Adolescents’ Experience with Scoliosis Surgery: A Qualitative Study

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ABSTRACT:
This article reports a study of adolescents’ narrated experiences of undergoing scoliosis surgery. Six adolescents were interviewed. Open and semistructured questions were asked, and a qualitative content analysis of the text was performed. The results are presented in three main categories followed by subcategories. The three main categories of experience were emotional, physical, and social. The emotional aspects that emerged were fear, nightmares, nervousness, and helplessness. These had a great impact on adolescents’ well-being before, during, and after the hospital visit. The physical aspects were mobilization, scars, different hip levels, pain, nausea, appetite, and urinary catheter. These aspects caused much discomfort, mostly during the hospital visit. The social aspects were friends, power, coaching and comfort, and sports. Some of the social aspects had a strong negative impact on the adolescents’ well-being mostly after the hospital visit. This study suggests that both before and long after the surgery adolescents have strong emotions that they should be better prepared and helped to manage. To optimize perioperative care an interdisciplinary, a holistic approach must be taken that incorporates the complexity and whole of the adolescent’s experiences. The findings of this study suggest that perioperative care of adolescents during scoliosis surgery needs to be optimized. To improve patients’ psychologic preparation before surgery pediatric nurses should learn more about the individual patient and make care plans from a holistic perspective. Follow-up after discharge should address emotional, social, and physical aspects of the adolescent’s health.

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Corrective surgery in the form of spinal fusion causes severe pain requiring advanced analgesic methods and postoperative care. Pain relief is usually given either via epidural catheter or intravenously (Borgeat & Blumenthal, 2008). When epidural technique is used, the most common analgesics are opioids, local anesthetics, or a combination of both. When intravenous technique is used, the analgesia often consists of opioids administered by continuous infusion. Opioids frequently have side effects, such as nausea, constipation, urinary retention, pruritus, decreased blood pressure, and impaired consciousness. Pain, on the other hand, is strongly
related to metabolic stress, suffering, and anxiety for both the child and the parents (Blumenthal, Min, Nadig, & Borgeat, 2005; Lamontagne, Hepworth, & Salisbury, 2001).

A number of studies concerning pain relief after scoliosis surgery have measured parameters such as self-estimated pain, delay until bowel movements resume, and nausea as well as different methods for administering analgesia. Saudan et al. (2008) are of the opinion that patient-controlled epidural analgesia (PCEA) represents a very effective kind of pain relief in connection with scoliosis surgery. Documenting parameters such as self-estimated pain at rest and at mobilization, motor blockade, pruritus, circulatory effects, and nausea, they show that PCEA is effective and that it has few adverse effects (Saudan et al., 2008). Blumenthal et al. (2006), on the other hand, show that the most effective anesthetic method is a double epidural catheter with continuous infusion of ropivacaine. They registered parameters such as self-estimated pain, sensory and motor blockade, circulatory effects, pruritus, nausea, and bowel movements (Blumenthal, Borgeat, Nadig, & Min, 2006). The feeling of being in control is important when it comes to dealing with pain, and this may be the reason why patient-controlled analgesia is effective (Logan & Rose, 2005). La Montagne et al. (2003) are of the opinion that the feeling of being in control and having methods of one’s own, i.e., coping strategies, are important for the experience of pain and for the effectiveness of pain relief (LaMontagne, Hepworth, Cohen, & Salisbury, 2003). They studied adolescents and their ability to cope according to different personalities and backgrounds before the operation. Understanding different coping processes and individual factors is necessary for developing interventions to help adolescents cope successfully with recovery demands (LaMontagne, Hepworth, Cohen, & Salisbury, 2004).

Information and coping strategies given to the patient before surgery have a positive effect on postoperative pain and anxiety (LaMontagne et al., 2004). After surgery, the patient can suffer from fatigue, depression, and listlessness caused by the operation itself, malnutrition, loss of blood, or a combination of these. For many patients, the immobilization can lead to discomfort as well as to slower and less frequent bowel movements, which can, in turn, lead to stomach-ache and nausea. The oral intake of food is often affected, which can also delay recovery (Brodner et al., 2001; Foss, Kristensen, & Kehlet, 2008; Klein et al., 1996). A low energy supply will hamper the chances of early mobilization and bowel movements as well as lead to weight loss (Brodner et al., 2001; Foss et al., 2008; Klein et al., 1996).

