health Centres who helped us with the recruitment. We also wish to thank the second coder of the video recorded health visits for his valuable help.

This research was supported by the common grant of major Swedish Research Funders termed “Mental Health of Children and Adolescents” (259-2012-68) and by Children's Welfare Foundation, Sweden (FB13-0014 and 2019-271). The funders had no role in study design, data collection or analysis, decision to publish, or preparation of the manuscript.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.chi.2020.105522>.

## References

- Ahern, E. C., & Lyon, T. D. (2013). Facilitating Maltreated Children's Use of Emotional Language. *Journal of Forensic Social Work*, 3(2), 176–203.
- Barrow, W., & Hannah, E. F. (2012). Using computer-assisted interviewing to consult with children with autism spectrum disorders: An exploratory study. *School Psychology International*, 33(4), 450–464.
- Boshier, H. P., & Steel-Baker, D. (2007). Invisible parties: Listening to children. *Family Court Review*, 45(4), 548–559.
- Bowen, C. J., & Howie, P. M. (2002). Context and cue cards in young children's testimony: A comparison of brief narrative elaboration and context reinstatement. *Journal of Applied Psychology*, 87(6), 1077.
- Brown, D., & Pipe, M.-E. (2003a). Individual differences in children's event memory reports and the narrative elaboration technique. *Journal of Applied Psychology*, 88(2), 195.
- Brown, D., & Pipe, M.-E. (2003b). Variations on a technique: Enhancing children's recall using narrative elaboration training. *Applied Cognitive Psychology: The Official Journal of the Society for Applied Research in Memory and Cognition*, 17(4), 377–399.
- Brown, D. A., Pipe, M.-E., Lewis, C., Lamb, M. E., & Orbach, Y. (2007). Supportive or suggestive: Do human figure drawings help 5-to 7-year-old children to report touch? *Journal of Consulting and Clinical Psychology*, 75(1), 33.
- Brubacher, S. P., Gilligan, C., Burrows, K., & Powell, M. (2019). Information Gathering in Investigative and Medical Interviewing: Drawing Parallels Across Contexts. *Health Communication*, 1–8.
- Brubacher, S. P., Peterson, C., La Rooy, D., Dickinson, J. J., & Poole, D. A. (2019). How children talk about events: Implications for eliciting and analyzing eyewitness reports. *Developmental Review*, 51, 70–89.
- Brubacher, S. P., & Powell, M. B. (2019). Best-Practice Interviewing Spans Many Contexts. *Journal of Applied Research in Memory and Cognition*, 8(4), 398–402.
- Bruck, M., Ceci, S. J., Francouer, E., & Renick, A. (1995). Anatomically detailed dolls do not facilitate preschoolers' reports of a pediatric examination involving genital touching. *Journal of Experimental Psychology: Applied*, 1(2), 95–109.
- Butler, S., Gross, J., & Hayne, H. (1995). The effect of drawing on memory performance in young children. *Developmental Psychology*, 31(4), 597–608.
- Calam, R., Cox, A. D., Glasgow, D., Jimmieson, P., & Groth Larsen, S. (2014). *In My Shoes Handbook*. York: Child and Family Training.
- Calam, R., Cox, A., Glasgow, D., Jimmieson, P., & Larsen, S. G. (2000). Assessment and Therapy with Children: Can Computers Help? *Clinical Child Psychology and Psychiatry*, 5(3), 329–343.
- Calam, R. M., Jimmieson, P., Cox, A. D., Glasgow, D. V., & Larsen, S. G. (2000). Can computer-based assessment help us understand children's pain? *European Journal of Anaesthesiology*, 17(5), 284–288.
- Camparo, L. B., Wagner, J. T., & Saywitz, K. J. (2001). Interviewing children about real and fictitious events: Revisiting the narrative elaboration procedure. *Law and Human Behavior*, 25(1), 63–80. <https://doi.org/10.1023/A:1005691926064>.
- Ceci, S. J., & Bruck, M. (1993). Suggestibility of the child witness: a historical review and synthesis. *Psychological Bulletin*, 113(3), 403. <https://doi.org/10.1037/0033-2909.113.3.403>.
