

Restraint during medical procedures
in hospitalized preschool children

An exploratory study

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Abstract

Background: This study examined the use of physical restraint during medical procedures on newly admitted preschool children in a pediatric hospital unit. The use of physical restraint during medical procedures can be a distressing experience for children, parents and health care providers. Peripheral vein cannulation (PVC) is a commonly performed medical procedure in hospitals and was used as an example to study restraint. While some guidelines exist regarding how to care for children during medical procedures, physical restraint is seldom discussed in clinical practice and research and is not specifically regulated in legislation. Perspectives from symbolic interactionism (SI) were used in this study to develop a more thorough understanding of the multiple meanings of the interactions that occurred in the observed situations involving the use of physical restraint. Symbolic interactionism considers how we construct meaning and how people interact based on those meanings in addition to establish “a definition of the situation” one operates in as well as how this structures human interaction.

Aim: The overall aim of this study was to explore the use of restraint with preschool children who resisted medical procedures in a natural setting, by interpreting the children’s, parents’ and health care providers' actions and interactions during the medical procedure of PVC.

Design and methods: This study employed an exploratory, qualitative research design. Empirical data was generated through video recordings with accompanying field notes, and interviews. Naturally occurring situations in which health care providers performed PVC on preschool children were video recorded. A parent/close relative accompanied the child. Then the participating health care providers and parents/close relative were interviewed face to face. The data was from a single site, and consisted of 14 attempts to perform PVC, including 29 participants; six children, eight parents, seven physicians and eight nurses and resulted in four sub-studies. All sub-studies relied on the interpretative guidance of SI supported by initial conventional qualitative content analysis or interaction analysis.

Results: Children’s expressions when they faced a PVC were explored. Based on analysis of the video recorded observations and field notes, we suggest a typology of the participating children’s expressions during the PVC procedure; protest, escape and endurance. When expressing protest, the children showed an insistent attitude, disagreed with adults and maintained their own views. When expressing escape the children “panicked” and avoided the hands of adults when being approached. When expressing endurance, the children were stiff, motionless and introverted. The observations showed that the children appeared to resist participation, and minimal or no physical restraint was required when they expressed endurance. Interactions between parents and health care providers during the PVC were explored. The analysis of video recorded observations and field notes revealed three patterns of interactions between parents and health care providers during the PVC. In the first pattern, parents and health care providers pacified the children’s strong protests by keeping an ongoing, distractive conversation about everyday matters and parents acted as co-helpers to perform firm restraint. The second pattern showed that the parents either stopped or distanced themselves in interaction with the health care providers. The parents’ restraint grip became looser which allowed the children to uphold resistance. This was observed after failed attempts to insert the PVC. The third pattern followed as a consequence of parental distancing in the second pattern. When the parents did not support the health care providers anymore, they either helped each other to continue distracting the children, or they ceased distraction

attempts and just concentrated on finishing the procedure. Nurses' and physicians' perspectives on their performance of the PVC, and the use of restraint were explored. Health care providers had different perspectives on restraint during the observed PVC procedures which resulted in three main themes. "Disparate views on the concept of restraint and restraint use", exhibited as tension in their naming of and deliberations about restraint. "Ways to limit the use of physical restraint and its negative consequences", concerned meanings about why the medical procedure was necessary and the importance in helping parents and children to remain rational and calm to prevent the need for restraint. "Experiences with the role of parents and their influence on restraint", concerned how reluctant and unconfident parents were associated with an escalation of emotions and an increase in forceful restraint. Parents/close relative were interviewed about their participation in the observed PVCs and the use of restraint. The analysis revealed two major themes. The first theme that emerged, "Negotiating what quality of PVC performance to expect", was based on how: parents expected child-friendly encounters, the performance of PVC caused unexpected and unnecessary suffering for the child, and parents explained and excused the negative experience with the performance of PVC. The second theme: "Negotiating own role and participation in child suffering during the PVC", was based on parents' ceaseless strive to be acknowledged for suggestions regarding ways to ease the procedure, uncertain consequences of the procedure and the use of restraint for the children, and the parental protective role and self-criticism.

Discussion: The results demonstrate different interactions, expressions, and challenges for children, parents and health care providers during the PVC procedure. Reduction of restraint is difficult to accomplish unless the existence of restraint is acknowledged and made a part of the professional debate among health care providers. Some children's expressions were ignored, and despite strong resistance to the PVC, restraint was applied. By acknowledging the relevance of "experienced restraint" in research and clinical practice, it may help secure the children's and parent's experience, and allow health care providers to better customize their practices. Health care providers need to prepare themselves and the parents better in the planning and management of medical procedures where restraint may occur. Reported differences in perspectives among health care providers such as whether the use of restraint in a practice is sound, necessary, justifiable and legal, highlights the need for discussion around professionalization and formalization of the use of restraint in medical procedures on children.

Conclusion: The results may contribute to better acknowledge children's opinions and emotions, and to increase awareness of the unclear roles parents are given or expected to assume during medical procedures. The multiple perspectives, insecurity, disagreement, negative views and lack of discussions about restraint, call for reflection and critical assessment of appropriateness and alternative strategies. This may lead to more careful and judicious consideration of restraint in pediatric units, and opportunities to critically discuss ongoing practices of restraint management. Research and open discussions are more difficult if restraint is illegal or if it is unclear what is legal. More research on restraint in the pediatric setting and learning from other fields of health care where coercion is common, may contribute to harm-reduction, reduced use of physical restraint, and better quality of care.

List of original papers

The following original papers are included in the dissertation:

- I. Resistive expressions in preschool children during peripheral vein cannulation in hospitals: a qualitative explorative observational study. Svendsen EJ, Moen A, Pedersen R, Bjørk IT. *BMC Pediatr.* 2015 Nov 19;15:190. doi: 10.1186/s12887-015-0508-3.

- II. Parent-healthcare provider interaction during peripheral vein cannulation with resistive preschool children. Svendsen EJ, Moen A, Pedersen R, Bjørk IT. *J Adv Nurs.* 2016 Mar;72(3):620-30. doi: 10.1111/jan.12852.

- III. Exploring perspectives on restraint during medical procedures in paediatric care: a qualitative interview study with nurses and physicians. Svendsen EJ, Pedersen R, Moen A, Bjørk IT. *Int J Qual Stud Health Well-being.* 2017 Jul. 30. doi: 10.1080/17482631.2017.1363623.

1 Introduction

This doctoral dissertation investigated physical¹ restraint during non-surgical medical procedures performed on preschool children in a somatic hospital setting. My interest in the complexities of restraint was sparked during my practice as a clinical nurse in somatic pediatric hospital care. As a novice, using and observing restraint was an unexpected and emotionally taxing part of common practice. I² experienced that restraint was seldom addressed or spoken about in clinical practice, or in the educational training for specialization in pediatric nursing. I initially attempted to avoid restraint, but eventually learned to perform it and later taught this practice to other novice nurses. In my master study, I identified how experienced nurses reported the use of a wide range of non-pharmacological methods to prevent restraint among younger children (Svendsen & Bjørk, 2014). However, there were few research articles available in the literature discussing the use of restraint by healthcare providers while performing non-surgical medical procedures on preschool children.

Restraint is commonly used in facilitating the performance of a variety of potentially painful and distressful medical procedures on children (Crellin et al., 2011; Graham & Hardy, 2004; Hull & Clarke, 2011; Mathew, Mathew, & Singhi, 2011). One suggested understanding of restraint in the pediatric context is “the application of force with the intention of overpowering the child, and is by definition applied without the child’s consent” (Royal College of Nursing, 2003). However, restraint as a concept is seldom defined in research articles regarding medical procedures performed on children, and there seems to be a lack of agreement about what it constitutes (Bray, Snodin, & Carter, 2015). The lack of agreement seems related to whether restraint exists, how it is supposed to be understood, when it is justified and when it is possible to avoid restraint and how important it is to reduce restraint.

Preschool children are often admitted acutely to hospitals. Their stay is generally short, commonly lasting less than a week, and painful and uncomfortable medical procedures are performed during the stay. Newly admitted children may typically require medical procedures such as blood punctures, inhalation treatment, wound dressings, naso-gastric tube insertion,

¹ Restraint can be physical, psychological or chemical, but in this dissertation “restraint” will be used about physical restraint if not otherwise stated.

² In this dissertation “I” will be used to refer to the author of this dissertation. “We” will be used to refer to the research team.

blood pressure control and PVC. The unplanned nature of an acute stay creates challenges because parents and preschool children usually arrive unprepared for potentially painful and distressing medical procedures.

Painful and distressing medical procedures experienced in early age have been associated with increased sensitivity and resistance to medical procedures later in life (Dahlquist et al., 1986; Frank, Blount, Smith, Manimala, & Martin, 1995; Taddio, Goldbach, Ipp, Stevens, & Koren, 1995; Weisman, Bernstein, & Schechter, 1998). Preschool children are especially vulnerable to this phenomenon because their ability and power to advocate and protect their own rights is limited. They may consider a proposed medical procedure as unwanted and may express resistance to it, resulting in health care providers and parents using restraint to facilitate the procedure. In general, researchers in health care consider restraint during medical procedures as frightening, very unpleasant and harmful for the child (Brenner, 2007; Brenner et al., 2013; McGrath, Forrester, Fox-Young, & Huff, 2002). There is little specific research on preschool children's experience of and perspectives on restraint during medical procedures, but there are indications that restraint seems to generate anger, resistance and discomfort, at least in older children (Harder, Christensson, Coyne, & Soderback, 2011; Snyder, 2004).

Parents accompany their children to hospital and are often involved in all aspects of care, including medical procedures (Corlett & Twycross, 2006). When a child exhibits resistance to a medical procedure, parents often assist health care providers in restraining the child. Depending on the nature of the procedure, parents may hold their children to make them sit still during medical procedures. However, occurrence of restraint during medical procedures can be difficult for many parents (McGrath et al., 2002). Some parents report that to hold their children during medical procedures is a meaningful experience (Sparks, Setlik, & Luhman, 2007). Other parents may experience that they let their children down when they participate in the holding, and engaging in restraint may cause regret and guilt or anger towards health care providers (Karlsson, Englund, Enskär, & Rydström, 2014).

Medical procedures where restraint is used typically involve two or more health care providers, sometimes with different professional backgrounds. Bray et al. (2015) conducted an ethical review of restraint use in pediatric care, and concluded that health care providers judged restraint as 'reasonable harm' relative to the benefit of the procedure. Assumedly, health care providers only use restraint when they consider it to be in the child's best interest.

However, what actions are in the child's best interest when he/she resists help are not always easy to delineate and may be surrounded by disagreement or doubt. Many health care providers can feel distressed and upset (Lloyd, Urquhart, Heard, & Kroese, 2008) and experience doubt, insecurity and sadness when they use restraint (Berglund, Ericsson, Proczkowska-Björklund, & Fridlund, 2013). Other health care providers have also reported that they consider restraint to be an inevitable and necessary part of pediatric practice (Homer & Bass, 2010; Kangasniemi, Papinaho, & Korhonen, 2014; Lloyd et al., 2008).

There are few empirical studies concerning the use of restraint in somatic pediatric hospitals. One study reported that the incidence of physical restraint during pediatric medical procedures in Australia was between 48 and 78%, indicating that restraint constitutes a routine element of practice in Australian hospitals (Crellin et al., 2011). If similar frequency of use applies in other countries, the limited research and knowledge regarding how restraint is understood, discussed, and used in clinical practice is disturbing. Compared to studies of use of restraint in other areas of health care (psychiatry and care of elderly people with cognitive impairment), little is known about types of restraint, perceptions, and interactions when restraint is used in somatic pediatric hospitals. The lack of explicit professional consensus and legal regulations on restraint in the pediatric setting may add to the ambiguity of the practice. Restraint practices can become more diffuse and implicit because restraint cannot be openly acknowledged, discussed or documented. A lack of agreement regarding what comprise restraint and when it is justified can make it difficult for health care providers to effectively address the use of restraint. Research is needed to enhance the understanding of how restraint occurs in interactions during medical procedures on children and the meanings attached to restraint use. This may contribute to a more evidence-based, transparent and justified practice of restraint, and inform professional, ethical and legal discussions about the use of restraint, specifically whether it can and should be reduced and how to regulate such a practice in health laws.

The medical procedure of peripheral vein cannulation (PVC) was used to study the use of restraint in this study. PVC is a frequently used medical procedure in somatic pediatric hospitals because it is also a prerequisite for diagnostics and treatment. Some degree of restraint is also common during this procedure (Crellin et al., 2011; Demir, 2007).

Since restraint potentially can be harmful and humiliating for children and challenging for all stakeholders, it is important to understand restraint to minimize and ameliorate its use and

develop alternatives to restraint in pediatric health care. As indicated, the starting point for this study was a concern about the relative neglect of legal, scientific and professional issues regarding the practice of restraint during medical procedures performed on children. While use of restraint seems widespread, the practice is largely unaddressed in education of health care professionals and nearly absent in discussions in pediatric nursing/medicine as a topic for practice development as well as research. This absence can be connected to poor clarification of the concept, lack of empirical research, legal regulation, and little theoretical awareness of the terminology in use.

1.1 Aim of the study

The overall aim of this study was to explore the use of physical restraint with preschool children who resisted medical procedures in a natural setting, by interpreting the children's parents' and health care providers' actions and interactions during the medical procedure of PVC.

1.2 Outline of the dissertation

Following this chapter, Chapter 2 comprise the background section, starting by describing the concept of "restraint", followed by hospitalized preschool children's ethical and legal situation. The chapter continues with a review of existing research on the use of restraint during medical procedures, and finally presents the perspectives of Symbolic Interactionism (SI) which is used to analyze how people interact based on what things mean to them. This theoretical understanding is applied in the analysis of the video material and the interviews of health care providers and parents. In Chapter 3, the specific research questions of sub-studies I, II and III are presented. In Chapter 4, the research design and the methods used to explore restraint practice are presented while results are recounted in Chapter 5. The discussion, Chapter 6, is divided into a discussion of results and of the study's methodological issues. Finally, concluding remarks and implications for practice and research are presented in Chapter 7.

2 Background

2.1 Restraint

This study began with a common-sense understanding that restraint refers to a variety of measures with degrees of force used to address a child's resistance. Resistance can be understood as the act and power of resisting, opposing or withstanding (English Oxford Dictionaries, 2016). The suggested definition of restraint in the introduction: "the application of force with the intention of overpowering the child..." (Royal College of Nursing, 2003), also indicates that some resistance exists for an act to be defined as restraint. In a later guideline, they elaborated on this definition and argued for a replacement of the term "restraint" to include a broader range of restrictive physical intervention used to restrict the movement of an individual by physical means, including mechanical means, holding and physical restraint". The more narrow term "restraint" was chosen for the current study because it is frequently used in adult health care such as mental care, care for the mentally disabled and residential elder care and it more precisely refers to the actions targeted in this dissertation. It is also used internationally in research on medical procedures in somatic pediatric hospital care (Bray et al., 2015; Darby & Cardwell, 2011; Farawi, 2012; Homer & Bass, 2010; Kangasniemi et al., 2014). Restraint and coercion are often used interchangeably in other areas of the research literature (Landeweer, Abma, & Widdershoven, 2010; Szmukler & Appelbaum, 2008) (e.g., mental health care); however, to our knowledge, coercion is not used within the field of research concerning children undergoing medical procedures.

When restraint is used on children during medical procedures, adults are usually the ones who perform it in person. Crellin et al. (2011) have attempted to define the extent of restraint in children during medical procedures in terms of body parts held and force of holding. In their research, physical force was scaled from no restraint to full body restraint and they took resistance into consideration by grading the forcefulness used in the holding (Crellin et al. 2011). A survey measured restraint in relation to body parts held still, but without grading the forcefulness. They identified wrist restraint, ankle restraint, chest restraint with sheets, simultaneous chest and leg restraint with the aid of sheets, and whole body restraint (Demir, 2007). Crellin et al. (2011) attempted to register the frequency and degree of restraint during medical procedures and found that 82% of medical procedures performed on children

between 3-5 years included the use of some degree of force. Regardless of age, all patients who underwent PVC and gastric tube insertion were forcefully held/restrained (Crellin et al., 2011).

2.1.1 Types of restraint

In mental health research, coercion is often divided into formal, informal and experienced coercion, while this division is not used in the field of research on children during medical procedures. The use of these concepts has helped to distinguish different aspects of coercion/restraint. The word “formal” means that something, in this case the coercion, is done in accordance with convention or etiquette; suitable for or constituting an official or important occasion (English Oxford Dictionaries, 2016). When coercion is exercised within the regulations of a given mental health legislation, it is usually referred to as formal coercion (Molodynski, Rugkasa, & Burns, 2010). However, various interventions that fall outside formal coercion might also infringe upon patients’ voluntary and autonomous decisions. Whilst formal coercion in psychiatry is regulated by legislation, other interventions that are often referred to as informal coercion are not regulated. Informal may be used in different meanings, but can be defined as having (...) an unofficial style, manner, or nature (English Oxford Dictionaries, 2016). Informal coercive interventions are found to range from persuasion, through interpersonal leverage, inducements (offers), threats, to the use of compulsion in the mental health care setting (Valenti et al., 2015). The terminology used to describe and define this type of coercion varies widely. It has been referred to as quasi-formal coercion (Monahan et al., 1995), techniques to encourage adherence, and treatment pressures (Szmukler & Appelbaum, 2008). A committee formed by the Directory of Health in Norway, suggested an alternative division into formal, specific (“konkret tvang”) and experienced coercion (NOU, 2011). Specific coercion represents the coercion that is actually exercised and can be observed.

Experienced coercion can be defined as the patient’s subjective experience of being forced or restrained (Helsedirektoratet, 2009). The incongruence between legal use of coercion and the experience of coercion led to the interest in a subjective measure of perceived coercion which assesses patients' experience about the influence, freedom, control, or choice they had in the decision to enter treatment (Sheehan & Burns, 2011). Patients' “experiences of coercion are largely shaped by their social experiences in the process of treatment entry” (Sheehan &

Burns, 2011). Experience is the knowledge or skill acquired by a period of practical experience of something, or practical contact with and observation of facts or events; an event or occurrence which leaves an impression on someone (English Oxford Dictionaries, 2016). A qualitative study of patients' experiences during psychiatric hospitalization by Gilbert, Rose, and Slade (2008) concluded that “coercion was always experienced negatively and had a negative impact on relationships” between patients and staff.

In research within mental health care the term “coercion” is used, while as already mentioned, in research on medical procedures in children, the most common term is “restraint”. Since the term “*restraint*” was chosen for this dissertation, a division into formal, informal and experienced restraint is relevant. Restraint can also be categorized according to how or with what kind of means a person is restrained. While most studies refer to physical restraint, Kangasniemi et al. (2014) also identified the use of chemical and psychological restraint in their interview study. Chemical restraint was defined as sedatives, and psychological restraint included persuasion, bribery, being strict and intimidation. In addition, they pointed out that psychological restraint could also include offering the child to select among unfavorable alternatives (Kangasniemi et al., 2014). As mentioned, the focus in this dissertation was physical restraint.

2.1.2 Holding

The term holding is used with different meanings in research articles investigating the issue of physical restraint in children during medical procedures (Bray et al., 2015; Brenner, 2007; Brenner, Treacy, Drennan, & Fealy, 2014; Graham & Hardy, 2004; Homer & Bass, 2010; Naber, Halstead, Broome, & Rehwaldt, 1995; Valler-Jones & Shinnick, 2005). Terms such as “holding”, “immobilization”, “physical restraint”, “clinical holding” and “therapeutic holding” have been used instead of “restraint” or to describe levels of voluntariness when describing the force used to hold a child still during non-surgical medical procedures (Brenner, 2007; Crellin et al., 2011; Darby & Cardwell, 2011; Jeffery, 2010; Royal College of Nursing, 2010). “Holding” is a less emotive concept than coercion or restraint and can be defined as to grasp, carry, or support with one's arms or hands, keep or detain or to embrace someone (English Oxford Dictionaries, 2016). These dictionary definitions show some of the possible interpretations of the holding-term. Although “to detain” is somewhat similar to “restraint”, holding can, in one sense, be considered as a broader term than restraint/coercion

because holding does not include resistance as a criterion. The use of the term “holding” during medical procedures may therefore involve actions that the children are resisting, but also the holding which is wanted, accepted or asked for, e.g. “hold me”.

Since physical holding can be seen as a continuum from wanting to be held, through accepting to be held to resist being held, there has been attempts to reserve the “holding” term to name situations characterized as “using limited force” (RCN, 2010 p. 2). To signal this, holding has been used in connection with “supportive” or “clinical”. Therapeutic holding is for example by Royal College of Nursing (2010, p2), defined as immobilization and a “method of helping children, with their permission, to manage a painful procedure quickly or effectively”. So in their opinion time-span and effectivity in combination with child permission seem to be relevant for whether or not the holding can be helpful. Royal College of Nursing (2010) further suggest how therapeutic holding is distinguished from restraint by the degree of force required and the intention. This claim however, does not make it easier to distinguish between different degrees of force. Applying the different types of coercion as used in research on mental health care, the observable holding performed by health care providers in these studies can be classified as informal restraint, and as physical and actual. The restraint discussed in this dissertation is performed by adult persons on children in person, without the help of any device such as belts or sheets. As such the restraint is performed in and during ongoing interactions. It is labeled as *informal* because the child resists the actions and coercion is used without making a formal decision referring to a law paragraph or legal guideline. In the mentioned research articles, holding was not explicitly defined in terms of formal or informal restraint, possibly due to lack of legal regulation to carry out the restraint or due to not regarding holding as restraint/coercion (Bray, Carter, & Snodin, 2016; Homer & Bass, 2010).

2.1.3 Ethical and legal considerations of restraint

The ethical and legal considerations related to the application of restraint are important regulators in the performance of painful medical procedures on preschool children.

Ethical considerations of restraint. A much used ethical framework in health care is the “four-principles approach”. The use of restraint with preschool children during medical

procedures challenges the moral principles of nonmaleficence, autonomy, and justice, although used in the child's best interest (beneficence).

The principle of nonmaleficence requires health care providers try to avoid causing harm to others, and it also implies that any harmful action needs a justification (Beauchamp & Childress, 2013). Causing some risk of harm, like psychological distress, humiliation, shame or anxiety by the use of restraint can be justified by the benefits in some cases. A harmful action is therefore not always wrong or unjustified. What counts as harm will likely depend on how broad the definition of harm is, and what counts as harm within a specific context of health care delivery (Beauchamp & Childress, 2013). For example, harming can mean that we violate parents' and children's rights or cause physical injury. Possible justifications of coercive actions include evidence of substantial improvement of the patient's health or safety (beneficence) and that there are no alternatives to coercive actions (Szmukler & Appelbaum, 2008). However, criteria for the use of restraint during medical procedures on children are often not explicit, e.g. in professional and legal regulations (see for example RCN, 2010 p 2).

The principle of beneficence implies that all health care actions are intended to benefit other persons. Beneficence can take priority over the obligation of nonmaleficence (Beauchamp & Childress, 2013), for example when pain from a needle prick has to be endured because it is necessary to a lifesaving intervention. According to research in mental health, patients' experiences of being coerced appear to relate to their perceptions of the benevolent motives of the health care providers (Hoge et al., 1997). Smaller children may not be expected to fully understand and perceive health care providers benevolent motives of necessary treatment when they experience restraint. However, being perceived as benevolent and developing trustful relations and maximizing cooperation may still be important to reduce coercion.

Ethical conduct of health care providers requires not only refraining from harming persons and contributing to their well-being, it also implies respecting patient autonomy (Beauchamp & Childress, 2013). The principle of autonomy comprises a norm of respecting and supporting the patient's autonomous decisions. The norm acknowledges an agent's right to hold views, to make choices, and to take actions based on own values and beliefs. Such respect involves respectful action, not merely a respectful attitude. It includes, in some contexts, building up or maintaining others' capacities for autonomy. At a minimum among adults, personal autonomy encompass self-rule that is free from both controlling interference by others and limitations that prevent meaningful choice, such as inadequate information

(Beauchamp & Childress, 2013). However, small children are often not able to act autonomously. Thus, the parents are often given the right to consent on behalf of their children. Still, when a child is treated against its' own will, the child is in a vulnerable situation and may perceive the coercion as an infringement of its autonomy. The reduction of autonomy resulting from being forced to receive treatment, can lead to an experience of powerlessness. Health care providers' use of restraint during medical procedures on preschool children can be defined as an act of paternalism if the specific action overruling the patient's autonomy benefits the patient. Justification of paternalistic acts can be based on lack of "capacity" to consent and "best interests". Lack of "mental capacity" has been used to justify non-consensual treatment in psychiatry where it has been long established (Szmukler & Appelbaum, 2008). Definitions of "capacity" vary, but common elements are the ability to understand and retain information relevant to the decision, including the consequences of deciding one way or the other, and the ability to reason with that information to make a meaningful decision (Beauchamp & Childress, 2013). Defining the "best interests" of the child may be challenging and there may be disagreement among the parents and the professionals. In the "capacity-best interests" approach in small children, it is the judgment of "best interests" that largely justifies a non-consensual intervention. The degree of coercion used should be kept at a minimum, and a justification should be stronger when more force or coercion is needed (Szmukler & Appelbaum, 2008).

One final moral principle, the principle of justice, points to a group of norms for fairly distributing rights, benefits, risks and costs. The formal principle of justice is that equal should be treated equal, and unequal must be treated unequal (Beauchamp & Childress, 2013). As addressed above, research indicates that younger children and children with more urgent conditions are more likely to be restrained (Bray et al., 2015; Homer & Bass, 2010). In regard to restraint on children it should similarly be used in a fair way and not be distributed differently based on criteria such as child ethnicity, gender, time of day or parental behavior, parents' way of talking or their level of emotions. We have not been able to identify research with regard to how for example color of skin, gender or social or economic status affects the use of restraint during medical procedures. In general, there is little research and documentation on the prevalence of coercion in pediatric care, compared to adult health care. The principle of justice implies that competence and attention among staff, measures to prevent coercion, and legal regulation should not be very different for various patient groups

that lack the capacity to consent. However, justice is difficult to achieve without explicit legal regulation of coercion in pediatric health care.

Legal considerations of restraint. Because legislation regarding the use of restraint in medical procedures differ among countries, and this study was conducted in Norway, the Norwegian legal context of restraint is considered here. As opposed to adults in mental health care and care for adult patients lacking competency to consent, there is no act or regulation that regulates the use of restraint during medical procedures involving preschool children, neither in the Patient's and User's rights Act (1999) nor The Child Act (1981). However, legislation concerning children in health care provides some *general* guidance, including the Patient and User Rights Act (1999), The Child Act (1981) and the United Nations convention on the rights of the child (1989) included in The Universal Declaration of Human Rights (1948).

A basic principle in Norwegian health legislation is that health care, as much as possible, is based on consent (Patients and users rights act §4-1). Consent is the mechanism to prevent violation of autonomy and personal integrity and restraint requires explicit exemption of the main rule of consent. However, the same health care act (§4-3) also limits children's right to consent since the main principle is that all health care interventions on children under 16-years-old require parental consent (Aasen, 2008; Smith & Lødrup, 2007; Syse, 2004). In Norway, parents have the right and duty to decide for their child, according to The Child Act (1981) (§30) and the Patient and User Rights Act (1999) (§4-4 consent for children under 16 years). However, this does not necessarily mean that a child under the age of 16 can be forced to comply with a medical procedure if the parents consent to the medical procedure (Aasen (2008). Therefore, the child has a stronger right to oppose than to consent (Aasen, 2008; Smith & Lødrup, 2007). However, the child's right to refuse, the parents' right to consent, and the professionals' duty to act in case of resistance is by and large not explicitly regulated. It has been argued, that since enforced health care is basically an integrity violation (Smith & Lødrup, 2007), some requirements to parental consent should be met; for example to clarify that a medical procedure could involve restraint before parents are asked to consent. Since preschool children have no right to consent themselves and the law provides little explicit guidance, considerable professional responsibility is placed on the health care providers in deciding when and how to provide adequate care. Due to the lack of clear legal guidance for health care providers in Norway, questions about restraint often have to be answered through

the main and general duty, i.e. to provide professional and diligent care required by the Health Personnel Act (§4).

Consent and paternalism balances between a) the right to make decisions regarding one's own body and life, and b) the right to health and life (Nilstun & Syse, 2000; Syse, 2004). This means that the health care providers sometimes have a duty to provide care and treatment despite the child's massive resistance. An illustrative example stems from a legal case from Borgarting Appeal Court in Norway on June 30th, 2008 ("Verdict Borgarting lagmannsrett," 2008). A 15-year-old female patient was awarded financial compensation because of deferred treatment, and one of the reasons for this delay was the patient's own physical and verbal resistance to manipulation and movement of her knee and toe joints. The conditions and requirements for the use of restraint were considered present; therefore, the appeal court declared that the hospital had at least a co-responsibility to administer the treatment. However, relevant legal practice is in general sparse in Norway, in particular from the Supreme Court (the level above the Appeal Court level).

The ethical and legal considerations relevant to the use of restraint intertwine with contextual aspects of the situation, and are likely to affect how restraint is used during the performance of medical procedures on preschool children.

2.1.4 Historical and social conceptions of children

The ethical and legal basis for restraint on children in hospitals has grown from the changes in the philosophy of child rearing, views on their competence, and the development of children's 'rights'. These elements contextualize contemporary understandings of what constitutes the fulfillment of a child's best interest. For example, 70 years ago, it was a common understanding within hospitals that newborn children did not experience severe pain and therefore did not need analgesia or comforting strategies (Unruh & McGrath, 2013). The study of restraint in children's care and during medical procedures can be less relevant and appropriate in cultures or times where physical punishment, discipline and control were the norm in the treatment and rearing of children. Since 1900, there has been an increasing interest in how children develop, how they should be nurtured, and how they can be hurt, understood, and best cared for. Such advances are exemplified by the development of disciplines such as pedagogy and developmental psychology. Early childhood development is

recognized as the most important contributor to long-term social and emotional development (Cummins, 2006). Adults' assumptions about what it means to be a child and what competences they possess are reflected in their conduct and interaction with children.

Parents as well as health care providers will bring their perspectives on what it means to be a child and what competences they possess into the considerations about what constitutes the best care for the child in a specific situation. Treatment and health care to young children relates to prevailing norms and ideals for child rearing. Migration and globalization introduces different cultural, ethnic or religious views on children, child competence and how children should be met. How to best rear a child is constantly debated and negotiated and will likely influence how restraint is evaluated in specific contexts, including the hospital setting, kindergarten programs and at home. An important change in parenting over time in the western world has been the turn away from *authoritarian* parenting, in which the parent or caregiver stressed obedience, deemphasized collaboration and dialogue and employed strong forms of punishment. *Authoritarian* parenting represents the "opposite" of *permissive parenting*, where parents are very involved with their children but place few demands or controls on them. The parenting style that has been suggested as preferable is *authoritative* parenting, where parents or caregivers encourage the child's autonomy yet still place certain limitations on behavior (Baumrind, 1971). These parenting styles are painted with a fairly broad brush, and demonstrate some important directions of child rearing in the western world. We acknowledge that this is not necessarily so with families coming from other ethnic groups or sub groups, since they may belong to cultures where for example obedience is still the norm (Greenfield & Cocking, 2014).

In the early part of 1900 ideas from two major theoretical positions on family processes and their relation to children's development, behaviorism and psychoanalytic theory, took hold in the western world (Cairns, 1983). These two theoretical positions exemplify some of the nuances in how children and their competence has been viewed in the western world, and indirectly also the development in how a child's competence has been considered and acted upon.

Within behaviorism, parents were seen as teachers, and children were learners. The principles of classical and instrumental conditioning were seen as specifying the processes whereby children learned the required forms of behavior (Maccoby, 1992). Parents were the primary persons who set the agenda for what children were to learn and who governed the rewards and

punishments that would strengthen desired behaviors and eliminate undesired ones from children's repertoires. Parents also set up the possibilities that enabled children to discriminate between situations in which a given behavior was acceptable and situations in which it was not. The theory of behaviorism was not developmental except in its assumption that the younger the child, the more limited the repertoire and the more there was still to be learned (Tetzchner, 2012). But new behaviors were thought to be developed or acquired in the same way in childhood as at any other time of life.

Psychoanalytic theory was introduced early in the 1900s (Maccoby, 1992). Many elements of this theory concerned the socialization process and the role of parents. What was learned in childhood was considered as nearly irreversible, although the manifestation of what was learned could change as children grew into adulthood. Another element was that the theory was dynamic because it was greatly concerned with children's emotional states (anger or love) rather than just the details of behavior. A final element was that parental practices determined the quality of a child's experience at each stage and were crucial in determining what the long-range consequences of these experiences would be. Parents should avoid restricting the free expression of children's wishes and impulses. Children would become angry at parents when these restrictions were imposed, and parents had to deal with this anger.

These theories are grand, overarching theories that presumed to comprise most of what was significant about the socialization of children. For both theoretical positions the primary concern was how adult culture should be passed on to each new generation of children through parental control and teaching (Maccoby, 1992). The theories differed in that, for behaviorists, the child was close to being a tabula rasa (except for some reflexes and primary states such as hunger and thirst), whereas psychoanalytic theory upheld that children entered the early childhood years equipped with a set of primitive impulses that needed to be brought under social control (Maccoby, 1992). Depending on the theory, there are different expectations to the parenting role.