It is not unusual for patients to suffer from postoperative nausea and vomiting (PONV) after major surgery. Nausea and vomiting lead to a strong feeling of discomfort, and PONV is a common cause of delayed recovery and of prolonged hospital visit (Wang & Kain, 2000). The incidence of PONV is higher among girls than boys, among people who suffer from motion sickness, and among those who have previously suffered from PONV. The anesthesia and method of delivery is also important. There are some nonpharmacologic ways to treat and prevent PONV, such as transcutaneous electric nerve stimulation (TENS) and acupuncture (Cekmen, Salman, Keles, Aslan, & Akcabay, 2007; Wang & Kain, 2002). Patient or parental anxiety, on the other hand, can increase the incidence of PONV (Munro, 2000).

Psychologic factors, such as coping and adaptation, locus of control, and health beliefs, as well as social support and the social network, have been identified as the major factors influencing adolescent-perceived quality of life (Michel, Bisegger, Fuhr, & Abel, 2009). During the hospital stay, it is known that prevention, medical treatment, medical assistance, and rehabilitation affect not only somatic but also emotional and social well-being. This means that it is necessary to see adolescent patients from their own points of view and make individual plans for each patient. For adolescents, concepts such as self-esteem and physical self-image play an important role in life (Michel et al., 2009). Adolescents with scoliosis face problems of physical deformity at a time when they are concerned about physical appearance, relationships, and developing a sense of personal identity (LaMontagne et al., 2004). Thus there are many angles of approach to this issue and many ways to carry out postoperative care after scoliosis surgery.

A holistic view of care that includes emotional, social, and physical aspects of adolescents’ health is fundamental to optimize the patient’s recovery, and an interdisciplinary team approach is advocated (Brodner et al., 2001; Holte & Kehlet, 2002; Kehlet, 1997). To ensure the best result from scoliosis surgery, patients must be able to cope with severe pain, reduced flexibility, and new ways of moving to protect their backs throughout their daily routines. Adolescents have different types of coping strategies for dealing with surgery and recovery. Individual factors affect these coping strategies. By learning more about the individual strategies and processes, we can provide individual plans for helping and guiding the patients through the surgery and recovery period (LaMontagne et al., 2004).

How young children describe pain and pain management is studied by interviewing children about lived experiences, pain, and coping strategies (Kortesluoma & Nikkonen, 2006; Kortesluoma, Nikkonen, & Serlo, 2008). Adolescents’ experiences in the periods before, during, and after surgery with a focus on other factors

Adolescents’ Experience with Scoliosis Surgery
than pain are not extensively researched (Kortesluoma & Nikkonen, 2006; Kortesluoma, Nikkonen et al., 2008). In particular, there is a lack of qualitative studies on adolescents’ experiences of scoliosis surgery. The aim of the present study was to describe adolescents’ narrated experiences of going through scoliosis surgery.

METHODS

A basic qualitative descriptive approach using individual interviews with open and semistructured questions was chosen, and the interviews were analyzed using qualitative content analysis (Graneheim & Lundman, 2004). This method of interpreting texts and describing specific phenomena in humanistic, social, and health sciences is based on a careful reading of the text as a whole (in this case, the set of transcribed interviews and the notations of nonverbal behavior and manifestations of emotion) with a view to discovering recurring themes. These themes are found expressed by short passages, or “meaning units,” which can be coded and grouped into categories within the themes, producing a hierarchic scheme of meaning that describes the phenomenon from the point of view of the participants’ experience. The design of this study was inspired by Downe-Wamboldt (1992), who suggested that preliminary categories be defined early, after a first shallow reading through the material (Downe-Wamboldt, 1992; Kortesluoma, Nikkonen & Serlo 2008). Kortesluoma, Nikkonen & Serlo, (2008) used this method when interviewing children about their experiences of a hospital visit. Inspiration for the analysis also came from Miles and Huberman (1994), who also suggested early coding of the text. The key point of this particular application of the method is that the analysis is founded not only on the transcribed text, but also on the emotional context as recorded in the interviewer’s notes (Miles & Huberman, 1994).

