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Exploring the Causes of Fear in Children Aged 10-12 Years During Medical Examinations: A Phenomenological Study

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ABSTRACT

Introduction: For most children, the figure of a doctor is considered frightening because of their imagination, previous bad experiences and children's fear usually related to pain that caused by medical procedures. This condition causes difficulties for doctor in understanding patient's complaints. Therefore, this study was conducted as an effort to find out the causes of children's fear when they got examined by a doctor, in order to assist doctor in managing children's health problems, complaints and needs.
Methods: This research uses a qualitative method with a phenomenological approach. Retrieval of research data using in-depth interview techniques which were analyzed by thematic analysis. This research involved 4-6 grader of Tarakanita Elementary School in Magelang with the assistance of subject's parents and pyschologist
Results: In-depth interviews were conducted on 12 research subjects, consist of four (33%) fourth graders, five (42%) fifth graders, and three (25%) six graders. There are three themes, such as the causes of children's fear, the emotional expression of children's fear, and the external support of children when they are afraid of being examined. Bad experiences due to medical procedures are the most common cause of children's fear (91,7%). Meanwhile, the most common trigger for children's fear is pain (50%), which is influenced by imagination (91,7%)
Conclusion: Bad experiences from medical procedures are the most dominant cause of fear in children. Meanwhile, the most common trigger of fear is pain, which is often influenced by the child's imagination. These findings highlight the need for child-friendly medical practices, including improved communication strategies, familiarize children with the procedure prior to its execution and examination room designs that reduce fear in children

Keywords: children's fear; doctor; imagination; bad experiences; medical procedures

INTRODUCTION

A child is a unique individual with rights and health needs that correspond to their stage of development. Therefore, child health services are oriented towards prevention and improving health status, rather than treating sick children. Children's health is is crucial for their growth and development to reach their full potential as adults. In previous research, there have been no discussions about the causes of children's fear during doctor examination using qualitative methods accompanied by a phenomenological approach. Previous studies related to the causes of fear when going to the hospital, fear of injection, anxiety factors, and descriptions of fear during tooth extraction were descriptive studies conducted using survey and cross-sectional methods. Children's health issues differ from those

of adults, and in responding to them, it is necessary to raise awareness that a child's response to illness and stress varies with age. The average child patient visits a primary healthcare provider 31 times from birth until the age of 21 for health check-ups. In 2012, approximately 5.9 million pediatric hospitalizations were reported in the United States, contributing to a significant increase in the frequency of medical interactions. Annually, millions of additional children receive care from a multidisciplinary team, including medical assistants, nursing personnel, laboratory and radiology technologists, as well as specialists in occupational therapy, speech therapy, physical therapy, and mental health. Furthermore, children may inadvertently be exposed to complex discussions with administrative professionals regarding financial matters and insurance coverage. However, up to 20% of the child population reports experiencing "white coat syndrome" when engaging or interacting with doctors[1].

To explore the interaction between physicians and infants, a study observed the behavior of 61 healthy infants (aged 176–617 days) in a controlled examination room setting. Both behavioral responses and electrocardiographic data were recorded. Infants were categorized into two groups based on whether they cried or remained calm. When a researcher dressed as a physician entered the room, only 9 out of 61 infants ceased crying. However, upon visually engaging with the researcher, the infants exhibited a decrease in heart rate. During auscultation, within 5 seconds of fixating on the stethoscope, the number of crying infants increased from 3 to 12, accompanied by a rise in mean heart rate. These results indicate that infants' fear responses are not elicited by the physician's appearance but rather by specific clinical actions, such as auscultation[2]. Hospitalized children frequently encounter unmet informational needs, contributing to heightened anxiety and uncertainty. Adequate preparation and clear communication regarding procedural expectations have been shown to improve the patient experience. Identifying the information children require prior to hospitalization or medical procedures can provide substantial benefits, not only for the pediatric patients but also for their families and healthcare professionals[3].