More attention towards children's socialization may have contributed to an increasing interest in children's own views and opinions. Holthe (2003) points out that the notion of the "child with rights" was born when the Convention on the Right of the Child received increasing international support beginning in 1989. This convention marked the formalization of "child with rights" and has contributed to a greater recognition and acceptance of children's views

and preferences in their interactions with adults. Although there are variations based on for example ethnicity, dialogue and negotiations with children are now a usual part of everyday interactions in many western families and constitute an integral part of upbringing as early as when the child is in kindergarten (Berg, 2003; Nielsen, 2003). The historical and social development of child rearing has resulted in a greater recognition of children's voices and has contributed to the ongoing process of humanization, democratization and individualization in the care for children in families and institutions.

2.2 The hospitalized preschool child

In the Norwegian hospital setting, children's rights were strengthened by the Regulation on Children in Hospital issued in 1970, known today as the Regulation on Children's Stay in Hospitals (2000) provided by the Norwegian Ministry of Health and Social Care Services. Recently, the same Ministry has issued a consultative paper to provide statements from children's organizations and other relevant institutions about strengthening and clarification of children's right to consent in health care (Ministry of Health and Care Services, 2016). The Norwegian government has also recently appointed a legislative committee on June 17th, 2016 with a mandate to undertake an overall review of the general enforcement rules in the health care sector. The appointed committee will evaluate coercion legislation and assess the need for more explicit legal regulation regarding the use of restraint on children during medical procedures³. This demonstrates an ongoing interest in the development toward strengthening children's involvement and participation in their own health care treatment.

Parents' right to stay with their hospitalized children in Norway was formalized in 1970 and resulted from a larger change over several decades towards a more liberal and humane practice in children's units, grounded in children's needs. This change was fueled by worried physicians, rebellious nurses, pressure from groups of parents, sympathetic editors of medical journals and the emerging research by James Robertson, Rene Spitz and John Bowlby regarding the traumatization of children in hospitals resulting from the absence of parents (Lie, 1993; van der Horst & van der Veer, 2009). Separation from parents is considered very

³<https://www.regjeringen.no/no/dep/hod/org/styrer-rad-og-utvalg/tvangslovutvalget/id2504904/>

stressful, particularly for young children (Hockenberry, Wilson, & Wong, 2012). The preschool child is highly dependent on parents, especially in new and unknown situations. Accordingly, parents are now commonly found in pediatric units alongside their sick children (Priddis & Shields, 2011).

In addition to their dependence on parents, preschool children are considered a vulnerable group of patients, who are at risk of not being heard because of their stage of development and verbalization abilities. Preschool children between the ages of three and five years have begun to develop the ability to think and to use symbols, and started to see the connection between things and abstract categories. Piaget claimed that children within this age group can change their mind quickly, and they are egocentric, with a limited ability to take the role of “the other” (Piaget, 1981). However, capabilities among three- to five-year-old’s can differ significantly. Erikson (1950/1993) found that their cognitive development was affected by social interaction and that they developed at different paces. The variation in developmental stages within this age span is large, and it can therefore be difficult to make clear distinctions between a three-, four- and five-year-old child’s social and cognitive development. Despite these variations, most preschool children have limited ability to fully understand the need for a medical procedure, and thus accept the pain and discomfort related to PVC although it is likely to benefit their future health and well-being.

Preschool children are most frequently admitted to hospital with sub-acute or acute conditions. They are commonly hospitalized for a few days following conditions such as accidents with fractured limbs or because they need intravenous liquids or antibiotics following infections. Upon arrival, a range of different medical procedures are often performed for diagnostic or treatment related purposes. In this situation, the ill and often tired and fragile child, parents and health care providers do not know each other and the health care providers’ care for the family can be challenging. The child’s health and wellbeing at the time of admission can vary, and medical procedures are therefore probably more challenging for children and parents who are newly admitted than for more experienced families. Moreover, younger children seem more affected by environmental factors such as fear of scary equipment than older children (Salmela, Aronen, & Salanterä, 2011) .

Hospitalized preschool children have many of the same needs that any other child or person but, as already discussed, they also have age specific needs and challenges that become more prominent or are caused by the hospitalization. Need can be defined as circumstances in

which something is necessary, or a thing that is wanted or required (English Oxford Dictionaries, 2016). Preschool children also need stability, they need to feel they belong, can trust their parents' words and actions, and they expect their emotional support and love. Actions should facilitate children's trust, respect, self-esteem, and, ultimately, independence. This means that they need to be told and showed love even when they have disobeyed, showed anger, been frustrated, or have rebelled (Tetzchner, 2012). These needs in particular emphasize the importance of parents' presence and their emotional availability during the hospital stay.

Preschool children also need consistency, which means that important values should not be changed casually or for convenience. Part of this is also children's need for structure in terms of rules, boundaries, and limits because they need to feel secure (Tetzchner, 2012). Many of these described needs are reflected in the Regulation on child stays in hospital, such as the parents' right to stay with the child in the hospital (Regulation on Children's Stay in Hospitals, 2000).

2.2.1 Preschool children's perceptions of medical procedures

There are few accounts of preschool children's own experiences with medical procedures. Salmela et al. (2011) interviewed children aged 4-6 years about their subjective experiences of hospital-related fears, and identified that these children's essential fears were related to nursing interventions and pain, to separation from parents and being left alone, lack of information, and to instruments and equipment. Children expressed their fears verbally or through their actions (Salmela et al., 2011). Although preschool children's experiences of painful or uncomfortable medical procedures vary, some children may have no problems while others can experience fear.

Two studies, one about three-year olds and one about five-year old children's expressions during immunization, showed similarities between the age groups (Harder et al., 2011; Harder, Christensson, & Soderback, 2009). The authors identified that preschool children exhibited a variation of expressions during the medical procedure conceptualized as actions in a progression of states: getting ready to being ready and further to a state where the child strengthened his/her own self. Both studies presupposed that preschool children wanted to participate and cooperate in their own health care. Preschool children's perceptions of

immunization have been described as either effortless, manageable or difficult (Harder, Christensson, & Soderback, 2015).

In an evaluation of a venipuncture practice, children from the age of three years were asked to describe the experience using a questionnaire (Hands, Round, & Thomas, 2009, 2010). The children's comments included, "It's like when someone stabs you", "It hurts and it's horrible" and "It hurt a lot and it felt like someone smashing a hammer on my thigh". The children drew visual representations of the experience as well, which often stressed the size of the needle and syringe, the emotional impact and the physical invasiveness of the medical procedure (Hands et al., 2009). This exemplifies some of the sparse evidence on children's experiences with medical procedure.

Most research papers on preschool children's experiences use proxy reports from parents and health care providers, or through researchers assessments on validated scales of levels of distress, pain or anxiety during procedures (Jain, Yeluri, & Munshi, 2012; McGrath et al., 2002). Often preschool children experience pain and distress during medical procedures (Babl et al., 2012; Boyd & Hunsberger, 1998; Fradet, McGrath, Kay, Adams, & Luke, 1990; Humphrey, Boon, van Linden van den Heuvel, & van de Wiel, 1992; Louw, Grimmer-Somers, & Schrikk, 2011) and managing these pain experiences can be problematic (Blount, Piira, & Cohen, 2003). Children often find needle pricks especially painful and upsetting. In one study, 74% of parents reported that PVC seemed to be the source of their children's worst pain (children less than five years old) (Cummings, Reid, Finley, McGrath, & Ritchie, 1996). Furthermore, the children's amount of fear prior to the medical procedure has also shown to influence their coping (Fox, Halpern, Dangman, Giramonti, & Kogan, 2014; Rosen, Moon, & Rosenkranz, 2012).

Young children often display more distress than older children (Humphrey et al., 1992) and are less capable of differentiating among different pain stimuli than older children (Arif-Rahu, Fisher, & Matsuda, 2012; Jain et al., 2012). The risk of experiencing pain is higher in younger children and children who experience anxiety before a procedure (Kleiber et al., 2007). Painful experiences can influence children's expectations and sensitivity to future pain (Dahlquist et al., 1986; Noel, Chambers, McGrath, Klein, & Stewart, 2012a, 2012b; Noel, McMurtry, Chambers, & McGrath, 2010; Weisman et al., 1998). Pain can cause distress and fear and influence the child to become anxious in response to both the person and the place

where the fear learning occurred (Shonkoff et al., 2010; Taddio, Katz, Ilersich, & Koren, 1997).

Both pain and distress can be generated by medical procedures as well as by restraint used in these situations. Snyder (2004) reported that many children describe how being held for procedures caused anger, agitation and discomfort. Being restrained during a medical procedure can result in children experiencing short-term distress and long-term negative consequences for their psychosocial development (Brenner et al., 2013; Diseth, 2006). In a recent study, Karlsson, Rydström, Nyström, Enskär, and Dalheim Englund (2016) interpreted that some children may experience shame or humiliation during needle-related medical procedures. *Shame* refers to distress concerning the “state of the self” when the person regards him/herself as no good, not good enough, or defective, and *humiliation* refers to a “temporary status of the self”, more like an alteration, usually caused by someone else and what the person regards as lowering or debasing (Lazare, 1987, p1953). Humiliation or shame may be referred to as painful feelings caused by the lowering of one’s pride, self-respect or self-concept (Lazare, 1987). The connection of pain and distress to humiliation and shame has been identified in adult mental health care patients in relation to physical restraint (Bergk, Flammer, & Steinert, 2010; Svindseth, Dahl, & Hatling, 2007). If the patients’ protests were overruled, they could experience those actions as violations and humiliations. Restraint applied without the child’s consent or assent is suggested to result in feeling out of control, anxious and distressed (Lambrenos & McArthur, 2003). Actions used to defend oneself from experiencing humiliation and shame have been identified to range from anger, hiding maneuvers, becoming passive or withdrawn, and making complaints (Lazare, 1987). Such reactions share similarities with some of the children’s reactions to and experiences of medical procedures (see for example Snyder et al., (2004) and Coyne et. al., (2011).

Experiences children have early in life, how they make sense of them and the environment in which they have them, are likely to shape the development of their brain architecture and strongly affect whether they grow up to be healthy (Shonkoff et al., 2009). Threatening events have a particularly formative force on the brain of younger children because survival requires that we remember dangers we have been subjected to in the past (Nordanger & Braarud, 2014). It is difficult to distinguish the negative consequences of untreated pain and the use of restraint during medical procedures on a child’s development (Ruda, Ling, Hohmann, Peng, & Tachibana, 2000). Exposure to traumatic stress can cause an aversive stimulation of the

alarm system in the brain which in turn becomes strengthened and sensitized (because the brain is use-dependent); the result is that it takes less stimuli before the alarm goes off again (Nordanger & Braarud, 2014). The practical and clinical implications of restraint in children have still not been fully identified. Preschool children's developmental and expressional level makes it more challenging to obtain nuanced and detailed reports about their own perceptions of medical procedures and experiences of restraint during such procedures. This justifies concerns for and a greater responsibility on children's care-givers to constantly strive for a better understanding of the child's situation and reduce possible pain, suffering and restraint.

2.3 Parents perspectives and roles

Parenteral responsibilities include to seek medical aid, bring up, help and protect their children (The Child Act, 1981). These responsibilities seem driven by the goal of protecting the child's health and well-being. Under specific circumstances, like illness, the parent role and their responsibilities for their child may lead to unclear understandings of roles and different rules. This is particularly so for hospital behavior, including being an assistant and expected to collaborate with health care providers, also in situations with the use of restraint during medical procedures.

The parents' role in the health care of their children is considered important (Coyne & Cowley, 2007). Medical procedures are integral parts of a hospital stay, which in itself can already be emotionally challenging, worrying, and distressing for parents. It can be difficult for parents to adjust to the hospital environment (Coyne, 2008). At the same time, in their dependency role to the hospital, parents need to feel safe and secure when their child is hospitalized (Hallström, Runesson, & Elander, 2002). Research shows that parents manifested one of three different strategies to feel more confident and secure at the hospital: (a) surrendering the care of their children to the nursing staff, (b) obtaining a measure of control over their children's care, and (c) relying on knowing their child best (Kristensson-Hallström, Elander, & Malmfors, 1997). Depending upon preferred strategy, parents wanted to participate at different levels in their child's care. The results indicate a relationship between parental participation and their estimation of their child's pain (Kristensson-Hallström, 1999). A literature review summarizing family needs when a child was long-term ill, highlighted parents need for participation and cooperation, as well as need for communication and control (Hallström & Elander, 2007). Parents wanted their child and themselves to be taken care of in

an individual way by professionals with the required knowledge and competence (Hallström & Elander, 2007). In addition, the review found that parents held as outmost important that health care providers had competence and adequate education so that they could satisfy the needs and expectations of children and parents. Although these results are from research on long term illnesses in children, some of the parent's needs would probably be relevant when the hospital stay is shorter as in the current study.

Parents want to be treated with respect and have a need to be confirmed when they meet professionals (Hallström & Elander, 2007). Trust in health care providers, and to be trusted by them, has also been found important. Parents of hospitalized children rated the need to trust, to be trusted and the need for information to be more important than needs relating to the ill child, other family members, human and physical resources and support and guidance (Shields, Hunter, & Hall, 2004). Parents declared themselves more independent than the staff perceived them to be (Shields et al., 2004). Although medical procedures can be challenging for many parents, one study found that parents who were present during their child's medical procedure were either better off or no different from parents who were absent with regard to their levels of distress and satisfaction (Piira, Sugiura, Champion, Donnelly, & Cole, 2005).

Some studies have indicated that parents provide most of the holding of children during medical procedures (Graham & Hardy, 2004; Homer & Bass, 2010; McGrath et al., 2002). However, parents' role during medical procedures is often unclear (Lam, Chang, & Morrissey, 2006) and it can be difficult for parents when their presence and assistance, also in restraint, is taken for granted (Hallström, Runeson, & Elander, 2002). Although few research articles have specifically investigated effects of parents' use of restraint on young children during a medical procedure, it has been identified that fathers involved in the restraining of their children during oncologic treatment, both witnessing and being involved in medical procedures, found the experience emotionally traumatic and challenging (McGrath & Huff, 2003). Perceived parental depression has been related to increase in infant distress and pain during routine vaccination because the children are given less face-to-face contact and holding (Moscardino, Axia, & Altoe, 2006). Parent's anxiety and level of stress during medical procedures influenced how capable they were to help their child during the procedure (Moscardino et al., 2006). Parents can experience conflicting feelings or find it emotionally difficult (Alexander, Murphy, & Crowe, 2010; Idvall, Holm, & Runeson, 2005; Lam et al.,

2006; McGrath & Huff, 2003; Swallow, Lambert, Santacroce, & Macfadyen, 2011). Some parents struggle to act as a safe base for their children (Karlsson, Englund, et al., 2014).

Little is known about parents' understanding about their presence and participation in situations where smaller medical procedures are performed on their child with the use of restraint. The use of restraint during medical procedures involves mixed experiences for parents. The parents may not know in advance that restraint can occur, and therefore may not consider holding or simple procedures as a daily routine. Thus, it is therefore important to elicit parents' perspectives, meanings and experiences on medical procedures involving restraint.

2.4 Health care providers' perspectives and roles

Health care providers have a professional, ethical, and legal responsibility to act so that patients receive the best possible care and at the same time respect the patient's autonomy. The professional decision to perform a medical procedure is taken when the procedure is considered beneficial for the child's treatment and care. Painful medical procedures such as PVC, injections, and blood sampling are seldom treatments in themselves, but rather, the means to a precise diagnosis or a vehicle for medical treatment. Medical reasoning about performing a medical procedure in situations with possible resistance is based on different sources such as physical examinations, medical history, risk/benefit considerations, the emergency of the situation, the child's age and the type of procedure (Robinson & Collier, 1997). The professional reason for why some form of restraint is applied during medical procedures is often to enable safe performance of the procedure (Ofoegbu & Playfor, 2005). This includes efforts to prevent injury from struggling, wriggling or interference with the treatment (Ofoegbu & Playfor, 2005; Robinson & Collier, 1997; Selekmán & Snyder, 1995; Smith, Murray, McBride, & McBride-Henry, 2011; Snyder, 2004). The restraint-as-safety consideration has been related to children's physical safety rather than their psychological wellbeing and safety.

Health care providers report that they are more likely to use restraint when they perceive the procedure as urgent or clinically important to achieve treatment outcomes (Lewis, Burke,

Voepel-Lewis, & Tait, 2007). Radiographers have reported high rates of holding children for X-ray examinations (84%, n = 110) (Graham & Hardy, 2004), as did health care providers in emergency departments (71%, n = 89, children aged 6–24 months) (Crellin et al., 2011). Further, younger children are more likely to experience forms of restraint compared to older children (Graham & Hardy, 2004; Lewis et al., 2007; Robinson & Collier, 1997). A study reported that health care providers were more comfortable with restraining younger children than older children (Homer & Bass, 2010), indicating that preschool children probably experience forms of restraint more frequently than their older counterparts (Bray et al., 2015). Bray and colleagues (2015) identified ethical concerns related to marginalization of a child's voice and opinion in the face of restraint, especially with younger children and those requiring urgent treatment. Professional deliberations, also exemplified in the many synonyms of restraint, points to that obligations and values will likely be intertwined with the ethical norms of the professions. There is also a risk of marginalization of the child's voice in some of the synonyms used for restraint, e.g. holding, since this term does not necessary imply any kind of restraint. The many synonyms used for restraint may also be an indication of lack of professional consciousness or awareness of the phenomenon of restraint in pediatric care.

Most research on restraint in the somatic hospital setting has been carried out in nursing, and no studies of physicians' perceptions of this phenomenon have been found. Nurses seem to believe that restraint is a necessary but unpleasant part of working with children in hospitals (Bricher, 1999; Homer & Bass, 2010; Kangasniemi et al., 2014; Lloyd et al., 2008). Nurses have also reported that restraint is in daily use with children during medical procedures and treatment, and involve several professionals (Brenner et al., 2014; Kangasniemi et al., 2014). Some health care providers assert that holding children to administer a procedure can cause more distress for the child than the pain they experience during the procedure (Collier & Pattison, 1997; Robinson & Collier, 1997). However, some nurses may also have problems with accepting the use of restraint (Brenner et al., 2014), and many have reported that it can be emotionally hard to use the practice (Lloyd et al., 2008). Experienced nurses have reported that they are more willing to hold children during procedures than more recently qualified nurses (Demir, 2007; Robinson & Collier, 1997). Nurses also fear that the use of restraint may generate distrust between them and the child (Berglund et al., 2013).

2.4.1 Possible strategies to reduction of and use of restraint during medical procedures

A medical procedure is an activity directed at or performed on an individual with the aim of improving health, treating disease or injury or making a diagnosis ("International Dictionary of Medicine and Biology. The Oxford Companion to Medicine," 1986). Restraint is viewed as an intervention to enable safe performance of the medical procedure (Selekman & Snyder, 1995). Safety issues refer to both staff and child safety (Darby & Cardwell, 2011). Although restraint is sometimes necessary for the safe administration of medical procedures, there are few specific recommendations on how to physically restrain. As an alternative to restraint, comforting strategies can be used to help the child manage pain, distress, fear and anxiety and arrange for coping and cooperation. These comforting strategies and interventions can most likely reduce or avoid the use of restraint, but are to a limited degree explicitly related to restraint use in the literature (Coyne & Scott, 2014).

Research has been conducted to better understand how use of different approaches and strategies can help children cope and cooperate while experiencing pain, distress and anxiety during medical procedures (Canbulat, Inal, & Sonmezer, 2012; Cheseaux, Juillet de Saint Lager, & Walder, 2012; Jaaniste, Hayes, & von Baeyer, 2007; Kingsnorth, Treurnicht Naylor, Lamont, McKeever, & MacArthur, 2011; Mosiman & Pile, 2013; Nilsson, Finnstrom, Kokinsky, & Enskar, 2009; Sil, Dahlquist, & Burns, 2013; Tol, Song, & Jordans, 2013; Uman et al., 2013; Wentz, 2013). These strategies and approaches are often divided into pharmacological and non-pharmacological interventions (Blount et al., 2003; Carlson, Broome, & Vessey, 2000; Cohen, Blount, Cohen, & Johnson, 2004; Kleiber & Harper, 1999; MacLaren & Cohen, 2005, 2007; Manimala, Blount, & Cohen, 2000).

The non-pharmacological strategies used to help children with experiences of pain and distress include cognitive-behavioral interventions such as guided imaginary, distraction and hypnosis, but also preparatory information, relaxation, positioning, and parental presence (Uman et al., 2013). For example, one study identified less distress in children who were situated in an upright position compared to horizontal positioning during a medical procedure (Sparks et al., 2007). Cognitive-behavioral interventions aim to reduce anxiety, minimize distress and pain and increase the child's and parents' sense of control (Khan & Weisman, 2007). Claar, Walker, and Smith (2002) indicated that older children who knew more about

the medical procedure appraised it as less threatening, and in turn expressed less anxiety. This pattern may also pertain to preschool children, but this has not been identified in the literature. Interviews with older children indicate that interventions designed to reduce stress during hospitalization are not only likely to decrease their stress at the time, but also likely to influence how future experiences are appraised and managed (Coyne, 2006a).

Parents' presence and activities as assistants in the holding of their children during medical procedures have been linked to reduced levels of distress and upset feelings in children (Cavender, Goff, Hollon, & Guzzetta, 2004; Matsumori et al., 2006; Smith et al., 2011; Snyder, 2004). Research on long-term hospitalized children (Cline et al., 2006; Crock et al., 2003; LaMontagne, Wells, Hepworth, Johnson, & Manes, 1999; Ljungman, Kreuger, Gordh, & Sorensen, 2006), and primary child health care in relation to immunization (Bernard & Cohen, 2006; Plumridge, Goodyear-Smith, & Ross, 2008; Reis, Roth, Syphan, Tarbell, & Holubkov, 2003), showed that parents' way of communicating affected children's experiences of distress and coping. Some studies have more specifically addressed how parents' behavior influences children's experience of pain, anxiety and distress during medical procedures (Bearden, Feinstein, & Cohen, 2012; Bernard & Cohen, 2006; Cohen, Bernard, Greco, & McClellan, 2002; Goodenough, Perrott, Champion, & Thomas, 2000). Results related to children's perceptions were mixed (Piira et al., 2005). In other studies, however, the manner of parents' presence seemed to make a difference. It has been suggested that both parents and health care providers can be helpful coaches for children during medical procedures (Kleiber, Craft-Rosenberg, & Harper, 2001). An association between children's coping and distress and parents' and healthcare providers' behavior has been identified, showing that the child's behavior has a tendency to be similar to the adult's (Blount, Devine, Cheng, Simons, & Hayutin, 2008; Manimala et al., 2000). If parents or health care providers used reassurance, it was not helpful in minimizing distress (Manimala et al., 2000; McMurtry, Chambers, McGrath, & Asp, 2010; McMurtry, McGrath, Asp, & Chambers, 2007; McMurtry, McGrath, & Chambers, 2006; Miller, Johann-Murphy, & Zhelezniak, 2001).

The pharmacological approaches used to facilitate the performance of medical procedures on children can be local anesthetics or relaxing medication. The use of local anesthetic cream (Emla™) applied on the insertion site has been found to increase the likelihood of success in the first attempt of venipuncture because it reduces pain (Baxter et al., 2013). However, some children report significant pain with PVC, despite the appropriate use of topical lidocaine

anesthetics. Midazolam has also been used during medical procedures outside the operation theater to help children to be more relaxed and cooperative (Banerjee, Bose, Pahari, & Dan, 2011; Bayat, Ramaiah, & Bhananker, 2010; Goeters, 2012; Murat, Gall, & Tourniaire, 2003). To help children cope with medical procedures, the use of nitrous oxide has been evaluated in some studies (Ekblom, Jakobsson, & Marcus, 2005; Ekblom, Lindman, Marcus, Anderson, & Jakobsson, 2008; Goeters, 2012; Kanagasundaram, Lane, Cavalletto, Keneally, & Cooper, 2001). Overall, this strategy was effective in alleviating distress during painful procedures, had minimal side effects and short recovery time (Kanagasundaram et al., 2001).

Although non-pharmacological and pharmacological strategies can be used to improve preschool children's experiences during medical procedures within an acute environment, they primarily seek to alleviate distress and ease the performance of a procedure, but do not explicitly target how to handle resistance. The reasons for the observed and experienced pain, distress and anxiety are not explicitly stated in the research on different strategies. Restraint is not mentioned as a source of pain, distress and anxiety, and since restraint is overlooked, the role of restraint use is also missing in results regarding children's experiences of medical procedures.

The existing health care guidelines and evidence-based recommendations suggest the use of pharmacological and non-pharmacological interventions in relation to medical procedures (Hatfield, Messner, & Lingg, 2006; Maclaren & Cohen, 2007; Stock, Hill, & Babl, 2012). Pharmacological and non-pharmacological strategies have been suggested to meet children's needs "before resorting to restraint" (Darby & Cardwell, 2011, p. 14) because they help to comfort children during distress, anxiety and pain. However, different pharmacological and non-pharmacological strategies are not infallible in terms of generating coping and cooperation to avoid restraint. There is little research-based guidance about how to act if a situation escalates and these measures are ineffective (Bray et al., 2015). There are, however, indications that parents' supportive presence, involvement and participation may reduce the likelihood of children being forcefully held (Graham & Hardy, 2004; Naber et al., 1995). Moreover, other results indicate that nurses' sensitivity to the child and the nurses' flexibility in the situation are key strategies to obtain cooperation with the child and hence avoid physical restraint (Berglund et al., 2013).

The focus on sound strategies on how use restraint and to prevent use of restraint has not been a main priority in care of children going through medical procedures. Although comforting

strategies used during medical procedures aim at preventing and reducing pain, distress and anxiety, the focus on prevention of any painful feelings in the context of humiliation and shame has received limited attention within both research and clinical practice. Given the possible connection between restraint, harm and humiliation/shame, a reduction in use of coercion seems to be vital. There is a need to research and better understand such feelings caused in children by restraint during medical procedures (Coyne & Harder, 2011) when preventive programs are developed and implemented. The prevention of coercive measures has become a priority for mental health practices, and numerous comprehensive programs seeking to reduce the use of these containment procedures have been developed (Boumans, Walvoort, Egger, & Hutschemaekers, 2015). One review from the mental health setting recommended that restraint reduction programs should include strong leadership from local management, external restraint review committees or post-incident debriefing and analysis, broad-based staff training, and program changes at a local level (Scanlan, 2010). Another study suggested that the multidisciplinary team and the patient and the family could work together in a systematic and goal-directed way with cyclic evaluation and readjustment of the treatment and nurse care plan (Boumans et al., 2015). It is further suggested that the degree of pressure to be used should be the minimum necessary, and stronger justifications should be required the more one moves along the spectrum from persuasion to direct physical force (Szmukler & Appelbaum, 2008). It seems not to be the degree of restraint or coercion in itself, but the context and how it is carried out that is crucial for the patients' total experience of humiliation and shame in the situation (Østnæs, 2011). The literature concerning the prevention of humiliation in mental health care shows that a multilevel approach to the reduction of coercion is fruitful (Boumans et al., 2015). Although most suggestions are developed for adults in mental health care setting, elements of such programs can be relevant for the reduction of restraint during medical procedures in children also.

2.5 Symbolic interactionism

Most of the background perspectives presented so far showed that knowledge about restraint with preschool children during medical procedures originates from a number of domains such as nursing, pedagogy, psychology, psychiatry, law and ethics. In working with the data, we noticed the relatively modest interest in understanding restraint as it unfolded in social interaction. This was particularly interesting for us because we sought perspectives to help

make sense of the observed interactions in performance of PCV. It led to an interest in exploring and investigating if perspectives within interactionism would give needed support to interpret restraint in the performance of PCV. Performance of PCV and restraint is an example of human interactions providing analytical perspectives for "... studying how individuals interpret objects and other people in their lives and how this process of interpretation leads to behavior in specific situations" (Benzies & Allen, 2001, p. 544). Therefore, the perspective from SI added interesting theoretical perspectives on human conduct such as restraint. SI allowed for studying "restraint" by investigating the different participants' actions and interactions during the medical procedure of PVC. To provide interpretations of the observed practice during medical procedures in hospitalized children, we focused on how the participants played out the process of interaction.

Interactionist theory has grown in the latter half of the twentieth century and has become one of the dominant perspectives to explore and make sense of interaction in the world today (Plummer, 2000). George Herbert Mead, as an advocate of pragmatism and the subjectivity of social reality, is considered a leader in the development of interactionism (Blumer, 1969). Blumer (1969) expanded on Mead's work and coined the term "symbolic interactionism" (SI). Symbolic interactionism is a philosophy concerned with how people construct meaning, use symbols and determine their course of action in interactions with others (Blumer, 1969). Since then, SI has developed, resulting in that different parts of SI has been emphasized and developed depending on the research field employing SI (Sandstrom & Fine, 2003). While some claim that the interpretative, subjective study of human experience is the "true symbolic interactionism", others have emphasized how human subjects are constructed in and through the structure of language and observation of interaction (Denzin, 2008). Others again, such as researchers within family studies, have tried to unite these directions (Sandstrom & Fine, 2003). In the current study we focus on the structure of human interactions and the interpretation of human experience.

Mead identified two levels of social interaction, which Blumer (1969) referred to as *non-symbolic* interaction and *symbolic* interaction. *Non-symbolic* interaction takes place when one responds directly to the action of another without interpreting; *symbolic* interaction involves interpretation of the action (ibid). *Non-symbolic* interaction is most apparent in reflex responses, as in the case of a boxer who automatically raises his arm to parry a blow (Blumer, 1969). Symbolic interactionism focus on presentation of gestures, and response to the

meaning assigned to those gestures. A gesture is "... any part or aspect of an ongoing action that signifies the larger act of which it is a part" (Blumer, 1969, p. 9). Gestures convey to the person who recognizes them an idea of the intention and plan of forthcoming action. The person organizes his responses on the basis of what the gesture means to him; the person who presented the gesture advances them as indications or signs of what he is planning to do as well as of what he wants the respondents to do or understand. In symbolic interaction, gestures; verbal as well as non-verbal, can be the focus of attention.

Scholars within symbolic interactionism have focused on actual situations and the actors' understanding of their knowledge about the "reality". Symbolic interactionists hold that individuals structure the external world by their perception and interpretations of what they conceive the world to be (Benzies & Allen, 2001). For the current study, this meant to analyze and interpret interaction and to seek for the meanings that different participants based their actions upon. Such perspectives may include experiences, understanding of procedural issues, and the social context of the face to face interaction (Melnikov & Johnson, 2012). Symbolic interactionism views *meaning* as arising in the process of interaction between people based on observed gestures, symbols and things (Blumer, 1969). The meaning in a situation grows out of the ways in which other persons' actions toward the person's gestures, symbols and things operate to define the situation for a person. Thus, symbolic interactionism sees meanings as social products, as creations that are formed in and through the actions and interactions of people. As such the use of meanings by the actor occurs or develops through a process of interpretation (Blumer, 1969). When the gesture, symbol or thing has the same meaning for both parties they understand each other. Such meanings develop or flow out along three lines of meaning, for example as described in the following where a health care provider handles the equipment for a PVC. It signifies what the person whom the activity is directed to should do, i.e., the child should get ready and sit still, it signifies what the person who is making the gesture plans to do, i.e., upcoming prick with a needle and insertion of the device for venous access, and it signifies the joint action that is to arise by the articulation of the acts of both, i.e., performance of a successful PVC. As Blumer (1969) also points out "...if there is a confusion or misunderstanding along any one of these three lines of meaning, communication is ineffective, interaction is impeded and the formation of joint action is blocked" (Blumer 1969, p. 9). When analyzing the actions and interactions during the PVCs leading to use of physical restraint, these three lines of meaning comes with directions on how to disentangle the gestures and things in the observed interactions.

SI asserts that people try to establish meaning in the situations they experience. Based on SI, a main task for a person is to establish a definition of the situation during an interaction (Blumer, 1969). Denzin (1992) explained how people come to know themselves through play, social interaction, reflection and putting themselves in the position of those they interact with. These insights contribute to negotiations regarding who the different participants are in the social structure of the situation. Cast (2003) claimed that those with greater power had greater control when defining a situation and thereby the meaning within it. Through the definition of situational meanings, individuals also work to define themselves as a particular type of person; their *identity*. A person works to determine and establish the who, what, when and where of interaction, but the main task in interaction is the construction of an identity for the self and for others because identity affects all other dimensions of the situation (Cast, 2003; McCall & Simmons, 1978; Stryker & Vryan, 2003). Thus the identities persons hold for themselves and for others are central to any definitions of the situation. People attach certain common meanings to social positions or roles, e.g., nurse or parent; thus, people expect a specific kind of conduct and behaviour from people in these positions. This contributes to the structuring of the social interactions (Fine, 1993).

Persons can try to define the situation in three main ways: by behaving in ways consistent with their identity, by influencing the behavior of others, and by resisting the identities that others, in turn, seek to impose on them (Cast, 2003). Yet, while individuals are trying to influence others, those others are seeking to control the situation so that it reflects their own conception of who the individuals are in the interaction (Cast, 2003). However, it is unlikely that they are equally able to exercise control within the same situation. People put their identity on line during interaction and how the interaction turns out is dependent upon whether individuals succeed or fail in making others verify an identity or identities (McCall & Simmons, 1978; Turner, 2012). The process of negotiation among persons regarding identities is often complex and subtle, involving an initial but very tentative agreement to accept each other's claims (McCall & Simmons, 1978). As persons designate their own position, they must feel legitimate in a certain role (McCall & Simmons, 1978; Turner, 2012).

