

Pain and factors that affect its definition as defined by preschool age children: a qualitative study

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ABSTRACT

The aim of this study was to determine the definitions of pain by pre-school age children and factors that affect these definitions. The study was conducted on children aged between four and six years (N=146) in the city of Karaman in Turkey. Qualitative and quantitative research design were used together in this study. This study's qualitative tradition method was phenomenologic research. The data were assessed using descriptive statistics and thematic analysis. The children's definitions of pain were found to be affected by their hospital and daily life experiences. The preschool age children generally defined pain in similar ways, and everything that made children feel pain made them think about it. Sometimes their family members, hospital equipment, and health staff lead them to think about pain.

Descriptors: Pain; Child, Preschool; Child Health.

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INTRODUCTION

Pain is as old as human history⁽¹⁻³⁾. There are many definitions of pain and everyone has experienced it. It is now regarded as the fifth vital sign⁽⁴⁾. The International Association for the Study of Pain defines pain as: "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage"⁽³⁾.

The perception of pain is complex and affected by many factors. In the literature, factors such as age, gender, cultural features, religion, personality, depression, experiences, and vulnerability to pain are reported to affect the definition of pain⁽⁵⁻⁷⁾.

Although pain affects all age groups, children's experiences of pain are generally neglected. For many children, pain is a part of life. Children's knowledge of pain is more limited than among adults. Injuries such as cuts and bruises that occur while playing, sore throats caused by tonsillitis, and post-injection pain after a routine vaccination can be regarded as examples of pain. Pain epidemiology finds that abdominal and chest pain is common for children⁽⁶⁾, and this knowledge is particularly important for young children who cannot express their symptoms precisely because pain indicates physical problems.

Studies of children's pain began in the 1970s when pain was regarded as a diagnosis indicator rather than a syndrome requiring treatment. The number of studies of children's pain has risen since the 1980s. Pain has great importance in neurobiologic development and learning mechanisms. Assessing children's symptoms of pain according to information given by their families is one of the most common incorrect practices. A variety of pain behaviors in different age periods have been defined in studies of childhood cognitive development. In this respect, children aged between 36 and 60 months evaluate pain intensity and define their pain using emotional concepts. Children aged between 60 and 84 months can rate the intensity of their pain and develop knowledge-based coping styles for their pain⁽⁷⁻⁹⁾.

Emotional development in pre-school children results from cognitive and social development. The most prominent cognitive developmental feature of this period is that children cannot move away from a key topic. The inability to move away from such topics means that children focus on only one of many features of objects, events, or persons and that they cannot take into account other aspects or features. Thus, the child's mind is made up by establishing a one-way connection between two particular events. As a result, events are considered in one way only, depending on the experience. Emotional thinking is not yet very clear in this period, because the experiences of the past often characterize specific situations. Nevertheless, children of this age also misconstrue them by trying to make connections between these situations in which there is no logical relation. Children in of these ages have not yet had the ability to think abstractly because emotions are more abstract. Emotion, on the other hand, is the response of the individual to changes occurring around an individual. However, how these changes are perceived in the periphery of the individual in the formation of this reaction is very important. In other words, the thoughts of children, as a result of their concrete experiences, form the basis of emotions. Therefore, emotions are socially constructed reactions and experiences⁽¹⁰⁾.

Studies of children's pain have generally been conducted on localized pain such as headaches and abdominal pain and their levels of intensity. No studies have been conducted on children's definitions of pain in their own words. Therefore, this study was conducted to reveal how children aged between four and six years define pain, their experiences of pain, and coping styles.

METHOD

Study design: The study used qualitative and quantitative research design. This study's qualitative tradition method was phenomenologic research⁽¹¹⁾.

Participants: The population of the study consisted of children at two different nursery schools in the city of Karaman (N=160). The nursery schools were selected through simple random sampling using cluster sampling. All children at the selected nursery schools who agreed to participate in the study were included (n=146).

The inclusion criteria in the study were: age four-six years, resident of the city center of Karaman, open to communication, and willing to participate in the study. Children with mental disorders were excluded from the study.