Most children will require healthcare services for medical procedures during their childhood. Healthcare facilities are often unfamiliar environments, characterized by unknown individuals and unfamiliar medical equipment. Procedures such as blood sampling, radiological imaging, and physical examinations can induce anxiety in pediatric patients. A lack of preparation may lead to feelings of unease, fear, and exclusion from decision-making processes related to their care. Insufficient preparation for medical interventions may result in negative emotional experiences, dissatisfaction with care, and potential aversion to seeking hospital-based services in the future[3]. Although the majority of children who experience serious medical incidents recover without enduring psychological symptoms, approximately 16–28% develop post-traumatic stress symptoms (PTSS), which can hinder their physical recovery and future functionality. Children diagnosed with post-medical traumatic syndrome (PMTS) may demonstrate avoidance behaviors toward healthcare settings as part of their stress response. Such avoidance is strongly correlated with poor medical adherence, including challenges in medication adherence, clinic attendance, infection prevention, and management of side effects. Nonadherence to medical regimens presents a significant challenge in pediatric care, with meta-analyses indicating up to 50% nonadherence in children with chronic conditions. Even young children, aged 1–6 years, are often classified as nonadherent patients, particularly in cases of asthma and other chronic illnesses[4].

Hospitalization for pediatric patients involves separation from their home, caregivers, and siblings, leading to disruptions in daily activities and routines. Additionally, hospital environments are often perceived as intimidating and unfamiliar, triggering fears related to medical procedures, pain, uncertainty, and loss of control and security. This is particularly significant for children in elementary school, who are in critical stages of mental, emotional, and social development. Anxiety-inducing experiences, such as hospitalization, can affect various aspects of a child's development, including

physical growth, personality, and emotional regulation. Children typically exhibit anxiety both prior to and during hospitalization. Empirical evidence indicates that pediatric anxiety manifests as behavioral regression, aggression, poor cooperation, withdrawal, and challenges in recovering from medical procedures. Studies suggest that children with higher emotional intelligence demonstrate better coping mechanisms, resulting in lower levels of pre-operative anxiety and reduced post-operative distress. Among children aged 5–11 years, anxiety tends to decrease from the time of admission to discharge; however, children with limited or no prior hospital experience generally show higher levels of anxiety compared to those familiar with medical settings. Existing literature underscores the importance of play interventions in hospital settings, such as playrooms, bedside, or waiting areas, highlighting their potential to alleviate stress and anxiety in hospitalized children[5].

The fear that arises in children is influenced by psychological conditions or environmental factors, such as the initial perception of the child that is not in accordance with what is actually experienced. In addition, excessive information about the figure or actions of doctors can cause children to have a fear of doctors[6]. According to the UUD 195 No. 25 of 2014 concerning child health efforts, it is stated that every child has the right to quality health services in an effort to improve children's health. In addition, the Indonesian government has also set targets for health development programs in Indonesia, where for children in 1st grade of elementary school/equivalent (7 years old) there are 4,812,056 people and for children aged 7-12 years there are 28,339,050 people. Therefore, the fear that children have when examined by a doctor can be a major obstacle to quality examination and the achievement of health development programs in Indonesia[7].

Previous research has examined the relationship between hospitalization experiences and the occurrence of adverse events that contribute to a fear of healthcare visits. In a 2017 study by Haldar, four primary categories of adverse events were identified based on survey responses from both patients and healthcare providers. In 2020, Sorensen conducted a qualitative descriptive study investigating children's fear of injections using a survey approach. Furthermore, Rukmawati’s 2019 study explored the factors influencing pediatric anxiety during dental extraction procedures, emphasizing the role of medical interventions in eliciting fear and distress in children. However, the causes of a child’s fear when examined by doctor which can hinder the child from receiving quality medical examination have not been extensively explored. Therefore, this study aims to determine the causes of a child’s fear when examined by a doctor.