Because a person can look at him/herself from the outside (as an object), he or she can, in interaction with others, define his or her self just as a situation is defined (Stryker, 2002). The symbolic interactionist perspective considers the self as dynamic and a result of constant social interaction. To be able to view the self as object, the person can step outside and

imagine viewing one's self as others would. Cooley (1972) named this the 'looking glass self'. In this notion, our self becomes a social self, when we become dependent on other's responses to and judgments about us, to know who we are. Mead (1934) further developed some of Cooley's thoughts by dividing the Self into two different components "I" and "Me". The "I" is the spontaneous, creative, and impulsive self. "Me" is what was initially described as "the looking glass self", as the analyzing part of self that grows through interaction with others.

Blumer (1969) claimed that actions and interactions were defined from the meaning the participants attached to the elements of a situation, and not by forces from the environment or by inner forces such as drives or instincts. Thus, the perspectives of SI underscores how negotiations and actions are based on interpretations of and meaning assigned to other people's actions and intentions. Insights into these interpretations and meanings may together give an account of a person's perspective on a situation.

Symbolic interactionism has been used to enhance our understanding of the interactions in health care. For example it has been found useful to enhance the understanding of interactions between parents of children with Down syndrome and nurses (van Riper, Pridham, & Ryff, 1992), in family studies (La Rossa & Reitzes, 1993), and in the study of nurses' process of exercising autonomy in end-of-life decisions in intensive care units (Paganini & Bousso, 2015). More recently, SI has also been used to enhance understanding of patterns of parent-child interaction during the child's hospitalization, including before, during and after medical procedures (Cline et al., 2006).

2.6 Summary

This background chapter shows that there is a limited focus on restraint use on preschool children during medical procedures in both research and clinical practice. This may be related to the unclear professional, ethical and legal basis alike. Although the rights of children have been more explicated over the last decades, their rights do not seem to impact the use of restraint in somatic pediatric hospitals. Rather, restraint is overlooked and less problematized in pediatric care and can therefore be evaluated in several different ways, including good/bad, necessary/unnecessary or healthy/unhealthy for children.

Research on restraint during medical procedures shows that there are challenges and ambiguity about what constitutes restraint, how restraint should be approached and how it is understood by those participating in these situations. Research concerning how to comfort children experiencing pain, anxiety and distress needs to be made explicitly relevant in situations with the potential for or actual application of restraint. The research on medical procedures offers a clear understanding of the different non-pharmacological and pharmacological approaches that may help preschool children to cope and cooperate during medical procedures. However, these strategies are not explicitly connected to the prevention of restraint during medical procedures.

The review of the literature indicates a need to develop a better understanding of the interaction among the participants involved in medical procedures in the pediatric context where restraint is used. In this study we will explore how participants' understanding becomes visible in the interactions and what meanings the different participants attach to the situation through symbolic interactionism.

3 Subsidiary aims and research questions

The overall aim of this study was to explore the use of physical restraint with preschool children who resisted medical procedures in a natural setting, by interpreting the children's parents' and health care providers' actions and interactions during the medical procedure of PVC. The subsidiary aims and research questions sought a more nuanced understanding of how restraint unfolded in clinical settings by developing knowledge regarding the children's expressions during the PVC, interactions between participants and their experiences with restraint.

3.1 Sub-study I

The aim of this sub-study was to explore children's resistive expressions in situations of PVC, where they could be subjected to restraint. One way to understand restraint can be to observe the child's expressions during the procedure. Knowledge about and insight into their expressions was considered important because preschool children have limited ability to provide their own perspectives compared to parents and health care providers. The knowledge could support interpretations of how children are affected and better understand their views. The following research questions were developed:

How do children express resistance when interacting with parents and health care providers?

How do children ascribe meaning to parents' and health providers' actions during the procedures?

3.2 Sub-study II

The aim of this sub-study was to broaden the understanding of parent-health care provider interactions when preschool children resisted participation in medical procedures. Adult interaction is an important context for understanding the use of restraint during medical procedures with preschool children, and we sought insight into how interaction unfolded

based on how participants acted towards each other in a situation. Knowledge of the actual physical and verbal interaction that happens during procedures can help health care providers to understand and approach such situations more effectively. This may contribute to the development of better ways for approaching and managing children's resistance during medical procedures. The following research question was developed:

How do health care providers and parents interact when managing preschool children's resistance to PVC?

3.3 Sub-study III

The aim of the third sub-study was to explore health care providers' and parents' views on restraint during medical procedures performed on newly admitted preschool children in somatic pediatric hospital care. Interviews with parents and health care providers were analyzed separately;

Sub-study III-Health care providers (sub-study III-H)

Nurses' and physicians' perspectives on restraint were considered to influence interaction with co-workers, parents and children. Knowledge about health care providers' interpretation of meanings and assumptions about restraint during PVC can advance and distinguish their own and others' understanding of their actions. The following research questions were developed:

How do nurses and physicians define restraint during procedures?

How do nurses and physicians evaluate the occurrence of restraint during PVC on preschool children?

Sub-study III-Parents (sub-study III-P)

Parents are often co-helpers and expected to participate to comfort their child when a medical procedure is performed, and their meaning seems necessary to get a more complete understanding of the PVC situation with the use of restraint. Knowledge about parent's meanings and their experiences related to the PVC and expectations of health care providers'

performance and own participation during the PVC can enhance the understanding of priorities and conduct and hence contribute to understand the occurrences of restraint in a better way. The following research questions were developed:

How do parents experience the performance of the PVC on their preschool child when restraint is used?

What conduct do parents expect from health care providers and themselves during the PVC on their preschool child?

4 Research design and methods

This study employed an exploratory and qualitative research design. This design is useful when limited attention has been given to the topic of research, and when the topic is complex in nature (Wood and Brink, 1998). The lack of relevant research articles about use of restraint in the somatic pediatric hospital setting supported the need for an exploratory study.

A qualitative research approach was chosen because we aimed at understanding the processes leading to physical restraint through description, exploration, and explanation rather than the outcome of the medical procedure. Since we were interested in multiple subjective realities (Sandelowski, 1993), the intention was to explore the research questions to provide a better understanding of the problem rather than offer final and conclusive solutions to existing problems. Qualitative approaches are especially appropriate when the aim is to generate hypothesis in less explored fields of research (Polit & Beck, 2008). To this end, a field study was developed with the use of video observation, field notes and interviews as data collection strategies. Because the practice of restraint can be seen as a social practice, the focus was to investigate social actions and interaction in its natural, non-experimental context (Blumer, 1969; Hammersley & Atkinson, 2007). Observation and interviews were performed to gain insight into different perspectives and judgments regarding the social practice of restraint during PVC in preschool children.

Literature searches regarding restraint of children were performed in the databases AMED, Medline/PubMed, Cinahl and Google Scholar and provided some research studies on the topic. However, the results mainly constituted restraint of children in vehicles. By adding the term coercion, only studies concerning children in mental health care were produced.

Relevant articles were not marked with a medical subject heading (MeSH) such as restraint, coercion or “medical procedures.” Use of other concepts used to describe restraint, such as holding, also yielded few results. Therefore, most research articles about restraint per se were identified during the study through literature published after the study started and by expert advice, review of reference lists in earlier research, and free text searches due to lack of MESH terms in the databases.

4.1 Setting

The study was performed in a large teaching hospital in the southern part of Norway, admitting patients from both rural and urban areas. The unit can be considered a typical medical pediatric unit in Norway, and had around 20 beds admitting children between the age of 0 and 18 years. Approximately 35 nurses worked on the unit. Physicians had a different work arrangement where they circulated between different units, had only day shift responsibilities on the unit for some weeks at a time, followed by a period out of the unit. This meant that less familiar physicians from other units could have the responsibility for the insertion of cannulas during evening and night shifts. These physicians worked at children's units as well as intensive care units for sick newborns.

A medical procedure comprises a set of actions or steps to be followed in a regular and often definite order. In this study, we explored physical restraint using peripheral vein cannulation (PVC) as an example. PVC involves puncturing the child's skin with a needle to place a cannula into the child's vein. PVCs are commonly performed in hospitalized preschool children, and is often used as a vehicle for diagnosis, e.g., to enable some X-rays/Magnetic Resonance Imaging, or to administer treatment, e.g., antibiotics or IV fluid. The PVC can be performed by both nurses and physicians in hospital units. In Norwegian pediatric practice, as on this unit, PVC is most commonly performed by physicians.

In many pediatric hospital units, as in the studied unit, medical procedures are often performed in separate procedure or treatment rooms. The procedure room, which is a common place to perform a PVC was equipped with a treatment bench, some chairs, and different sets of monitors, oxygen masks, shelves, trolleys with different medical equipment meant for resuscitation, a desk and investigation lamps hanging over the treatment bench. The treatment bench was situated with one short end to the wall.

It can be difficult to place a cannula in a preschool child because the veins are small, the child's hands have subcutaneous fat and the child can be anxious (Walsh, 2008). Few PVCs on preschool children are successful on the first attempt. A study of 595 attempts revealed that the average child required 2.2 attempts to achieve venous access and that successful insertion took more than half an hour (Larsen et al., 2010). Peripheral intravenous lines could not be placed at all in 5% of the cases (Larsen et al., 2010). A study showed that 53% of insertions of PVC were successful on the first attempt (Lininger, 2003), and in another study 64% cannulations were successful on the first attempt (Crellin et al., 2011).

4.2 Sample

4.2.1 Sampling strategy

A sampling strategy was developed to secure information-rich cases to fulfill the overall aim of the study (Patton, 2011). Criterion sampling was applied to sample the children in this study (Patton, 2011). The first inclusion criterion was the child's age. We started with an age span of 4-6 years, which later was modified to children between the age of two and five years because of recruitment challenges. These children are at an age where they can express themselves, but still have a limited ability to evaluate the situation. This age group was also chosen because one of few studies on the use of physical restraint showed that this age group was associated with high restraint use (Crellin et al., 2011), so we would be likely to get information rich cases. The second inclusion criterion was that the children should be newly hospitalized. To ensure this, their current stay should not have exceeded one week at the time of the PVC. The third criterion was that the children had less than three earlier admissions. The second and the third criteria were chosen because we wanted to study children unfamiliar with the hospital environment, since children are often admitted to hospitals because of emergency conditions, and then they are very likely to go through a PVC. However, we sampled situations where the most urgent risk of serious harm and death for the child was *not* present if the intravenous access was not provided immediately. In the chosen situations, the risk to life was not as immediate, but the decision of PVC was still considered medically necessary. What is considered as "medically necessary" is more open for negotiation in less urgent and unclarified situations. When there is no immediate risk for serious harm to child health, there will probably also be more room for alternative considerations. A severely ill child would also be less able to react, and the room for negotiation and judgments with regards to how to perform the procedure with or without physical restraint would be less prominent. Therefore, the included children had, from a medical viewpoint, less severe diseases but at the same time could not wait for the PVC for a long period. Also, according to the The Health Personnel Act (1999) § 7, health care providers are obliged to provide necessary help even if the patient is unable to consent, and even if the patient objects to such care, *if* the help is urgently needed. To choose children that

fell outside the criteria of “urgently needed”⁴, we opened up a greater variation of other justifications and considerations.

Because the sampling strategy pertained to the characteristics of the children, no sampling criteria were used for the parents. It was, however, anticipated that most parents would be “non-expert-parents,” and thus would have other requirements and needs than more experienced parents (Kirk & Glendinning, 2002). Because the performance of PVC on a child is quite seldom in the child population in Norway, it was hypothesized that even though the participating parents had other children, it was less likely that they had experienced PVC or similar medical procedures earlier.

The same logic as used for sampling of parents pertained to the sampling of health care providers. The nurses and physicians had not yet become familiar with the particular family but were considered to be familiar with the medical procedure of PVC. The nurses and physicians who were assigned the responsibility for the sampled preschool child in need of the PVC were asked to participate regardless of experience, occupation or gender.

4.2.2 Recruitment

Before the study began, informational meetings were held in the hospital unit so that the health care providers were informed about the study before they were asked to participate. A recruitment nurse at the unit made initial contact with the health care providers and invited them to participate in the study. The recruitment nurse had the responsibility of obtaining informed consent from the participants. She had access to incoming patients, staff rooms and other areas where she became aware of upcoming PVCs. The recruitment nurse was educated in how to obtain valid consent, with particular attention to the Health Research acts §17 (who possesses competence to consent) and §18 (terms of research that includes people without competence of consent), which addressed children’s participation in research. If the children expressed that they did not want to participate in the study, they were not included.

⁴ The law text in Norwegian in The Health Personnel Act (1999) § 7: «Helsepersonell skal straks gi den helsehjelp de evner når det må antas at hjelpen er påtrengende nødvendig. Med de begrensninger som følger av pasient- og brukerrettighetsloven § 4-9, skal nødvendig helsehjelp gis selv om pasienten ikke er i stand til å samtykke, og selv om pasienten motsetter seg helsehjelpen.»

During the first possible recordable PVC-situation which fulfilled all the inclusion criteria, the recruitment nurse first asked parent, child and the nurse who all consented to participate. However, when the recruitment nurse then asked the physician to participate in the study, the physician declined and the video recording could not take place. Some physicians and some nurses on the unit remained consistent in not wanting to participate in the study and thereby all possible recordable future PVCs where they were involved could not be the source for data generation in the study. This led to a decreased number of possible situations, and to difficulties in getting access to enough situations. Among the reasons the health care providers gave for not participating was that they did not want to participate in the research project or that they did not want to be video recorded. Because of health care providers' reluctance, the recruitment procedure was changed to first secure consent from the nurses and physicians responsible for the PVC procedure before proceeding to obtain consent from parents and children. It was considered inappropriate to invite parents and children to participate, and then cancel because health care provider(s) declined.

Initially we had not asked the Ethics Committee for Medical Research (REK) to keep a record over situations that were not included in the study. This would also have been difficult to keep, since children and parents were asked to participate only when health care providers had accepted to participate. The field notes show that two children and two parents declined participation, and one of the parents had expressed that it was too much to handle in addition to the hospitalization and medical procedure. In a few situations, the physicians decided not to wait for the PVC to be recorded due to evaluation of the child's situation. Lastly, in some cases the recruitment nurse was not informed about the PVC and some possible situations were missed. Although another nurse at work was given the responsibility to notify her when she was not working herself, participants were seldom recruited when she was not at work.

Although the overall difficulty of recruitment was considered to be that health care providers declined to participate, the recruitment nurse noted that there seemed to be more admitted children between the age of two and five, than four and six. This led to changes in the inclusion criteria regarding the child's age. Permission from REK to change this was secured. Apart from the age span, the other inclusion criteria were kept. This change did however not alleviate the recruitment challenges. Because of the difficulties to recruit, six months into the data generation period, we asked REK for permission to register those situations that fulfilled the inclusion criteria, but were not included in the study. Such registration was attempted to

keep by the recruitment nurse, but became very difficult to record because of the previously described situation. It was therefore not possible to maintain a detailed record of the missed recruitment situations. However, the information from this recording attempt supported the indication that the main reason for challenges in recruitment and lack of inclusion was that health care providers hesitated and declined to participate. To try to increase willingness to participate, the researcher spent days at the unit talking to nurses and some of the physicians during lunches. Although records of missed recruitment situations are not common in exploratory research (Polit & Beck, 2008), in retrospect the major difficulties with recruitment can be considered a weakness and warrant some caution in interpretation of the results.

4.2.3 Participants

The sample for the study consists of parents, children, nurses and physicians. Six children between three and five years old were included in the study. Eight nurses and seven physicians agreed to participate in the study. They formed eight different teams. The nurses were between 26-46 years old and the physicians were between 32-44 years old. All physicians, and all but one nurse, were female. Their experience in somatic pediatric hospitals ranged between one and eight years, apart from one physician with only two weeks of experience. Three fathers, four mothers and a close relative (woman) participated. Initially we wanted to only recruit parents, but in one case, a close relative was invited because she had been present together with the mother during the PVC, and considered to have a “parenting role”. Although one participant was not a parent, further in this dissertation the term “parents” will also include the close relative. Parents were between 23 and 54 years. They had various previous hospital experiences, most typically from other medical procedures in addition to the PVC, with the same or older children. Descriptions of participants and insertions of PVC are shown in Table 1.

Table 1 Contextual characteristic of the participants and PVC

	Boy 1	Boy 2	Boy 3	Girl 1	Girl 2	Girl 3
Relatives involved (n=8)	Mother	Mother	Father	Mother and other relative	Father	Mother and father
Nurses involved (n=8)	1	1	1	3	1	1
Physicians involved (n=7)	1 ^a	1	1	2	1 ^a	2
Prior medical procedures performed during the child's stay	PVC and veni-puncture	None	Veni-puncture	PVC and veni-puncture	Nasogastric tube and veni-puncture	Veni-puncture
Time hospitalized prior to PVC	5 days	12 hours	1 day	1 day	1.5 days	3 hours
Number of attempts needed to insert the PVC (n= 14)	1	1	2	4	3	3
Accomplished venous access	No ^b	Yes	Yes	Yes	Yes	Yes

^aIndicates the same physician. ^bThis PVC was stopped before they inserted the needle; first, the procedure was postponed and later cancelled. The physician double-checked the boy's medical need for the PVC by calling the external medical unit that had ordered the PVC. The PVC was no longer judged necessary.

Most children had experienced another potentially painful medical procedure earlier during their hospital stay as described in table 1. Because our focus was the actions and interactions during the PVC procedure, we did not collect specific information about the included children's specific conditions. The unit where they were admitted cared for patients with general medical conditions such as infections, as well as diagnostic investigation of diffuse somatic pain. All the children were examined by a nurse and a physician and were not considered to be in an urgent need for an intravenous access, but could wait some time (necessary for setting up the equipment to video record the procedure) for the PVC. The health providers were expected to follow their usual practice for preparing and giving information about the PCV. Parents and child had therefore already received preparatory information about the PCV before the researcher was contacted about a possible case for data generation and recording of PVC. The information about this study was given at the same time as the participants were asked to participate. To gather data about the participating health care providers, parent and child, as well as information and preparatory process we included questions about the participants' background, information and preparatory routines in the interviews with both parents and health care providers. According to parents and health care providers (from the interviews) the children and parents were to some degree informed and

prepared together prior to the PVC, or they considered that they did not need information because they had already received a PVC during the present stay (see table 1).

Physicians decided about the necessity of the PVC, and how urgent it was. Four children were cannulated by other physicians than those who ordered the PVC in the first place (see Table 1). In the case of boy 1 and boy 3, an expert from another specialist department had ordered the PVC, in the case of girl 3, a junior physician was delegated the responsibility for the insertion. For two cases (girl 1 and girl 2) the insertion had been postponed because of time constraints during the morning shift where the PVC was decided.

Two of the PVCs were performed during the day shift (boy 3 and girl 3), while the others occurred during evening and night shifts. All children were provided with a local, topical anesthetic cream (Emla™). Because the children's conditions were not urgent the health care providers ensured that the anesthetic cream was on for more than one hour to allow it to have sufficient effect to reduce pain. PVC was also observed to be attempted placed outside the area where the cream had been applied, at least three times. Girl 2 was medicated with midazolam two times during the PVC.

4.3 Data generation

Video recorded observations and interviews were used to collect data from naturally occurring instances of PVC, in addition to field notes. By combining different types of data the analysis is more robust and results more complete (Hammersley & Atkinson, 2007). Collecting these two types of data can illuminate differences between what the participant *said* they did and what we *observed* that they did. This can be relevant when investigating sensitive topics like restraint, because the participants can be unwilling to fully disclose what they ascribe meaning to, because it can be hard to defend professionally, ethically or legally. Different methods generate distinctive sets of descriptions, versions and understandings of the world. Rather than struggling to identify “the true story,” attention in the analysis was paid to the coherence and plausibility of the accounts that the different types of the data and interpretations provided (Atkinson & Coffey, 2003). I performed all the interviews and video recorded all the observations included in this dissertation.

Observations

Observations were video recorded because “... it (video) provides optimal data when we are interested in what ‘really’ happens rather than in ‘accounts’ of what happens” (Jordan & Henderson, 1995, p. 50). The assumptions for observational strategies are that they enable the researcher to learn what is taken for granted in a situation and to discover what is going on (Richards & Morse, 2012). Video recordings are appropriate when one wants to observe and identify flow and patterns of action in detail (Fangen, 2010). Because medical procedures typically involve many participants and several lines of parallel actions that are difficult to observe and record precisely in participative observations, video recordings are effective for investigating the complex and often concurrent sets of interactions during such procedures (Jordan & Henderson, 1995).

The camera used was placed on a tripod in the procedure room. All except one medical procedure which was performed in a patient room were performed in this room. For video recording, the camera was located opposite the treatment bench approximately four meters away to be able to record more of the participant actions and interactions than merely the actual cannulation. I was present in the procedure room during the video recordings. I placed myself approximately a meter or two away from the camera and took care to avoid interacting in the situation. The PVC situations lasted between 10–94 minutes, but each video recorded case lasted between 10 and 45 minute. The difference in minutes relates to a break between two attempts/recordings, and the recording was stopped between them. The recording starting 1–2 minutes before the participants entered the room, and lasted until the health care providers indicated that they were finished with the PVC procedure. In total, 165 minutes of video were recorded from 14 attempts, and used for analysis.

Interviews

The qualitative research interviews were conducted face-to-face. All health care providers and parents were interviewed individually, apart from one mother and father who wanted to be interviewed together. The interviews were typically performed within the first few days after the PVC situation they had participated in. Individual interviews are considered especially suitable when one wants to obtain the participants’ own reflections and understandings of the research topic (Kvale & Brinkmann, 2009; Rice & Ezzy, 1999). My presence during the video recorded PVCs allowed for the interviews to be a setting where actions and interactions were common knowledge to both parties.

Thematic interview guides for both health care providers and the parents were developed, based on literature and my earlier experience. Thematic interview guides are useful to ensure that a specific set of topics are covered (Polit & Beck, 2008). Themes and questions for the interview with the health care providers were prepared and organized into five areas: 1) terms used in reasoning and considerations about restraint, 2) perspectives on the child/preparations of the child, 3) the parents' role during the procedure, 4) cooperation and discussion with colleagues, and 5) their evaluation routines. The themes and questions for the interview with the parents focused on four areas; 1) experience of the PVC and the cooperation (or the lack thereof), 2) reflections on and expected consequences for the child following the PVC, 3) experience and understanding of own participation in the medical procedure, 4) experience with and understanding of health care providers' actions during the medical procedure. When the interview started, the participants were first asked to talk about their experiences during the recent PVC they just had participated in. Since some questions in the interview guide had already been answered in these reflections, I selected additional questions from the thematic interview guide that were not already answered. The participants were also encouraged to elaborate on their accounts of similar situations they had been involved in. Because of the exploratory nature of the investigation, some themes would emerge during one interview, and were thus formulated as questions in the next interview.

At the end of the interviews with the health care providers, I wanted them to watch the video recording they had participated in and comment on the video recording because a video recall procedure is valuable when one wants to address the meaning behind actions and interactions that took place (Welsh & Dickson, 2005). Before the replay of the video recording, the participants were directed to comment on anything that came to their minds while they watched the video recording. After the video recall session was over, they were asked if they thought in retrospect that they would have done anything differently. The intention of playing the video recording at the end of the interviews was to gain access to the health care providers' own perspectives regarding how they experienced the situation before they saw themselves from the "outside."

Three participants declined to watch the recording due to time constraints or an expressed aversion to watching themselves on video. Because of unfortunate technical problems with three interviews, three other participants did not watch the video recording. Overall, nine health care providers (four nurses and five physicians) watched and commented on the video

recording, and their views on the recordings were included in the analysis. Due to the reduced number of videos the planned video recall procedure became less useful than planned. In the written information about the study, the parents were informed that they could watch the video if they wanted to, but no one requested to watch it.

A few health care providers were reluctant to share reflections and thoughts in the interviews. They were less interested in elaborating and gave short answers. Since physical restraint is a sensitive and complex topic, the interviewer did not push for answers in such situations, but acted friendly and tried to make the participants feel confident about their opinions.

The interviews with the health care providers took place during the health care providers' working hours in a separate room in the hospital. All interviews were audio taped and lasted between 47 and 108 minutes. Most interviews took place right after the PVC, but for three of the physicians their work schedule and responsibilities made it difficult to schedule the interviews close in time to the PVC.

Six of the interviews with the parents took place in a room at the hospital. The last interview was conducted in the home of one of the parents. The interviews were audio-recorded and lasted between 45 and 151 minutes. In addition to me who interviewed the parents, the recruitment nurse participated as an observer during five of the interviews with the parents, in which she wore her nursing uniform during four of them. She had not had any nursing responsibilities for the involved families. The interview climate was considered friendly and positive and most parents willingly shared their experiences.

Field notes

Field notes were written during the data generation period. Field notes are useful because they enable a return to what was said and heard, and can be useful during analysis (Fangen, 2010). Field notes were written after each PVC which was video recorded. These notes were not descriptions about interactions in the PVC situation, because that was covered in the recordings. Instead they contained methodological and contextual information about the PVC. Notes were also made after interviews and after visits in the field. Examples of content are reflections on recruitment, thoughts on preparation and similarities between video recordings or essential themes to be covered during the next interview. The notes included information

about participants' attention to the camera and the researcher as well as discussions and questions asked by participants when the camera was rigged.

4.3.1 Researcher position

As a researcher, I entered this field study with my pre-understandings and personal experiences about practices and procedures of restraint. I was hospitalized three times before I was twelve years old, and remember my alertness when I recognized the steps in the hall before a health care provider entered my room for to me, unknown reasons. As a mother, I have accompanied my children to meetings at different levels of the health care system, due to severe and less severe conditions and chronic illness. I have watched and participated in physical restraint during medical procedures such as PVCs, finger pricks, sewing wounds, vaccinations and monthly insertions of injections.

As a professional nurse specialized in pediatric care, I am influenced by experiences from pediatric units, as explained in the opening sections of the dissertation. My clinical nursing experience with medical procedures is from four different children's units in a larger university hospital, but not from the hospital unit studied for this dissertation. My clinical experience ranges from caring for long term hospitalized children and families, to caring for children and families with shorter acute illnesses. I have worked with patients diagnosed with cancer, lung conditions, multiple types of infections and gastro intestinal diseases. I have cooperated with parents and with other nurses, bioengineers, physicians, radiographs, anesthetists and play therapists, in the performance of a range of different medical procedures with preschool children. The most common were naso- gastric tube insertion, peripheral vein cannulation, wound dressings, blood sampling, inhalation treatment, blood pressure measurement, as well as injections and insertion of ureteral catheters. I have used physical restraint with more or less force with children on a weekly basis for many years, mostly with the help of parents.

When I entered this research field, I was of course influenced by my background in nursing and my familiarity with the use of physical restraint. At the beginning of the study, participants exhibited some skepticism towards me as a researcher and the topic of the study. To address any skepticism, I had the opportunity to inform and discuss the project with nurses

and physicians at the end of staff meetings. I also prepared flyers and placed them in the staff room and displayed posters with short information about the project. My background as a pediatric nurse helped to establish trust and confidence, allowed me to video record the PVC, perform interviews and have one-to-one conversations with nurses and physicians. When the health care providers had a chance to discuss the topic, many of the conversations concluded with a common desire to know more about physical restraint.

All the video recordings of PVC resembled situations I had experienced as a nurse, and many of the phrases used could have been mine during similar medical procedures. Thus, I tried to become aware of unconscious anticipations and preconceptions, and discuss emerging results with my supervisors and team of colleagues. Due to my familiarity with the health care setting, equipment and admission processes I considered myself at risk of jumping to conclusions or unsupported results, thinking that I knew what things meant to the health care providers and parents. The medical procedure was accessible and familiar to me as an analyst. Analytic work, then, draws at least in part on experience and expertise as a competent member of social systems (Jordan & Henderson, 1995). In the interviews, I sought to pay special attention to the words and phrases that were used and that could have different meanings. For example, specific expressions like “tense mother” had a specific meaning to me during my clinical work as a nurse, but when participating nurses stated during their interview that “the mother was tense,” I followed up to ask them to elaborate on what they meant by “tense”, how they could tell a person was tense, and how they handled it. In addition, watching again and again the recorded PVCs helped me to look at the situation with “new” eyes.

Overall, I think my background in hospital pediatric care and awareness of preconceived understandings did help me to explore restraint in a more informed way. I knew for example that newly admitted preschool children could be skeptical to people in white clothes, so I dressed casually, usually in a sweater and jeans. Also in placing the camera in the procedure room, I sought out the best angle for capturing the entire interaction. To my surprise, I found it emotionally difficult to be present in the procedure room during the video recordings because of the intensity of some of the children’s screams, the parents’ emotional expressions and health care providers’ disappointment over a missed attempt.

My previous experience has been both helpful and unhelpful in trying to understand the practice of physical restraint. My experience as a mother during medical procedures

performed on my own children and my own experiences from hospitalization as a child allowed me to consider the parents' and children's perspectives. Several factors could have affected the data generation and the analysis of the data in ways that I am still not aware of. Moreover, there are probably still parts of my preunderstanding that are inaccessible to me. To consult with supervisors constituted as an interdisciplinary research team (physicians and nurses) with non-pediatric backgrounds enhanced the interpretative rigor in the analysis. The research team specialized in adult health care and practice, and had experience with interaction-analysis, ethics and practical skill learning. They provided helpful insight in different parts of the research process. In addition, perspectives from symbolic interactionism helped to approach the analysis in ways that moderated the focus beyond my own close-to-practice understanding of physical restraint.

4.4 Analysis

Initial impressions from the generated data pointed to the importance of interactions between the people present. In seeking perspectives to approach this analytically, SI was considered an organizational and appropriate interpretative perspective in the analysis. At first glance this may look like selecting or fitting a theoretical perspective and artificially “cramming” of the evidence to a perspective (Polit & Beck, 2008, p. 158) after the problem is formulated and data generated. However, the exploratory nature of the present study justifies selection of theoretical perspectives that can enhance the meaningfulness of the study.

It can also be justified to choose a theoretical perspective after data is generated when the researcher is struggling to make sense of results, and calls on existing theory to help explain and interpret them (Polit & Beck, 2008). Data generated from video recorded observations, field notes and interviews in natural settings are commonly considered suitable for interpretation with perspectives from SI; because they stem from natural group settings and human conduct (Blumer, 1969). Because the data on PVC was rather rich in emotional expressions we had to assess the suitability of using SI. Earlier research within SI may be criticized to under-emphasize emotional and unconscious elements in human interaction. (Benzies & Allen, 2001). However, several studies have investigated emotions, for example by showing how “feeling-rules” exist that determine when and which emotion will be unconsciously performed (Fine, 1993). The way the spontaneous “I” is conceptualized within the SI perspective, provides a mechanism for exploring emotions (Benzies & Allen, 2001),

and opens up for sensitivity to non-verbal gestures in the interactions that could influence the persons' ascribed meaning to symbols and things.

Furthermore, the chosen data generation strategies; observations, field notes and interviews, are recommended as appropriate in texts about SI (Blumer, 1969; Herman-Kinney & Verschaeve, 2003). Video recordings can be watched multiple times, which gives the analyst direct referents to illustrate actions, interactions and relationships (Herman-Kinney & Verschaeve, 2003). Thereby, the video recordings can increase sensitivity to otherwise unconscious gestures or non-articulated processes. The interviews, assisted by the interview guide, had open-ended questions to elicit the parents' and the health care providers' own meanings about the thematic area and experiences under study which is considered important within a SI perspective (Blumer, 1969). Some health care providers joined a video recall procedure, also frequently used in SI-projects to emphasize individuals' subjective understandings of their interpersonal experiences (Welsh & Dickson, 2005). Thus, although the study's data generation was not initially planned for and generated with the explicit perspectives of SI in mind, the data was considered appropriate for analytical interpretations with perspectives from SI based on literature concerning the use of SI in research studies and on an assessment of the methods used for the data generation in this study.