Data collection tool: A semi-structured interview form was used to obtain the best study results in this qualitative study conducted using in-depth interviews. The form was developed by the researchers after a review of the literature and had two sections. The first section included four questions about the socio-demographic characteristics of children such as age, sex, family members who were health professionals and invasive procedures. The second section had five questions that covered the children's definitions of pain and their experiences of pain. The fundamental theme questions included in the interview form and assessed by this study are shown in Chart 1.

Chart 1: Themes assessed by the study.

What is pain for you?
When do you feel pain?
What do you do to relieve your pain?
Interventions that cause pain in children in hospitals*
Practices used to distract children during painful procedures*

* These questions were predetermined in the interview form and they represent categories extracted in qualitative analysis from children's responses.

Procedure: Data were collected by interviewing the children individually in a private room at the nursery school. The children's responses were recorded using a voice recorder so as not to affect them during interviews. Each interview took approximately 10 minutes.

Ethical approval was received from the Ethics Committee of the Faculty of Medicine at Selcuk University (Decision no.: 2015/142, Date: 03.04.2015) prior to beginning the study. Informed consent was obtained from children who agreed to participate in the study and their families. Verbal and written assents and consents were also obtained from the children and their parents/guardians, respectively.

Data analysis: Demographic data (quantitative data) were assessed using numbers, percentages, mean values and Chi-square analysis using SPSS version 20 software. Qualitative data analysis by qualitative content analysis. In accordance to child psychiatrist's opinions, thematic analysis methods were used to assess questions that the children were asked to express their opinions⁽¹¹⁾.

RESULTS

This study comprised interviews with 146 children aged between four and six years (mean=5.44±0.65 years). Children with health workers among their relatives were in the minority. Each age group was assessed

separately because the children's responses could vary according to the age group. The demographic characteristics of children are shown in Table 1.

Table 1: Distribution of children's demographic characteristics by their age. Karaman, Turkey, 2015.

Characteristics	4 years (n=13)	5 years (n=56)	6 years (n=77)
	n (%)	n (%)	n (%)
Sex			
Female	9 (69.2%)	29 (51.8%)	39 (50.6%)
Male	4 (30.8%)	27 (48.2%)	38 (49.4%)
Presence of a health professional in family			
Yes	2 (15.4%)	8 (14.3%)	14 (18.2%)
No	11 (84.6%)	48 (85.7%)	63 (81.8%)
Invasive procedures			
Giving blood	7 (53.8%)	34 (60.7%)	44 (57.1%)
Injections	10 (76.9%)	47 (83.9%)	64 (83.1%)
Staying in the hospital	5 (38.5%)	17 (30.4%)	33 (42.9%)
Interventions that cause pain in children in hospitals*			
Having a surgical operation	1 (7.7%)	9 (16.1%)	-
Receiving injection	6 (46.2%)	26 (46.4%)	35 (45.5%)
Giving blood	-	-	8 (10.4%)
Practices used to distract children during painful procedures*			
Inflating a balloon	1 (11.1%)	3 (5.4%)	4 (5.2%)
Counting	2 (22.2%)	10 (17.9%)	19 (24.7%)
Asking questions-talking	2 (22.2%)	9 (16.1%)	2 (2.6%)
Listening to music	-	2 (3.6%)	3 (3.9%)

* These questions were predetermined in the interview form and they represent categories extracted in qualitative analysis from children's responses.

In order to organize data extracted from the interviews without identifying the participants, the code system will be used (CH: Child; A1-75: number ID of a participant from the first school; B1-71: number ID of a participant from the second school).

The assessment of children's definition of pain by age showed the following: Children aged four years who received injections stated that feeling pain and sore throat crossed their minds when pain was questioned (CHB26, CHB43, CHB56, CHB65, CHB68, CHB69). A child who stated that no painful procedures were performed when they went to hospital reported that, "When pain comes into question, asking questions crosses my mind"(CHB43). The child gave this response because questions are asked of children who are suffering pain. A child who experienced pain described it as "a balloon"(CHB51). The child stated that this was because they were given a balloon when they were in pain. Another child reported feeling pain when eating something, and going to the toilet to relieve pain. One child defined pain as leg pain saying that his mother gave massages to ease this pain.