Participants and Procedure

Ethical approval was obtained from the Regional Ethical Review Board at Umeå University. Fifteen children and adolescents who had gone through scoliosis surgery between the years 2005 and 2007 were invited by the first author to participate in the study. No incentive was offered for participation. Informed written consent was obtained from each of the participants and their parents by the first author, a pediatric nurse with extensive experience of interviewing children and adolescents about sensitive medical topics. Criteria for inclusion were scoliosis surgery during the study period, being between 8 and 18 years of age, having idiopathic scoliosis, and living within 150 km (~90 miles) of Umeå. The sample was designed to include both girls and boys of different ages. Fifteen boys and girls were eligible. Three of those invited did not answer, and six did not want to participate. Two boys and four girls, 15-18 years old, agreed to participate. The interviews, all conducted by the first author, took place in different environments chosen by the participants: two in the participants’ homes and four in a hospital environment away from where the postoperative care had taken place. The time since surgery was ~2 years for all of the participants. No one other than the interviewer and the participant was present. The interviews lasted 10-45 minutes and were tape recorded. The interviewer also took notes recording participant behavior and demeanor during the interview, including body language, tears, crying, looking frightened, smiling, and so on. The interviewer ended the interviews by summarizing the answers, asking if everything was correct, and offering participants the chance to change or clarify their narrative.

Interview Questions

The main question was:

Can you tell me about the experience of going through surgery and how it felt before, during, and after the hospital visit?

Help questions were:

Can you tell me about a situation that was painful, and what helped?
Can you tell me about a situation when you felt nauseous, and what helped?
Can you tell me about something that was good during your hospital visit?
Can you tell me what was worst?
What is your strongest memory?

Analysis

The data, in this case the written narratives and interviewer’s notes, were analyzed in light of the whole context of verbal and nonverbal communication (Downe-Wamboldt, 1992). The method comprised a systematic organization of the text into units of meaning that could be compared for similarities and differences to illuminate variations within the text. All of the interview tapes were transcribed verbatim and analyzed as a whole, taking into account the nonverbal cues noted during the interviews (Downe-Wamboldt, 1992). The text was read through by the interviewer (A.C.R.) and the research team (V.L., M.K., S.I., and H.J.), and a first list of codes was constructed describing specific topics of significance. Then the text was read
several times, and meaning units—short but significant passages—were drawn from the text, organized, and condensed. Similarities and differences were compared between the units, which were then sorted into subcategories and main categories (Downe-Wamboldt, 1992; Graneheim & Lundman, 2004; Miles, 1994). The process of analysis necessitated an ongoing dialogue with the data, and the analysis was discussed within the research team and revised until consensus was reached.

RESULTS

Three main categories emerged: emotional aspects, physical aspects, and social aspects. A prominent finding was the strong sense of fear and nervousness associated with the anesthesia, the surgery, and the memory of the overwhelming experiences of pain during recovery that some of the participants expressed. They had nightmares and sleeping difficulties, waking up with an intense sense of fear and anxiety after the hospital visit and for a long time after the recovery period. Pain, nausea, and changed body image were physical aspects that emerged clearly, and these experiences were described as the worst the participants had ever gone through. A permanent drawback was the scar from the surgery that left some of the participants reluctant to show their back or to be touched. The surgery caused an undesired separation from friends during the hospital visit and in the immediate recovery phase. This loss of friends and social context tended to be long lasting, because the adolescents were absent from school and unable to continue with their usual sport activities. They felt sad about missing their friends and described a feeling of loss. Table 1 lists the main categories and subcategories that emerged.

Emotional Aspects

Fear. The participants disclosed many fears about the surgery. They were concerned about the anesthesia itself, the fear of becoming paralyzed during surgery, the fear of having severe pain after surgery.

“I was scared to death and I did not want to go through with it anymore.”

“All I wanted to do was to go home.”