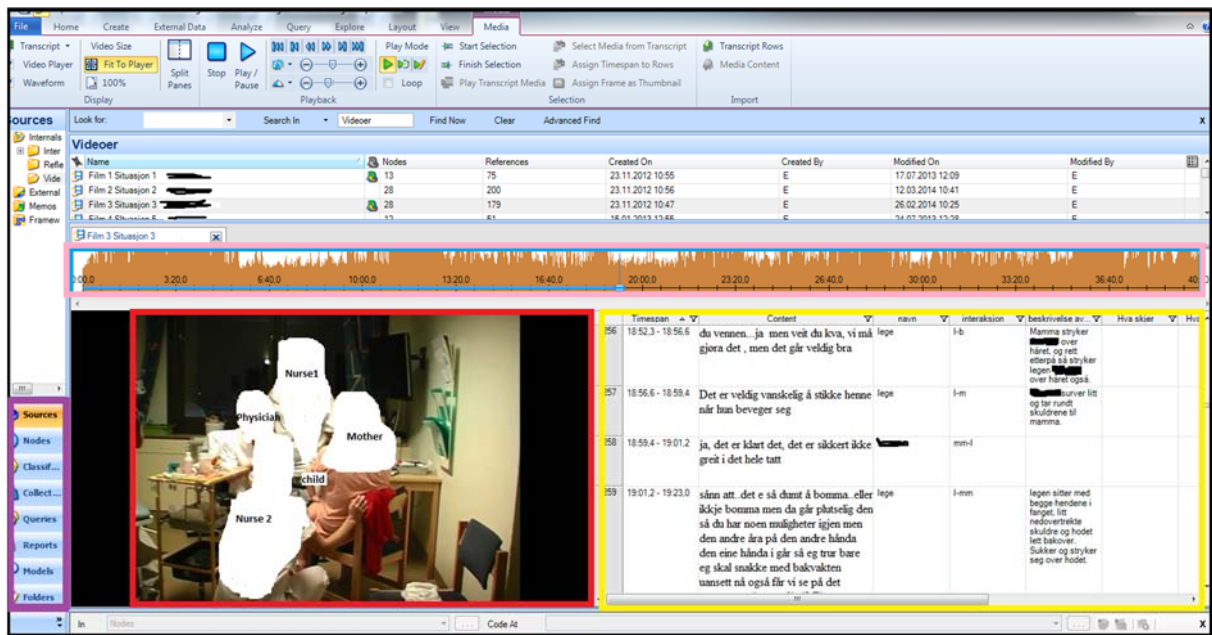
4.4.1 Transcription

The video recordings and the interviews were transcribed using the built-in transcription software tool Nvivo10™. Nvivo10™ is software developed for analyses of qualitative data.

Transcription of video recordings

Verbal actions, selected facial expressions and nonverbal signs were observed and described in transcriptions of the video recordings. To ensure contextualization of action in the transition from video to text data, much caution was put into the transcription of actions and context. When non-verbal actions were transcribed, the audio was switched off to concentrate on the actions. This was important because the screams and cries in some of the videos were so intense that concentration on other aspects of the recordings was difficult at times. An example from a transcript of a video recording capturing PVC is presented in Figure 1 with a screenshot of Nvivo10™.

Figure 1 Example of video recorded transcript of PVC with screenshot of Nvivo10™ workspace



The pink frame shows a visual diagram of the audio in the video recording, the red frame shows the video recording, the yellow frame show the transcripts with the columns and rows and the purple frame shows the analytical toolbox with nodes.

The transcription tool within Nvivo10™ allows for creating unlimited numbers of columns and rows (the yellow frame in Figure 1). These columns and rows are next to where the video is played in the Nvivo10™ workspace (the red frame in Figure 1). The transcript is written in these rows and attached to the timeline as the video recording is played (timeline and audio showed in the pink frame). The rows scroll automatically when the video is played.

Next to the verbal transcript column (i.e., talk, laughter, and cries) is a column where the participant is identified. The adjacent column identifies who the verbal or non-verbal action was directed at (i.e., child – parent or nurse – physician), and the next column described non-verbal actions. Finally, one column indicated elements such as “what is going on,” “what are the parallel actions,” “contradiction between action and word,” or “sound from outside the camera frame” (these do not show in Figure 1).

Within Nvivo10™, the transcriptions followed the action on the recordings while the video played and enabled validation of the audio’s words, sentences, and sounds as well as an accurate description of the non-verbal actions. After transcribing, the video recordings were played parallel with reading through the transcripts to ensure the transcription’s validity. Because the recruitment of participants lasted for one year, the transcription of a video recording was mostly complete before the next started.

Working with transcripts is important for the analytical work in the sense that it involves sorting and arranging the data. The example of the workspace is shown in Figure 1 and was taken from one video recording approximately 19 minutes into the situation. By using this system of columns and rows, we could gain an overall grasp of the turn-taking in actions and interactions among the participants (i.e., who spoke to who, who did not respond when spoken to). During this phase of the analysis, we delineated 14 attempts to place the cannula. These attempts had a marked beginning and end. The start was marked when the health care providers turned their body and attention toward the child and ended when they signaled an attempt was over by moving their body away from the child. We created heuristic maps with overview of each attempt, and this helped to compare the different attempts in the analysis.

Transcription of interviews

The interviews were transcribed verbatim, including both interview questions and participants' answers. Pauses and sighs were also marked in the transcript. The transcription of the interviews resulted in 144 pages for the parents, 182 pages for the physicians, and 161 pages for the nurses, all with double line spacing. An example of an audio recorded interview transcript is presented in Table 2.

Table 2 Example of audio recorded interview transcript with a nurse.

Transcript row	Time into the interview	I/ P *	Transcribed verbal actions
40	12:35,6 - 12:38,7	I	Hm.. da er utfallet på en måte litt gitt da?
41	12:38,7 - 12:46,6	P	Ja, i ...ja i mange tilfeller så er det nok det vil jeg tro.(kort pause)
42	12:46,6 - 13:01,8	I	..men..informerer du på en annen måte da? Til utrygge foreldre enn til trygge foreldre? Eller tenker du at..hvordan tenker du?
43	13:01,8 - 13:53,0	P	tja..altså jeg prøver vel ..prøver vel, når du først har utrygge foreldre, da....altså jo mer utrygge de er jo tryggere prøver jeg å fremstå. Også bruker jeg vel egentlig litt mer tid og bruker litt mer tid på å forklare i detalj og kanskje lissom begrunnelsen bak det å legge venflonen og effekten det vil ha på behandlingen og sånn da, legger litt mer vekt på at de skal skjønne at det er viktig og hvorfor også er det ofte bekymret for smerteopplevelsen og sånn da og da legger jeg ofte trykk på at det er nødvendigvis ikke smerten som er det verste, men det er frykten for hele prosedyren og bli holdt og at det er en nål med i det hele tatt og at de er hvitkledde og ofte er det verst for barnet da.

44	13:53,0 - 14:08,2	I	Opplever du da...hvordan opplever du da de foreldrene som er trygge da, da trenger du ikke å gå så ...da blir det litt annerledes?
45	14:08,2 - 14:56,2	P	Ja....det f...det...føler at det da....hm...altså hvis de i utgangspunktet er trygge, så trenger jeg bare å fortelle eh...fortelle hva som skal skje og sånn en gang også er det liksom greit, da, jeg trenger liksom ikke å overbevise dem om at det her er trygt og om at det er trygt og forsvarlig da, og nødvendig. Mens utrygge foreldre, da de har... ofte spørsmål i tillegg og trenger litt mere utdypning, da.

*Interviewer (I) Participant (P)

Similar to the transcription of the video recording, after transcribing the interview each audio taped interview was played parallel with reading the transcripts to ensure validity in the process of transcription. Because the recruitment of participants lasted for one year, the transcription of interviews resulting from one video recording of PVC was completed before the next started.

4.4.1 Analysis of observations and interviews

Blumer (1969) considered methodology within SI as flexible, and there are few specific hands-on directions for data analysis. As noted by Hsieh and Shannon (2005) most studies organize their data at the onset of analyses. In this study, content analysis and interaction analysis was used in the preliminary data analysis to help arrange and gain an overview of the data.

The perspectives from SI were useful in the analysis of data because they directed the research focus to the commonalities in the symbols used, and how the individual actors acted based on interactions and the meaning things had for them in the situation. We noted how rich the data material was with verbal and non-verbal gestures, cues, signs, ascribed meanings and conflicting indications. SI inspired us to study in more detail the gestures and the actions – interactions - reactions to these gestures, and then again, allowed for the apparent re-interpretations of these gestures.

Study I and II use material from the video recorded observations. Interactions can be carefully observed in video recordings, and this is an excellent source for analysis of the interactions and verbal and non-verbal gestures. The interactions can be organized or presented sequentially to produce a visual narrative that is suitable for SI- interpretations (Curry and Clarke 1977; Harper 2000). The PVC is sequentially presented in the video recordings and the

participants express their own approvals and disapprovals and thoughts in several ways. The video recordings were considered appropriate for this approach to data analysis. Study III used the audio-recorded interviews and the transcripts in the analysis. Content analysis was used at the beginning of the analysis to interpret the participants' ascribed meanings and symbols acted upon.

In all sub-studies (apart from sub-study I), SI guided the process of analysis from the start leading to sharpening of the specific research questions and analytic focus. In sub-study I, the research questions were fine tuned in the final stage of analysis to focus on what the children seemed to ascribe meaning to.

Sub-study I

In sub-study I, a preliminary inductive content analysis was performed, supported by features in Nvivo10™. The built in features of Nvivo10™ have commonalities with basic principles of content analysis (Elo & Kyngäs, 2008; Hsieh & Shannon, 2005; Kondracki, Wellman, & Amundson, 2002). The way Nvivo10™ is constructed and used facilitated a certain way of performing data analysis based on coding in both transcripts and directly in the video recordings. The different descriptions of the children's words and gestures were allocated to different Nvivo10™ nodes (see purple frame in Figure 1). A node was a collection of references formulated according to the type and quality of data and could contain one or several similar descriptions of expressions. One node had a specific color in the transcript and the same color appeared in the recording. The next step of the analysis was to cluster the nodes into types of expressions of resistance and further analyze them based on SI.

SI allowed for an examination of how the children organized their responses based on what the adult's gestures could mean to them. This provided a more nuanced understanding of the children's expressions, and we could interpret verbal and non-verbal expressions as well as what they directed their attention towards. This is in accordance with SI where the symbols that people use to express themselves, are public and can be read by the one who observes them and can understand the codes (Album, 1994). The video recordings were rich in verbal and non-verbal symbols and gestures present in the interactions. We could gain more insight to the children's presumed meanings through an interpretation of how they expressed themselves. SI brought into the analysis a stronger focus on how the interaction was impeded

and how formation of joint action was blocked when the children resisted. The study pointed to what the children acted upon and seemed to attach meanings to, and we abstracted, grouped and named this to better understand the patterns of interaction.

Sub-study II

The initial technique used to analyse data for sub-study II was interaction analysis (IA) as outlined by Jordan and Henderson (1995). Interaction analysis originates from interactionism and despite some smaller differences in concept-use, interaction analysis share many of the underpinnings of Symbolic Interactionism (Blumer, 1969; Jordan & Henderson, 1995). IA was developed for analysis of recorded observations of behavior in natural settings, and is a strategy to determine the social mechanisms inherent in situations and to identify participants' mutual dealings (Jordan & Henderson, 1995). The aim is to theorize about reality based on the interactions among members of a group in the material world, and take actions and interactions as fundamentally social in origin when one seeks to understand how people make sense of each other's actions (Jordan and Henderson, 1995). Following practices set out by Jordan and Henderson (1995), we approached the material in terms of analytical foci, that is "ways of looking" or orientating tools for analyzing a tape as opposed to categorization and transcript condensation. This strategy helps the researcher to move the observation from ordinary viewing to "systematic seeing" (Patton, 2011). "Turn-taking" is one such analytical foci that may encompass a whole range of activities through which people can take turns (Jordan & Henderson, 1995). By focusing on turn-taking, parts of the interactions were identified as both fluent and non-fluent. According to IA, shifts in turn-taking can indicate shifts in situational meaning and open for examination of how the participants' mutual availability and alignment becomes visible through mutual engagement and disengagement (Jordan & Henderson, 1995). The analysis in sub-study II focused on who coordinated what with whom, who initiated the interaction, who concluded the interactions in addition to how these constellations changed over time. Specifically, we added analytical questions during this process based on SI, such as: What characterizes the participants' orientation in the meaning making and who forms alignments with whom? How do health care providers and parents make their engagement (or lack thereof) visible to each other? SI enabled an interpretation of situational meaning, pointing to what parents and health care providers negotiated about during execution of the PVC.

Sub-study III

Sub-study III-H was based on the interviews with the health care providers. Kvale and Brinkmann (2009) suggestions for interview analysis guided the preliminary analysis. Transcripts were examined to clarify the participant's perspectives by marking off sections of text that represented one assumption, meaning or reasoning. This interpretation sought to identify the participants' self-understanding. In the next phase of the analysis, these text parts were clustered into more than 30 fine-grained subcategories. The categorization phase formed the basis for identification and exploration of commonalities and differences among the different categories and represented an understanding of data within a context of critical common-sense. The different categories were compared while going back and forth between data and the perspectives of SI to allow new insights to emerge. In the analysis we attended to the health care providers' definitions and interpretations related to physical restraint, and how their attached meaning influenced anticipations and use of restraint during the procedure. During this process the detailed subcategories were organized into the four final themes.

Sub-study III-P was based on the interviews with the parents. To obtain extensive familiarity with the content of the parents' perspectives, the interviews were played back several times, and the transcriptions were read several times (Elo & Kyngäs, 2008; Kvale & Brinkmann, 2009). Words and sentences containing manifest information relevant to the research questions were identified as natural meaning units (Kvale & Brinkmann, 2009). The context provided by the video recordings of the PVC and the field notes were considered when the meaning units were condensed into categories. However, the condensed categories did not fully capture the parents' meanings and ambivalence. To further interpret the participants' meanings and ambivalence, we went beyond what was directly said to work out structures and relations of meaning not immediately apparent in the text (Kvale & Brinkmann, 2009), focusing on what kind of conduct and behaviour parents expected from themselves, their children, and health care providers and how meaning was ascribed to that conduct. An example of how we gained a deeper insight into these meanings was by noticing common ways of phrasing answers during the interviews. Parents first gave a positive remark about the performance of the medical procedure or the health care providers, followed by a "but", which included critique or a negative experience. The negative phrase was often followed by another "but", which included an excuse or explanation for the negative remark. The following quote is an example of this: "The health care provider was absolutely fantastic in

every single way, *but* she could perhaps have taken it a bit more slowly when I tried to explain it to her, *but* I guess it is not that easy when you have other sick children waiting”. The use of “but” seemed to invalidate the previous remark. The analysis of the parents’ use of “but” did enable interpretation of the categories. The analysis showed diversity in the reported experiences with the PVC procedure. Most parents had multiple worries and emotions regarding PVC, while one father claimed to feel unaffected about his participation. However, as the analytical work proceeded, we identified that the parents were in a constant negotiation with themselves about being protectors of their child’s interests and being assistants for the health care providers. The experiences parents ascribed to the situation and how parents expressed expectations to themselves and the health care providers during the medical procedures of PVC resulted in two themes, which were abstracted from six categories, as presented in Table 1.

Table 3 Overview of analyses sub-study III-P

Themes	Categories
Negotiating what quality of PVC performance to expect	<ul style="list-style-type: none"> • <i>Expecting child- friendly encounters</i> • <i>Performance of PVC caused unexpected and unnecessary suffering for the child</i> • <i>Explaining and excusing the performance of PVC</i>
Negotiating own role in child suffering during the PVC	<ul style="list-style-type: none"> • <i>Ceaseless strive to be acknowledged for suggestions on how to ease the procedure for the child</i> • <i>Uncertain consequences of the procedure for the child</i> • <i>Parental protective role and self-criticism</i>

4.5 Ethical considerations

The study was designed in accordance with the ethical principles for medical research involving human subjects as stated in the World Medical Association’s Declaration of Helsinki (2013). Approval for the study was obtained from the South-East Norway Regional Ethics Committee for Medical Research (REK south-east C 2011/2193). In the clinical

setting, hospital leaders, unit leaders and research leaders consented that we could recruit participants to the study.

Considering the vulnerability of children as a patient group and the potential sensitivity of the chosen research theme, many issues were taken into consideration when designing the study and prior to recruitment and inclusion of participants in the study. These were issues related to child participation and assent to research. According to the Health Research Act (2008) §18, minors can only be included in research if a) any risk or inconvenience to the person is insignificant, b) the person himself does not oppose it, and c) there is reason to assume that the results of the research can be of benefit to that person or to other persons of the same age-specific disorder, disease, injury or state. To perform research on minors requires that similar research cannot be done on people who are not minors.

To further ameliorate these problems, information material about the study was carefully developed. We obtained written, informed consent from parents and health care providers. In addition, the parent consented separately to their child's participation and did so by signing on a separate line in the consent form. At the time of the interview, the participants were asked to confirm that they still were willing to participate in the study. This procedure ensured voluntariness of participation, and compensated also somewhat for the little time for the parents to make deliberations on participation when the video-recording of the PVC was set up. Informed consent can be problematic in qualitative research because data generation and analysis occur simultaneously, and, whilst consent may be implied at one stage of the research, it cannot be assumed at another stage if things are changed on the basis of the information provided (Holloway & Wheeler, 1995). The recruitment nurse obtained initial consent to the video-recorded observation from the participants, while the researcher obtained the final oral and written consent at the time of the interviews.

To keep the risk and inconvenience for the child as insignificant as possible, it was important that no additional PVC was performed to carry out the study and that all included children were in actual need of PVC. A potential risk was that the involved health care providers would be stressed by the presence of a video camera and consequently missed the vein. A missed attempt could result in discomfort or pain for the child. These risks were anticipated; however, although fourteen attempts on six children imply missed attempts (see table 1 for details), this number was not greater than those reported in other studies (see for example (Crellin et al., 2011; Larsen et al., 2010). Although the presence of a video camera could

cause stress, it could also encourage health care providers to do their best, which is beneficial for the child.

To fulfill the Health Research Act §18, with regards to the requirements that “the person himself does not oppose it [inclusion in research],” we attempted to obtain oral assent from minors. Two preschool children did not want to participate in the study after explanation of what it meant to participate in the study, and their refusal was accepted. For the children who did give their initial consent, we remained attentive to possible opposition during the video recording. Although this was difficult to determine because many children displayed much resistance, we have all reasons to assume that their opposition was directed toward the medical procedure and not the camera. The last requirement, that the research should be beneficial for the person or other persons of the same age-specific status was also fulfilled, because we assume that other persons could benefit from the results from this research. This reason is also important for parents when they consent to their child’s participation in research (Sammons, Atkinson, Choonara, & Stephenson, 2007). Complying with this clause, the research could not be performed on adults. It is anticipated that researching the practice of physical restraint and its potential results will help improve the administration of future medical procedures such as PVC.

There was a discussion among the members of the research team whether to use the term “tvang” (the Norwegian word for “restraint”) or “holding” in the written information to be distributed to participants. The word “tvang” was selected to avoid obfuscating the aim of the study for the participating health care providers and parents and so that the words used in published articles would not come as a surprise to them. Research that involves deceiving the participants about its nature and intentions is generally considered unethical (Rice & Ezzy, 1999) or at least more difficult to defend. Thus, we were open and transparent about the aims and preunderstandings of examining restraint during the PVC practice.

The recruitment nurse explained that many potential participants refused to participate in the study, citing different reasons such as time-constraints, distress or lack of interest in the study. Participants from all the different groups of participants declined to participate, but a record and an analysis of the characteristics of those who declined was not performed. Refraining from participation may be connected to how explicit the study’s theme was to participants. Qualitative research can threaten participants, even if it is intended to have a positive effect

(Holloway & Wheeler, 1995). It can be uncomfortable to be studied when performing a sensitive practice as challenging and unwanted (Cowles, 1988) as physical restraint.

The process of voluntariness seemed to work well. However, it may be possible that some health care providers and parents felt obliged to participate. As with patients, parents are in a vulnerable position because their child is ill and because there is a dependency relationship between them and health care providers (Holloway & Wheeler, 1995). Because a nurse at the unit asked for consent to participate in the study, some parents could have experienced a pressure to participate rooted in the dependency to the hospital. In a study investigating parents motivation for consenting to research, most parents did not feel obliged to participate, but felt there was an advantage to take part (Sammons et al., 2007). The fact that the parents / relative upheld their consent in the interview supports the assumptions of voluntariness and real opportunities to refrain from participation if they had wanted to.

5 Results

In this section, the main results of each sub-study are summarized, apart from the results from the interviews with the parents (sub-study III-P). These are provided in more detail.

5.1 Results sub-study I

In sub-study I, resistance was assumed to be the children's way of showing their disapproval of or disagreement with the procedure. Children could display one or all of the types of resistance at different points of an attempt to place the PVC. Some of the children displayed resistance in a stronger manner than others. Children's resistance to PVC could be understood as:

Protest: During the expression of protest, the children demonstrated an insistent position and firmly maintained their view. Expressions of protest were observed when adults, either health care providers or parents, attempted to initiate contact, arrange for progress in the procedure or attempted to touch the children. These expressions were both observed immediately after entering the procedure room, before the actual start of the PVC and throughout different steps of the entire procedure.

Escape: Expressions of escape were identified when children were panicked and avoided the hands of adults when being approached. Expressions of escape occurred when health care providers or parents decided not to listen to protests and take direct actions. Consistently during the expressions of escape, the children did not make eye contact with the parents or health care providers and instead more clearly attached meaning to the health care provider's movements. The children appeared alarmed and aroused. They alternated their gaze between the health care providers' bodily movements and a quick look around the entire room as if looking for escape, support or to be saved.

Endurance: When expressing endurance, the children were stiff, motionless and introverted. The children's expressions of endurance comprised evidence of resignation throughout the procedure. These expressions were observed during most steps of the procedure in some of the children and in others at the end of an attempt where they had exhibited expressions of protest and escape. Expressions of endurance varied across situations and attempts at PVC.

The children expressed words in a sore, rhythmic voice that appeared to hinder the line of meaning. Expressions of endurance also comprised expressions of retreat and shielding from social interaction. Tense and motionless bodies as well as facial stiffness were typical of endurance. The children did not actively avoid eye contact, but rather stared out into space and did not respond to physical cuddling. Less physical restraint was required during endurance because it seemed like the children had “given in”.

5.2 Results sub-study II

Sub-study II, which examined the interactions between parents and health care providers, yielded three preliminary patterns of interaction. The first pattern, “*parents supported the interaction initiated by health care providers*”, was a response to the child’s expressed resistance, and the parents and health care providers performed firm restraint together. In this pattern, the health care providers initiated and tried to keep an unworried, friendly and normalizing interaction throughout most of the procedure. The parents supported and followed up on the health care providers’ initiation of these interactions; the parents only sometimes took initiative to instruct or make demands toward the children. Most of the children continued to express resistance despite these approaches, which resulted in less fluent turn-taking among the adults.

The second pattern, “*parents create distance in interaction with health care providers*”, appeared after failed attempts and had a short time span. Parents’ obstruction or reluctance to continue the interaction on the health care providers’ terms was identified. The parents distanced themselves from the health care providers in multiple ways, including the parents ceasing their own encouragements, demands, and requests toward the child and making their restraint less firm. This obstruction was seen in situations where the health care providers had failed attempts to place a needle and the child resisted strongly, but it was also seen in the situations where the children expressed less resistance. Parental distancing could be passive or more actively pronounced.

In the third pattern, “*health care providers reorient in interaction*”, the health care providers took over more of the restraint. The distancing of some parents led to two different types of interaction among the health care providers; the health care providers either helped each other to continue the interaction, or they stopped verbal communication and focused on completion

of the PVC. The first type of interaction was that the health care providers followed up on each other's initiatives as they praised or flattered the child. The phrases were typically spoken in an encouraging voice. A second type of interaction was an absence of verbal interaction within the health care provider team, focusing only on the technical performance of the procedure. In these situations, the child's uttering of discomfort or resistance was responded to with restraint. In both variations, the parents' distancing expressions were overlooked.

5.3 Results sub-study III

Results sub-study III-H

In sub-study III-H, the analysis resulted in three main themes: *Disparate views on the concept of restraint and restraint use*. Participants did not agree about core aspects of physical restraint: what to call such actions, how frequently restraint episodes happened, and the consequences of restraint. Their views varied regarding how much emotion and interest they attached to the phenomenon. "Holding" was the most commonly used term to describe all kinds and degrees of physical force used during the procedure. The lack of shared understanding of restraint could be related to that restraint was not commonly discussed among nurses and physicians on the unit, within as well as across the professional groups. The extent to which the participants allowed the issues of restraint to influence their clinical decision making varied. They had little knowledge about whether the use of restraint was legal according to regulations. Most health care providers shared the opinion that the parents' role was to hold the child on their lap during the procedure and "to be there for the child." Some understood how this could be difficult for some of the parents.

Ways to limit the use of physical restraint and its negative consequences. Restraint was mostly seen as something that was necessary and inevitable because preschool children had a natural disposition to resist medical procedures and strongly dislike being held still. Nurses had doubts, but felt they had few alternatives. The nurses and physicians asserted that they never used more force than necessary and that they constantly adjusted the forcefulness of their holding to the child's resistance. The participants said that they held the child's limbs only to prevent the child from withdrawing the leg or the arm. If there was a risk that the

child's resistance could ruin a PVC attempt due to movements that interfered with fixation of the PVC, they considered it better to apply physical restraint quite forcefully, to reduce the number of attempts. A common approach was to limit each physician's number of attempts. With little variation, the physicians stopped after three unsuccessful attempts at PVC and let a colleague take over, because after so many failed attempts they lost faith in their own abilities. The nurses also emphasized spending time to connect with the child, and to prepare the child for the sensory experience and the sequence of the different steps of the procedure. Preparation was considered a very important and challenging matter.

Experience with the role of parents and their influence on restraint. The perceived role of the parents of the resistant child was a key to minimizing and preventing the use of restraint. In the experience of most of the participants, the parents' emotional reaction to their child's resistance was challenging. Health care providers felt that the parent's strong emotions, such as tears, anger, insecurity, or doubts during a procedure, affected the child in ways that increased the child's tears, anger, and resistance. This tended to escalate, leading to more emotions, insecurity, and doubt in the parent, which again made it more difficult for the child to cope. This escalation of family emotions made the conditions and context for performing the procedure chaotic and difficult. Participants expressed how important it was to help parents remain rational and cooperative so that the health care providers in a controlled way could provide the child with intravenous access. Most health care providers felt it was very difficult to influence unconfident parents to behave more consistently toward their own children.

Results sub-study III-P

In the following, the results from the analysis of the parents' interviews are given in more detail, since they are not included in the published papers. In sub-study III-P, analysis revealed that the majority of the participating parents had multiple worries and emotions connected to the recent PVC.

Negotiating what quality of PVC performance to expect

In the interviews, the parents negotiated with themselves whether their expectations to the health care providers were reasonable. Parents tried to accept and appreciate the way the medical procedure had been conducted, but they did not entirely accept the unfavorable and

negative experiences with the particular PVC procedure and the use of restraint. Excuses and explanations were given for the negative experiences on behalf of the child, the health care providers, and themselves. In this way the parents adopted the ambiguous stance that it was understandable, yet not necessary for the particular PVC to be conducted the way it had been. The following three categories describe the elements of these negotiations.

Expecting child-friendly encounters. All the parents expressed that they appreciated when their children had received the appropriate time and had been met with understanding. A warm atmosphere and the use of distraction were considered positive for the child. Some parents thought it was nice when nurses spoke with their children, got to know them, and seemed genuinely interested and attentive. Parents especially expressed happiness with health care providers who did not let their busyness “shine through”. One parent put it this way: “The physician [...]⁵ was really good with children. She met her in all the right ways so to speak”. The parents labelled this a child-friendly approach. Parents emphasized how cooperation with the child depended on this child-friendly approach. After a less-experienced physician had missed the child’s vein, one mother reported the following:

The last physician that came in was much more like talking to the child before she started and got to know him, and I really think that she tried to be considerate and nice to him. I think that is crucial, because if a nurse comes in who is genuinely interested, she can do so much more with him afterwards than those who just want things done quickly.

Performance of PVC caused unexpected and unnecessary suffering for the child. Although the parents reported many positive experiences, they also described experiences that were less favorable. Except for one father, most parents expressed things about the situation they thought were negative or painful. These negative experiences were related to less child-friendly approaches, questionable performance of practical skills, and lack of planning of the PVC. The less child-friendly approaches concerned a rushed and forced progress in the procedure before the child was ready and the use of language that was too advanced. Some parents also criticized the health care providers for being inconsiderate because they perforated the skin outside the area of the analgesic cream. Some of the parents who had experienced missed attempts to place the PVC questioned the health care provider’s practical

⁵ The reference to the specific physician is marked with [...] and is not included

skills. One parent said: “Wasn’t this supposed to be a minor thing?” As to the planning of the PVC, several parents thought there had been too many people involved and expressed worries about the chaotic nature of the medical procedure and the lack of hygienic precautions. The father who did not express any concerns about the current PVC referred to an earlier experience which had been quite distressing. In that situation, the health care providers had not planned the procedure well enough, and the father felt very bad. Some parents described earlier experiences with restraint of their children during immunization-shots and blood sampling. They considered the current PVC different, not because the PVC was unnecessary, but because of the unnecessary suffering caused by the less child-friendly approaches, the missed attempts, and the unplanned nature of the medical procedure, in particular when the child resisted the procedure.

Explaining and excusing the performance of PVC. Those parents who had been critical provided explanations and excuses for why the performance of the medical procedures had not met their expectations. These excuses and explanations were related to the health care providers and external factors. Some said that the health care providers probably had sicker children to attend to or that the health care providers were tired because of long working hours. A mother who worked with children compared the health care providers’ environment with her own work space. She noted that it was probably not easy for the health care providers to relate to children because they seldom worked with children directly. She also suggested that communicating with children may not be a priority in health care providers’ work. A mother said: “But it is maybe not something that they think about as physicians. Because it is the professional language they use all the time”.

Most of the parents discussed whether one reason for difficulties in performing the procedure was related to characteristics of their child. One mother said: “...but, it was not an easy job either, because the child was so anxious, so it was not easy for them.” The parents used phrases such as “she is a stubborn one”, “she is usually very cooperative”, “he was very hungry and tired”, “he was not himself”, and “very sick of people in white uniforms”. The parents reflected on how their child often resisted performing tasks such as brushing their teeth and getting dressed and how they made their child cooperate. The mothers discussed the possibility that their child was a “difficult” child compared to others. After some deliberation however, they rejected these thoughts. One father said: “But it cannot be the first time a child has reacted in this way, can it?” implying that he had higher expectations of the health care

providers. Another parent sensed that the health care providers blamed the child for the difficult PVC:

So, the physician could perhaps rather have said that: ‘this is not an easy task for me either’, perhaps be a bit humbler there, instead of indicating that the child was completely impossible to perform (the PVC) on. So God knows what to do next! It was actually said between the lines, and we experienced that in a negative way.

Negotiating own role in child suffering during the PVC

In the interviews, the parents negotiated with themselves about the role they had and the role they should have taken. These negotiations were coupled with worries about the extent of their child’s suffering. The parents were uncertain about whether it was traumatic for the child to be restrained and suffer during the PVC. They scrutinized their own role and responsibility to the child before and during the medical procedure, and many seemed to become an unwilling partner in what they considered to be unnecessary suffering for the child. The parents elaborated on their potential role in facilitating the prevention of their child’s unnecessary suffering. The following three categories present elements of these negotiations.

Ceaseless strive to be acknowledged for suggestions on how to ease the procedure for the child. Five participants reported that their knowledge about their child was not recognized. Before and during the medical procedure, they tried to suggest how things could be done to improve the child’s experience and cooperation, but these suggestions were missed by the health care providers. Statements frequently started with “I tried...” One father said: “I tried to tell them that it was no use in trying that hand, because they had missed the vein there the day before” and a mother said the following:

I tried to tell them that I was better off sitting with her on the chair, but they did not respond. You can be quite good at making yourself heard in other situations, but in situations like this.... you are kind of outside yourself and....it feels like, it...it becomes difficult to reject [their ways of doing things].

Most parents felt it was natural for them to hold their child. However, one mother reported that her child resisted desperately, and she did not want to perform restraint on her child. She described how she, prior to the medical procedure, had tried to tell a nurse that she only wanted to comfort the girl and not be the “holder”, since using restraint was emotionally hard

for her. The nurse had promised to see to it, but when the PVC started, the physician asked the mother where and how she would sit with her daughter on her lap, and the mother then realized that her suggestions had not been acknowledged.

Uncertain consequences of the procedure for the child. Parents reflected on the child's experience with the PVC, the restraint, and the possibility of long-term consequences for the child or their relationship with the child. In some cases, the PVC experience was viewed to have no easy or comfortable result for the child. Most parents concluded that both the child and their relationship with the child had normalized as soon as the child's emotional arousal had calmed down, but the parents were still uncertain. These concerns were phrased more as hopes rather than beliefs that the experience would have no consequences for the child further in life. One mother exclaimed:

It was NO fun that she was held so hard. On the other hand, I do of course understand that they need to hold her that hard because they are unable to insert the device otherwise. But I don't think she remembers that much from it, because she did not talk much about it afterwards, about anything really. She does not remember anything.

Some parents also expressed concern for the next planned meeting with the health care system or were anxious about potential meetings in the future. A father reflected on to what extent the recent experience would cause long-term effects but also concluded that his relationship with his child seemed to be the same now as it was before the PVC.

Parental protective role and self-criticism. Apart from the mother who only wanted a comforting role, most parents seemed to at least implicitly accept the use of some degree of restraint. However, most understood their main role during the PVC as a facilitator or buffer. Being a buffer meant reducing the child's suffering by acting as a barrier between the child and the impact of the PVC. One parent put it like this: "This is not a new role you know, because it is the same way of doing things as at home and it is my kid. It is important because I am his leader and his safety-person". Not all parents had this understanding of their role, and most parents found different aspects of this role challenging or unclear during the medical procedure and the use of restraint. Although most had felt prepared for the PVC, one mother thought it was very emotionally hard to hold her daughter firmly through all the missed attempts.

Many of the parents reflected on their responsibility and seemed to struggle to decide if and how they could have prevented some of the child's unnecessary suffering. Without concluding on this dilemma, they decided to advocate for the child in a stronger manner next time. One parent put it this way:

Next time I do not think that I will give up on how they positioned her; she could see everything the way she ended up sitting, but could not see her own mother. Next time I will try to be a bit more determined.