METHOD

The research uses a qualitative method that is used to understand human or social phenomena and the research data is presented in a descriptive/narrative form obtained from interview activities with research subjects[8]. The research uses a phenomenological approach that aims to reveal, study, and understand the unique and distinctive phenomena experienced by each individual. In this qualitative research, the researcher formulates and categorizes initial hypotheses related to the phenomenon in order to understand the information obtained from the interview process[9]. Qualitative research facilitates the identification of subjects and offers an in-depth understanding of their daily experiences. Additionally, it enables the exploration of social, humanitarian, cultural, and psychological issues that may not be addressed through other research methodologies. In phenomenological studies, the researcher becomes immersed in the context of the phenomena under investigation, providing a nuanced understanding of the natural settings and situations, where each phenomenon is recognized as unique and varied. As a result, qualitative research can produce findings that are not attainable through statistical analysis. The objective of qualitative research is to achieve a thorough understanding of unclear or complex conditions within a particular context, achieved through detailed, comprehensive descriptions of the actual occurrences in the study environment. This methodological approach allows

researchers to engage directly with the field, uncovering the underlying issues from the perspective of the participants. The data collection method used is in-depth interviews with research subjects. The in-depth interview process uses a flexible interview guide and informal language that is appropriate to the conditions and answers of the research subjects[10].

The research will be conducted for one month, with the inclusion criteria was fourth, fifth, and sixth grader of Tarakanita Magelang Elementary School. The exclusion criteria were Tarakanita Magelang Elementary School students who have no experience related to the phenomenon being studied, unwilling to participate in the study, and have some communication barriers, such as being unwilling to share information or being uncooperative when interacting with strangers. In addition, a 15-20 minute interview process will be conducted at the research subjects homes, with the accompaniment of the subjects parents and a psychologist. The research instruments used were a self-interview guide made with child psychologist and pediatrician, that containing questions related to children's fears when examined by doctor.

Next, the researcher conducted qualitative data analysis using thematic analysis with several stages, transcription refers to the process of accurately recording data as expressed by research participants during in-depth interviews, including both field notes and audio recordings of the interviews (verbatim transcription), the process of keyword generation involves the researcher identifying and emphasizing specific terms or expressions that are characteristic or particularly salient in the responses provided by the research participants (keyword analysis), categorization entails organizing keywords with similar meanings or significance into a unified group or category (categorical analysis), formulating a research theme involves defining the central topic or focus of the study, based on the key concepts and patterns identified during the analysis process (thematic analysis), and conclusion drawing. As the subjects were still under 18 years of age, the researcher requested that the subject’s parents accompany them as guardians responsible for what the subjects conveyed during the interview. While qualitative research holds significant potential, it presents inherent challenges and complexities, particularly concerning validity. This type of research is based on diverse paradigms, ontological frameworks, theoretical perspectives, and methodologies, resulting in variations in the criteria and processes used to assess validity. In addition, to achieve trustworthiness in data analysis, the researcher employed several methods, such as comparing interview data/information with reading sources and other scientific experts that the researcher had compiled in the theoretical framework (triangulation), avoiding influencing the subjects answers with the researcher personal thoughts and confirming the subjects answers after the interview using notes prepared by the researcher (member checking), as well as discussing the research data analysis results with other researchers or supervisors and considering the results of the discussion (peer debriefing)[11].

This study was reviewed and approved by the Health Research Ethics Committee of the Faculty of Medicine, Universitas Kristen Duta Wacana, with approval number 1393/C.16/FK/2022.

RESULT

Characteristics of Research Subjects

After initial screening, there were 39 responses from the parents of potential research subjects. Then, after going through the selection process, there were 12 research subjects who met the inclusion and exclusion criteria. The research subjects were fourth, fifth, and sixth grader of Tarakanita Magelang Elementary School.