“I was scared of being paralyzed and not being able to walk again, to sort of have to be bound to a wheelchair.”

The participants described a fear of the unknown, saying that they did not know what was going to happen after the surgery.

Nightmares. The participants continued to have nightmares and to wake up in the middle of the night with panic and anxiety from dreaming about the surgery and that they are actually paralyzed and could not move.

“'I am still having nightmares about being paralyzed.'

‘I am still having fears at night in my dreams.’

‘I often have nightmares.’

‘I wake up with panic.’

‘The feeling keeps coming back to me.’

Nervousness. Nervousness was an issue that occurred frequently in the interviews. The participants were nervous from the day they got the information that surgery would be necessary until the actual day of the surgery.

‘I was very nervous before the operation.’

‘It was a strange feeling to deal with the days before the operation.’

Helplessness. The feeling of helplessness, the feeling of not being able to do anything about one’s own situation was strong.

‘You felt so darned helpless.’

‘I could barely move.’

The participants felt that it was important to be in control of the situation, and when they lacked control it affected their well-being.

Physical Aspects

Mobilization. Mobilization was difficult and hard to go through. The participants described it as painful and tough. Several phases were included in the mobilization, e.g., sitting up beside, standing up, and walking in and outside of the ward room and walking to the bathroom.

‘The worst thing was to get up and walk with a walker.’

‘It was really hard to get up and walk and to eat.’

‘Turning in bed was tough.’

Scar. The noticeable scarring after the surgery was something the participants had not expected. The scars run from the neck down to the lumbar level.

TABLE 1. Main Categories and Subcategories That Emerged from the Content Analysis of the Interview Text

<table>
<thead>
<tr>
<th>Emotional Aspects</th>
<th>Physical Aspects</th>
<th>Social Aspects</th>
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<tbody>
<tr>
<td>Fear</td>
<td>Mobilization</td>
<td>Friends</td>
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<tr>
<td>Nightmares</td>
<td>Scars</td>
<td>Power</td>
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<td>Nervousness</td>
<td>Different hip</td>
<td>Coaching and</td>
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<td>levels</td>
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<td>Helplessness</td>
<td>Pain</td>
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<td>Nausea</td>
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<td></td>
<td>Urinary catheter</td>
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<td></td>
<td>Appetite</td>
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Adolescents’ Experience with Scoliosis Surgery
Sometimes the scar was in two parts, an upper and a lower but still covered almost the entire spine. These scars caused problems for the participants, particularly when they returned home and tried to get back to a normal life. Things like going to the beach, including changing clothes and wearing swimsuits, made them shy and self-conscious.

“I cannot visit a swimming pool or go to a beach because I don’t want anyone to see the ugly scar, and I don’t want anyone to touch it or ask about it.”

Changing clothes before and after sport activities became a problem as well, when there was a risk that other people might see the scar.

**Different hip levels.** Another unexpected problem was that the correction of the spine caused different hip levels. Wearing jeans or a belt at the waist emphasized the different levels and became an esthetic issue that the participants were not prepared for.

“The worst thing is that my hips got so crooked.”

**Pain.** Pain was a major problem for the participants. They related experiences of severe pain and the pain was described as almost impossible to cope with.

“I thought I was going to die.”

The pain was very severe. It was compared to a disaster, a feeling that one was going to die.

“I felt I had to cry because it hurt so much.”

“It was very painful, and nothing helped. They had to turn me over in bed.”

“When I woke up after surgery I was in very very bad pain.”

There are descriptions of persistent pain after the hospital visit as well. The participants were not prepared for that, and they were rather surprised by feeling so much pain for such a long time after the surgery.

“I had a hell of a lot of pain for two months after the surgery.”

**Nausea.** Postoperative nausea, in the hospital and the period after, was described as the worst part of the whole procedure. It led to a lack of appetite, loss of weight, and apathy.

“I felt very nauseous and I don’t know if any medicine helped.”

“I vomited as soon as I tried to eat.”

**Urinary catheter.** The urinary catheter was mentioned as being both the worst and the best thing to remember from the hospital visit.