Other parents had gained insights into how they would like the health care providers to act in the future. One planned to refuse the next injection unless the daughter was provided with a "happy-shot" first. Some parents were critical of themselves but felt unable to act: "I tried my best to take care of my son in the middle of all this, but I am perhaps not a person who nags or demand things."

The importance of taking more control of the situation was confirmed by the father who in no way thought it was difficult to be acknowledged and did not have problems with understanding his own role. He described experiences from earlier hospital visits which had been so terrible that he now considered it unproblematic and necessary for him to simply stop any medical procedure he considered unsafe.

6 Discussion

In the first part of this chapter, the results from the studies are discussed and in the second section, methodological considerations are presented.

6.1 Discussion of the results

The overall aim of this dissertation was to explore the use of physical restraint on preschool children who resisted medical procedures in a natural (i.e., non-experimental) setting, by interpreting the children's, parents' and health care providers' actions and interactions during the medical procedure of PVC. The subsidiary aims and research questions concerned the development of knowledge regarding how the participants were involved in structuring restraint.

The results from the sub-studies offer interpretations of how restraint occurs during medical procedures. Our analyses show that the different actors to some degree verify, or fail to verify, the presumed identities of the other actors during the studied medical procedure. Restraint is given different meanings. The main contribution is insight into how physical restraint unfolds during challenging medical procedures in a clinical setting, using the procedure of PVC as an example. When combining the results across the sub-studies presented here, the divergence in perspectives on restraint is more visible. In the following discussion, the differences in meaning attached to what occurs among the participants in the situations will be highlighted, to clarify some of the ambiguity in the current practice of restraint.

6.1.1 Overlooking the child's perspectives

In sub-study I we identified how some preschool children interacted and argued for their views during expressions of protest. At other times they seemed to have difficulties in reacting to anything but the immediate future when they expressed escape and endurance, that is, the next verbal or non-verbal actions of the adults. Blumer (1969), claimed that younger children are less able to act symbolically because they do not act upon the organized set of attitudes of others and know less about conventional actions. In other words, their "I" is more prominent than the "Me". This is reflected in the typology in sub-study I. In the expressions

of “protest” the child’s “Me” became more prominent as they took turns, interacted and negotiated with the adults, while in escape the spontaneous “I” dominated. The children studied in this dissertation are in a developmental stage where the creative, unpredictable aspect of the self is more prominent and reactive to the immediate situation (Mead, 1962) and where they have a limited ability to take the role of “the other” (Piaget, 1981) and thereby perhaps not understand that the PVC is not dangerous. They may continue to resist, because they feel less obliged by expectations to cooperate, or their level of distress and anxiety are so high that they are unable to manage it (Nordanger & Braarud, 2014). It is possible that some children may experience an additional challenge during a medical procedure because they are both restrained and ignored and do not receive help to manage their emotions. Karlsson et al. (2016) argued that during needle-related medical procedures, some children experienced shame if their protests were overruled, and they might experience the actions as violation and humiliation. It is possible that the child’s experience of humiliation and shame has been overlooked because of more obvious negative emotions that are easier to talk about such as physical pain and anxiety. Tangney, Stuewig, and Mashek (2007) explained how shame was closely tied to situations where children could not fulfill the expectations from the adults. In the present study, the children might experience difficult feelings such as shame when they were unable to participate in the way that the adults expected from them. The typology of resistance discussed in sub-study I, has much in common with other descriptions of children in difficult situations. In a seminal study in 1945, Rene Spitz’s described separation anxiety following children’s long separation from their parents in hospitals in terms of “anaclitic depression” (Hockenberry et al., 2012). The results in the present study have some resemblance with Spitz’s description of protest and despair, and may reflect the severity of what children are experiencing (Hockenberry et al., 2012).

The adults’ initial agreement with each other to ignore the child’s protests and dissent was embedded in the interaction during some of the described attempts to perform PVC (sub-study I & II), and indicate that the meanings of children’s expressions are in risk of being overlooked and unheard. The adults’ responses did not serve to acknowledge the child’s protests, escape and endurance. The adults reacted to the children’s expressions, but it was not implicitly or explicitly acknowledged that children’s meanings of the situation could be understandable, and different from or in opposition to the adults’ meanings. Lack of such acknowledgment has been identified by Runeson, Hallström, Elander, and Hermerén (2002) who reported that adults did not listen to children’s opinions, wishes and evaluations when the

child protested against taking medication. Coyne (2006b) also identified how children's own opinions and views were underused in care. Recognizing children's rights does not imply that children's views always prevail, but their views should at least be acknowledged explicitly and considered when carrying on with the medical procedure (Bray et al., 2015). Lundqvist and Nilstun (2007) concern is how children's best interest is exclusively attached to a procedure being completed despite distress and resistance. Particularly younger children struggle to be heard and are often marginalized (Homer & Bass, 2010; Selekman & Snyder, 1995). Despite increased recognition and acceptance of children's rights, these examples indicate that the emotions, opinions, and rights of children are possibly not given sufficient consideration in the hospital environment. Greater consideration could imply to acknowledge the child by providing him/her with emotional support to regulate and express emotions and views (Nordanger & Braarud, 2014).

The recommended response to children during medical procedures is often distraction rather than acknowledgment of the child's emotions. Acknowledgment seems to be important for helping children to regulate emotions in events they experience as dramatic or frightening, to prevent the situation from being experienced as even worse (Nordanger & Braarud, 2014). The health care providers' ongoing, distractive conversation regarding everyday matters (sub-study II) might be irrelevant and even confusing for children, because it does not inform or warn them about the adults' intentions or upcoming actions. This type of distraction can be helpful during the procedure to reduce the child's experience of distress and pain (Moscardino et al., 2006; Svendsen & Bjørk, 2014; Uman, Chambers, McGrath, & Kisely, 2006), but perhaps not if the medical procedures include escalating emotions and use of restraint. It is unclear if the health care providers use this method intending to draw the child's attention away from pain, resistance, and distress or if distractive conversation represents a perceived lack of alternatives or a choice not to talk about restraint with children and parents. There is a difference between acknowledgment of a child's difficult emotions and reassurance (for example "it is just going to be fine"). Acknowledgment must not be confused with reassurance, because children seem to be distressed by reassurance (Manimala et al., 2000; McMurtry et al., 2010; McMurtry et al., 2006). In adult mental health care, the use of acknowledging communication strategies led among other things to a change in staff practice; acknowledging patients as competent, taking the patients' expressions more seriously and reflecting on the health care providers' own use of language (Vatne & Hoem, 2007).

There has been much attention paid to the severity of patients' experience in relation to coercion and restraint in mental health care, but these discussions are not seen in pediatric somatic health care. This also goes for the concepts of coercion and restraint in research and clinical practice. The absent focus may be related to preschool children's limited ability to advocate and articulate complex views or that adults dismiss preschool children's voice because of the lack of consistency and rationality (Coyne, 2006b). "Experienced restraint" is defined as the patient's subjective experience of being forced or restrained (Helsedirektoratet, 2009), and can be useful in the present setting because it makes room for the child's and parents' definition of what counts as restraint and how it is experienced. The distinctions of "experienced restraint" ensure that health care providers no longer are alone in defining what counts as restraint. In our study some health care providers claimed that restraint had few consequences for the child and that restraint was seldom used (sub-study III-H). Evaluating restraint as less harmful or less frequent may blur health care providers' possibility to recognize and acknowledge different interpretations. Without sufficient awareness and attention, it is therefore a risk that health care providers' use of restraint is hidden behind intentions to help (Skau, 2003). The distinction allows for the possibility that although force was seemingly not used in a situation, the situation can be *experienced* as humiliating or coercive. And although a child seems ok right away, afterwards, the experience can have a long term negative consequence for the child. Svindseth et al. (2007) suggested that the degree of physical restraint could have a strong association with humiliation, indicating that health care providers' efforts to use as little force as possible are important (sub-study III-H). However, different children may experience the same amount of force differently.

Humiliation or infringement of personal integrity may also be felt by children, although the evidence base for this is less established. Although we did not directly investigate the children's experiences per se in this study, the observations of the children's expressions during PCV shed light on how they might experience the procedure (sub-study I). The difficulties in obtaining nuanced reports on preschool children's experiences during medical procedures makes it more challenging for health care providers' to know what to expect or look for concerning the children's emotions and experiences. In mental health research, results indicate that the patient's experienced coercion correlates weakly with how an observer evaluates the exercised verbal and physical coercion (Iversen, Hoyer, & Sexton, 2007). Experienced coercion upholds in the purest form that if the actions are interpreted as restraint, it is restraint regardless of amount of physical or verbal force used to accomplish a

procedure. Given some of the strong resistance (sub-study I), it is likely that during many of the 14 PVC-attempts in the current study the children experienced the actions as restraint. The more silent examples of expressions, i.e. escape as hiding the arm, were given less prominence in sub-study I, and could be interpreted in the direction of low levels or no experienced restraint. For the children and parents in this study (sub-study III-P), as for adults in mental health care (Østnæs, 2011), it may not be the degree of restraint or coercion in itself, but also the context and how restraint is carried out that is crucial for the patients' total experience of a PVC performed with restraint. Therefore, to prevent experiences of humiliation and shame, attention to the actual physical restraint itself should be supplemented with attention to how children and parents are prepared and cared for, and their experiences. In sub-study III-P parents underlined the importance of a child friendly way of communicating, taking time to get to know the child and that the procedure was performed by a skilled PVC-health care provider.

What is considered child friendly approaches are closely connected to how the adults judge the child's competence and how the child is best cared for in a given time and setting. Recent knowledge about children's exposure to traumatic stress and how this can sensitize their alarm system (Nordanger & Braarud, 2014) urge us to avoid triggering this alarm. Acknowledging that the children's present experiences matter, can possibly help to avoid this. Also the term "experienced restraint" can engage health care providers in discussions on whether their specific actions constitute harmful experiences. "Experienced restraint" acknowledges the child and parent perspectives, the discussions can become more democratic and interventions can become better justified. This is a prerequisite to interventions that have reduced the use of coercion in mental health care (Scanlan, 2010).

6.1.1 Parents' and health care providers' challenged roles during PVC

The results across this dissertation, showed how both parents and the health care providers seemed to be challenged in their roles during the PVC.

We identified how it could be challenging for parents to balance between a co-helper to the health care providers and a protector of their child. Equally, it was challenging for the health

care providers to be acknowledged for their role as helper to the family and provider of the necessary health care intervention.

Parents' perspectives

Before discussing parents and health care providers' role across all results in this dissertation, I will discuss some of the results on parents experience and meaning making. The parents showed complex negotiations as they tried to reconcile how to protect their child against unnecessary suffering and how to facilitate the child's needed medical help (sub-study III-P). This supports earlier findings identifying that parents can experience conflicting feelings or find it emotionally difficult to participate in medical procedures (Alexander et al., 2010; Idvall et al., 2005; Swallow et al., 2011). These parents did not question the need for PVC but thought it could be done with less restraint and suffering.

Most parents expected a more child-friendly approach and appreciated when health care providers took time to get to know the child. This is supported by earlier findings reported by experienced nurses who explained that maintaining a child-friendly atmosphere, taking time, and being sensitive to the child's needs contributed to less use of restraint in the treatment and care of the child (Berglund et al., 2013; Svendsen & Bjørk, 2014). Preparing the child by using distraction and using encouraging tones and phrases which the child understands is also described as helpful for the child in decreasing distress during medical procedures (Racine et al., 2016), possibly decreasing the need for restraint.

Parents may at one point consider the use of restraint as part of a legitimate provider role, but this can change to be something they should protect their child from, namely when restraint became a part of PVC that was less child-friendly, poorly planned, and performed with lacking skills. Then the parents became unwilling partners in the unnecessary suffering of the child. These aspects of the quality of the health care provider's PVC performance seemed to mediate how restraint was understood and evaluated by parents. Most parents also thought that some restraint was necessary. Studies have found that some parents may experience restraint as difficult and feel that they let their own children down when they participate in restraint of the child; this causes regret and guilt and even anger towards health care providers (Karlsson, Rydstrom, Enskar, & Englund, 2014; McGrath et al., 2002). Such difficulties can also be related to the parents' experiences of a less child-friendly approach or the lack of

practical skills. These aspects may also help understand the identified differences in parents' experiences of restraint, as earlier results identified restraint as a meaningful experience for some parents (Sparks et al., 2007). When the context is experienced as child-friendly, skilled, and planned, and the suffering is kept at a minimum, this can make it easier for the parents to accept the restraint.

Most parents felt that health care providers did not acknowledge their suggestions to ease the PVC. This supports earlier results that parents feel that they are not heard or involved in decisions about the care for their children in hospitals (Blower & Morgan, 2000; Coyne & Cowley, 2007; Newton, 2000). Studies have also shown that even if parents disagree with the decision made by health care providers, few decisions are reconsidered (Hallström & Elander, 2004). This indicates that the structure within health care organizations can be experienced as paternalistic and without individualized care. Our study shows that the parents are aware of the social "rules" or expectations in the situation which make some actions less possible than others (Fine, 1993). For one mother, this meant that she felt she could not negotiate whether she should restrain or not. Health care providers prefer a decisive and firm parenting role because they think it reduces the use of restraint during medical procedures (sub-study III-H). The ambiguous in-between role some parents experience in the present study echoes earlier research, indicating that parents sometimes express uncertainty of what is expected from them (Hallström, Runesson, et al., 2002), and that parents' roles during medical procedures and restraint often are unclear (Lam et al., 2006). In general, health care provider's expectations seem not to match the parents' expectations. Difficulties acting as both a parent and a protector has been identified in earlier studies with cancer patients (Darcy, Knutsson, Huus, & Enskär, 2014). Karlsson, Englund, et al. (2014) found that parents strived to be a secure base for their children. They strived to prevent that their own fears would affect their children's ability to feel secure during medical procedures.

Most parents in the current study had decided to be more advocating on the child's behalf during the next medical procedure. They had modified the meaning of their role during the interactions in the medical procedure and redefined the content of a future role. During situations such as PVC, there are multiple expectations among the participants. Although parents may have no problems with being heard elsewhere, their distress during the medical procedure (Racine et al., 2016) and their dependent position in the health care context can make it difficult for their views to be acknowledged. Blumer (1969) described how the

understanding of one's self is closely connected to the understanding of what is expected of you in your role. The multiple expectations for parents' role can help explain how parents regret restraining their child (Karlsson, Englund, et al., 2014). Failure to negotiate roles with parents can disempower parents (Newton, 2000) and diminish their ability to advocate for the child. Another serious consequence is that an opportunity to reduce restraint is not used, and parents may feel that they have participated in violating the child's boundaries. Furthermore, the alliance between health care providers, parents, and children can be threatened.

Challenged roles

Initial collaboration between parents and health care providers (sub-study II) to ignore the child's protests has also been identified in an earlier study during medicating (Runeson et al., 2002). Collaboration between parent and health care providers has been theorized earlier as parents adopting the professional's moral standards and accepting that the professional's know their child's best interest (Lundqvist & Nilstun, 2007). This adoption is probably reinforced because parents find themselves in a position of dependency to the health care providers and have little earlier experience to build on, as is the fact in this study. Thereby, health care providers become role models for how parents should act towards their children.

Negotiations that the parents made with themselves about what to expect from health care providers and themselves (sub-study III-P), indicate that to express strong disagreement with health care providers during a medical procedure can be difficult. This supports earlier results which connect these difficulties to the inherent dependent relationship between parents and the health care providers.

To have a role as assistant in restraint during a medical procedure can evoke contradictory feelings such as sadness, powerlessness as well as guilt and anger for letting it happen and being in a life situation where they as parents need to face this situation (Karlsson, Englund, et al., 2014). Parents usually have less competence to evaluate how necessary the medical procedure is and the extent of time available before the child's condition may worsen.

Consequently, some parents may feel that they are forced to trust and support the health care providers; they cannot refuse treatment, and they cannot fulfil expectations as guardians for their child. In this position, it is difficult for parents to suggest alternatives to restraint because such alternatives are less known and probably seen as more time-consuming than restraint.

Grimen (2001) suggested that in situations with no actual freedom to leave the situation or to

stop it, the ability to voice a protest can become restricted. When the ability to freely voice a protest is restricted, the consent to treatment is no longer voluntary and thereby no longer valid (Pedersen, Hofmann, & Mangset, 2007). Participating in the use of physical restraint can be difficult for parents because they also have a role as guardians for their children (McGrath et al., 2002). Darcy et al. (2014) discussed how enabling a role as protector for parents rather than a co-helper requires that health care providers do not expect help from parents during a medical procedure.

Studies have shown that better prepared parents led to less distress for both parents and children (Kolk, van Hoof, & Fiedeldij Dop, 2000; Spafford, von Baeyer, & Hicks, 2002). The preparation of parents should therefore include more than what the health care providers suggested as important in our study which was informing the child of what to expect from the procedure in a sensitive way, explaining the steps in the medical procedure, and providing a reason for why the medical procedure was necessary (sub-study III-H). Although parents said they did not feel unprepared, the overall impression from all the negotiations exposed during the interviews was that the parents were unsure about what to expect (sub-study III-P). The results indicate that preparation should include awareness of the possibility of physical restraint use and the possibility of both the parent and child experiencing strong emotions. This information could help parents' cope better in their intermediary or dual role and improve the relationship with the health care providers. The quality of the relationships between the family and the health care providers has shown to be of great importance for how younger patients experience coercion in mental health care settings (Tan, Stewart, Fitzpatrick, & Hope 2010).

The results also points to how the health care providers' professional role was challenged during the performance of the PVC with the use of restraint. We suggested that health care providers' identity as 'helpers' was not verified in the interaction with most children and their parents (sub-study II), and how they lost parents' help during the course of the PVC. This seemed to be related to parents' views of the situations as chaotic, unplanned, and with a less child friendly approach (sub-study III-P). People evaluate themselves through their role performance and seek to have this role identity verified (Blumer, 1969; McCall & Simmons, 1978). Our interpretation of the interaction between parents and health care providers and the views of parents and health care providers (sub-study II, III), indicate that the health care providers had difficulties acquiring acceptance for the actions of the role they advocated.

Health care providers advocated for the helper role when they claimed that they never used more restraint than necessary (sub-study III-H), which complies with norms for health care providers. When people fail to have their identity verified, they can feel that they are not legitimate in their role and may experience misery and anguish (McCall & Simmons, 1978). Although no health care provider in this study completely denied restraint, many had difficulties with stating or accepting that they had used restraint, while others had no problem with it. We found that some nurses and physicians thought restraint was emotionally difficult, which is also reported in earlier studies of nurses (Lloyd et al., 2008). The health care providers felt contested and despaired when the situation “got out of hand” and escalated to where they felt they did not have other choices than to use restraint. This is similarly identified in a mental health setting, where nurses applied controlling and correcting strategies with patients to cope with challenging situations (Vatne & Fagermoen, 2007). The nurses’ coping strategies were prompted by their negative feelings. Negative feelings can reinforce an avoidance of acknowledging the use of restraint and the perspectives of the patient and parents. Not recognizing the use of restraint may result in that restraint is not considered as a part of a professional role, which may prevent health care providers from properly preparing for the possibility of restraint and thus miss opportunities to prevent and reduce restraint. Furthermore, it may lead to lack of acknowledgment of and response to the patient and parents’ experiences of restraint.

The parent’s expectations of the health care provider’s practical skill performance were not met. These skills are considered important by the parents because they contribute to reduced suffering and indirectly to less restraint. Earlier results indicate that good technical skills are related to how parents evaluate if a health care provider can ultimately be trusted (Lynn-McHale & Deatrck, 2000). Health care providers on their side seemed to evaluate the PVC as a quite simple procedure and to normalize missed attempts. One of the reasons provided for the practice of three failed attempts before health care providers let co-workers take over the medical procedure (sub-study III-H) was to ensure parents that they were responsible health care providers. It is evaluated positive by parents that staff know the limits of their own skills (Thompson, Hupcey, & Clark, 2003). Limiting the number of unsuccessful attempts to undertake the procedure before a co-worker takes over is also suggested as a way to protect staff by providing a framework to manage emotions during the procedure (Lloyd et al., 2008). The preparation of parents should therefore also include awareness of the possibility for more

than one attempt to complete a medical procedure, which also could arrange for more trust in health care providers and in turn support their role as competent practitioners.

The results from the sub-studies mirror difficult roles for the all the involved parties. The expectations of the health care providers are not fully met by the parents, the children or themselves, and likewise the expectations of the parents are not met by the health care providers, the children or themselves.

6.1.2 Reduction of and alternatives to physical restraint

The results from this study support earlier literature about how health care providers neither explicitly focus on how to prevent, reduce or avoid humiliation and shame resulting from the PVC, nor actively discuss alternatives to the use of restraint (see Chapter 2 of this dissertation). To be able to perform coercion and restraint in a less humiliating way, to reduce the restraint and figure out good alternatives to restraint, individualized care, and cooperation with patients and next of kin are found useful in mental health care, but requires systematic and continuous effort (Norvoll & Pedersen, 2017). Experiences from that setting also show that cooperation can be difficult because of different understandings, about what is important and valuable during treatment and coercion (Norvoll & Husum, 2011). Health care providers and parents in the present study had different underlying views about why the PVC ended up with restraint and possible consequences for the child. While parents highlighted aspects of planning and skills, health care providers highlighted aspects of parenting style and parent anxiety. It can for example be difficult for health care providers to engage in changing the restraint practice when restraint is at least partly seen as resulting from the parents' way of interacting.

Research from mental health care shows that increased acknowledgment among the staff about the importance of their underlying thinking about restraint, is considered central for securing quality of restraint use in practice (Norvoll, Hem, & Pedersen, 2017). Health care providers underlying meanings about how the parents' actions resulted in restraint-use is one such thinking. Health care providers viewed the negotiation with the child as inappropriate as too many choices could aggravate children's uncertainty, insecurity and fear (sub-study III-H). Negotiations with children have become a usual part of everyday interactions in the upbringing of children today (Nielsen, 2003; Steinsholt & Sagberg, 2003). Negotiations and

dialogue mean that the children are treated as individuals with the right to be heard, can express emotions and experiences, and that their perspectives are acknowledged, but without necessarily making all the decisions (Nordanger & Braarud, 2014). This was addressed implicitly by the parents in how they referred to how they usually made their children cooperate at home. Parents and health care providers had differing views on what parental position was best for the child in this specific situation and possibilities of improvement. And different views on the challenges for the child may call for different parental and professional actions to help the child regulate their emotions (Baumrind, 1989; Nordanger & Braarud, 2014). It is unclear what parenting style and what professional strategies are best for the individual child in this specific situation, but in some parents' opinions more explaining, comfort and consideration should be used more by some health care providers (sub-study III-P). I suggest that when restraint is used, it can probably be helpful to be consistent and determined, but only if one also explicitly acknowledges children's' resistance, pain and emotions. This distinction can be relevant for how the restraint is experienced by the child.

Another underlying thinking about restraint was that health care providers considered that discussion about physical restraint would blur their decision to perform PVC, which they regarded as a pure medical decision (sub-study III-H). However, if restraint and the negative consequences are overlooked, attention towards the issue will decrease and it will consequently be less important to find alternatives to restraint. To reduce the cases where restraint can be experienced as humiliating, traumatic or as an assault, it is equally important to evaluate if the PVC is necessary in each particular case. When children display strong and persistent resistance, one obvious alternative is to reconsider and either verify the importance of the medical procedure, consider possible strategies to prevent restraint, or if the procedure can be postponed or cancelled altogether. Such reconsideration and cancellation of the procedure was done with Boy 1 in our study (see Table 1), who had communicated strong protest and escape expressions. A reconsideration based on resistance, as well as on medical necessity, depends on a view of restraint as something that is possible and important to avoid, reduce or ameliorate. This can, however, be complicated by the fact that the physician who performs the PVC is often not the same person who decided about the necessity of the PVC. It is possible that both aspects; resistance and medical necessity, played a role in the cancellation of PVC for Boy 1. In addition, the fact that the procedure was being video recorded may also have influenced the decision to cancel. In mental health research, it has been suggested that to view coercion, force, or pressure as a continuum helps medical staff to

develop an awareness of how they perform coercion, force or pressure. This in turn, may facilitate willingness to be self-reflective and self-critical and support joint discussions of team practices, and to seek feedback from the parents and the children (Hem, Molewijk, & Pedersen, 2014). Developing such an awareness and critical reflections in children's units, can help health care providers to discuss resistance more openly.

The parents' reflections can contribute to clarify and challenge existing ways of thinking and identify alternatives to restraint (sub-study III-P). Experiences from mental health care indicate that patients and next of kin's perspectives can be important to reduce and prevent the use of coercion and restraint (Norvoll & Pedersen, 2017). In health care politics and ethics there has been an increasing focus on patients' and next of kin's participation as users of health care. In ethics, one has been interested in including all the involved parties, since the different parties may have different judgments about what ethical values should take priority, and how challenges should be solved (Widdershoven, Abma, & Molewijk, 2009; Widdershoven, Molewijk, & Abma, 2009). The truth about good treatment and use of restraint cannot be decided by the health care providers alone, which means that ethical dialog and deliberations become central (Norvoll & Pedersen, 2017). Because the child's own experiences are so difficult to access, the underlying perspectives of parents and health care providers have great impact on the decisions about restraint use.

In our view the main obstacle for reduction of restraint use is the lack of attention to, acknowledgment of, and discussions about restraint and the impact it has. With few or no alternatives, restraint becomes the only way to accomplish the procedure (Coyne & Scott, 2014). Since restraint has been discussed to a limited degree, alternatives to restraint have also been given limited attention. It is important but challenging to argue for the use of comforting strategies and other approaches as alternatives to physical restraint if restraint as a phenomenon is an under-articulated and an under-focused topic in the research literature and in clinical practice. Experiences from mental health care show that success in reduction of restraint comes about by those who work systematically and goal-oriented, have good leadership, the will to work differently, transparent and well-documented practices, external restraint review committees or post-incident debriefing and analysis, broad-based staff training, and programs at a local level (Norvoll et al., 2017; Scanlan, 2010). Coyne and Scott (2014) advocate that restraint-use with children during medical procedures should only occur when there is no alternative in a life-threatening situation. Such a stipulation necessitates the

development of possible alternatives to restraint in the face of resistant children who require an important but probably not life-saving medical procedure. This would require systematic approaches and willingness to acknowledge and discuss restraint.

6.1.3 Formalization of restraint during medical procedures?

The restraint investigated in this study is informal, meaning that restraint is not performed following specifically described procedures or legal regulation. In addition to informal restraint, the term “experienced restraint” has been used to highlight that what can be judged as actual restraint by observers or health care providers can be different from what is experienced by the patient. Formal restraint constitutes a third version of the concept of restraint, and is used when referring to decisions about coercion that are made with a legal basis (Helsedirektoratet, 2009). The health care providers that participated in our study were not sure when use of restraint was legal or not (sub-study III-H).

The Child Act (1981) and Patient and User Rights Act (1999) suggest that parents, apart from in obvious emergency situations, must consent to the use of medical procedures on preschool children. The use of restraint on children in medical care is not mentioned in these acts. Nevertheless, to the best of our knowledge, consent (written or oral) to the restraint was not obtained by the health care providers responsible for care and treatment in this study’s setting. This is also reported by Demir (2007), who described the lack of obtaining consent regarding restraint in somatic pediatric hospitals in Turkey. Aasen (2008) suggested that health care providers should ask for clear and outspoken consent to the use of restraint if necessary. From an ethical perspective, a valid consent in these situations presupposes, at the very least, that the parents, and possibly also the child, must be made aware that the medical procedure may involve restraint. Tacit consent, which constitutes the parent bringing the child to the hospital, is in our opinion not enough to assert that parents’ consent to forceful treatment or restraint.

Obtaining consent during medical procedures is difficult and indicates a need to address the possibility of restraint with the parents in advance. However, receiving consent from parents requires that health care providers agree about what “counts as restraint” and when restraint may occur. A possible future legislative act concerning consent and regulation of restraint in pediatric care should consider that parents’ consent must be articulated explicitly (orally or written). Furthermore, an explicit discussion and regulation concerning what limits, if any,

should be placed on a parent's right to consent and/or refusal to consent to forceful medical treatment for their child is needed (Birchley, 2010). We also need a discussion about whether the use of restraint should be the decision of the health care providers and whether the parents' rights should be limited to get information and to have the right to make a formal complaint. However, formal parental consent should not lead health care providers to take less responsibility for restraint. In sub-study III-P, we found that parents can experience substantial burdens when restraint was used on their children, and cultivating better information and preparedness for the possible use of restraint could be helpful for some parents in mitigating their own emotional distress.

Health care providers are responsible for justifiable and caring treatment (The Health Personnel Act, 1999). With children, health care providers must weigh how restraint, degree of resistance and potential violation of integrity interplay with medical considerations and protection of bodily health and wellbeing during the performance of a medical procedure. In Chapter 4a in the Patient and User Rights Act, adult people without the ability to consent are granted the right to be heard, and they are assured that trust-building interventions must be applied before restraint can be used. However, children are exempted from this law. Considering the principle of justice, it is problematic that children are not granted the same rights as other patient groups who do not have competence to consent, and that children's legal protection is weaker than the legal protection of other patient groups without competence to provide consent. This disparity can be related to the difference in status between adults and children (Einboden, Rudge, & Varcoe, 2013; Rodney & Varcoe, 2012). Einboden et al. (2013) criticized the understanding that children are not yet people, but "becoming individuals," and therefore the "here and now" is less important. Results support that some health care providers concur with the notion that "here and now" experiences are not so important (sub-study I, II, III-P and III-H). The notion that children "forget fast" remains in health care and is used as an excuse for restraint. This contrasts with more recent insights and knowledge arguing that children's experiences early in life shape the development of their brain architecture and strongly affect whether they grow up to be healthy (Shonkoff et al., 2009). Single and short-term difficulties experienced by the children in this study will most likely not change the child's development, but for some children a medical procedure is just the first in a long chain of procedures or encounters with health care services whose influence on development can strengthen over time. Furthermore, also short term experiences may influence the child's trust or anxiety towards health care providers.

The intentions behind the Patient and User Rights Act (1999) chapter 4a regulating coercion when an adult patient refuses medical/somatic health care were to secure patients' rights to be heard and to ensure that all means should be attempted before resorting to restraint in medical procedures. Similar legislation could secure regular consideration of use of evidence-based pharmacological and non-pharmacological strategies before restraint is used in pediatric care. Furthermore, it is difficult to conduct research and thereby develop evidence of these strategies when practices are illegal or illegitimate, or in a legal grey-zone. Pharmacological and non-pharmacological approaches can not only reduce pain, distress, fear and anxiety but also potentially improve the experience of the restraint and the actual restraint. In the absence of alternatives, health care providers may feel forced to identify reasons for why restraint is necessary, rather than develop methods to reduce it.

The results in this dissertation show a severe situation for the child and parents. Parents and children were not prepared for the restraint and the suffering caused by the PVC. Health care providers' expectations to parents participation was dissimilar to what the parents' seemed to be comfortable with, and parents felt that health care providers did not communicate well with their children. This paints a difficult situation for the children and the parents. In addition, there was no debriefing with the parents and children after the situation. Recently, in Norway there was a change in the law concerning mental health care patients' rights; all mental health care patients must be offered a debriefing following a situation with the use of coercion (Stortinget, 2017). This also exemplifies a difference in the rights between mental health care patients and the patients investigated in this dissertation.

A legislative act or formal regulation regarding the use of restraint in medical procedures could help health care providers to become more confident about the use of restraint in their practice. This can lead to less doubt or uneasiness about whether their practice is legal or illegal among the professionals (sub-study III-H). Professionals will not have to resort to arguments that the child is in urgent need of a procedure in order to make the restraint legal by referring to the The Health Personnel Act (1999) § 7, when the child is in fact not in such a position. Other benefits can be the provision of clearer definitions of restraint, norms regarding criteria for the use of restraint, procedural guidance (for example the patient's or parents right to information and to complain), claims to use alternative approaches that facilitate trust, and clearer demands for documentation, competence and resources. Fjeldvær (2014) argued that The Act on Municipal Health and Care Services (1999/2011) §9, which

provides “legal security of coercion and restraint for people with mental disabilities,” enhances the autonomy of the person with a mental disability. He also claimed that the act places a greater emphasis on competence, professionalism and ethics among health care providers. This indicates that a legal act may facilitate ethical discussions, and reduce arbitrary variations regarding the use of restraint with preschool children. More transparent practices, professional attention and critical discussions about restraint can also lead to a reduction of its use and improvements in clinical practice.

6.2 Methodological considerations

Several important methodological strength and limitations apply to this study and requires discussion of self-knowledge and self-disclosure (Patton, 2011). The term “rigor” was chosen to discuss this study’s methodological considerations because it captures a wide range of issues that are raised by the terms of quality; validity and reliability in qualitative research (Rice & Ezzy, 1999). In the following sections, the discussions are framed by aspects of rigor as suggested by Rice and Ezzy (1999): theoretical, methodological, interpretative and evaluative rigor. At the end of this section, the transferability of the results is addressed.

6.2.1 Theoretical rigor

Theoretical rigor refers to sound reasoning and the choice of methods appropriate to the research problem (Rice & Ezzy, 1999). In this section, the reasoning behind and consequences of the chosen perspectives and concepts is discussed. Although the term theory is used in many ways, both as lay and scientific terms, the term connotes processes of abstraction (Polit & Beck, 2008). Perspectives and theories originating from outside the core research field on children during medical procedures in hospitals, such as restraint/coercion and ethics, child development and SI informed the current study.