- Böhren, I. E., & Stabrun, R. (2013). «Fordi de ikke er i hop mer»: En kvalitativ studie av samtaleverktøyet In My Shoes i samtaler med barn i skilsmissekonflikter. (Master thesis, University of Oslo, Oslo, Norway). Retrieved from <http://urn.nb.no/URN:NBN:no-37838>.
- Wrzesien, M., & Alcañiz Raya, M. (2010). Learning in serious virtual worlds: Evaluation of learning effectiveness and appeal to students in the E-Junior project. *Computers & Education*, 55(1), 178–187.
- Cederborg, A.-C. (2005). Att intervjua barn: Vägledning för socialsekreterare [To interview children: Guidance to social workers]. Stockholm: Allmänna barnhuset.
- Clark, A. (2005). Listening to and involving young children: A review of research and practice. *Early Child Development and Care*, 175(6), 489–505.
- Cohen, J. (1960). A Coefficient of Agreement for Nominal Scales. *Educational and Psychological Measurement*, 20(1), 37–46.
- Cooper, A., Quas, J. A., & Cleveland, K. C. (2014). The emotional child witness: Effects on juror decision-making. *Behavioral Sciences and the Law*, 32(6), 813–828. <https://doi.org/10.1002/bsl.2153>.
- Cousins, J., & Simmonds, J. (2011). Investigating the Involvement of Disabled Children in Using In My Shoes as a Family-Finding Tool: A Pilot Project. *Adoption & Fostering*, 35(4), 4–19.
- Coyle, D., Doherty, G., & Sharry, J. (2009). An Evaluation of a Solution Focused Computer Game in Adolescent Interventions. *Clinical Child Psychology and Psychiatry*, 14(3), 345–360.
- Cross, T. P., & Hershkowitz, I. (2017). Psychology and child protection: Promoting widespread improvement in practice. *Psychology, Public Policy, and Law*, 23(4), 503. <https://doi.org/10.1037/law0000141>.
- Davies, M., & Morgan, A. (2005). Using computer-assisted self-interviewing (CASI) questionnaires to facilitate consultation and participation with vulnerable young people. *Child Abuse Review*, 14(6), 389–406.
- Dorado, J. S., & Saywitz, K. J. (2001). Interviewing Preschoolers From Low- and Middle-SES Communities: A Test of the Narrative Elaboration Recall Improvement Technique. *Journal of Clinical Child & Adolescent Psychology*, 30(4), 568–580.
- Faller, K. (2015). Forty years of forensic interviewing of children suspected of sexual abuse, 1974–2014: Historical benchmarks. *Social Sciences*, 4(1), 34–65. <https://doi.org/10.3390/socsci4010034>.
- Fivush, R., McDermott Sales, J., Goldberg, A., Bahrick, L., & Parker, J. (2004). Weathering the storm: Children's long-term recall of Hurricane Andrew. *Memory*, 12(1), 104–118.
- Fängström, K., Bokström, P., Dahlberg, A., Calam, R., Lucas, S., & Sarkadi, A. (2016). In My Shoes – Validation of a computer assisted approach for interviewing children. *Child Abuse & Neglect*, 58, 160–172.
- Fängström, K., Salari, R., Eriksson, M., & Sarkadi, A. (2017). The computer-assisted interview In My Shoes can benefit shy preschool children's communication. *PloS One*, 12(8), <https://doi.org/10.1371/journal.pone.0182978>.
- Fängström, K., Sarkadi, A., Lucas, S., Calam, R., & Eriksson, M. (2017). “And they gave me a shot, it really hurt” – Evaluative content in investigative interviews with young children. *Children and Youth Services Review*, 82, 434–443.
- Goodman, G. S., & Melinder, A. (2007). Child witness research and forensic interviews of young children: A review. *Legal and Criminological Psychology*, 12(1), 1–19. <https://doi.org/10.1348/135532506X156620>.
- Goodman, G. S., Quas, J. A., Batterman-Faunce, J. M., Riddlesberger, M. M., & Kuhn, J. (1997). Children's Reactions to and Memory for a Stressful Event: Influences of Age, Anatomical Dolls, Knowledge, and Parental Attachment. *Applied Developmental Science*, 12(2), 54–75.