Table 1. Characteristics of research subjects

Research Subject Code	Age (Years Old)	The Causes of Fear in Children (According to Parents)
R1	10	Afraid of being injected
R2	11	Afraid of medical procedures
R3	11	Afraid of being injected
R4	11	Afraid of being injected
R5	11	Bad experience
R6	12	Bad experience
R7	12	Afraid of being injected
R8	10	Afraid of being injected
R9	11	Afraid of being injected
R10	12	Bad experience
R11	10	Afraid of being injected
R12	10	Afraid of medical procedures

In-depth Interview Findings

After conducting in-depth interviews with 12 research subjects, three themes were identified, namely the causes of children's fears, the expression of children's fear, and external support for children when they are afraid of being examined. The order of the themes was obtained from the data analysis process that was adjusted to the thematic analysis of the research. This method is used to find connections between various patterns in a phenomenon and explain the extent to which the phenomenon being studied occurs. Therefore, the order of the themes obtained are interrelated with each other[12].

From the interview results, it was found that there were research subjects who were afraid when examined by a doctor and others who were afraid of interacting with a doctor.

"Iya takut diperiksa sama ketemu dokter" (R8).

During the interview, some of the research subjects mentioned that their first moments of fear occurred during kindergarten or elementary school (grades 1 to 4).

"Dari kelas 1 SD karena pernah disuntik waktu tipes" (R4).

Some subjects also had previous bad experiences related to medical procedures and the appearance of medical personnel. The interview results showed several triggers of children's fear, such as pain resulting from medical procedures, a quiet examination room, blood, medical equipment, the pungent odor in the examination room, and hearing bad news about a disease diagnosis. Subjects even reasoned that their fear was triggered by their own imagination about pain, medical procedures, unpleasant events, or medical equipment used by doctors.

"Trus dulu ada pengalaman ngeliat pada nganter jenazah eyang waktu COVID pake baju sama peralatan kayak gitu, aku jadi takut kebayang sampe sekarang" (R11).

"Takut disuntik, karena takut sakit karena jarumnya itu kan tajem gitu sama takut sakit nanti kan masuk rumah sakit, takut disuntik banyak kali" (R4).

This imagination was derived from cartoons or the screams of peers during examinations. However, some children felt afraid because they had no previous experience with doctor examinations. Unfamiliar medical equipment such as syringe needle, circumcision laser, or tooth extraction devices were also factors that caused children's fear when examined by doctor.

"Trus aku takut karena sakit karena dulu pernah disuntik buat dicabut giginya. Aku juga suka bayangin kalau bakal sakit aja kalau disuntik, soalnya dulu pernah nonton film kartun Tom and Jerry dari TK. Waktu itu tikusnya bawa suntikan besar trus nyuntik kucing sampe kucingnya lari, sampe melompat keangkat sama menjerit gitu" (R8).

Then, the subjects admitted that when they feel scared when examined by a doctor, they tend to express their fearful emotions by crying, palpitations, trembling, or complaining to their parents. However, from the interview results, external support forms of research subjects were obtained when they were afraid of being examined, which could help them alleviate their fear.

"Takutnya aku ngerasain deg-degan, keringetan, bulu kuduknya merinding" (R5).

The external support factors of the research subjects were in the form of the doctor's behavior, which was able to establish communication first before taking medical action, making the subjects laugh, conveying information in a gentle voice, not hurting when performing medical procedures, playing with them, providing motivation when afraid, dressing appropriately, and being open about information during the examination.

"Sukanya tuh yang ramah sama yang suka kasih lelucon bikin ketawa gitu, biar imajinasiku nggak kemana-mana" (R5).

In addition, parents play an important role in supporting their children when they are afraid of being examined, such as giving encouragement, asking about their condition, providing food/drinks, and some subjects were brave enough to undergo an examination when accompanied by their parents. The examination room also plays a role in supporting the research subjects when they are afraid of being examined, where the subjects' fear will subside when the examination room is familiar, has colorful designs (patterns/images), food/drinks, complete facilities (television, decorations, photos, toys), and has a non-pungent smell.