“The worst was to have the urinary catheter; the best moment was when I got rid of that urinary catheter and was able to pee for real!”

**Appetite.** Participants were very affected by lack of appetite. Not being able to eat, feeling weak, and losing weight was experienced as very negative. Special occasions when appetite came back and good-tasting food was offered by the nurses were described as strong positive memories of good care.

“One of the nursing staff gave me a popsicle. That was really kind of her, and it diminished my sickness.”

“One of the nursing staff made me pancakes! She was the best.”

**Social Aspects**

**Friends.** Losing contact with friends was one of the hardest things to deal with during the recovery and a long time after the surgery. Not being able to continue with the same sport activities as before and being forced to change friends and social networks were described as painful experiences. More than 2 years after the surgery, participants still missed friends from the time before.

“I lost contact with them during the hospital visit, and I still haven’t got them back. I miss them!”

**Power.** Autonomy, the feeling of being listened to, and having the opportunity to participate in decisions about pre- and postoperative care varied among the participants, as did the matter of whether they had a choice to undergo surgery or not.

**Coaching and Comfort.** Coaching and comfort were important issues concerning pain, coping with pain, nausea, fear, and all kinds of difficulties before, during, and after the hospital visit. Parents, nursing staff, doctors, and other important people were described as coaches by the participants and several statements were made about the kindness and comfort offered by the nursing staff.

“All the nursing staff was really kind and caring.”

“One of the nurses was very kind and talked about a lot of things.”

“The nursing staff was very kind.”

**Sports.** Nearly all of the participants were active in some kind of sport activity before the operation. During convalescence for 6 months after the operation, only limited physical activity was permitted to avoid jeopardizing the surgical result. It was impossible for the participants to practice their sport during the convalescence, and for some it was not possible to return at all.

“I had to stop training, and when I could take it up again it felt difficult. The team had grown so much better and I was left behind.”

Finding a new sport activity was not easy, and it was hard being a beginner again. Changing sports also included changing friends.
DISCUSSION

The aim of this study was to describe adolescents’ narrated experiences of going through scoliosis surgery. The main findings were that most of the participants were very nervous and afraid before surgery. After surgery, they suffered from severe pain and PONV. Unexpected problems emerged after the hospital stay. Participants reported experiences of persistent pain, difficulties, and changes in their social networks, disfiguring scars, sleeping disturbances, nightmares, and flashbacks.

Emotional Aspects

The participants described an uncontrollable sense of fear before the surgery. They were anxious about how they would feel when they woke up from anesthesia, and they were afraid of being paralyzed after surgery. They were also afraid of the postoperative pain they would have to deal with. Information was given by the surgeon a few weeks before the hospital stay and the day before surgery. Written information was sent to them, and verbal information by telephone was provided by the pediatric nurse responsible for planning the orthopedic surgery. The question is whether the standardized information may sometimes aggravate rather than allay adolescents’ fear and nervousness. Wisselo et al. (2004) suggest that individual differences in understanding and coping with information affect whether information increases or decreases anxiety in adolescents and their parents. Earlier events of anxiety, fear, and trauma during hospital procedures influence how people handle new situations of fear later in life (Muscatell, Slavich, Monroe, & Gotlib, 2009; Proczkowska-Bjorklund & Svedin, 2004).

Nightmares, sleeping difficulties, flashbacks involving anxiety, panic, and breathing difficulties could be diagnosed as posttraumatic stress disorder (PTSD). Some of the participants described such symptoms. Because PTSD could be very debilitating later on, interfering with the adolescents’ social and educational development and physical health, it is particularly important to prevent PTSD (Langeland & Olff, 2008). PTSD in children and adolescents is common after trauma or injury. High rates of PTSD have been reported in children who sustained disfiguring injuries (Langeland & Olff, 2008). In the present study, the participants talked about the scar as a worrying problem. There is also a risk of developing PTSD as a consequence of the events and procedures during the hospital stay, including severe pain, nausea, and anxiety (Broman-Fulks et al., 2009; Langeland & Olff, 2008). Impaired sleep quality could aggravate the symptoms of PTSD (Belleville, Guay, & Marchand, 2009).