A common approach in qualitative research is to choose perspectives or a theoretical framework when designing the research project (Polit & Beck, 2008). In this study, the perspective of SI was applied after data generation was completed. This can be troublesome and must be done with circumspection but is mainly a problem when the research questions

also are chosen before the use of a theory (Polit & Beck, 2008). The decision to use SI was based on a preliminary understanding of the collected data, and the specific research questions were sharpened, re-formulated or adjusted to account for the exploratory nature of the study and the suitability of the theoretical perspective. Specifically, the decision to use SI arose while analyzing data in sub-study II; exploring what happened in the interaction between parents and health care providers. We returned to the data in sub-study I and found that SI also enhanced our understanding of the observed children's expressions of resistance. The opportunity to re-view the recorded observations allowed for additional analysis. To choose new directions and follow new leads during an exploratory research project can be considered part of an emergent design, in line with Blumer's (1969) suggestions on exploratory research. An assessment of the generated data showed that they were suitable to use within the frames of SI, as they consisted of data from natural group settings and human conduct (Blumer, 1969).

However, I acknowledge that the results could have turned out differently if we had used SI from the beginning. For example, by choosing participatory observation, I could have observed the preparation of parents and children and, if any, the debriefing routines related to the situation of PVC in a better way. Such observation could have enriched the empirical material and supported interpretations and probably opened up for others. However, multiple strategies for data generation were already used, and we had limited the research project to focus on the actual PVC situation.

Although not frequently used, several notable SI-projects have used video recording to capture interactions and to support participatory observations (vom Lehn, Heath, & Hindmarsh, 2001). Furthermore, Herman-Kinney & Verschaeve (2003) discuss how video was useful to capture social interaction within a laboratory setting and a neighborhood. Heath and Hindmarsh (2002) discuss the relatively little use of video analysis in the social science such as Symbolic interactionism, and they relate the limited use to a lack of interest in exploiting possibilities of video at that time. Although it is argued that there are analytical commitments within SI, such as conventional long term participatory observation, SI does not involve a specific set of methods or data generation strategies per se (Heath & Hindmarsh, 2002). The core concern and commitment is that to understand people, one needs to observe actions and interactions, and talk to participants to elicit their understanding of things, symbols or gestures on which they base their actions and interactions.

It is therefore important to discuss if SI as used in this study is in line with theorists of SI. As pointed out by Blumer (1969), symbolic interactionism is used in a false way when a “scholar has made no attempt to find out how the people see what they are acting towards” (p. 51), because “to identify the objects of central concern one must have a body of relevant observations” (p.51). The video recordings complemented by field notes and interviews of the adult participants⁶ offered a solid base of relevant empirical material. We adopted the position that we could identify the objects of central concern and interpret how the different participants’ ascribed meaning by studying their interactions and actions in video recordings and interviews.

SI has been used with different research methodologies. The use of interaction analyses and interpretative content analyses in relation to SI has placed the interpretations and findings reported in this dissertation in the middle of the ongoing social realist - interpretivist debate of symbolic interactionism (Sandstrom & Fine, 2003). SI has been challenged by “a double-edged specter” (Denzin 1992, p. 2). While arguing for an interpretative subjective study of human experience, a number of interactionists also strive to build knowledge about human conduct and the structures of interaction between people without the emphasis on subjective experience (Fine, 1993). Sandstrom & Fine (2003) discuss how SI is divided between interpretivists and realists. While arguing for an interpretative, subjective study of human experience, symbolic interactionists seek to create a science of human conduct; a social realist approach (Sandstrom & Fine, 2003). In this dissertation sub-study I and II are closer to realist approaches with the focus on structure of interactions and conduct, while sub-study III is closer to interpretative approaches, seeking for ascribed meaning and how it is modified through an interpretative process. It is challenging to merge structural and interpretative approaches in one study and to present a coherent view. However, Sandstrom and Fine (2003) seem to indicate that pragmatic uses of both approaches enhance the understanding of group life and human conduct. This is the position taken in this study.

Concepts such as “restraint” and “resistance” can be used to describe what the actors do during the observed PVCs, but the concepts are also emotive, meaning that the terms are value-laden. A concept is emotive when it is difficult to describe what the actors do without providing a description that also contains a moral judgment about the phenomenon. Also,

⁶ the ethics approval for this study allowed only to interview the adults in the study

restraint/coercion used with children is probably difficult to talk about for all involved parties and there will be many different opinions about the content, not only among participants, but also among researchers. I chose to use restraint and resistance as centrally connected concepts and considered them to represent an alternative to concepts such as pain and distress or helping strategies that were frequently used in most research on medical procedures on children. The connected concepts resistance - restraint were sensitizing because they enabled new attention to other variations in a familiar practice (Blumer, 1969) and because they highlighted the need for studying and “filling” the concepts with the different participants’ perspectives and meanings of restraint.

A challenge and potential threat to rigor can be confirmation bias. Confirmation bias results from a tendency to seek or interpret data favorably to support an already existing belief (Shermer, 1997), or present support for results that were decided prior to analysis. However, the concept of resistance made us sensitive to the endurance and escape types of expressions in addition to more obvious expressions of protest by creating a direction for the collection and analysis of data.

6.2.2 Methodological rigor

Methodological rigor refers to clear documentation of methodological and analytic decisions (Rice & Ezzy, 1999). In this section, I address some of the methodological considerations of interviewing, content analysis, interaction analysis in relation to SI, authenticity of actions performed in front of a camera, the development of trust, rapport and communicating with gatekeepers, and decisions on sampling.

The decision to include the recruitment nurse as an observer during the interviews with the parents was accepted because she was interested in research, and was planning to take a higher degree. She participated during five of the interviews with the parents, in which she wore her nursing uniform during four of them. She had not had any nursing responsibilities for the involved families. This could have affected the parents’ answers so that they expressed themselves less critical, because they talked about her colleagues.

We used different techniques to facilitate the application of SI, and this should be considered a strength because SI is relatively vague as a basis for research designs, and does not suggest specific analytical approaches (Benzies & Allen, 2001). We argue that the techniques and

approaches used in this study contributed to transparency of the analysis. It is however a concern that the use of selected analytical techniques could be non-compatibility with the underpinnings of SI. Morse (1991) claims that research methodologies are merely tools or instruments to be used to facilitate understandings. IA was used as a springboard for the more process-oriented SI-analysis and enabled interpretations of how participants meaning seemed to be modified in interaction (sub-study II). The question is related to whether or not their own meanings can be delineated based on observation of how they talk and act in a situation or if this has to be pronounced in their own words, because it is necessary “to see their objects as they see them” (Blumer, 1969).

Taking the more pure interpretivists view on SI (Sandstrom & Fine, 2003), it can be claimed that it is not possible to read any ascribed meaning from observational data like we did in study I and II, since observations comes with limitations to how participants confirm and fail to confirm each other’s identity. However, how the interaction turns out is observable with video-recordings because it can be identified and perceived by the researcher how both parents and health care providers seem to succeed in verifying or fail in making others verify an identity or identities (McCall & Simmons, 1978; Turner, 2012). The process of negotiation among individuals regarding identities is complex and subtle, involving an initial but very tentative agreement to accept each other’s claims (McCall & Simmons, 1978), also an agreement and disagreement can be observed. When we interpreted how the different participants ascribed meaning to other people’s actions in this larger study, we used both interviews and observations. In stub-study II we used observation and theory to interpret the interactions. We relied on identity-perspectives in SI together with our knowledge of the situation, since we at the time of analysis in sub-study I and II had performed the interviews with parent, nurses and physicians, the interpretations are to some degree also informed by the interviews and field notes, because the researcher is affected by the preunderstanding and gained experiences. To study children and adults in specific situations will always be a study of us as researchers (Ytterhus, 2001).

A strength of this dissertation is the combination of methods. A combination of sources enables the researcher to better understand what is said to him/her (Becker & Geer, 1970). Observations can enable the researcher to address matters interviewees are unable or unwilling to talk about, and an interviews can get information on matters people see through their lenses (Becker & Geer, 1970). Becker and Geer (1970) further elaborate on how people

do not tell an interviewer all the things she might want to know, and mentions reasons such as participants do not want to share, it feels impolite or insensitive, they do not think the researcher should ask about the matter, or because they are unable to. In this study this could have been the case with the health care providers and the parents, however we could combine analysis of observations and interviews to enhance methodological rigor.

Combination of methods refers mostly to the studies on health care providers and parents in this dissertation. Interviews with the children were not part of the protocol. This could have been relevant. The richness of the video could compensate some for the lack of interview data because of the rich verbal and non-verbal actions that were available for interpretation of meaning, experience and perspectives. Interviews have been used in combination with observations in this age-group, although results indicate that mostly observational data were used to understand the children below five years (Karlsson et al., 2016). The data from interviews with parents did not provide much information on the children's meaning-making during PVC. Most of the parents considered their child's behavior during the PVC as unusual compared to their children's usual selves (sub-study III-P).

The parents were informed in the written information sheet that they could watch the video recording it if they wanted to, but to avoid unnecessary upset and distress in participants (Ashton, 2014), the parents were not asked to do so during the interviews. No parents asked to watch the video recordings. Participation in research involving sensitive topics can stimulate powerful emotional responses on the part of the subjects, both during and after the data collection activities (Cowles, 1988). However, we acknowledge that viewing of the video recordings together with the parents could have enriched the information about the topic.

Participants may change their behavior because of a camera in such a way that their actions do not represent naturally occurring practice, a phenomenon referred to as the camera effect (Herman-Kinney & Verschaeve, 2003; Jordan & Henderson, 1995). A camera effect can thereby make results of an observational study less rigorous because participants may "stage" performance (Herman-Kinney & Verschaeve, 2003). Although parents and children were not asked about this effect, I asked the participating health care providers about the camera effect. Some said that they had noticed the camera all the time and that it had affected their performance, while others reported that they did not take much notice of the camera and actually forgot about it after a while. Gestures and body positioning are difficult to manipulate and control for any length of time, and micro behaviors like gaze and head turns are usually

performed unconsciously, so we considered the recorded behaviors to be valid (Jordan & Henderson, 1995). It is likely that the health care providers did their best because of the presence of the camera. Consequently, since the health care providers knew the aim and purpose of the study, the results may mirror the health care provider's best practice. They took the role they thought were expected of them (Herman-Kinney & Verschaeve, 2003), with regards to professional goals and norms for physical restraint. We must therefore consider the authenticity of the results with this in mind.

Another methodological challenge and possible limitation of this study was the recruitment challenges, the hesitation to participation and a relative small number of participants. Initially we planned to include observations of and interviews related to 10-15 children in need of PVC. This goal became difficult to achieve for a number of different reasons. The recruitment process took longer than anticipated, and it was especially difficult to recruit participants among nurses and physicians. More participating children could have increased the richness of the data, particularly for studies I and II, where the results are based on recordings of 14 attempts of PVC on six children. Due to difficulties in the recruitment process, the inclusion criteria age span was changed from the original 4-6 year-olds to 2-5 year-olds, but resulted in a sample with children between 3 and 5 years-olds. At that time we had not yet included any 5 or 6 year olds and we hypothesized that changing the criteria would enable us to include additional cases. The recruitment nurse anticipated more younger children could be included. However, after changing the age span, only one child younger than 4 was included and the recruitment frequency did not improve. In our study, children between 3 and 5 years old were included, and we believe that the chosen age span is not the most important reason for lack of included PVCs.

The sample size of each sub-study may be considered small. In total, 29 participants participated. A sample size is considered sufficient if it is appropriately selected to yield information rich data (Patton, 2011). In this study, the data collection resulted in 165 minutes of video recording, and 487 pages (double line spacing) of interview transcripts, and additional field notes. This demonstrates richness that can compensate for the relatively low number of participants. Yet, sample sizes may be too small to support claims of having achieved either informational redundancy or theoretical saturation (Sandelowski, 1995). Recently, the concept "information power" has been suggested to guide what is an adequate sample size for qualitative studies (Malterud, Siersma, & Guassora, 2016). Information power

indicates that the more information the sample holds, relevant for the actual study, the lower amount of participants is needed (Malterud et al., 2016). They further suggest that a sample with sufficient information power depends on (a) the aim of the study, (b) sample specificity, (c) use of established theory, (d) quality of dialogue, and (e) analysis strategy (Malterud et al., 2016) which is elaborated on in table 3.

Table 4 Range of informational power of the sample

Dimension	Range of informational power in this study
(a) the aim of the study	The sample recruited here can be held to be sufficient for the aim of the study to explore a practice with a relative narrow scope. We narrowed the scope to physical restraint during a common medical procedure, PCV, in a narrow age group with few earlier experiences from hospital.
(b) sample specificity	The sample specificity can be said to be sufficient because the sampling characteristics were specific for the study aim. This was ensured with inclusion criteria for the children. Gender is equally well represented for parents and children. Sample specificity is lower in the studies with parents and health care providers, because they are convenience samples, and the participating health care providers are mainly women.
(c) use of established theory	With regards to the use of established theory in establishing information power, please see discussion in section 6.2.1
(d) quality of dialogue	The quality of dialogue can be considered as high. The use of video recordings that provided 165 minutes of observation, 22 interviews that lasted between 45 and 151 minutes, demonstrate the materials depth and comprehensiveness. Moreover, the number and types of expressions among participants were large and diverse. A threat to quality of dialogue was the sensitivity of the research theme. As Malterud et al. (2016) point out, an interview interaction with tensions and conflicting views may reduce the confidence needed to talk about personal details.
(e) analysis strategy	The analysis strategy complied to the exploratory aim of the study and was not aiming to cover the whole range of phenomena, but to present selected patterns relevant for the study (Malterud et al., 2016).

Many health care providers declined to participate, and this led to a data collection process that lasted over a year. One reason for this reluctance could be the use of the concept of restraint in the information process, which can cause participants to think that their practice was somewhat ethically questionable or illegal. Patton (2011) recommended full disclosure of the purpose of the study when doing participant observation. He claimed that false or partial

explanations are too risky and add unnecessary distress. Regardless of the naming used to describe the practice, it can be emotionally demanding to participate in research on a sensitive topic. The fear of actually being, or appearing to be, out of accepted range in one's responses to sensitive situations may inhibit a subjects' participation in research activities (Cowles, 1988). Although a high refusal rate could indicate a well-functioning voluntariness to participate in the study, it could also imply a challenge to establish trust within the field. The researcher spent time on the unit and sought to be open and clear about the research agenda in the project. Subjects who disclose sensitive material may also be reluctant to describe their thoughts, feelings or behaviors fully if they are embarrassed or that they believe that they may embarrass the researcher (Cowles, 1988). After the recruitment process had lasted for some time, the nurses' skepticism was significantly reduced

I therefore emphasized to the health care providers that there was no risk or danger in participating in the study because we wanted to record what health care providers usually did and report in ways that did not compromise them or reveal information to identify them. In addition, I used myself as an example, explaining that I had participated in this practice of physical restraint with many children during my clinical practice in pediatric nursing and that I sometimes found it very hard and was uncertain if it was the right and appropriate decision. I emphasized the lack of systematic knowledge about restraint use to encourage the health care providers to be confident about their decisions. In retrospect, I realize at that point I was unable to comprehend that this exploratory analysis would lead to a more elaborate understanding of restraint. It is therefore possible that some participants who participated in the study after a discussion with me at that point could feel betrayed and surprised by my current reasoning and conclusions in some parts of this dissertation; thus, securing anonymity has become of paramount importance.

The recruitment nurse and I had less contact with and access to the physicians. In retrospect, it could have been useful to involve a person with a medical background to help with recruitment of participants as well. It was difficult to reach physicians as a group, and several declined to participate in the study. One alternative reason for problems with recruitment of physicians could be that they were fewer in number and worked at many different units. The physicians at this hospital worked long and intensive shifts, followed by a day shift at another unit or off work entirely.

The number of health care providers who declined to participate led to awareness of the participants' perceptions of possible interviewer disapproval or fear of a breach of confidentiality (Cowles, 1988). Another issue possibly influencing quality of the collected data was that the interview climate with three of the participants was perceived to be tense. Some participants were willing to participate in the study, but did not answer with longer sentences to elaborate on the interview questions. The ability to establish a sense of trust, the efforts to maintain a fine balance between objective and empathetic listening, and a nonjudgmental stance are key factors in eliciting information from any research subject (Cowles, 1988). For example, in one interview, the participant answered with short sentences and very few words. At first, I considered this quite frustrating because the interview had very little content and the participant showed anger and frustration toward questions about restraining children. However, when interpreted in light of the recruitment process, field notes and the other interviews, this particular interview turned out to be information rich on a latent level concerning attitudes toward restraint, which became helpful in the analysis of results.

6.2.3 Interpretative rigor

There is always a risk that a researcher's interpretations of data is a result of a preunderstanding or agenda to such a degree that the quality and trustworthiness is in jeopardy; thus, interpretative rigor addresses the validity of interpretations and conclusions drawn from data (Rice & Ezzy, 1999). To address interpretative rigor, the transcription process and the translation of analytic concepts are discussed and how the quality of interpretations was accounted for is presented. In addition we discuss the trustworthiness of the interpretations of behavior and actions performed in the analyses.

The trustworthiness of the interpretations of any qualitative data relates to the researcher's set of understandings of the research field (Patton, 1990). Similar to others, I had an already established background of preunderstanding. Gadamer refers to this background of preunderstanding by using the term prejudice (Gadamer, 2003). Prejudices constitute the horizon or perspectives by which we encounter the world as we understand something (Koch, 2006). Prejudices are our preconditions for truth, not only obstacles to it (Gadamer, 2003). My background from pediatric nursing, as a mother accompanying my children to hospital and my own experience of being hospitalized as a child have offered me insights and familiarity with many of the emotions and different aspects of the situation of restraint during

PVC. Therefore, my background or prejudices are not necessarily erroneous or necessarily distortions of truth (Koch, 2006).

One way that interpretative rigor can be ensured is to clearly demonstrate how the interpretation was achieved (Rice & Ezzy, 1999). A text always involves multiple meanings and there is always interpretation when approaching a text. This is an essential issue when discussing trustworthiness of results (Graneheim & Lundman, 2004). There are different interpretations available depending on whether the data comes from observations or interviews. All sub-studies in this dissertation were based on either interviews or observation with the support of field notes. For example in sub-study II, we provided an interpretation on how the actors seem to attach meaning in interaction, and more specifically how they seem to be successful in confirming or resist the identity the other seems to be imposing on them by the way they acted and expressed themselves. These interpretations of identity were based on generalized identities of the role of health care providers and role of a parent (Cast, 2003; Stryker, 2002). These interpretations are based on observation of their actions and reactions in interaction with the guide of theory of SI, and we do not know whether or not the person actually attached these meaning. The interpretations must be performed with care, and we could observe how one actor's action was reacted upon and thus must have been considered meaningful enough to be acted upon by the other participants.

It would be a threat to rigor if the results is a consequence of one's pre-understanding and not supported by actual analysis (Rice & Ezzy, 1999). I experienced however, that my background as interpreter did not constitute an obstacle but rather that it enabled me to understand the PVC in an informed way. Koch (2006) further claimed that the researchers take their positions with them into the research process. These values, rather than getting in the way of research, makes research meaningful (Koch, 2006). Part of my background included that I knew something about how restraint could look like, I had sometimes though that restraint, both as a nurse and mother was emotionally hard, and I was not surprised that it involved loud screaming. This helped me focus on the aspects and things that had been less understandable to me, and allowed me to delineate the different meanings of the participants.

Although it can be challenging, striving to stay open to the phenomenon one is studying is vital. Blumer (1969) stated: "...if the scholar wishes to understand the action of people it is necessary for him to see their objects as they see them. Failure to see their objects as they see them, or a substitution of his meaning of the object for their meaning, is the gravest kind of

error that the social scientist can commit” (Blumer, 1969, p. 51). One example was difficulties in interpreting and discriminating the children’s nuanced expressions into the different types of resistance in sub-study I. The video recordings made it possible to observe the children’s expressions in detail, and notice the fine grained nuances in their expressions. Therefore seemingly similar versions of the same gestures are placed within different types of resistance. To decide on the allocation to one type of expressions, we zoomed into the gesture and interpreted the context and interaction it occurred in. For example; “opposes attempts of comforting from parents” was allocated into the protest type of expression, while “avoids comforting attempts from parents by moving arm” was placed in escape. In this case, opposition was interpreted as protest, while avoiding was interpreted as escape.

In the methods section of this dissertation, I have described my preunderstanding and background in great detail. To further reach the aim of an informed interpretation, the co-authors and supervisors of this study have challenged my pre-understanding, criticized different assumptions and offered alternatives during all parts of the research process. Discussions aimed to produce consensus on some common themes.

It was more emotionally painful and difficult to generate and analyze the data than what I had anticipated beforehand. Emotional pain is however common in research (Cowles, 1988; Grafanaki, 1996). Emotions and experiences of the researcher may have a positive role in qualitative and sensitive research and can provide valuable knowledge and worthy insight into a topic (Johnson, 2009). If objectivity is problematic in most research, it is perhaps even more so when the topic is sensitive (Cowles, 1988). While the importance of objectivity is clearly indicated in the literature, most authors conclude that reflective subjectivity is the price we must pay to gain understanding of complex social settings (Bogdan & Taylor, 1975).

When a videotape of a social encounter is to be used for analysis in SI, it is necessary for the researcher to make a transcript of the conversations (Reynolds & Herman-Kinney, 2003). It is however considered impossible to include all potentially relevant aspects of an interaction in the transcription of videos. Jordan and Henderson (1995) claimed that a transcript reflects the categories the analyst has found relevant to his/her analysis. To create a comprehensive and relevant transcript for further analysis in this study, I read and filled more and more into the transcript every time I watched the recordings. This was considered appropriate, because a threat to validity of the visual documentary method is the transcription and interpretation of data (Reynolds & Herman-Kinney, 2003). The Nvivo10™ software made a simultaneous

watching and reading possible. I experienced that it was possible to observe more details of the audio and video upon subsequent viewings and thereby included more information of the situations in the transcriptions.

An interpretative difficulty is related to the conceptual issues in translation of concepts and quotes from Norwegian to English. The Norwegian word “tvang” was challenging to translate properly into English. We chose “restraint,” but question whether coercion could have been a more similarly valid translation. The term “holding” is also troublesome as it is written in the same way in Norwegian and English. “Holding” is also a milder term than coercion/restraint. It is not given that either coercion or holding is understood in the same way across the two languages. Seen in retrospect, we could have included a discussion of useful analytic concept(s) in the published research articles, given the multiple meanings of available terms and the inherent sensitivity of the topic for research among health care providers. This was challenging because the core dimensions of the phenomenon of study is still underexplored.

6.2.4 Evaluative rigor; research ethics and politics

In this section, the ethical considerations regarding informed consent, confidentiality, data generation and analysis researcher/participant relationship are reported and examples are provided of how the research design and methodological decisions were changed because of the participants’ actions and our efforts not to cause distress to participants but to treat them fairly. To study restraint and resistance is a political and moral choice, and for some researchers this is at odds with a demand for neutrality in research. As a consequence, the theme is partly silenced in research to avoid exploring a common practice on children’s that can be potentially humiliating for a group of people without the power to advocate for themselves. In research on social practices, I consider value-free research as an unwavering claim that in its utmost consequence is unachievable (Rice & Ezzy, 1999). It is important for the researcher to be as honest and clear as possible in the distinction between empirical facts and personal views. It is also ethically and professionally important to study sensitive and potentially coercive practices in health care, especially when powerless patients are involved. Rice and Ezzy (1999) argue that a completion of tasks required by procedural ethics does not address the more general issues of considering the political and social consequences of the research for the participants. Therefore, it is important that the researcher is reflexive.

One ethical issue of this research project was to gain assent from the minors. According to the Health Research Act (2008) §18, minors can only be included in research if the person himself does not oppose it. The ethical difficulty was particularly related to our study of resistance, which is a kind of opposition to the medical procedure. This led to discussions within the research group whether or not some of the expressed resistance (sub-study I) was directed towards the researcher or the camera. Although this is not possible to fully decide, after we had studied their expressions in detail, it did not appear to be the case.

For parents the situation with an ill child can be a devastating experience in itself (Cohen, 1993). When consent to participate in a research study is sought soon after arrival in hospital, parents make these decisions on behalf of the child and themselves in a context when they are trying to comfort their sick child and at the same time also are distressed and vulnerable (Levi, Marsick, Drotar, & Kodish, 2000; Liaschenko & Underwood, 2001). Being approached about a research project can be well beyond their everyday experience, and can make it difficult for them to decide if a decline or consent has implications in any directions for the quality of care for their child. The sense of responsibility that accompanies parents' decision making about research participation for themselves and the child can render them more vulnerable, because it makes them responsible for the consequences for the child (Zikmund-Fisher, Sarr, Fagerlin, & Ubel, 2006).

Politically, one can argue that our agenda was to explore a “hidden” practice and that the preschool children’s situations should be given prominence in the politics of research. Although we wanted to benefit the parents and children by providing knowledge about a less researched phenomenon, we also wanted to prevent harm during the research process. To fully prevent any harm of the most vulnerable participants, children and parents, would be to not include them. But only focus on the health care providers and their accounts of the phenomenon could be considered a partial and a paternalistic approach because of a denial of autonomy and freedom of choice (Orb, Eisenhauer, & Wynaden, 2001). Because some time passed from when we asked the parents and child to participate until the data was generated, we reconfirmed their participation, and offered them to withdraw from the research project at the time of the interview.

From the start, we argued that the children and parents were the vulnerable participants of this research project. However, as the data generation commenced it was acknowledged that

health care providers are equally vulnerable in these situations. In a way, the children's participation in the study did not involve much risk, while the health care providers were unsure whether they had something to gain by disclosing aspects of their practice. Like Grafanaki (1996) notes, although qualitative research often promotes reflexivity, self-awareness and empowerment among the parties involved, participants can also feel that they are stigmatized and that the researcher crosses a boundary. Although I argued that we need systematic knowledge regarding restraint practice, participants could still feel that I impinged on the privacy of their practice.

It is important to protect the participants in research studies, specifically in examinations of sensitive topics (Walls, 2010). It is vital to present results in a way that ensures confidentiality and so that research consumers cannot determine the identities of the participants (Orb et al., 2001). There is a risk of negative reactions to the actions and opinions reported from the study's results. Therefore, we chose not to disclose the name of the hospital or hospital unit and did not attach specific age or other characteristics to participants to reduce the chance of identification of each child, parent or health care provider. Instead, as recommended, we used pseudonyms in the reporting of results. However, this strategy may not be sufficient if the study is conducted in a small community where participants could be easily recognized or recognize each other (Orb et al., 2001). This could be the case with this particular hospital unit. It was considered important not to contribute to future difficult nurse-physician and family-health care provider relationships. This was given priority, knowing that, not disclosing sufficient information about the setting and participants in a study can threaten the trustworthiness and inhibit possibilities to fully appreciate the qualities of a study.

It was considered important to prevent the participants from recognizing each other in the research. The results could potentially later cause trouble for a participant if it was possible to connect them to a specific health care provider. This had consequences for the choice of methods. A case study of one of the children was suggested to provide a more complete, in-depth description that could have contributed to a deeper understanding of the restraint practice. What was said during the video recording was known to all involved parties, but connecting the interviews to the video recording would increase the possibility of participants losing confidentiality. It was therefore considered problematic and unethical to report results as a case study of a single child.

During the interview sessions, three health care providers declined to watch the video recording at the end of the interview. Consent has been referred to as negotiation of trust and it requires continuous renegotiation (Kvale & Brinkmann, 2011) to secure participants' autonomy. The small discussions with some of the participants at the time of the decline gave insight into some of the uneasiness participants experienced regarding restraint, the research method, or probably both. The first time a participant refused, I did not negotiate with the participant nor question their choice, but accepted it, and finished the interview without watching the video recording. However, at the second refusal to watch the video recording during the interview, I decided to ask why. This participant answered that she did not need to watch it because she remembered everything perfectly in her head. Although I replied that it was part of my protocol and would be helpful to the study, she upheld that there was no need because she remembered the entire situation. The next participant who refused explained her refusal as embarrassment to watch herself on video, but agreed to watch the video after I explained that this constituted a part of my research method. We gained some valuable insights regarding health care providers' understanding of their own actions; for example, the uneasiness they expressed while watching the video recordings. However, the number of participants who watched the video recording during the interview was small and this illustrates the challenges we had with recall as a data generation strategy, and somewhat reduced the usefulness of the recall procedure.

6.2.5 Transferability

The questions about relevance of results beyond this study revolve around whether the results are primarily of interest for one place or time or whether they may be transferable to other subjects and situations (Russell & Gregory, 2003). The results in this exploratory study are based on data generated from a single site, where we argued for the informational power based on the multiple sources and richness of collected data (Malterud et al., 2016). The results have the potential to fulfill the intention of this study, namely not to offer final and conclusive solutions to existing problems, but to provide a better understanding of the problem based on the suggested patterns, typology and interpretations and thereby generate hypothesis for future research.

In this study, we chose one type of medical procedure, the common procedure PCV, as an example to explore physical resistance and restraint. The choice of examining only one type

of medical procedure was done for several reasons; first, we assumed that restraint during PVC would not be very different from restraint during other medical procedures involving pain or discomfort for a child. More importantly, we wanted to limit the amount of variation related to the medical procedure such as number and succession of steps in the procedure, positioning of the participants and equipment used in the procedure, but not the variation with regards to the participating children, parents and health care providers and their different ways of acting and interacting. This was because variation can be considered a strength in qualitative research studies (Patton, 2011).

Exploratory studies do not fully exhaust all possibilities of expressions, reasoning and interaction in restraint during medical procedures conducted on hospitalized children. Instead, the results presented in this study are specific, contextual examples of interaction that can point to attached meanings, use of symbols and possible ways to define a situation within a range of other possible interpretations. Contextually dependent knowledge is highly valuable for development of expertise within a field (Flyvbjerg, 2006). Still, individuals create a reality that encompasses their ethics, values, beliefs and perceptions through social interactions. Because the participants' meanings and establishment of definitions in interactions can be symbolic (representative) of the larger society (Blumer, 1969), the results may be recognizable in other settings where uncomfortable and potentially painful medical procedures are performed with preschool children. The suggested typology of expressions of resistance, pattern of interactions between parent and health care providers, health care providers' judgments and expressed challenges with restraint, and parents reflections on their participation are all preliminary results that provide for nuanced concepts and categories that form hypothesis that can be investigated in future studies to understand restraint better.

The exploratory results in this study can suggest direction for future research (Polit & Beck, 2008; Saunders & Lewis, 2012). A disadvantage is that exploratory research can generate qualitative information and interpretation which is subject to bias because of a modest number of participants, and specific perspectives that may not adequately represent the target population (Saunders & Lewis, 2012), and therefore only can be transferred to other situations and subjects to a moderate degree. For example, to understand the complexities of restraint, we gave prominence to the situations with the possibilities of much resistance and physical restraint (see for example sub-study I), because of their inherent information richness to inform the study aims. This may be seen as an artificial selection, however, presentations of

the results to different constituencies of health care providers indicate that the study's results resonate and are found meaningful or applicable in relation to their experiences. This feedback from the constituencies support the fittingness of the results (Sandelowski, 1995). We argue that these results are valuable for further exploration and studies of other medical procedures and medical conditions in comparable situations and settings. However, the exploratory nature of the study warrants further testing of transferability to larger populations.

7 Concluding remarks

The overall aim of this study was to explore the use of physical restraint with preschool children who resisted medical procedures in a natural setting, by interpreting the children's parents', and health care providers' actions and interactions during the medical procedure of PVC. Through this explorative study, we have provided insights into children's expressions, parent-health care provider interactions, and health care providers' and parents' perspectives on the use of restraint during medical procedures.

From our observations, children's resistance was mainly identified as protest, but also as escape and endurance. This highlights preschooler's ways of displaying non-consent during medical procedures. Parents seemed to be caught between helping the health care providers conduct the procedure and protecting their child from suffering, and they struggled to accept the unnecessary suffering for the child caused by less child-friendly approaches or missed attempts. This difficult role of parents during medical procedures involving restraint is challenging. Health care providers were convinced that they did everything they could to prevent physical restraint and provided care in a sensitive way in the child's best interest. Many struggled with the use of and preparation for restraint. Their disagreements, ambivalent views, insecurity and lack of discussions as identified in this study reveal the complexity of challenges health care providers face in their work. Finally, the lack of discussion of physical restraint among health care providers and their uncertainty about the legitimacy and legal basis of restraint may prevent health care providers from making ethically wise decisions in these difficult medical procedures.

By using qualitative methods and the analytic perspectives of Symbolic Interactionism (SI), we identified that the same PVC situation contained different meanings of restraint for each individual participant. Our analyses illuminated how people construct meaning, use symbols and determine their course of action. This can offer new perspectives on restraint during medical procedures and help identify multiple challenges in the use of restraint.

The definition of physical restraint in pediatric practice is unclear, in the literature as well as among health care providers. This may be one important reason for the lack of discussions regarding the use of restraint. In this dissertation, I argue for the usefulness of the concepts of formal, experienced and informal restraint as three different perspectives on restraint.