School experiences were included in the pain definitions of children aged five years, unlike those of four-year-olds. One child (CHB11) reported feeling pain when starting school and doing nothing to relieve the pain. Another child (CHB7) reported feeling pain on Monday and Tuesday and drinking water to ease the pain. A child (CHB13) who defined pain as "a fairy in the wardrobe" reported feeling pain when staying at school for a long time and he stated to wash his face to relieve the pain. A child (CHA53) who stated that when pain was questioned, his/her sibling crossed his/her mind, reported feeling pain when spending more time thinking, and that pain went away when he/she slept. A child (CHA25) who defined pain as "a very bad thing" reported feeling pain when

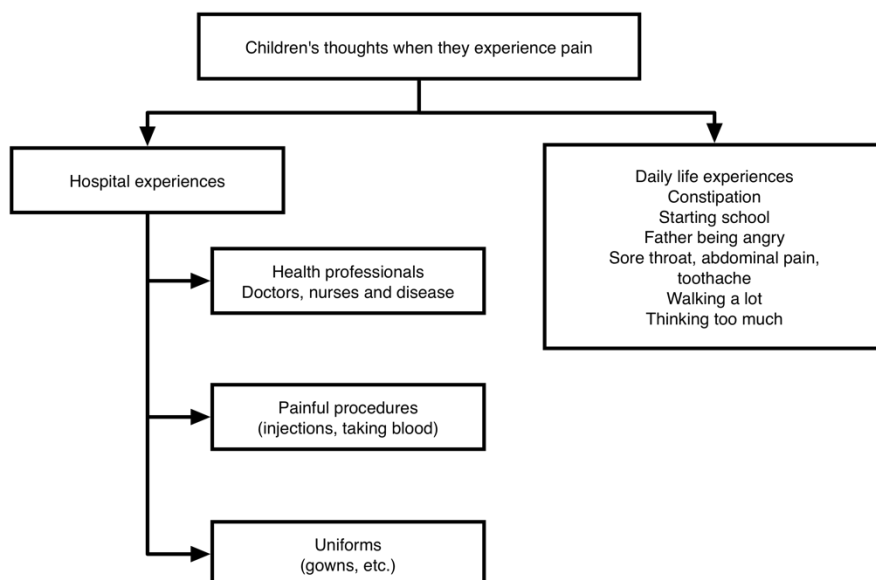
carrying something, and relieved this pain by taking medication. One of the children (CHA5) defined pain as "smelling something with a bad odor", because after smelling something with a bad odor he/she felt pain and drank milk to ease the pain. A child (CHA18) stated that "colliding clouds" came to mind when pain was questioned and reported that he/she felt pain when he/she were sick, stayed out in the cold and it rained, and to ease the pain, he/she drank tea and studied. A child (CHA60) reported feeling pain when his/her father became angry with he/she and played a game to relieve the pain. Another child (CHB52) defined pain as "abdominal pain" and reported feeling pain when his/her brother hits him/her; crying eased their pain.

The most common word used by six-year-olds was injection; the second most common word was headache. One child (CHA2) defined pain as headache and abdominal pain and reported feeling pain when receiving an injection; he/she watched television to relieve pain. Another child (CHB64) reported feeling pain when receiving an injection and said that his/her mother gave him/her massages to ease the pain. A child (CHB2), who reported feeling pain when he or she does not cover himself/herself with a blanket at night, reported taking medicine to relieve the pain. A child (CHA67) who reported feeling pain when became ill stated that he/she ate healthily to ease the pain. Another child (CHA12) who reported feeling pain when he/she fell or were hit by other children reported praying and hiding to relieve the pain. A child (CHA13) who reported feeling pain when a stone went into his/her shoe stated that he/she washed his/her foot with hot water to ease the pain. A child (CHA59) who defined pain as "a knife" reported feeling pain when he/she cut his/her finger and that he/she did not touch knives to prevent pain. Another child (CHA53) stated that his/her sibling came to mind when pain was questioned, saying that this was because his/her sibling always had pain and cried.

When the definitions of pain were assessed by age, they were found similar, but as age increased, children express their pain more clearly and defined the part of the body where they felt pain.