By providing the patient with psychologic preparation that reduces anxiety to convey an increased sense of control, cognitive behavioral interventions, relaxation, and pharmacologic intervention can be used to help the adolescent cope with pain and its emotional effects (Stoddard & Saxe, 2001). In their review, Langland et al. (2008) emphasized that a child’s strong senses of fear, danger to life, and loss of control during and after unintentional injury increased their risk of developing PTSD. Multiple traumatic events aggravate the PTSD symptoms (Broman-Fulks et al., 2009; Langeland & Olff, 2008). The present study suggests that strong senses of fear and helplessness lead to sleep difficulties and nightmares that persist long after the hospital stay.

Physical Aspects

The pain and nausea associated with surgery for scoliosis were among the worst experiences the participants had ever had: ‘I thought I would die!’ They described the pain as a feeling they could not control, and they reported that pharmacologic pain management was neither effective nor sufficient. During the interview, they experienced physiologic reactions while remembering and discussing their hospital stay. Scoliosis surgery causes severe pain from the massive nociceptive input from the surgical area and from muscle spasms around the spinal cord segments (Borgeat & Blumenthal, 2008). Severe pain often lasts up to 7 days after surgery, and moderate pain persists even longer, with individual differences that are very important to keep in mind. Moreover the surgery adds to a postoperative paralytic ileus of variable duration that makes mobilization, resumption of enteral intake, and recovery problematic (Cassady, Lederhaas, Cancel, Cummings, & Loveless, 2000). Many studies suggest the need for a holistic view of treatment and note that untreated pain leads to a stress reaction, which in turn affects the endocrine system with a number of adverse effects, such as metabolic stress, affected lymphocytes, and impaired wound healing (Brodner et al., 2001; Holte & Kehlet, 2002; Kehlet, 1997).

The choice of method for pain relief is crucial for the patient’s well-being, particularly in light of the side effects (Brodner et al., 2001; Holte & Kehlet, 2002; Kehlet, 1997). An individual, holistic, and interdisciplinary pain treatment seems to be the best way to confront the problem of untreated pain versus severe side effects.

Elective surgery facilitates the planning of the perioperative as well as the postoperative care (Wisselo, Stuart, & Muris, 2004). Preoperative care generally includes information about the surgery, information about what will happen after surgery, information from the physiotherapist, and other routines. Preoperative care makes it possible to interview the patient about factors that can affect their postoperative sense of well-being and recovery, such as previous hospital stays, previous experiences of...
pain and pain treatment, susceptibility to motion sickness, and so on. The preoperative dialogue could provide the patient with methods and techniques to cope with severe pain and nausea (Niemi-Murola et al., 2007). Using cognitive behavioral coping methods, such as relaxation, breathing, focusing or distraction, film, or massage, might improve the outcome (Kortesluoma, Punamaki, & Nikkonen, 2008; Wisselo et al., 2004). LaMontagne et al. (2004) studied 113 adolescents undergoing scoliosis surgery and showed that individual plans for treatment, taking into account individual coping styles and personalities, were essential to review before surgery. For such plans to succeed, information should be individualized by age, gender, and personality, according to whether (and how much) the patient wants to know about what is going to happen or would prefer to be distracted (Hechler et al., 2009; LaMontagne et al., 2003, 2004).

The often underestimated importance of nutrition came out strongly in the interviews, with the participants saying they felt nauseous during almost the entire hospital stay after surgery. Lack of appetite and loss of weight were described as unexpected and very uncomfortable. It was not easy to regain weight after the hospital stay. They described their bodies as totally changed, skinny, and marked with an ugly scar. Early postoperative nutrition with total parenteral nutrition, enteral tube, or oral feeding, could be very important for the patient’s recovery and well-being (Lalueza, Colomina, Bago, Clemente, & Godet, 2005; Soop et al., 2004). Early enteral-tube feeding improves postoperative recovery even after major abdominal surgery (Moss, 2009). The participants remembered getting a popsicle or pancakes as one of the most positive moments of the entire hospital stay. They clearly recalled the good taste, the feeling of being able to eat and the relief from nausea.