- Grasso, F., Atkinson, K., & Jimmieson, P. (2013). In My Shoes - a computer assisted interview for communicating with children about emotions. Paper presented at the 2013 Humaine Association Conference on Affective Computing and Intelligent Interaction (ACII), Geneva, Switzerland.
- Hamond, N. R., & Fivush, R. (1991). Memories of Mickey Mouse: Young children recount their trip to disneyworld. *Cognitive Development*, 6(4), 433–448.
- Hart, D., & Bossert, E. (1994). Self-reported fears of hospitalized school-age children. *Journal of Pediatric Nursing*, 9(2), 83–90.
- Hershkowitz, I. (2009). Socioemotional Factors in Child Sexual Abuse Investigations. *Child Maltreat*, 14(2), 172–181.
- Hershkowitz, I., Lamb, M. E., & Katz, C. (2014). Allegation rates in forensic child abuse investigations: Comparing the revised and standard NICHHD protocols. *Psychology, Public Policy, and Law*, 20(3), 336–344. <https://doi.org/10.1037/a0037391>.
- Hershkowitz, I., Lamb, M. E., Orbach, Y., Katz, C., & Horowitz, D. (2012). The development of communicative and narrative skills among preschoolers: Lessons from forensic interviews about child abuse. *Child Development*, 83(2), 611–622. <https://doi.org/10.1111/j.1467-8624.2011.01704.x>.
- Hsu, C.-W., & Teoh, Y.-S. (2017). Investigating Event Memory in Children with Autism Spectrum Disorder: Effects of a Computer-Mediated Interview. *Journal of Autism and Developmental Disorders*, 47(2), 359–372.
- Hungerford, A. (2005). The Use of Anatomically Detailed Dolls in Forensic Investigations: Developmental Considerations. *Journal of Forensic Psychology Practice*, 5(1), 75–87.
- Iversen, C. (2012). Recordability: Resistance and collusion in psychometric interviews with children. *Discourse Studies*, 14(6), 691–709.
- Iversen, C. (2019). Beyond accessing information: Claiming to understand in child social welfare interviews. *British Journal of Social Psychology*, 58(3), 550–568.
- Jay, S. M., Ozolins, M., Elliott, C. H., & Caldwell, S. (1983). Assessment of children's distress during painful medical procedures. *Health Psychology*, 2(2), 133–147.
- Jones, A., Price, E., & Selby, C. (1998). Exploring children's responses to interpersonal conflict using bubble dialogue in a mainstream and EBD school. *Computers & Education*, 30(1–2), 67–74.
- Karni-Visel, Y., Hershkowitz, I., Lamb, M. E., & Blasbalg, U. (2019). Facilitating the Expression of Emotions by Alleged Victims of Child Abuse During Investigative Interviews Using the Revised NICHHD Protocol. *Child Maltreatment*, 24(3), 310–318.
- Katz, C., Paddon, M. J., & Barnett, Z. (2016). Emotional Language Used by Victims of Alleged Sexual Abuse During Forensic Investigation. *Journal of Child Sexual Abuse*, 25(3), 243–261.
- Lamb, M. E., & Brown, D. A. (2006). Conversational apprentices: Helping children become competent informants about their own experiences. *British Journal of Developmental Psychology*, 24(1), 215–234. <https://doi.org/10.1348/026151005X57657>.
- Lamb, M. E., La Rooy, D. J., Malloy, L. C., & Katz, C. (2011). *Children's testimony: A handbook of psychological research and forensic practice*. Oxford: Wiley-Blackwell.
- Lamb, M. E., Orbach, Y., Hershkowitz, I., Esplin, P. W., & Horowitz, D. (2007). A structured forensic interview protocols improve the quality and informativeness of investigative interviews with children: A review of research using the NICHHD Investigative Interview Protocol. *Child Abuse and Neglect*, 31(11–12), 1201–1231. <https://doi.org/10.1016/j.chiabu.2007.03.021>.

- Lamb, M. E., Sternberg, K. J., Orbach, Y., Esplin, P. W., Stewart, H., & Mitchell, S. (2003). Age differences in young children's responses to open-ended invitations in the course of forensic interviews. *Journal of Consulting and Clinical Psychology*, 71(5), 926–934. <https://doi.org/10.1037/0022-006X.71.5.926>.
- Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33(1), 159–174. <https://doi.org/10.2307/2529310>.
- Landström, S., Ask, K., Sommar, C., & Willén, R. (2015). Children's testimony and the emotional victim effect. *Legal and Criminological Psychology*, 20(2), 365–383.
- Lyon, Thomas D (2014). Interviewing Children. *Annual Review of Law and Social Science*, 10(1), 73–89.
- Lyon, T. D., McWilliams, K., & Williams, S. (2019). Child Witnesses. In N. Brewer & A. B. Douglass (Eds.), *Psychological Science and the Law*. New York: Guilford Publications.
- Liwig, M. D., & Stein, N. L. (1995). Children's Memory for Emotional Events: The Importance of Emotion-Related Retrieval Cues. *Journal of Experimental Child Psychology*, 60(1), 2–31.
- Lyon, T. D., Scurich, N., Choi, K., Handmaker, S., & Blank, R. (2012). "How did you feel?": Increasing child sexual abuse witnesses' production of evaluative information. *Law and Human Behavior*, 36(5), 448. <https://doi.org/10.1037/h0093986>.
- Measelle, J. R., Ablow, J. C., Cowan, P. A., & Cowan, C. P. (1998). Assessing young children's views of their academic, social, and emotional lives: An evaluation of the self-perception scales of the Berkeley puppet interview. *Child Development*, 69(6), 1556–1576. <https://doi.org/10.1111/j.1467-8624.1998.tb06177.x>.
- Meissner, C. A., & Lyles, A. M. (2019). Title IX Investigations: The Importance of Training Investigators in Evidence-Based Approaches to Interviewing. *Journal of Applied Research in Memory and Cognition*, 8(4), 387–397.
- Melinder, A., Alexander, K., Cho, Y. I., Goodman, G. S., Thoresen, C., Lonnum, K., & Magnussen, S. (2010). Children's eyewitness memory: A comparison of two interviewing strategies as realized by forensic professionals. *Journal of Experimental Child Psychology*, 105(3), 156–177.
- Memon, A., Meissner, C. A., & Fraser, J. (2010). The Cognitive Interview: A meta-analytic review and study space analysis of the past 25 years. *Psychology, Public Policy, and Law*, 16(4), 340. <https://doi.org/10.1037/a0020518>.
- Merritt, K. A., Ornstein, P. A., & Spicker, B. (1994). Children's memory for a salient medical procedure: Implications for testimony. *Pediatrics*, 94(1), 17–23.
- Morgan, A., & Fraser, S. (2010). Looked After Young People and their Social Work Managers: A Study of Contrasting Experiences of Using Computer-Assisted-Self-Interviewing (A-CASI). *British Journal of Social Work*, 40(2), 445–461.
- Nelson, K., & Fivush, R. (2004). The emergence of autobiographical memory: A social cultural developmental theory. *Psychological Review*, 111(2), 486–511. <https://doi.org/10.1037/0033-295X.111.2.486>.
- Peterson, C. (2012). Children's autobiographical memories across the years: Forensic implications of childhood amnesia and eyewitness memory for stressful events. *Developmental Review*, 32(3), 287–306.
- Peterson, C., Warren, K. L., & Hayes, A. H. (2013). Revisiting Narrative Elaboration Training with an Ecologically Relevant Event. *Journal of Cognition and Development*, 14(1), 154–174.
- Potter, J., & Hepburn, A. (2005). Qualitative interviews in psychology: Problems and possibilities. *Qualitative Research in Psychology*, 2(4), 281–307.
- Saywitz, K. J., & Camparo, L. B. (2013). *Evidence-based child forensic interviewing: The Developmental Narrative Elaboration Interview*. Oxford, UK: Oxford University Press.
- Saywitz, K. J., & Snyder, L. (1996). Narrative Elaboration: Test of a new procedure for interviewing children. *Journal of Consulting and Clinical Psychology*, 64(6), 1347–1357. <https://doi.org/10.1207/s1532480xads0301.7>.
