



Review

Psycho-educational preparation of children for anaesthesia: A review of intervention methods



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ABSTRACT

Objective: To systematically review the different methods available for the psycho-educational preparation of children for anaesthesia induction.

Methods: Articles were searched in Academic Search Premier, OvidSP, Web of Science, and PsycINFO. Inclusion criteria were psychological and educational preparation of children for anaesthesia and anxiety reduction. The titles of papers and abstracts were reviewed and full copies of selected papers were scrutinized.

Results: Forty-four empirical studies were identified. Twenty-one articles described preoperative preparation programmes, twelve examined the effects of distractive techniques and eleven reported the effect of parental presence during anaesthesia's induction. Some general characteristics of the different interventions are discussed together with some key psychological and educational factors mediating anxiety in children undergoing anaesthesia.

Conclusion: The effectiveness of interventions were linked to several factors. Psychological and contextual aspects are discussed. Psycho-educational activities should be better described when reporting their effectiveness in children's preparation for an anaesthesia.

Practice implications: Patient and family characteristics together with organizational and systemic aspects are described in order to guide the choice of the most appropriate preparation method for diverse health care setting.

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1. Introduction

The initial process of anaesthetization delivers a state of unconsciousness known as “anaesthesia induction”. Most often

unconsciousness is reached by intravenous injection of a short-acting anaesthetic agent or via an inhalational procedure [1]. This process can be distressing for both children and parents. In fact, the incidence of clinically significant anxiety during this preoperative period is as frequent as 40–60% [2], and often results in postoperative agitation and adverse behaviours that can persist past hospitalization [3–5]. Research has found several factors to be correlated with the incidence of preoperative anxiety in children. These include daily home routines, unfamiliar situations presented by the hospital setting, medically invasive or diagnostic procedures involving different parts of the child's body, uncertainty about how the surgery procedure is conducted, fear of pain and separation from parents [6,7].

In the last two decades surgery techniques, anaesthetic agents and nursing knowledge have greatly improved [8] and most paediatric surgical procedures are now performed as day cases [9] which may increase distress in children as it leaves them with less time to adapt [10,11].

Children of different ages suffer from different stressors during hospitalisation. Infants (0–1 years old) lack a rational understanding of why surgery is necessary [12,13] and may feel betrayed by those believed to protect them [14]. The greatest stress for them is probably parental separation [15,16]. Infants are particularly sensitive to the caregiver's reaction. In fact, one way infants learn how to behave in an unfamiliar situation is via social referencing, which means they use emotional information gained from a caregiver as a means to evaluate strange situations [17]. This phenomenon applies to anxiety as well. de Rosnay et al. [18] showed how the impact of an infant viewing a socially anxious interaction between his/her mother and a stranger, carried forward to his/her own interactions with that stranger.

Toddlers (1–3 years old), on the other hand, seem to suffer from social isolation and independence restrictions. Limited experience and inadequate knowledge of health care systems can add to a child's feelings of anxiety and fear resulting in an increased vulnerability to the stress of surgery [8,14,19]. Preschool children (3–5 years old) cannot use abstract logical thinking [20]. They have a limited concept of time, express fantastical beliefs [21], and may perceive hospitalisation as a punishment for wrong-doing [14].

Common hospital-related stressors at this age include painful procedures, immobilisation and separation from parents [21]. Sensitization of children with previous hospital experiences is often found in younger children and seems to decrease with age [22]. School-age children (6–10 years old) have improved language skills, increased logical thinking and improved perspective taking abilities [23,24]. These abilities result in the school-aged child experiencing different stressors in a more realistic way. Important issues for those children are their worries relating to the disease, the separation from peers and from families members [21,25]. Adolescents, on the other hand, demonstrate abstract thinking and can fully understand how their body is functioning, the nature of their problems and the reasons for invasive procedures [22]. They need more privacy and more independence. Common concerns for adolescents include fear of waking during the procedure, pain, and the possibility of death. Fear of loss of control is extremely important to adolescents and can lead to anxiety or distress [26,27].

Children face hospital-related stressors with different types of coping strategies. A form of adaptation, coping is, in fact, flexible and develops through the lifespan as a joint function of personality and environmental characteristics [28]. Children develop their abilities to cope with fear and stress in several ways, which can be summarized in the following way: while children younger than four years usually present a prevalence of distraction strategies [29], as they grow, coping shifts to cognitive-based and emotion-focused coping [30,31]. From age four and up, children also present a good ability to regulate the coping response, according to the

stressful situation [29], and to use play as a means to anticipate what is going to happen [32]. From age 6 and up, emotion-focused forms of coping improve [33–35] together with age-related problem solving ability [29]. Another trend increasing with age is the ability to seek social support and to shift from seeking parent-centred help to peer support, especially for emotional problems [36].

In the last two decades there has been an increase in attention on the psychological aspects related to patient well-being [37], children's preoperative anxiety (CPA) and parental anxiety [4]. The response has been that many hospitals have designed new programmes that prepare children for medical procedures that require anaesthesia [9]. As noted by Hodges et al. [38], a great deal of confusion exists around the term *psycho-educational intervention* and this is merely due to the lack of a clear definition. On the other hand, when assessing interventions that involve the psychological or educational sphere, embracing a linear cause-effect and context-independent medical model often leads to insufficient or incomplete explanations of the observed phenomena [39]. A solution to this problem is suggested by Gutkin and Curtis [40], who affirm that in psychology the fundamental unit of analysis should be the interaction between internal states of the person and external environments. According to Bronfenbrenner's theory [41], such interaction can be effectively appreciated with the analysis of roles, relationships and activities occurring within a microsystem. In coherence with the above-mentioned propositions, throughout this paper we will consider a psycho-educational intervention as any type of action aimed at purposely modifying roles, activities or relationships of the different actors present in a given environment. In a medical setting, such interventions may be shaped in many different ways, such as providing information, medical play, distractive techniques, and parental presence, and also changing organisational and communication routines in order to better adapt to children's and families' needs.

Numerous studies in children's healthcare discuss the beneficial effects of psycho-educational interventions. The aim of these interventions are many, for example, reduce child and parental anxiety, improve patient coping and cooperation during medical procedures, enhance postoperative recovery, increase patients' self-control and enhance the relationship between patients, families and health care providers [22]. One important mediating factor in the management of the child's anxiety appears to be parental presence at time of anaesthesia induction. The rationale for allowing parents to assist during induction is that the presence of a trusted family member, whom children believe to be a source of protection, guidance, and encouragement, may help alleviate fear and feelings of anxiety and gives the child a feeling of familiarity, even if he is in an unfamiliar environment and surrounded by strangers [42]. Additionally, parents usually have a better knowledge of the child's responses and preferred coping style [43]. The presence of a consistent, responsive, and empathic caregiver ensures psychological holding of the child and eases adaptation to the unknown environment [44].

The present review synthesizes research on interventions based on the psycho-educational preparation of children designed to reduce CPA. In the process, the present review underlines what these interventions are, what the contribution of each intervention is, as well as the methodologies and research design and assessment tools used in them.

2. Method

2.1. Eligibility criteria

Clinical studies analysing different educational and/or psychological interventions for the preparation of children to undergo

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