Children's definitions of pain were found similar in every age group. Children's daily and hospital experiences, in particular were found to affect their definitions of pain. The definitions of pain of children were grouped as follows (Figure 1):

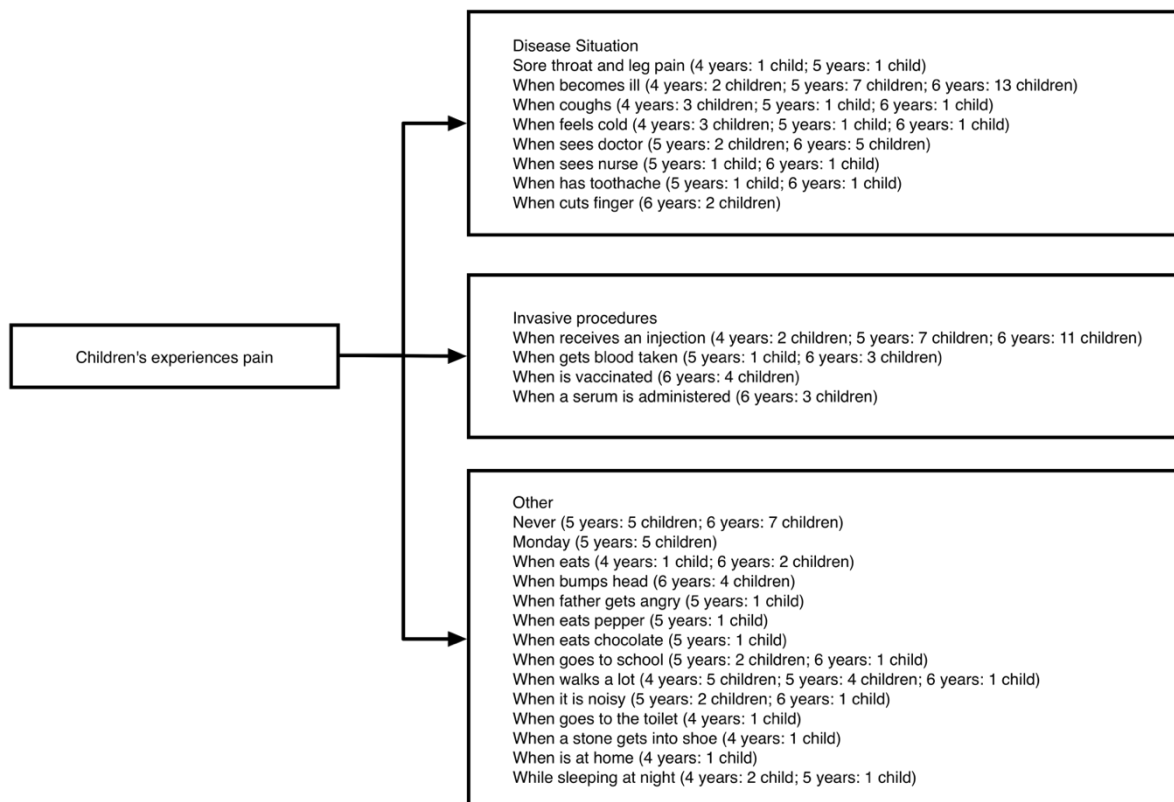
Figure 1: The thematic classification of children's definitions of pain.



Children's experiences of pain

The children in the three age groups gave similar responses. Their experiences of pain were classified into the three groups as shown in Figure 2.

Figure 2: Children's experiences of pain.



The children's experiences of pain were classified into three groups including disease, invasive procedures, and others. The responses of each group were found quite similar. In the oldest group, the children were found to associate pain with behaviors peculiar to their lives (Figure 2).

Pain relief methods used by the children:

- The methods used by the children to relieve pain were assessed in two groups; pharmacologic and non-pharmacologic methods:
- The pharmacologic pain relief methods included ointments, medicines, syrups, injections, and painkillers.
- The non-pharmacologic methods included massage, hot beverages, going to the toilet, plasters, crying, heat, screaming, thinking about something else, brushing teeth, oil of thyme, water, milk, washing their face, using a wet cloth soaked in vinegar, elevating their feet, avoiding touching knives, praying, hiding, avoiding noise, linden tea, eating healthily, and watching television.

It was found that the children's definitions of pain did not vary by whether there was a health professional among their family members, they stayed in the hospital or had a surgical operation ($p > 0.05$).