Although frequently used in other health care settings, these terms are not well known in pediatric practice. Health care providers and researchers within the pediatric field do not refer to the described terminology and its underlying assumptions. The introduction and use of the terms experienced, formal and informal restraint may contribute to clarification, elaboration of best practices and the theorization on restraint in the pediatric field. The use of theory may contribute to discussions that include competing perspectives on and definitions of restraint.

This dissertation has studied the use of restraint on a micro-interactional level. The responsibility for the use of restraint in practice, however, cannot be solely placed on the individual health care provider. It is therefore important to expand the discussions of this phenomenon to a meso and macro level. This involves discussion among and between the health professions, health authorities, educational institutions, hospital leaders and researchers.

7.1.1 Implications for practice

Given the exploratory nature of the research performed in this dissertation, the first practical contribution was that it provided empirical data on the use of restraint during medical procedures on preschool children in a somatic pediatric hospital setting. In this sense, we believe that our research is especially timely given the increasing attention to restraint and coercive practices for different groups in the health care setting together with the increasing focus on children's rights.

This study raises important questions about how parents and children are best introduced to and prepared before medical procedures and what parents' role in restraint should be. Health care providers emphasize information about the necessity of the medical procedure to strengthen parents' confidence and rationality. Health care providers already use many strategies to prepare the children and parents, but could consider improving parts of their educational programs of children and parents to include other types of information regarding the procedure and the restraint that may be involved in it. This could, for example, be what they and the parents can do and say to help the child to better regulate emotions during the medical procedure. Furthermore, developing and implementing child friendly approaches, e.g. using strategies to help the child manage pain, distress, fear and anxiety and acknowledging the child's perspectives in situations where restraint is common, seems to be important.

The study has contributed new knowledge about children's expressions of resistance. Restraint can cause an emotional cost for the child, which must be considered more explicitly in decisions regarding the use of medical procedures. This study has also demonstrated parents challenged position, especially in how they stop helping or support health care providers during PVC. These results have the potential to foster a greater awareness of parent and child expressions and experiences of painful medical procedures. The results from this study can be part of the knowledge base used in an evaluation of how children's rights in hospitals can be best managed and maintained. The results could provide input for further discussions and future evaluations of children's protection from coercive treatment. More explicit legal regulation regarding restraint in the pediatric setting would at least make it easier to discuss restraint in healthcare settings.

The results in the present study show that many health care providers experience restraint as challenging and emotional. This demonstrates the need for more openness about restraint and presents opportunities to bring the discussion of restraint, resistance and avoidance of restraint into everyday professional discussions in children's units. Professional attention towards and discussion about restraint may help health care providers to prepare for situations where restraint may occur. The pediatric health profession should take steps toward developing awareness among parents, children and themselves of the use of coercion, and allow for improved user involvement in care for both children and parents.

Another implication stems from our reframing of the research problem within symbolic interactionism and thereby understanding restraint through how meaning and identities are attached and acted upon in the situation of PVC. Use of restraint may be outside the health care providers' self-understanding within this setting, and there may be a shared understanding of norms and values which make them resist the identity as "restrainers." Such shared understanding of norms and values among health care providers will continue to commit the individual to resist the existence of restraint. Restraint must be acknowledged as part of health care practice for people to verify role identities and any other identities tied to these roles.

7.1.2 Implications for research

Our study, being of an exploratory and interpretive nature, indicates the need for and raises many opportunities for future research, in terms of further empirical exploration, evidence based practice guidelines and theory development. Studies I, II and III provide an initial exploration of restraint during medical procedures, but more research will be necessary to refine and elaborate these results.

This study suggested several new and presumably useful typologies and themes. However, given the exploratory qualitative research design, it is beyond this study to generalize about the different types of restraint or the prevalence of restraint in the larger population of hospital units.

We also assumed that restraint during PVC would not be very different from restraint during other medical procedures involving pain or discomfort for the child. This assumption should be further investigated. Further research should apply different methods and perspectives to better describe, explore and enable and develop interventions that may reduce or ameliorate restraint within pediatric health care. Similar data could also be analyzed using perspectives from child psychology.

This study offers an opportunity to refine and validate the concepts and constructs that emerged from this qualitative analysis. For example, the impact of child upbringing philosophies on restraint should be further explored. In addition, parents' roles as comforters, consenters to restraint and performers of restraint should be scrutinized for evaluation of usefulness. By introducing the terms experienced, formal and informal restraint into this field of research, we contribute to discussion, clarification and theorization that speak to the existing research on coercion within health care. Future research should include the connection between emotional reactions, such as distress, pain, shame and humiliation, and the use of restraint in such theorization.

This study has not aimed to delineate the impact of larger organizational issues or other contextual factors such as time constraints, organization of hospital environments or the level of competence of health care providers in the use of restraint, although these factors may impact the use of restraint in different ways. Thus, these elements must be considered in future studies.

8 References

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- I. Resistive expressions in preschool children during peripheral vein cannulation in hospitals: a qualitative explorative observational study. Svendsen EJ, Moen A, Pedersen R, Bjørk IT. BMC Pediatr. 2015 Nov 19;15:190. doi: 10.1186/s12887-015-0508-3.

- II. Parent-healthcare provider interaction during peripheral vein cannulation with resistive preschool children. Svendsen EJ, Moen A, Pedersen R, Bjørk IT. J Adv Nurs. 2016 Mar;72(3):620-30. doi: 10.1111/jan.12852.

- III. Exploring perspectives on restraint during medical procedures in paediatric care: a qualitative interview study with nurses and physicians. Svendsen EJ, Pedersen R, Moen A, Bjørk IT. Int J Qual Stud Health Well-being. 2017 Jul. 30. doi: 10.1080/17482631.2017.1363623.

Paper 1

RESEARCH ARTICLE

Open Access



Resistive expressions in preschool children during peripheral vein cannulation in hospitals: a qualitative explorative observational study

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Abstract

Background: Children may resist common medical procedures, and this may lead to the use of restraint. This can be challenging to all of the involved parties, but empirical research is scarce on children's expressions during these procedures.

Methods: To explore preschool children's resistive expressions during peripheral vein cannulation we video recorded and performed an in-depth analysis of naturally occurring situations with six newly hospitalized preschool children.

Results: Fourteen attempts of peripheral vein cannulation were recorded. A typology of resistive expressions was developed consisting of: protest, escape, and endurance. During the expression of protest, the children showed an insistent attitude where they were maintaining their view. The expression of escape was when children were panicked, avoiding hands of adults when being approached. When expressing endurance the children were stiff, motionless and introverted. Less physical restraint is required during endurance, but children still appear to refuse participation.

Conclusions: We identified three types of resistive expressions that can be used to better understand the individual child and inform clinical judgment in challenging procedural situations. This knowledge can help to sensitize health care providers in their attempt to arrange for children's participation.

Keywords: Children, Exploratory methods, Pediatric, Relationships, Health care, Resistance, Restraint, Medical procedure

Background

Hospitalized preschool children undergo many common but potentially painful and stressful medical procedures for diagnostic-and treatment-related purposes. Common procedures include peripheral vein cannulation (PVC), venipuncture, and nasogastric tube insertion. PVC is not an easy task in children and several attempts are often necessary to successfully place a PVC-needle. From a child's perspective, PVC is a highly uncomfortable and uncommon event, and has been shown to create high levels of experienced pain, distress, and anxiety [1–3].

Several studies have reported methods of helping children through medical procedures. These studies suggest

the need for local anesthetics such as lidocaine, and non-pharmacological approaches such as distraction, preparatory information, and the presence of parents [4–10]. It is important to focus on pain, distress, and anxiety in the care for children during procedures. However, this focus may contribute to an undesirable understanding of the children as passive or even irrational receivers of care, which in turn may hinder exploration of alternative interpretations and approaches to the situation [11, 12].

Physical restraint is often used to complete these common procedures [13, 14], and this might be harmful to the child [15], and challenging for the parents and the professionals. Restraint can be defined as use of force to overpower the child and is, by definition, applied without the child's consent [16]. The importance of acknowledging the role of restraint was pointed

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out by Crellin [16]. Two studies have described preschool children's resistance during immunization situations and found actions of rejection and reluctance towards the situation and their parents [17, 18]. A recent study explored children's behaviour during the procedure of venipuncture [19]. The descriptions indicating resistance during the procedure were termed avoidance, forced engagement and resigned engagement.

Although children become increasingly competent in making rational judgments as they get older, refusal of treatment by a preschool child is a complex and multifaceted situation [20]. "Voice" in preschool children is typically more non-verbal than verbal [17], and younger preschool children may not have fully developed abilities to express feelings and opinions in nuanced words to show how they think. Therefore, data on their behavior could support interpretations on how they are affected. According to the Convention on the Rights of the Child, children have the right to participate in all situations that involve them [21]. Generally, young children's perspectives in health care have not been sufficiently studied [11]. Observing preschool children's expressions during procedures where restraining episodes can occur is important to better understand them [22].

Symbolic interactionism

Perspectives of symbolic interactionism (SI) was chosen for this study because they can help to identify how people seek to understand the meaning of each other's actions in a social interaction [23]. In line with SI one must try to understand how the children handle and interpret the meaning in the procedural situations [23]. Within symbolic interactionism one assumes that human beings act on the basis of the meanings that things have for them, and that these meanings are handled in and modified through an interpretive process used by the person dealing with the encounter [23]. Perspectives from symbolic interactionism were chosen because we were interested in the children's meaning of the situation. A person's use of meaning is seen as more than an application of their already established meanings. It is an interpretive process in which meanings are used and revised as instruments for the guidance and formation of action.

Aim

This study aimed to explore children's resistive expressions in situations of PVC, where they could be subjected to restraint. The following research questions were developed:

How do children express resistance when interacting with parents and health care providers?

How do children ascribe meaning to parent's and health providers' actions during the procedures?

Methods

Design

The present study is part of a larger qualitative study investigating a common medical procedure where restraint can occur. The study had an exploratory design because little is currently known about the phenomenon at hand [24]. A field study was designed, collecting observational and interview data and field notes from insertion of PVC. Because of anticipated difficulties in interviewing young children, interview data were collected from the nurses, physicians, and parents. In the present study data from video observations and field notes were included. Data from interviews and parent-health care provider interactions will be presented in later articles.

Sampling, setting, and participants

The study was performed in a children's medical unit situated in a large central teaching hospital in the southern part of Norway. The unit had approximately 20 beds and admits children who are 0–18 years old with non-surgical conditions, such as severe infections, cancer, and diabetes. A purposive, criterion sampling strategy was used to capture information-rich cases [24]. The inclusion criteria were that the child required PVC, was between 3 and 5 years of age, had less than three earlier admissions, the hospital stay to date was less than 14 days, and the child should not have an emergency condition. Because it was difficult to exclude children with experiences from earlier needle procedures, the goal was to avoid children who already had adjusted to a hospital stay with multiple medical procedures. The non-emergency condition allowed for time and the possibility for health care providers to make judgments about the use of restraint and alternative strategies.

Three girls and three boys, between 3 and 5 years, accompanied by their parents and other relatives participated in the study. Five of the children had infections and one was admitted because of stomach pain. Four of the children needed intravenous access for antibiotic treatment, one for rehydration and one for diagnostic radiology purposes. Only one child had an earlier hospital admission 2 years prior. All of the children were treated with local anesthetic cream on the expected skin area for cannulation. One child required twice medication with sedatives due to massive resistance to the procedure. The characteristics of the situations for each child are described in Table 1.

A total of seven physicians and nine nurses participated in the recorded situations. One of the physicians participated in two situations. All of the children had met at least one of the health care providers before the recorded incident. The physicians used a total of 14 attempts to successfully insert the cannula. One boy did not receive a PVC-needle (Table 1). All but one of the

Table 1 Demographic and contextual characteristics of the patients

	Boy 1	Boy 2	Boy 3	Girl 1	Girl 2	Girl 3
Relatives involved	Mother	Mother	Father	Mother and other relative	Father	Mother and father
Nurses involved	1	1	1	3	1	1
Physicians involved	1 ^a	1	1	2	1 ^a	2
Child's experience of procedures same admission	PVC and venipuncture	None	Venipuncture	PVC and venipuncture	Nasogastric tube and venipuncture	Venipuncture
Time hospitalized prior to PVC	5 days	12 h	1 day	1 day	1.5 days	3 h
Number of attempts to insert the PVC-needle	1 ^b	1	2	4	3	3
Successful PVC	No	Yes	Yes	Yes	Yes	Yes

^a Same physician. ^b In this situation, the PVC was aborted before perforation of the skin.

situations occurred in the unit's treatment room. The remaining situation took place in the patient's room because of a preliminary diagnosis of contagious stomach flu. Preparation of equipment by nurses prior to the procedure differed. In some cases, the nurse had been in the room to prepare for PVC before the family arrived. In other situations, the process to prepare the equipment started when the nurse came into the room together with the family.

Data collection

Data were collected between May 2012 and May 2013 in six observed situations with a total of 14 attempts of PVC. The observed situations lasted between 10 and 94 min, starting 1–2 min before the participants entered the room, and lasting until the health care providers indicated that they were finished with the procedure. A video camera was placed on a tripod and the first author was present in the room during the procedure. To help participants forget the presence of the camera, the researcher positioned herself away from the camera. Field notes were written by the first author after each procedure. The video recordings enable the researchers to view the situations several times and to be analysed by the entire research team. By observing actions, we were able to discern what is taken for granted and discover what occurred in each situation [25]. Since preschool children have difficulties in providing detailed descriptions of their actions it is important to use methodologies that are sensitive for capturing their expressions and viewpoints [11].

Ethics and protection of privacy

Approval from The Regional Research Ethics Committee South-East C (reference number 2011/2193), and the local research management in a hospital situated in the South-East Regional Health Authority was obtained. Data collection and storage were managed according to the laws and guidelines regulating research in Norway. Written informed consent was asked from health care

providers and parents. The parent(s) also gave written consent on behalf of the child. No additional PVC was performed on a child for the purpose of this study.

Analysis

We imported the field notes and the video recordings into NVivo10[®] (QSR International, USA), which is a software solution made for managing and shaping unstructured qualitative data. The six situations involved 14 attempts to place the PVC-needle (Table 1). The children's facial expressions, words and sentences, positioning, body movements, sounds and cries were described in detail using the built-in transcription tool of NVivo10[®]. This tool enabled parallel viewing and transcription.

The overall aim of the larger study was to explore the use of restraint during medical procedures. Reviewing the video recordings several times, we became aware of the children's actions in the interaction and how resistance could represent the counterpart of restraint. The sensitizing concept "children's resistance" provided a general sense of reference in approaching the empirical material. It enabled attention to variations in how the children displayed resistance during the different attempts [23]. An inductive content analysis was used [26] because it allows new insights to emerge from the data [27, 28]. The different descriptions of the children's words and gestures were allocated to different NVivo10[®] -nodes. A node is a collection of references formulated according to the type and quality of data and could contain one or several similar descriptions. The next step of the content analysis was to cluster the nodes into the categories of expressions of resistance as shown in Table 2.

In finalizing the analysis we highlighted the interactional aspects of the children's expressions by using perspectives from SI. Within SI the term gesture is used to signify all verbal and non-verbal utterances. Interaction can be seen as a representation of gestures and a response to the meaning of those gestures [23]. The adult's gesture is an indication or sign of what he is

Table 2 Types of resistance expressed by children during PVC

	Expression of Protest	Expression of Escape	Expression of Endurance
Nodes on gestures	Presence of determined face with wide eyes and shut mouth Upright position on the parent's lap Kicks and hits parents and health care providers or threaten to do so with the hand/foot Opposes attempts of comforting from parents Opposes removal of clothing, by holding on to them and pushing parents away Insistently avoids eye contact and look away on purpose Quickly looks at the health care provider's face Answers questions and suggestions with "no" or "not" Cries for parents Short sentences not related to questions or examinations Argues for other needs Negotiates in a determined way Does not respond to reassurance Screams/shouts in an angry manner Increases volume of crying as a "warning" in response to adult verbal/non-verbal action	Fearful expression with wide eyes and open mouth Curls up and hides in the parent's lap, constantly moving around on their lap. Points at other relatives in room Hides limbs in clothing Avoids comforting attempt from parents by moving the arm/body Uses the body to twist to avoid access to buttons and zippers Gaze seeks other adults outside the situation Gaze fixed on movement of adults Answers questions with "no/not" in a fearful manner Call for other activity Repeats call for parent although the parent is present Fearful voice when crying Does not respond to reassurance Cries or screams in a fearful, rapid manner Increases volume of fearful crying as a response to adult verbal/non-verbal action	Stone-faced or stiff facial muscles Body stiffness and distance from the parent's body when sitting on the parent's lap Ignores attempts of comfort from parents Body stiffness that hinders removal of textile Remote gaze, staring at point far away No answer or reactions to direct questions or examinations No follow-up on probes Ignores/does not hear commands Refuses to speak Ignores questions and suggestions No particular words or expression of sentences Does not respond to reassurance Cries in a monotonous continuous manner Increases volume of monotonous crying, but maintains the same pace of crying

planning to do, as well as what he wants the child to do or to understand [23]. The child organizes his response on the basis of what the adult's gesture means to him. These theoretical perspectives allowed for a deeper understanding of the children's expressions and viewpoints.

Results

Children resisted the PVC situations with different types of resistance: (a) protest, (b) escape, and (c) endurance. Resistance was the children's way of showing their disapproval or disagreement. Children could display one or all of the types of resistance at different times of the procedure. Some of the children displayed the types of resistance in a weak manner, others in a stronger manner. To describe resistance, excerpts from situations with three children who resisted the procedures most strongly are presented below. These examples were selected because they contained the most condensed and illustrative information regarding how the children organized their responses on the basis of what the other participants' gestures meant to them.

Protest

Expressions of protest were observed when adults, either health care providers or parents, attempted to initiate contact, arrange for progress in the procedure, or attempted to touch the children. This expression was observed immediately after entering the procedure room, before the actual start of the PVC, and throughout different steps of the entire procedure. The interaction presented in Table 3 illustrates one example of protest. Boy 1 was supposed to obtain his second PVC during the hospital stay (Table 1). There had been one attempt to insert a PVC-needle earlier that day that had failed. Because there was no emergency the procedure was postponed until later. A new physician, who was unfamiliar with the family, was asked to do the PVC the second time.

The interaction demonstrates how the boy, using his facial and bodily expressions, turned down the physician's invitation. The physician indicated what she was planning to do when she asked to get permission to inspect the hand, which was hidden within the boy's sleeve. She further tried to obtain permission to remove the lidocaine pad with local anaesthetics. Body language and determination from the boy hindered progress of the procedure, despite the physician's insistent, but friendly and positive approach. The child seemed to interpret the health care provider's talk as bringing him closer to the insertion. The boy insistently ignored several attempts of contact by cutting off the conversation. The health care provider's attempts to establish contact (and initiate the procedure) were met with a verbal protest of "no" and

Table 3 Excerpt from boy 1 regarding PVC

Participant	Actions (italics represent non-verbal actions)
Physician	May I have a look under there? Positive friendly voice (the physician is referring to a lidocaine pad with local anesthetics).
Boy 1	No-oh. The child looks determined with his gaze fixed on the physician's hands while shaking his head.
Physician	No? Light voice and friendly tone.
Boy 1	The boy maintains a determined face and body position, and does not give an answer. He does not look at the physician. He keeps his hand in his sleeve.
Physician	Not at all? Keeps his voice light and has a friendly tone.
Boy 1	No answer. He still has a determined facial expression. He does not look at the physician.
Mother	Hmm?
Boy 1	He does not move. Determined facial expression maintained.
Physician	Can Rose ^a look at your hand? Physician points at the nurse called Rose and smiles. Hmm?
Boy	The child shakes his head while looking down.

^apseudonym

resolute facial expressions. At a later point in the procedure, he prevented his mother from removing his jacket by holding hard on to his sleeves from the inside and placing his hands over the zipper.

The expressions of protest took different forms in the children. The children appeared tense, sitting in an upright position on their parent's lap. Some insistently avoided eye contact, and maintained a determined expression on their face, with the corners of their mouth pointing downwards and their chin down touching their chests. When looking at health care providers, they did so only for short periods of time, and looked away if the health care providers looked back at them. Crying, yelling, and screaming in a loud and angry manner were also characteristic for stronger expressions of protest, or repeating "no" or "not" or other short denial sentences. By repeating short sentences, shouting, and crying, the children drowned out the health care providers' voices. They could also raise the intensity of their voice when they did not get any response to their protest, and when their protest was ignored for several times, their crying took form as "warning signals". The most resistive children showed no actions that could indicate that they attached meaning to the adult's suggestions or friendliness. However, the children, who displayed weaker signs of protest, cried and screamed less, and gave in more easily in to arguments from the adults. These children opposed the actions of the health care providers by not answering, thereby delaying progress. The children could also protest directly by refusing to follow direct commands or rejecting attempts of removing clothing by pushing the adults' hands away.

Escape

Expressions of escape were observed when adults, health providers, and parents, attempted to grab hold of them, or when the children realized that they were about to become overpowered. The interaction shown in the 12-second excerpt in Table 4 shows how girl 1 tried to escape during the first of four attempts to place a PVC-needle. Just before the excerpt starts, the health care providers tried to medicate her with a sedative to calm her down but, despite this, she was constantly screaming and moving back and forth on her mother's lap. The mother attempted to hold her, while the health care providers tried to grab one of her legs.

The excerpt shown in Table 4 demonstrates how the girl struggled to escape from the health care providers, by rapid movements and twisting of her body. The child had an alarmed facial expression and appeared to respond with immediate fear when her protest was ignored. She did not seem to catch the intended meaning of the positive tone and words of the health care providers. The kind words contrasted with the nurse's

Table 4 Excerpt from an attempt at sedation in girl 1

Participant	Actions (italics represent non-verbal actions)
Girl 1	No, no, no, no, no mummyyy. She screams the words out in a desperate way. Her eyes are focused on the health care provider's arm. She displays a fearful expression on her face. Her body and legs are withdrawn from the adults who are attempting to grab hold of her feet while she is wriggling her legs.
Mother	The mother holds her child, preventing her from falling down from the bench. She has a tense look on her face.
Nurse	This is going just fine. The nurse adopts a positive tone while approaching the girl. She attempts to catch the girl's wriggling leg in the air.
Girl 1	I don't want a prick in my leg. NaaaeEEEEEEEEEE. Screams loudly. Mummy, mummy, mummy, no, mummy. Screams louder and louder, and continues to wriggle her legs and flails her arms.
Relative	Mummy is holding.
Nurse	Hold the leg. The nurse points at the girl's leg.

struggle to take control. Instead, the girl watched their next movements, and attached meaning to their approaching hands. She raised the volume of her fearful cry, flailing and wriggling when the health care providers approached her.

Escape was variably expressed across situations and PVC attempts within situations. Escape was not observed without a prior protest, and now the child seemed to have modified his interpretation of the situation. Escape occurred when health care providers or parents decided not to listen to protests, but take direct actions. Consistently, during the expressions of escape, the children did not make eye contact with the parents or health care providers, and attached meaning more clearly to the health care provider's movement. The children appeared alarmed and aroused on their parent's lap, looking quickly around the room. They alternated their gaze between the health care providers' bodily movements and a quick look around the entire room as if looking for escape. One child climbed onto her mother's body to try to get away, while not letting the nurse's hands out of sight at the same time. Crying and screaming in a fearful manner characterized escape. Repetition of sentences and words without pause and loud screaming were spontaneous expressions. This repetition appeared to be disconnected from the adults' approaches. Without a break, the children shouted the name of the parents or called for help or release. One child screamed "ouch" repeatedly when the health care providers approached her and increased the tempo of "ouch" when the nurse looked at her, but still had not touched her arm. Some children screamed and shouted as if they were in severe pain and in a manner that affected their entire body when the adults threatened to or actually carried out their intentions. Another feature

of escape was that it could be present in a short time interval. Escape often occurred when the health care providers stopped trying to make gestures of contact or to persuade the child, and decided to take physical action. The children displayed facial expressions of surprise and fright and fast body movements when they struggled to avoid the adults' hands. They were startled just by the nurse passing by, e.g. when fetching equipment. Two of the children seemed to be incapable of powerful resistance or verbal protest because of their condition of illness. We zoomed in on their non-verbal expressions in the video recordings, and noticed that both of them hid their hands when the nurse or physician released their hand for some reason.

Endurance

The children's expressions of endurance comprised methods of self-restraint throughout the procedure. These expressions were observed during most steps of the procedure in some of the children, and in others at the end of an attempt where they had been through expressions of protest and escape. In the excerpt shown in Table 5, a girl gave no response when her father and the health care providers tried to talk to her. She sat stiffly, crying on her father's lap, while the physician knelt on the floor below. The physician inspected her hand, and was concurrently attempting to communicate with her. Both of her hands were stiff and held out from her body. The inspected arm was lightly supported by the nurse.

This excerpt demonstrates how the stiffened body posture and inflexibility in the child's limbs communicates

resistance in an introvert way. The girl did not respond to the health care provider's intended meaning; neither to the humorous and inviting talk nor to the restraint. The stiffness of the girl made the adult's efforts of contact and manipulation of her hand difficult and intrusive. The girl appeared to put energy into not moving, which also prevented her body from touching her father's stomach, thus avoiding attempts at comfort. Her gaze appeared to be concentrated at something that was not present.

Expressions of endurance varied across situations and attempts at PVC. Words were expressed in a sore, rhythmic voice where they appeared to hinder interaction. Expressions of endurance comprised expressions of retreat and shielding from social interaction. The children appeared to prepare internally for something that was undesired. A tense and motionless body and facial stiffness were typical of endurance. The children did not actively avoid eye contact, but stared out into the air and did not respond to physical cuddling. During one attempt a child who was usually comforted by her pacifier showed no change in expression when this was removed or reintroduced. Endurance occurred during all attempts for one girl and only at some times for others. Those who had low energy went through the procedures with less stiffness, except during the actual needle prick. During endurance, the volume of the cry was moderate, and words were hardly used. The cries qualitatively changed in different ways according to the health care providers' actions during the procedure. For example, when the needle prick was announced and inflicted or the tourniquet was tightened, the children intensified the rhythm and volume of the crying, but still focused on themselves. The children seemed to have stopped to attach meaning to the adults' gestures. No actual reply to any direct question from adults was observed and the children displayed a suffering manner.

Discussion

This study describes preschool children's resistance to PVC procedures. The descriptions may contribute to nuance the existing accounts of children's expressions of anxiety, pain, and distress because the focus is on how they organize their response on the basis of what the adults' actions mean to them. The resistance consisted of expressions of protest, escape, and endurance. Each type of resistance involved distinct descriptions of gestures such as body posture, screaming, crying, or words and short sentences.

Protest was the most prominent type of resistance. Protest is recognized in many of Söderbäck's [19] categories of engagement such as avoidance and forced engagement. However, the categories in Söderbäck's study emanates from a different analytical perspective which

Table 5 Excerpt of PVC in girl 2

Participant	Actions (<i>italics represent non-verbal actions</i>)
Girl 2	Nooo. The girl's words are cried out in a monotonous way, staring into the air.
Father	He tries to drag his daughter closer toward him. This increases her body stiffness and her pitch of crying slightly rises.
Physician	Wow, did you make these? The physician points to the child's bracelet, which is homemade of plastic pearls in different colors, and looks up into the child's face and smiles.
Girl 2	I don't want. Nooooo. The girl continues to cry in a monotonous way with a stiff body posture, and a stiff neck, and limbs. She sits in her father's lap, ignoring the physician and fixes her glance on her arm where the physician holds her arm, not trying to withdraw the hand. Because of her stiff body, the father is unable to drag her closer to his stomach.
Physician	Or, maybe it is dad who has been sitting up and made it... ha ha ha ha (laughing) and looks first at the child, and then at the parent. Or what?
Girl 2	Noooooooo. The child still continuously cries in a rhythmic voice and is stiff in the body.
Father	He vaguely smiles and nods at the physician.

makes a direct and detailed comparison difficult. One of Söderbäck's categories is forced engagement, however, our starting point was children who already were in risk of becoming, or were forced to be "engaged" in the procedure [19]. In the current study protest was identified during most steps of the procedure, also before the use of restraint. One interpretation of protest is that the children intended to hinder the health care providers in progressing with the procedure. A delay in progress was also identified by Harder et al. [17], who found that expressions of rejecting an invitation, turning attention away, taking their time, disapproving, and resisting, were part of 5-year-old children's actions that delayed immunizations.

Protest seemed to escalate into escape when the children modified their interpretation of the health care provider's actions. Gradually, they attached more meaning to the health care provider's movements, and less to their talk. This can be understood as an interpretive process in which the children lost their belief in the adult's talk as they realized that they were not being listened to, but ignored. The adults' talk does not give meaning but their non-verbal actions guide the formation of the children's actions [23].

During endurance the children seemed to "restrain themselves" by straining their muscles and directing their attention internally. Endurance seemed to mark a change in the children's ascribed meaning of the situation, when they again modified their responses. During endurance, the children appeared to only interact with themselves, as similarly described by Söderbäck [19] in her study on venipuncture in children. Seemingly the belief in support from the adults had faded. To have lost trust in parents and health care providers in this situation may indicate a serious and lonely experience for the child that involves suffering [29]. In the current study, children required less (forceful) restraint during endurance than during other types of resistance. Crellin et al. differentiated the use of restraint in relation to how much force was used during medical procedures [16]. This indicates that the relationship between resistance and restraint is complicated, and that endurance needs further exploration to establish potentially harmful consequences for the child. The change in types of resistance throughout the procedure could be related to a lack of acknowledgment of the children's views and feelings.

Changing between the different expressions, the children seemed to modify the meaning and what they attached meaning to in the situations. They actively attempted to make their opinion heard. This is similar to previous findings suggesting that pre-school children want to and do take an active part in health care situations [11, 12, 17–19]. They did not however, attach the

meaning to the situation as the health care provider's wanted them to. The children acted on the basis of the meanings that health care providers' and parents' gestures had for them [23]. For some preschool children who resist going through with procedures the adult's gestures become unimportant. When children do not attach meaning to words, the use of interventions such as distractive talk seems less useful. Findings from several studies show that when children are forced, they often do not accept support, guidance or distraction [19, 30, 31].

Some of the children who displayed initial resistance continued to do so throughout the procedure. It seems that some children can keep on resisting and have difficulty in changing their course of action in terms of cooperation. Approaches used by health care providers and parents at the beginning of and during the procedure seemed to be ill-timed. Children's low level of cooperation is a factor contributing to unsuccessful PVC [32] and often leads to more attempts to provide the child with an intravenous line, possibly resulting in an increasing number of restraining episodes. Therefore, children who initially resist a procedure may experience multiple attempts and multiple restraining episodes following the first procedure, something which requires special attention from health care providers. While the importance of children's participation and consent is advocated [33–35] the present study confirms that participation and consent can be challenging for all the involved parties. To be able to achieve existing recommendations in clinical practice [21], the child's views and feelings should be acknowledged. Even though it is not always possible to act in accordance with the child's desires, it is still important to acknowledge the child's perspective and competence [11, 36]. Findings from this study may enable health care professionals to identify various types of resistance in children, and to discuss and develop strategies for how to analyze, interpret, acknowledge, and deal with children's resistance.

Methodological issues

Although small samples are typical in qualitative research [24] we acknowledge that the findings were based on a small number of recorded situations. However, these recordings comprised 14 attempts that enabled a detailed study of the children's expressions. Video recording with young children is a method which in a sensitive manner uncovers their expressions [11]. There are however limitations to the use of video recordings. Participants can change their behavior because of the camera and the presence of an observer. In this study, we explored children's resistance, but we acknowledge that an important limitation is that we as researchers try

to analyze the situations from the children's perspective. We are only to some degree able to take their perspective [36].

One challenge of inductive content analysis is failing to develop a complete understanding of the context, which can result in findings that do not accurately represent the data [27]. To meet these challenges, 1 year was spent in the field indicating a prolonged engagement. The video recordings allowed for persistent observation in addition to data-and researcher triangulation. To increase the rigor of the interpretation, the researchers made independent interpretations of the data before discussing them together and compared expressions between children and across different attempts [37]. Although the sensitizing concept of resistance contributed to the prominence attributed to the stronger expressions of resistance during analysis, the concept may also have rendered us less sensitive to other phenomena and aspects of resistance. On the other hand the first author has had a professional role in a similar setting which can facilitate tolerance and sensitivity to such emotional situations.

Conclusions

In this study we used perspectives from symbolic interactionism to interpret types of expressions in children's resistance; protest, escape, and endurance. Protest was the most common type of resistance that was found during all phases of the procedure. Escape had a short timespan and was not identified without prior protest. Expressions of endurance indicated suffering and loneliness. Some of the children who displayed initial resistance did so throughout the procedure. The children seemed to modify the meaning and what they attached meaning to during the procedure, gradually detaching meaning from the adult's gestures. The findings expand the former understanding of reactions which have mostly been addressed as pain, anxiety and distress. The descriptions of resistance might enable health care providers to elaborate on the child's perspective and depict a child's expression when consent and cooperation are challenging. Discrepancies between the child's and the health care provider's perspectives and feelings should be acknowledged and subject to reflections to enable the use of restraint with caution. If resistance to treatment is only understood as expressions of distress and pain, there is a risk that the child's own perspective, opinion and other feelings might be neglected. Further research is required to investigate the usefulness of these concepts of resistance in clinical practice.