- Schalkers, I., Dedding, C. W. M., & Bunders, J. F. G. (2015). "[I would like] a place to be alone, other than the toilet" - Children's perspectives on paediatric hospital care in the Netherlands. *Health Expectations*, 18(6), 2066–2078.
- Schneider, W., & Bjorklund, B. R. (1998). Memory. In W. Damon, D. Kuhn, & R. S. Siegler (Vol. Eds.), *Handbook of child psychology: Vol. 2*, (pp. 467–521). New York: Wiley.
- Scott, D., & Purves, I. N. (1996). Triadic relationship between doctor, computer and patient. *Interacting with Computers*, 8(4), 347–363.
- Silverman, J., Kurtz, S., & Draper, J. (2016). *Skills for communicating with patients*. CRC Press.
- National Board of Health and Welfare. (2015). Listening to children in foster care - Eliciting reliable reports from children: Review of influential factors (2015-1-17). Retrieved from <http://www.socialstyrelsen.se/Lists/Artikelkatalog/Attachments/19662/2015-1-17.pdf>.
- Steward, M. S., Steward, D. S., Farquhar, L., Myers, J. E. B., Reinhart, M., Welker, J., . . . Morgan, J. (1996). Interviewing young children about body touch and handling (Vol. 61): Monographs of the Society for Research in Child Development.
- Snow, P. C., Powell, M. B., & Murfett, R. (2009). Getting the story from child witnesses: Exploring the application of a story grammar framework. *Psychology, Crime & Law*, 15(6), 555–568.
- Stipek, D., Recchia, S., McClintic, S., & Lewis, M. (1992). Self-Evaluation in Young Children. *Monographs of the Society for Research in Child Development*, 57(1), i. <https://doi.org/10.2307/1166190>.
- Stolzenberg, S. N., Williams, S., McWilliams, K., Liang, C., & Lyon, T. D. (2019). The utility of direct questions in eliciting subjective content from children disclosing sexual abuse. *Child Abuse & Neglect*. <https://doi.org/10.1016/j.chiabu.2019.02.014>.
- Taddio, A., Chambers, C. T., Halperin, S. A., Ipp, M., Lockett, D., Rieder, M. J., & Shah, V. (2009). Inadequate pain management during routine childhood immunizations: The nerve of it. *Clinical Therapeutics*, 31, S152–S167.
- Taddio, A., Ipp, M., Thivakaran, S., Jamal, A., Parikh, C., Smart, S., . . . Katz, J. (2012). Survey of the prevalence of immunization non-compliance due to needle fears in children and adults. *Vaccine*, 30(32), 4807–4812.
- UN General Assembly. (1989). Convention on the Rights of the Child. Treaty Series.
- Tulving, E., & Thomson, D. M. (1973). Encoding specificity and retrieval processes in episodic memory. *Psychological Review*, 80(5), 352–373.
- Unrau, Y. A. (2007). Research on placement moves: Seeking the perspective of foster children. *Children and Youth Services Review*, 29(1), 122–137.
- Vrij, A., Hope, L., & Fisher, R. P. (2014). Eliciting Reliable Information in Investigative Interviews. *Policy Insights from the Behavioral and Brain Sciences*, 1(1), 129–136.
- Welsh, J. A., & Bierman, K. L. (2003). Using the clinical interview to assess children's interpersonal reasoning and emotional understanding. In C. R. Reynolds, & R. W. Kamphaus (Vol. Eds.), *Handbook of psychological and educational assessment of children: Personality, behavior, and context: Vol. 2*. NY: Guilford Press.
- Westcott, H. L., & Kynan, S. (2004). The application of a 'story-telling' framework to investigative interviews for suspected child sexual abuse. *Legal and Criminological Psychology*, 9(1), 37–56. <https://doi.org/10.1348/135532504322776843>.
- Westcott, H. L., & Kynan, S. (2006). Interviewer practice in investigative interviews for suspected child sexual abuse. *Psychology, Crime & Law*, 12(4), 367–382.
- Wilson, M. E., Megel, M. E., Enenbach, L., & Carlson, K. L. (2010). The Voices of Children: Stories About Hospitalization. *Journal of Pediatric Health Care*, 24(2), 95–102.