"Nggak terlalu takut waktu di sekolah, karena banyak temen dan ruangannya kayak ngerasa beda gitu, kayak sudah terbiasa lihat" (R2).

Table 2. Data analysis on the causes of children's fear

Theme	Category	Coding
Cause of children's fear	Kind of fear	Afraid of being examined (91,7%)
		Afraid to interact (8,3%)
	Bad experience	Medical procedures (91,7%)
		Appearance of doctor (8,3%)
	Fear trigger	Pain sensation (50%)
		Silentness (8,3%)
		Blood (16,7%)
		Pungent odor (8,3%)
		Bad news (8,3%)
	Fear reason	Imagination (91,7%)
		No previous experience (8,3%)
	Examination tool	Syringe needle (33,3%)
		Circumcision laser (8,3%)
		Tooth extraction tool (25%)
Emotional expression of children's fear	Kind of expression	Palpitations (91,7%)
		Complaining to parents (8,3%)
External support of children	Doctor	Gentle voice (16,7%)
		Making laugh (16,7%)
		Build communication (16,7%)
		Gentle procedure (16,7%)
		Inviting to play (8,3%)
		Motivating (8,3%)
		Appropriate appearance (8,3%)
		Transparency of information (8,3%)
	Parent	Accompany (41,7%)
		Encouraging (33,3%)
		Ask about condition (8,3%)
		Giving reward (16,7%)
	Examination room	Familiar (50%)
		Room design (16,7%)
		Provide reward (8,3%)
		Complete facilities (16,7%)
		Fragrant odor (8,3%)

DISCUSSION

Previous research has examined the impact of hospitalization experiences and adverse events that contribute to fear of healthcare visits. In a 2017 study by Haldar, four primary categories of adverse events were identified from survey responses provided by patients and healthcare professionals: mismanagement, inadequate communication, policy-related issues, and insufficient care coordination[13]. In 2020, Sorensen conducted a qualitative (descriptive) study investigating children's fear of injections using a survey approach. The results indicated that children more frequently conveyed their fear indirectly through non-verbal cues and signs, rather than through direct verbal expressions. Three children explicitly communicated their fear or desire to halt the procedure. The children expressed apprehension about the pain associated with the injection, describing a sharp, stinging sensation. Furthermore, both caregivers and parents frequently utilized unclear or ineffective strategies in addressing the children's fears. Three distinct adult communication approaches were found to influence children's emotional responses: acknowledgment, ambiguity, and neglect[14]. Furthermore, research has been conducted on the factors influencing children's fear and anxiety during dental extraction procedures. A 2019 study by Rukmawati assessed anxiety levels in children undergoing tooth extractions, identifying key factors such as gender, age, and prior healthcare visit experiences as contributors to the children's anxiety[15]. The research indicated that a significant proportion of participants reported experiencing fear during medical examinations (91.7%) and had prior negative experiences with medical procedures (91.7%), particularly involving injections (33.3%) due to pain (50%) and their imagination (91.7%). During episodes of fear, participants exhibited an increase in heart rate, which they associated with palpitations (91.7%). Additionally, the study found that participants preferred being examined by healthcare providers who used a calm tone (16.7%), could induce laughter (16.7%), established communication prior to the procedure (16.7%), and performed medical interventions gently (16.7%). Furthermore, most participants expressed a preference for having a parent present during medical examinations (41.7%). To alleviate fear, participants suggested that the examination room should feel familiar (50%) and feature an attractive design (16.7%) with comprehensive entertainment options (16.7%).

Cause of Children's Fear

The mechanism of fear begins with the presence of a stimulus that poses a threat or an unpleasant event from the surrounding environment, or stimuli received by the body, which can ultimately generate a sense of fear in children[16].