The participants also discussed their changed body image. They talked about unanticipated problems, such as the scar after the surgery, different hip levels, weight loss, and lack of bladder control. Being in control of one’s body, being attractive, and not seeming different from others in the social network are important issues for the adolescent patient (Payne et al., 1997). Suitable preoperative information might help adolescents to cope with issues of changed body image and physical functioning after surgery. One could argue that having a scar after major surgery should be expected, but preoperative information tends to focus on immediate concerns, such as preparations, routines, pain treatment, and mobilization (Idvall, Bergqvist, Silverhjelm, & Unosson, 2008; Wisselo et al., 2004). Information about long-term recovery and scarring could be helpful to adolescents, but even if offered, it might not be noticed by the patient in the midst of all the other preoperative information.

Social Aspects
It took the participants an unexpectedly long time to return to normal life and to manage school after the surgery. Some of them had to end their sport activities, and their social networks changed. Some studies suggest a negative emotional impact on people who cannot return to their sport activity after injury, surgery, or both (Langford, Webster, & Feller, 2009; Webster, Feller, & Lambros, 2008). In the present study, the participants stated that they could no longer interact with the friends they had before the surgery at the same level as before. Two years after the surgery, they still missed the friends they had lost when they had to give up their sport activities. It is important to minimize the disruption of the adolescents’ normal routines and separation from their family and friends. Efforts such as providing information to teachers, sport coaches, family, and friends about the postoperative difficulties that may ensue should be directed toward maximizing the adolescents’ continued contact with friends, family, and school (Coyne, 2008).

One of the worst aspects of their hospital stay was the sense of not being in control, which is an important issue for hospitalized adolescents (Coyne, 2008; Runeson, Martenson, & Enskar, 2007). Most of them talked about whether or not they had been given a chance to decide for themselves about undergoing surgery, and some felt that they had had a choice, but some did not (LaMontagne et al., 2003; Logan & Rose, 2005). It has been shown that preoperative factors can correlate with postoperative satisfaction (Niemi-Murola et al., 2007). The participants had a parent present during the hospital stay, which they thought was necessary to allow them to cope with going through the surgery and the recovery period. Adolescents still need parental support, and they remain subject to a high level of parental influence in their decision making (Kelsey, Abelson-Mitchell, & Skirton, 2007).

The participants stated that the nursing staff was very gentle, kind, and caring. Many of the participants mentioned specific people who became important to them during the hospital stay. Human dignity is a fundamental principle of nursing. It is important to carry out nursing care and at the same time preserve the patient’s dignity. Everything we do as care providers is open to interpretation by patients and reflects upon their sense of worth. Many patients, however, are preoccupied by wanting to be ‘good patients’ who do what the staff wants them to do (Lundqvist & Nilstun, 2007). This can make the issue of care with dignity delicate, because it is possible that patients will deny their own needs and wishes to please nursing and medical staff. In pain treatment with patient-controlled analgesia, for example, is it possible that adolescents take fewer on-demand doses to please the
Methodology

A written invitation to join the study was first sent to potential participants by the interviewer, followed by telephone calls asking for informed consent. During the call, the adolescent had the opportunity to ask questions about the study. Those who were willing to participate then agreed upon a time and a place for the interview. In the interview situation, only the interviewer and the participant were present in the room. Awareness of adolescents’ need for confidential space is essential to optimize the environment for the interview (Basset et al., 2008).

Out of fifteen invited patients, six answered and agreed to join the study. Two did not want to participate because they did not want to be reminded of the surgery and the hospital stay. That was the worst time in their lives, they said. Recovering from the surgery lasted more than a year. One person did not want to participate because she had no problems during the hospital stay. One person said she had nothing to tell. Another reason for refusal was that they remembered very little about the surgery and hospital visit.