Abbreviations

PVC: Peripheral vein cannulation; SI: Symbolic interactionism.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

EJS, ITB, AM and RP participated in the design of the study and performed the preliminary analysis. EJS collected the data and made the final analysis and drafted the manuscript. ITB helped to draft the manuscript, ITB, AM and RP revisited the draft critically for important intellectual content. All authors read and approved the final manuscript.

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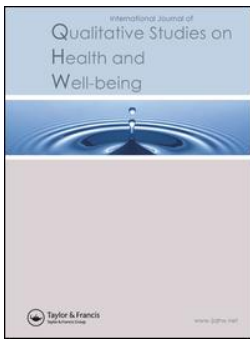
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Paper II

Paper III



Exploring perspectives on restraint during medical procedures in paediatric care: a qualitative interview study with nurses and physicians

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Exploring perspectives on restraint during medical procedures in paediatric care: a qualitative interview study with nurses and physicians

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ABSTRACT

The aim of this study was to explore nurses' and physicians' perspectives on and reasoning about the use of restraint during medical procedures on newly admitted preschoolers in somatic hospital care.

We analysed qualitative data from individual interviews with a video recall session at the end with seven physicians and eight nurses. They had earlier participated in video recorded peripheral vein cannulations on preschool children. The data were collected between May 2012 and May 2013 at a paediatric hospital unit in Norway.

The analysis resulted in three main themes: (1) disparate views on the concept of restraint and restraint use (2), ways to limit the use of physical restraint and its negative consequences, and (3) experience with the role of parents and their influence on restraint. Perspectives from both healthcare professions were represented in all the main themes and had many similarities.

The results of this study may facilitate more informed and reflective discussions of restraint and contribute to higher awareness of restraint in clinical practice. Lack of guidance and scientific attention to restraint combined with conflicting interests and values among healthcare providers may result in insecurity, individual dogmatism, and a lack of shared discussions, language, and terminology.

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KEYWORDS

Restraint; child; children's nurses; symbolic interactionism; qualitative study; hospitalised child

Introduction

Children often undergo potentially painful and frightening medical procedures in hospitals and can experience distress, pain, and anxiety and may express strong and persistent resistance during procedures (Söderbäck, 2013). Restraint seems to be more frequently used with pre-schoolers during different medical and clinical procedures than with older children (Crellin et al., 2011) and is used to enable safe performance of the medical procedure when the child resists it. The use of restraint to accomplish the medical procedure may worsen the child's experiences (Brenner, 2007; Snyder, 2004) and is potentially harmful and traumatizing. Healthcare providers often collaborate to perform medical procedures on children (Brenner, Treacy, Drennan, & Fealy, 2014; Crellin et al., 2011; Demir, 2007; Kangasniemi, Papinaho, & Korhonen, 2014). Potential challenges are related to healthcare providers' double roles as appliers of restraint and providers of safe treatment, comfort, and care (Babl et al., 2012). Restraint can be challenging but has been sparingly investigated in paediatric practice (Bray, Carter, & Snodin, 2016). Furthermore, few studies have explored both physicians' and nurses' perspectives in these situations. How

healthcare providers comprehend different aspects of restraint is important for understanding how restraint is used and for identifying possible solutions when children resist medical treatment and care. In this study, peripheral vein cannulation (PVC), a common medical procedure, in an acute paediatric unit was used as the example in the exploration of healthcare providers' perspectives and reasoning on restraint.

Background

Recent research articles use the terms "restraint," "holding," or "restriction" to refer to restraint or coercive actions in the paediatric setting (Crellin et al., 2011; Demir, 2007; Kangasniemi et al., 2014; Page & McDonnell, 2013). The different terms imply that the content and naming of these practices are unclear. There is a lack of clear and agreed terminology and nurses and allied healthcare providers differ in their description of their practices (Kirwan & Coyne, 2016; Page & McDonnell, 2013). It is uncertain if the terms cover the same or different aspects of what is going on (McGrath, Forrester, Fox-Young, & Huff, 2002). In one respect, the terms are related to the amount of

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physical force needed to enable a procedure, such as the difference between holding and restraint (Brenner et al., 2014; Jeffery, 2010). For example, Crellin et al. (2011) suggested grading restraint as none, gentle, moderate, and forceful, based on how large a part of the child's body (for example, the torso and the number of limbs) was held and the amount of force used when holding them. "Holding" can be, but is not always, voluntary. Holding represents the action of restraint and can be forceful but also kind and loving. The term holding is less specific than the term restraint. The term "restraint" perhaps more clearly refers to a lack of voluntariness compared to "holding" and "restriction." Restraint in this paper is understood as "the application of force with the intention of overpowering the child, and is by definition applied without the child's consent" (Royal College of Nursing, 2003, p. 4).

Parents' presence during medical procedures is valued and expected by healthcare providers because it may reduce distress and worry and can help comfort the child (Cavender, Goff, Hollon, & Guzzetta, 2004; Gilboy & Hollywood, 2009; Snyder, 2004). Healthcare providers often take parental participation in restraint for granted (Hallström, Runeson, & Elander, 2002) and there are indications that parents provide most of the holding during procedures (Graham & Hardy, 2004; Homer & Bass, 2010; McGrath & Huff, 2003). The way healthcare providers understand the parents' role and cooperate with them during restraint is important because it may be an opportunity to prevent restraint. However, the parents' wish to participate may differ (Hallström & Elander, 2004; Hallström et al., 2002; Lam, Chang, & Morrissey, 2006). Some parents have reported holding their children as meaningful (Sparks, Setlik, & Luhman, 2007), while other parents find it emotionally difficult (Alexander, Murphy, & Crowe, 2010; Hallström & Elander, 2004; Idvall, Holm, & Runeson, 2005; McGrath & Huff, 2003). It is unclear what is in the child's best interest.

Previous studies mainly investigated nurses' perspectives on restraint. Nurses had mixed perspectives and emotions related to restraint (Brenner et al., 2014; Gilboy & Hollywood, 2009; Snyder, 2004). Some nurses had problems with accepting the use of restraint and felt that restraint could harm the relationship they tried to build with paediatric patients (Bricher, 1999; Svendsen & Bjørk, 2014). Nurses experienced having to balance diplomacy with use of restraint (Karlsson, Rydstrom, Enskar, & Englund, 2014) and respond to non-adherence with persuasion and coercion (Kangasniemi et al., 2014). Some nurses who concluded that restraint was often the only way to manage children and to enable medical procedures (Kangasniemi et al., 2014) viewed restraint in some form as inevitable and acceptable (Brenner et al., 2014; Kangasniemi et al., 2014). Kangasniemi et al. (2014) found that nurses considered

restraint important because it eased their work and fulfilled the aim of good nursing care because restraint was held to be best for the patient. In other studies, nurses who saw restraint as unacceptable could find it difficult to choose between causing harm and promoting health (Ives & Melrose, 2010; Lloyd, Urquhart, Heard, & Kroese, 2008; McGrath & Huff, 2003). Delaney (2001) performed an ethical analysis of nurses' perspectives on the harm of restraint versus the benefit in psychiatric settings and concluded that holding a child was perceived as "reasonable harm" compared with the benefit of the treatment.

Use of restraint is not usually specifically mentioned in legislation, although some countries may require parents' signatures (Demir, 2007). Coercive medical treatment for minors is generally neither an issue in international clinical guidelines nor in the law regulating the practice in Norway, where this study was performed (Stock, Hill, & Babl, 2012; Troianos et al., 2011). However, the main rule in Norwegian health law, as in international human rights guidelines, is that any use of coercion requires an explicit legal authority, a formal decision, and appeal procedures. The lack of clear guiding principles for when and how to use restraint can create professional and ethical challenges for healthcare providers and may influence their clinical judgments (Ives & Melrose, 2010). Since restraint in this setting is not specifically regulated and generally not accompanied by a formal decision and documentation, the restraint used can be defined as "informal" restraint. To develop more knowledge about informal restraint in paediatric healthcare and facilitate more open discussions, this paper explores healthcare providers' perspectives on restraint.

This study was inspired by symbolic interactionism (SI); SI provides perspectives on how people seek to understand the meaning of others' actions in a social interaction (Blumer, 1969). Humans act toward people or things based on how they assign meaning to them. Meanings are assigned as symbols. For example, within a situation, one can see another person as uncooperative or lazy. Such symbols (for example, uncooperative) are assigned to others within a social situation, such as during a medical procedure. According to SI, we act toward people as if those symbols of meaning exist. Individually and collectively, people act based on the meanings things have for the individuals, and these meanings arise and are learned in interactions (Burbank & Martins, 2010). In social situations, the symbols (such as the language used) are developed during previous interactions. According to SI, such meanings are assigned and modified through an interpretive process that is always changing and where the meaning is subject to redefinition (Blumer, 1969). People attach certain common meanings to social positions (i.e., nurse or

parent); thus, people expect a specific kind of conduct and behaviour from people in these positions. Accordingly, an individual who occupies the position is often aware of these expectations and the way in which he or she is viewed and may act in the roles he or she is given (i.e., uncooperative) in a situation. Based on this, people form meanings and develop specific ways to respond.

The aim of this study was to explore nurses' and physicians' perspectives on and reasoning about the use of restraint during medical procedures on newly admitted preschoolers in somatic hospital care. Knowledge about healthcare providers' perspectives and reasoning can advance and nuance our understanding of the practices of restraint during medical procedures. The following research questions were developed:

- How do paediatric nurses and physicians participating in restraint practices during medical procedure define restraint?
- How do paediatric nurses and physicians reason about episodes of restraint?

Methods

The present study is part of a larger research project exploring the use of restraint during medical procedures in preschool children. More specifically, we focused on restraint with children who required a sub-urgent medical procedure with limited time available for planning the medical procedure (this meant that the procedure could be postponed for a limited time, typically some hours, because the child's condition was not critical). In previously published articles, we have reported on children's expressions of resistance and on the interaction between healthcare providers and parents (Svendsen, Moen, Pedersen, & Bjørk, 2015, 2016). In this study, we present results from interviews with participating nurses and physicians. We also interviewed the participating parents, and the results from these interviews will be presented in future publications. This study had an explorative qualitative design, which is appropriate when little is known about a phenomenon and one wants to understand people's views and experiences (Polit & Beck, 2008).

Participants and setting

The nurses and physicians who participated in this study were sampled during the larger research project. They had recently consented to and participated in a total of 14 video recorded attempts to insert PVC on six inpatient preschool children (aged between 3 and 5 years old). The participating healthcare providers were video recorded during PVC on one child (apart from one physician who was video recorded

two times with two different children). More accurate information about how this was done is reported in two earlier studies (Svendsen, Moen, Pedersen & Bjørk, 2015, 2016). Parents and healthcare providers used different levels of force together in the holding of the child during the insertion of the PVCs. The level of restraint ranged from targeted restraint by one nurse holding one child's hand who showed weak resistance, to forceful restraint of a child who exhibited major resistance while two nurses used a lot of force to hold the torso and all limbs. Eight nurses (aged 26–46 years) and seven physicians (aged 32–44 years) agreed to participate. All except one were female. Their experience providing hospital care to children ranged between 1 and 8 years (apart from one physician who had only 2 weeks of experience). The study's setting was a medical unit in a large teaching hospital in the southern region of Norway. The medical unit treated children from 0 to 18 years admitted for various medical somatic conditions.

Data generation

Data were collected between May 2012 and May 2013. The interviews were performed at the hospital in a separate room as soon as possible after we had observed and video-recorded the participants in the procedure. The first author conducted face-to-face semi-structured individual interviews, which are suitable when investigating how people reason about their practice and make meaning of their experiences (Kvale & Brinkmann, 2009). The interviews took place during working hours, were tape-recorded, and lasted between 47 and 108 min.

The interview guide was based on results from earlier research, experiences from the first author's practice as a paediatric nurse, and incidents observed during the recorded video observations. Themes and questions used in this paper involved the following thematic areas: (1) terms the participants used in their reasoning and considerations about restraint, (2) perspectives on the child/child preparations, (3) the parents' situation and role during the procedure, and (4) cooperation and discussion with colleagues. Before asking questions from the thematic interview guide, the interviewer asked the participants to talk about their experiences during the recent PVC. Then the interviewer followed up on this first question and initiated conversation about their reflections and understanding of the situation, covering the four themes. Some questions were asked of all healthcare providers, while some came up during one interview and were included as questions in subsequent interviews.

The participants were encouraged to share their thoughts about the recent PVC and previous situations. Knowing that restraint could be a "moral sore

spot," the term "restraint" itself was used with care. However, the term was introduced by both the interviewer and the interviewees and served as part of the exploration. In most cases this enriched the discussions and reflections on the concept. After encountering disapproval about the concept of restraint, the interviewer became even more sensitive to the interviewees' own definitions of restraint. The interview climate differed and this was included as an aspect during the analysis. For example, when one of the participants answered only with short sentences and rational-based judgments and questioned the value of the research, this was interpreted as tension related to the subject of the research. This tension could also be related to other unidentified reasons.

The participants were offered the opportunity to review the video recording of the PVC they had taken part in. Of the six physicians and six nurses who were asked to view the video recording, five physicians and four nurses accepted. Three declined to watch the recording due to time constraints or an expressed aversion to watching themselves on video. Unfortunately, there were technical problems with the remaining three video recordings, so these participants did not watch it. Such video-recall sessions elicit participants' subjective understandings of their actual interaction, which is valuable when using theories such as symbolic interactionism (Welsh & Dickson, 2005). The video was shown toward the end of the interview to first capture the participants' inner experience of the situation before they had the chance to watch themselves from the "outside." The intention was to help the participants reflect on relevant perspectives when observing their interactions afterward.

Ethical considerations

The study was approved by the Regional Ethics Committee, REK Southeast C (reference number 2011/2193). Information about the purpose of the larger study was included in the written consent, and participants knew the study explored the use of restraint.

To ensure voluntary participation and avoid researcher pressure to participate, a nurse working in the unit made initial contact with potential participants, informed them orally, and distributed the written consent. The first author asked the participants to confirm their willingness to participate before the interviews with the video-recall procedure started. The participants were guaranteed that their contributions were anonymized. All participants signed a written consent form.

Analysis

The tape-recorded interviews were transcribed verbatim using Nvivo10[®]. The first author read all the

interviews several times, while the co-authors read parts of the interviews. The transcripts were organized into text parts that represented one assumption, meaning, or reasoning. These text parts were clustered into more than 30 fine-grained subcategories. Examples of subcategories include "emotional parents do not cooperate with us," "confident parents make confident children," and "the importance of parents being on our side to avoid restraint." Initially, we used italics for all the physicians' transcripts and non-italics for the nurses' transcripts to keep an overview of how the professional groups were represented in each category. This first context of interpretation reflected the participants' self-understanding and formed the basis for identification and exploration of commonalities and differences among the different categories.

The second context of analysis followed the suggestions by Kvale and Brinkmann (2009) and was a critical common-sense understanding of the data and included a wider frame of context than that of the subjects themselves. We compared the different categories, going back and forth between the data and the critical common-sense interpretation to allow new insights to emerge (Kondracki, Wellman, & Amundson, 2002). This is a suggested approach when existing research literature on a phenomenon is limited (Hsieh & Shannon, 2005). We asked analytic questions such as "What do the interview statements express about restraint?" and "What do the interview statements express about the healthcare providers' own perspectives on restraint?" These questions enabled us to develop latent and manifest interpretations of the participants' perspectives and to merge the subcategories into overarching themes. All co-authors engaged in discussions on the final interpretations. Such interpretations go beyond a structuring of the manifest meanings of what is said to a deeper meaning and a more critical interpretation of the text (Kvale & Brinkmann, 2009).

Results

The analysis resulted in three main themes: (1) disparate views on the concept of restraint and restraint use, (2) ways to limit the use of physical restraint and its negative consequences, and (3) experience with the role of parents and their influence on restraint. Perspectives from both healthcare professions were represented in all the main themes and had many similarities. When one profession differed from the other, this is noted specifically in the results.

Disparate views on the concept of restraint and restraint use

The interviews showed that participants did not agree about many of the different core aspects of restraint, such as what to call such actions, how

frequently restraint episodes were, and the consequences of restraint. Instead, healthcare providers held different perspectives and definitions of the phenomenon that “restraint” usually refers to. Furthermore, they also varied regarding how much emotion and interest they attached to the phenomenon. “Holding” was the most commonly used term to describe all kinds and degrees of physical force used during the procedure. One participant refused to use the word “restraint” because she felt that the PVC was necessary and in the child’s best interest. Further she noted that “restraint” was a very negative term that should not be used in these situations. Several nurses and physicians used the term “restraint” and explained how previous PVCs had escalated into restraint.

Nurses’ and physicians’ lack of shared understanding of restraint could be related to the fact that restraint was not commonly discussed among nurses and physicians on the unit, within as well as across the professional groups. For example, nurses and physicians lacked a shared understanding of how often they said that restraint was used. Some said restraint hardly ever happened, while other participants said it was almost an everyday occurrence. Many nurses and physicians said they felt terrible when a child was held and expressed pain, anxiety, and fear and appeared to not understand the need for the procedure. Two inexperienced nurses were quite affected when talking about how difficult and demanding it could be to use restraint. One of the most inexperienced nurses said that she sometimes felt she was participating in an assault.

The extent to which the participants allowed the issue of restraint to influence their clinical decision making also varied. For example, most physicians expressed that to be able to make a rational decision about the need for PVC, one could not let a consideration about restraint enter one’s judgment. One physician said: “But you cannot take it [restraint] into consideration either because then that will affect whether you think the child should have a venous access, which is purely a medical decision.”

The nurses and the physicians had little thought about whether the use of restraint was legal according to regulations. Some doubted whether it was legal, but lacked precise accounts. Some participants who had participated in the recorded PVCs with a lot of use of force took a defensive position when they commented on their actions. Phrases such as “I was just thrown into it,” “I am really quite inexperienced,” and “Usually, I prepare them much better, and just not in the hallway” were used. One physician also said that the particular situation that was video-recorded was a one-time-only situation.

Most healthcare providers shared the opinion that the parents’ role was to hold the child on

their lap during the procedure, “to be there for the child,” to comfort, and to hold their arms around him or her. Some stated that this could be difficult for some of the parents but had different opinions about whether this meant that parents participated or ought to participate in restraint or not. Some negotiated that “hard holding” was not the task of the parent’s but of the healthcare providers, and consequently parents did not participate in restraint. Others said that parents should participate in the restraint to signal the importance of the procedure to the child, and that parental participation was not a subject for discussion. Healthcare providers disagreed about using the label of restraint on the parents holding of their child.

Ways to limit the use of physical restraint and its negative consequences

Restraint was mostly seen as something that was necessary and inevitable because preschool children had a natural disposition to resist medical procedures and strongly disliked being held still. There were doubts but nurses felt they had few alternatives. Some of the physicians described PVC as a small technical task, which was not a big deal and usually quickly forgotten by the children. However, most of the participants explicitly or implicitly expressed that restraint with its negative consequences was something that should be limited as much as possible, and they were concerned about possible causes of restraint. Although the participants described restraint as a necessary evil, there was consensus that measures should be taken to reduce or eradicate the influence of possible causes of coercion.

The nurses and physicians asserted that they never used more force than necessary and that they constantly adjusted the forcefulness of their holding to the child’s resistance. The participants said that they held the child’s limbs only to prevent the child from withdrawing the leg or the arm. If there was a risk that the child’s resistance could ruin a PVC attempt due to movements that interfered with fixation of the PVC, they considered it better to restrain quite forcefully, to reduce the number of attempts.

A common approach was to limit the number of attempts each healthcare provider could make to perform successful PVC. With little variation, a healthcare provider stopped after three unsuccessful attempts at PVC and let a colleague take over. The reasons they gave for this practice was that after some failed attempts they lost faith in their own abilities to perform the procedure, but more importantly, they wanted to show the parents that they were responsible healthcare providers who did not “use a needle just for fun.”

The nurses also emphasized spending time to get connected with the child and to prepare the child for the sensory experience and the sequence of the different steps of the procedure. Preparation was considered a very sensitive matter, because they balanced between not worrying the children about the sensation of pain while simultaneously not underestimating it: "I do not try to deceive them. That is lying, and they will feel disappointed if the situation turns out bad." In addition, they considered it important to successfully cannulate the vein during an early stage of the procedure to maintain an initial trustful connection with the child and the parents.

Experience with the role of parents and their influence on restraint

During analysis, the perceived role of the parents of the resistant child emerged as a key to minimizing and preventing the use of restraint. In the experience of most of the participants, the parents' emotional reaction to their child's resistance was challenging. One physician said, "Well, often you think that the situation is problematic not because of the child but because of the parents." The healthcare providers claimed that restraint could be avoided if they managed to keep the parent(s) calm and cooperative enough to endure the situation. This was referred to as parent(s) and healthcare providers being "on the same side." One nurse nuanced this by saying that this did not mean that the child was on "the other side" in terms of an opponent, while most seemed to mean that it was impossible to make the child cooperate if the parents did not.

Healthcare providers felt that the parent's strong emotions, such as tears, anger, insecurity, or doubts during a procedure, affected the child in such a way that the child's tears, anger, and resistance increased. This tended to escalate, leading to more emotions, insecurity, and doubt in the parent, which made it more difficult for the child to cope. This escalation of family emotions also made the conditions and context for performing the procedure chaotic and difficult. Healthcare providers acknowledged that the situation could be difficult for parents but could feel caught in these escalating situations. The participants concluded, however, that there was little they could do when the situation "got out of hand."

One physician said, "They [the parents] want to participate but are still reluctant," indicating that some parents did not actively participate during the procedure. Several nurses and physicians said these parents seemed carried away by the child's crying and emotions. After viewing the recorded PVC, one physician said, "[The mother] was very concerned about the child's views. I feel maybe that she should have been a bit more decisive

and told the child that this is something we have to do." A nurse further connected the lack of decisiveness to the parenting: "I feel that all the choices and all the possibilities they have to negotiate and discuss themselves in and out of things make children very unsure and unsafe." Most healthcare providers thought that stricter parenting communicated confidence and safety to the child because, as one said:

When the mother has no restrictions, then the child does not know what is right or wrong. The child makes its own decisions. If there had been restrictions at home and then the mother had said that this is something we need to do, and it is going to be like this and this and then we're done, then I think it would be much better for the child.

Healthcare providers felt that calm and confident parents prevented an escalating situation that required much restraint.

Participants expressed that it was important to help parents remain rational and cooperative so that healthcare providers, in a controlled way, could provide the child with intravenous access. One participant said, "There are problems when the parents get too emotional. It is about informing the parents well enough." The strategy they deemed important was: (1) to explain why the PVC was necessary and (2) to give information about the technical steps in the procedure and accompanying sensations. This information was experienced as sufficient in most situations. The participants reasoned that if parents understood how important the procedure was for the child's medical treatment needs, they would retain this understanding during the procedure, even if restraint was needed. One nurse said that if she sensed that the parents were reluctant, she sent a person to the parents with more power to underscore the importance of the procedure and convince the parents—typically a physician. However, when viewing the recorded situation on tape where this was done, one physician concluded that the information given to convince the parents did not seem to make a difference: "It is just like the parents do not make connections between what you explain that you are going to do and what you actually do."

Most healthcare providers felt it was very difficult to influence unconfident parents to behave more consistently toward their own children. The healthcare providers tried to act confidently and influence the parents by being calm and by talking in a decisive tone. One nurse put it like this: "The less confident the parents present themselves; the more confident I try to present myself." A physician stated:

So, it is therefore nice to do the assessment [of the child with the parents present] before the PVC. If you notice that they let the children rule and choose, then

you might before the PVC say that when we are doing this; it is important that this is something that you cannot let your child choose. We must both signal that when we are doing this we are both decisive.

Discussion

In this study, we analysed interviews with nurses and physicians. Using perspectives from symbolic interactionism, we identified how the healthcare providers attached meaning to things and people in the interactions—for example, the way they defined the concept of restraint, their considerations on restraint, and their views on the role of the parents of the resisting child. We identified that participants used certain symbols or terms to describe their practice. For example, most healthcare providers preferred the term “holding,” and some resisted other terms such as “coercion” and “restraint.” “Holding” represented a shared meaning among healthcare providers. This has previously been identified among nurses but not among physicians (Brenner et al., 2014). For the healthcare providers, “holding” and a label such as “immobilization” may have fewer problematic professional and moral connotations than “restraint.”

A naming-discussion about using restraint on children is found in research literature, guidelines, and opinion papers (Bray et al., 2016; Brenner et al., 2014; Royal College of Nursing, 2003, 2010). Naming or symbols in use are not irrelevant. Within SI, the ability to name something signifies that one can name, and thus that one is in the position to signal to oneself and to others how the actions should be understood. For example, the term “holding” signals that this is a “neutral” or “caring practice” that in turn may contribute to the understanding of restraint as a natural or uncontroversial part of medical procedures performed on preschool children. Healthcare providers may be aware of the expectations to act in a caring way that others hold them to and may therefore choose specific labels. Conversely, the term “restraint” signals that this is a “coercive practice.” Our results support Page and McDonnell’s (2013) description of the restraint as an “uncontested practice.” When the term restraint is used for actions with children, it can hopefully result in a more governed and regulated practice than when a child has “just been held.”

If the children and parents could disagree with the healthcare providers’ use of “holding,” they would perhaps name the actions differently. The preschool children’s views and opinions of the procedures can be difficult to obtain, but their expressions of resistance can indicate that the situations with restraint are not neutral to them (Svendsen et al., 2015). The naming of actions is relevant because it may signal the level of force needed to accomplish a procedure (Darby & Cardwell, 2011; Graham & Hardy, 2004; Hart

et al., 2008) and may also reflect the healthcare providers’ moral evaluation of coercive practices as unproblematic, as a necessary evil, as something we should prevent and mitigate to a further extent, or as deeply problematic. Regardless of the amount of force used, the child and parents may experience the situation as more intrusive and distressing than the term “holding” indicates.

In this study there was a tendency to avoid speaking about the controversial aspects of the coercive practices that the healthcare providers participated in and to evade responsibility. Many expressed that restraint was something that “just happened” in the situation and was, to a lesser extent, something they thought they could plan for. When restraint is considered something that “just happens,” the protection of common healthcare values such as voluntariness, showing conscientiousness, and discernment in care (Beauchamp & Childress, 2013) may not be equally important because it is beyond healthcare providers’ control. Restraint is often described as a necessity and rarely critically discussed. The different opinions on restraint and the strategies used to minimize it indicate that most professionals view restraint as problematic and think that there are many ways to prevent the use of restraint and mitigate possible negative consequences.

Some healthcare providers doubted whether the use of restraint was legal. Restraint in paediatric care is less explicitly regulated compared to restraint in adult healthcare (Sacks & Walton, 2014). Hence, healthcare providers may doubt when or whether restraint is acceptable or can be openly discussed as part of clinical practice. The lack of explicit regulations may also imply that restraint in paediatric healthcare is viewed, valued, and approached differently than in adult healthcare. This can be problematic on behalf of the children undergoing everyday medical procedures that involve various degrees of restraint because the search for and the use of alternatives to restraint may be hampered or overlooked. Page and McDonnell (2013) argued that healthcare providers need to revive a common definition of “good” around the actions of holding, which can hopefully lead to holding skills being more clearly defined and evidence-based. The restraint addressed in this study is neither recognized nor regulated, and is thus “informal.” The informal use of restraint may create a no-man’s-land where children are likely to be forcefully held with little guidance to underpin actions.

The results showed that discussions about restraint were almost non-existent. Some participants denied the existence of restraint, viewed it as an inevitable or necessary evil, or thought that it should not be deliberated when PVC was considered. This may have the unwanted side-effect of silencing a professional discussion and exploration of restraint (Kangasniemi

et al., 2014). Furthermore, defining restraint as something very negative (and thus almost non-existent) may also have unintended side-effects. Bray, Snodin, and Carter (2015) suggested that over time the emotional upset of children during medical procedures can become an accepted and expected part of practice and be regarded as something that is not necessary to mitigate or prevent. It means that procedures can be completed despite a child's upset and lack of cooperation (Bray et al., 2016).

Pearch (2005) and others has called for discussions on restraint during medical procedures (Bray et al., 2016, 2015). When there is a lack of professional consensus, personal meanings and reasoning are ascribed to the situation and may result in differing priorities and actions (Blumer, 1969). Different priorities and actions can be problematic if they are arbitrary and reflect a lack of professional attention and openness about restraint, that is, at least partially a random and unreflective practice during procedures and often neither described nor justified. Lack of guidance and scientific attention combined with conflicting interests and values may result in insecurity, individual dogmatism, a lack of shared discussion, and a lack of shared language and terminology.

An important finding in this study was the meaning that healthcare providers assigned to parenting style and parental responsibility for the use of restraint. This adds to discussions identified in earlier studies on restraint (Brenner et al., 2014; Kangasniemi et al., 2014; Kirwan & Coyne, 2016), where studies on distress and pain have found that what parents say and do clearly affect children's ability to cope with the procedure (Salmon, 2006; Salmon & Pereira, 2002). McCarthy et al. (2010) investigated factors affecting children's responses to PVC and concluded that parental expectations of distress and distractive communication influenced the children's level of distress. As pointed out by the healthcare providers in our study, parents' reluctance to actively take part in the medical procedure can help explain the use of restraint. It is therefore vital to further explore explanations for parental reluctance and lack of consistency in these situations. Alternative explanations proposed in the literature are that reluctance seems to be a usual reaction when parents experience repeated and failed PVC attempts on their child (Svendsen et al., 2016), or that parents involved in restraining their children can feel that they are letting their child down (Alexander et al., 2010). Parents' participation is taken for granted (Hallström et al., 2002), and our results imply that the triple role of comforter, consentor, and applier of restraint seems to be very challenging for parents of newly admitted children.

Since actions according to SI are based on an assigned meaning, the participants' meaning assigned to emotional parents and their ability to be consistent

can help to explain why healthcare providers' main strategy was to stress the importance of the procedure and focus on the explanation of steps in the procedure. Preparation and information about the procedure are important to help the child cope and cooperate (Jaaniste, Hayes, & von Baeyer, 2007; Kolk, van Hoof, & Fiedeldij Dop, 2000). However, it can be difficult for parents to prepare themselves for eventualities such as multiple restraint episodes during a procedure if this is not explicitly addressed (Svendsen et al., 2016). Lack of communication and negotiation between healthcare providers and parents can result in a lack of parental involvement when restraint is used unexpectedly (Corlett & Twycross, 2006). Our results support the notion that healthcare providers need to communicate more openly with parents (Hallström & Runeson, 2001; Hallström et al., 2002), and we suggest that education related to restraint should be included in the preparation of parents.

Limitations

This exploration comes with some specific limitations that need further consideration. Some of the nurses and physicians on the unit declined to participate in the study. One reason could be that the word "restraint" was used in the oral orientation before the study started and in the written consent form given to the participants. This may have caused an unintended lack of interest in the study because restraint was possibly an unfamiliar and negative normative concept for some participants. The use of this concept could have made it less desirable for some to participate in the study. We considered that we had recruited enough participants to obtain information-rich accounts from those who consented to participate. Talking about potentially ethically challenging experiences and possibly illegal practices can be difficult, especially when a video-recording is involved. This may have formed the participants' ability to tell their own stories. The interviewer was a paediatric nurse, representing one of the professions interviewed, and unknown professional power relationships may have affected the interviews in ways difficult to fully comprehend. This could have influenced the two groups of professionals differently. Although the researcher emphasized reflexivity when preparing for interviews, she could have unintentionally influenced the participants' deliberations regarding the use of restraint. We chose to analyse the interviews of the physicians and nurses together leading to a focus on their common views. However, we acknowledge that there could be difference between the professions that could help better explain their participation in restraint practice. This should be further explored in future research. The malfunction of the technology is a

limitation and could have improved the usefulness of the video recall procedure.

Conclusion

This study explored restraint related to performance of a common medical procedure—insertion of PVC performed on newly admitted pre-schoolers in somatic hospital care. There was great variation in the participants' understanding of the concept of restraint. This variation was mirrored in a lack of systematic handling of restraint on the unit, apart from the routine of stopping after three missed attempts before a co-worker took over. Although healthcare providers disagreed on the parents' role during medical procedures, they considered the actions of parents to be very important regarding whether a situation escalated into restraint or not.

Restraint during medical procedures is used in clinical practice in children's hospitals. However, it is problematic for children, parents, healthcare providers, and the services if challenges related to restraint are neglected. We suggest that healthcare providers should initiate a brief debriefing after each incident to examine process, outcome, and experiences. Such sessions could help with refining and making processes better. More research is needed on how to better communicate with colleagues, children, and their parents concerning restraint and how to avoid restraint. Furthermore, future research should explore the actions used throughout the continuum between voluntariness and forceful physical actions in actual use.

It is important to be able to develop and evaluate targeted interventions to develop alternatives that reduce the use of restraint with children of all ages. Instead of restraint being something that "just happens" or escalates in certain situations, there is a need for awareness, openness, and debate to explore further alternatives to develop efficient strategies to minimize the use of restraint. This means that nurses and physicians working in paediatrics need orientation to the use of restraints and holding procedures and ways to discuss process and importance with parents and children. Evasion of responsibility and lack of discussion may contribute to hindering a reduction of the use of restraint in paediatric units. The results of this study may facilitate more informed and reflective discussions of restraint and contribute to higher awareness of how restraint comes about in clinical practice and thus impact the clinical care of children.

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