Children's Bad Experience

Experiencing high-intensity pain immediately after previous medical procedures can trigger fear and excessive imagination of pain in children. This is because the anatomical area for memory is located in the multimodal association area of the inferotemporal cortex. Additionally, in the lateral/basolateral nucleus of the amygdala, Long-Term Potentiation (LTP) can occur, which triggers the formation of memories related to specific fear stimuli experienced by children16. The emergence of fear in children at an early age is influenced by the more active prefrontal cortex in children, so the memories and emotions experienced by children for the first time are more easily remembered[17].

Triggers of Children's Fear

The emergence of fear in children after hearing screams from cartoon characters or peers during doctor visits is caused by auditory input processed through the medial geniculate body and then projected to the amygdala via the auditory cortex. As a result, children may feel scared because they imagine experiencing the same thing during examination[17]. For some children, exposure to pungent odors in the examination room can also induce a fear response due to olfactory sensory information

originating from the bulbus olfactory. Meanwhile auditory, visual, and somatosensory information originates from the cingulate and anterior temporal cortex[18].

Expression of Children's Fear

When a child feels scared during examination, they will automatically express their fear emotions. The fear response in children can activate circuits flowing from the lateral nucleus and central amygdala throughout the ventral-anterior and medial hypothalamus areas, which are then transmitted to the periaqueductal gray in the mesencephalon, forming the autonomic index of fear (increased heart rate). When a child feels afraid, the "fight or flight" response is also triggered, stimulating the release of adrenaline and noradrenaline. Increased adrenaline can cause "goosebumps" as the hormone stimulates muscle contractions, including the tiny muscles surrounding hair follicles on the skin surface[19].

Irrational Belief System

Additionally, there are research subjects who afraid of being examined by doctor due to the medical instruments used. This condition is influenced by the imagination of audiovisual inputs from the surrounding environment. The emergence of fear in children after hearing the screams/crying of peers or seeing abnormal examination tools in cartoons (such as oversized needles and "laser swords") can trigger an irrational belief system in children. Irrational thoughts are formed through experiences and illogical learning processes during childhood, acquired from parents, family, society, the surrounding environment, and culture. Therefore, when children are about to be examined by a doctor, they already have pre-existing irrational imaginations or beliefs[20].

Children's External Support

The presence of external support can influence the connectivity between the prefrontal cortex and the hippocampus, thus affecting a child's perception in facing the fear experienced during examination. When thinking and behaving rationally, children become more communicative and capable of following instructions effectively[21].

Building on prior research, future studies on related topics could be conducted in alternative settings, such as public schools in rural or suburban areas, with attention to gender differences and an expanded sample size to generate more diverse findings. These studies are expected to provide valuable insights for future research on support mechanisms or preventive strategies to reduce children's fear during medical examinations, as well as investigating the influence of audiovisual information exposure on children's fear responses. Additionally, the outcomes may offer an evaluative framework and new perspectives for educational institutions and healthcare professionals in conducting medical assessments, ensuring that children experiencing fear receive positive support from their environment and are provided with a comfortable examination setting. To reduce children's anxiety, healthcare professionals should employ communication strategies, build rapport, and familiarize children with the procedure prior to its execution. Parents are encouraged to acknowledge their child's fear and implement strategies such as gradual exposure to fear-inducing stimuli under supervision, allowing children to observe and process the situation without physical contact, thus helping them adapt to the experience.

CONCLUSION

The fear experienced by children during examination dominantly was caused by their previous bad experiences and the child's imagination related to medical procedures and the instruments used by the doctor. These findings highlight the need for child-friendly medical practices, including improved communication strategies, familiarize children with the procedure prior to its execution and examination room designs that reduce fear in children. Parents are encouraged to acknowledge their

child's fear and implement strategies such as gradual exposure to fear-inducing stimuli under supervision, allowing children to observe and process the situation without physical contact, thus helping them adapt to the experience.

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CONFLICT OF INTEREST

There are no conflicts of interest regarding the publication of this research. This study was conducted independently and was not influenced by any financial, commercial, or personal relationships that could be perceived as a potential conflict of interest.

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