DISCUSSION

The definitions of pain, experiences of pain, and pain relief methods of children aged between four and six years were assessed in this study.

Definitions of pain

The children's definitions of pain were found to be similar in every age group investigated in this research (from four to six years). Their daily life and hospital experiences were found to affect their definitions of pain. According to Piaget, experience and social transfer are included in factors that determine cognitive development. However, children in the intuitive period (foresight stage) included in the pre-operational period aged between of four and seven think of incidents in one way based on their experiences because of their self-centeredness (egocentric thinking) and inability to move away from the focus^(10,12-13). This situation can be observed in the literature. During painful procedures, the children associated pain with another experience that they had had. Moreover, it was concluded that the pain defined by children was generally acute pain. It is thought that this may result from the fact that the children had no chronic diseases.

According to Piaget, there are two fundamental mechanisms that help children progress from one developmental stage to another: assimilation and accommodation. Assimilation refers to perceiving new information using the existing schemas or placing it among these schemas. Accommodation refers to adapting to new information by forming new schemas when the existing schemas are not useful. When children see a dog for the first time, they try to place this information among their other schemas (assimilation), but later they learn that some dogs are domestic, and others are dangerous and aggressive (accommodation). Thus, children begin to perceive the world in new ways as they obtain more information^(10,12,14-15). When the definitions of pain are predicted using Piaget's idea, it can be concluded that children's first experiences of pain remind them of pain. Four-year-olds associated pain with another experience (asking questions, blowing balloons and others) when they felt pain. According to Piaget's cognitive development theory, this may be associated with the inability of children at this age to move away from the focus and incorrect association⁽¹⁰⁾. It was found that school experiences were included in these experiences at age five. The effect of painful procedures such as injections was felt more at the age of six. The fact that six-year-olds had more experiences of both pain and hospitals was reflected in their definitions of pain. It can be stated that the children's definitions of pain differed due to the difference between the sensation and perception of pain. The sensation is a simple physiological event. The stimulant is assessed alone, and the sensation is experienced by each individual in the same way. Perception is a complex psychological event in which the stimulant is assessed as a whole, and the perception varies from individual to individual⁽¹²⁾. However, similarities were observed because each of the three age groups was in the same developmental group. And five and six years old children had almost the same percentage of hospitalization history.

Experiences of pain

We found that the individual experiences of the children affected their pain as much as disease and invasive procedures. The individual experiences of children revealed that they had pain whenever they experienced an incident that caused displeasure and sadness. Going far away from home was thought to upset the children who stated that they had pain on Mondays and when they went to school. Sadness affects children's behavior regarding pain. This can be explained by transductive reasoning through which children try to associate two different events that have occurred at the same time, although there is no logical relationship between them, which is observed

in children in this period according to Piaget's cognitive development theory⁽¹⁰⁾. Events such as eating, bumping their heads, a stone in their shoes, and eating chocolate can cause children to suffer localized pain.

Invasive procedures were also found to cause children to experience pain. Receiving injections was the invasive procedure that caused pain the most. This may be due to the high number of children receiving injections and the fact that other invasive procedures are performed less often.

Children's disease was also found to be a cause of pain. Children reported that they had pain especially when they became ill. Pain full body parts such as throats, legs, and teeth also caused pain.

Pain relief methods

The assessment of pain relief methods found that the children's pain relief methods differed by their definitions of pain, and that they used cause-specific pain relief methods, including pharmacologic and non-pharmacologic methods. The children were found to use many non-pharmacologic methods. This may be due to their families' preference for these methods. Moreover, this can be explained by children's inability to move away from a focus in this period, which refers to being able to concentrate on one event or situation at the same time, according to Piaget's cognitive development theory⁽¹⁰⁾.

CONCLUSION

At the end of this study, we found that the descriptions of pain of healthy children aged between four-six years were similar. The pain definition affected the hospital or daily experience but did not affect children's demographic characteristics. Children experienced pain due to disease condition, invasive procedures and home accidents. Children used pharmacologic and non-pharmacologic methods to relieve pain.

We recommend making similar studies in children with acute and chronic diseases because our research was carried out only for healthy children.

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