Many things were expressed during the interviews, and similar topics emerged from most of the interviews, such as nightmares, fear, flashbacks, and severe social issues, despite the fact that no questions were asked about those things. That the same issues, forming the results, were brought up by the participants spontaneously strengthens the trustworthiness of this study (Graneheim & Lundman, 2004). During the tape-recorded interviews the interviewer also made notes to aid memory and to clarify the context (Miles & Huberman, 1994). During some interviews, the feelings expressed were so strong that pauses had to be taken to accommodate the participant’s crying. It was obviously very hard to talk about these experiences. Some of the participants went very pale when remembering their feelings, e.g., at the moment before the induction of anesthesia, on waking up after surgery and of having severe postoperative pain. Pauses were taken when crying made it impossible to speak. The memos facilitated to keep the context present during the analysis. The interviewer thought it was important to include in the analysis the psychologic reactions during the interview. Listening to the tape-recorded interviews, this only sounded like a normal pause, but it was in fact a pause when the participant cried or just had to take deep breaths to gather the thoughts together. These findings were discussed within the research team and resulted in the participants being asked if they needed psychologic assistance after the interviews, but none of them wished to have such assistance.

Limitations

There were some limitations to this study. The small number of participants made transferability to other contexts uncertain. A teenager does not always present rich descriptions in interviews, and the data might have been more varied if more participants had been available. The time that passed from surgery to the interview might have had an impact on the memories of their experiences (Peterson & Whalen, 2001), and exaggerated memories of pain and anxiety influence children’s subsequent experiences of medical care (Noel, McMurtry, Chambers, & McGrath, 2009).

Clinical Implications

The findings in this study show the importance of improving psychologic preparation, pain and nausea management, and follow-up for adolescents undergoing scoliosis surgery. Pediatric nurses may improve the provision of preparatory information through discussion sessions with the adolescent and the family, focusing on the adolescent’s expectations of the planned surgery and the postoperative period. This would add to the nurses’ knowledge of the adolescents’ early experiences, coping styles, personality, fears, and needs, and it would allow the adolescent patient to have a greater degree of participation in the decision making (Allvin, Ehnfors, Rawal, & Idvall, 2008). Previous experiences of postoperative recovery have a positive or negative influence on subsequent recovery (Allvin et al., 2008).

Pediatric nurses need to be aware of the adolescent’s experience of severe pain, perform pain assessments regularly and take action on the adolescents’ self reports of pain. They need to be aware of the risk of posttraumatic stress caused by the experience of life-threatening pain. Nausea was described as an experience as severely distressing as pain. The moments when nausea disappeared and appetite returned were described as glimpses of light. The team dealing with scoliosis surgery needs to learn more about strategies to avoid and treat PONV. In addition to pharmacologic management of pain and nausea, nonpharmacologic strategies would be useful, not least for pediatric nurses who are expected to perform skilled postoperative nursing care. Training in TENS and other alternative nonpharmacologic methods of pain management should be available and encouraged for pediatric nurses.
To help patients deal with tough recovery demands, such as handling fear, anxiety, nausea, and pain, the interdisciplinary teams should make individual plans focused on the most important issues, but viewed from several angles, including that of the patient. To prevent reactions from unprocessed traumas and to help the adolescent patient going through recovery, a follow-up interview on discharge from the hospital and again after 6 months might be routine. Pattison and Dolan (2009) showed the importance of follow-up after discharge from critical care. By learning about the individual patient, it is possible to make an individual follow-up plan to prevent the PTSD-like trauma, fear, and difficulties (Pattison & Dolan, 2009). Empathic and meaningful follow-up after discharge is important in the recovery (Pattison, Dolan, Townsend, & Townsend, 2007).

**CONCLUSION**

The findings of this study suggest that perioperative care of adolescents during scoliosis surgery needs to be optimized. It seems essential that pain management as well as treatment of nausea be improved. This can be done by learning more about both pharmacologic and nonpharmacologic methods and their most effective uses. To improve the psychologic preparation of these patients before surgery, pediatric nurses and interdisciplinary teams should learn more about the individual patient and make care plans with a holistic view. Clinical trials with a focus on perioperative care for scoliosis surgery should be performed. The adolescents’ severe postoperative pain and nausea and the long-lasting effects of these stressful experiences should also be addressed. Follow-up after discharge should address emotional, social, and physical aspects of the adolescents’ health.

**REFERENCES**


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