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The influence of ‘pain catastrophizing’ and ‘pain-related anxiety’ on posttraumatic stress symptoms among children who have been hospitalized for burns

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Abstract

The aim of this study was to determine whether pain catastrophizing and pain-related anxiety are risk factors for posttraumatic stress symptoms in children who have been hospitalized for burns (N=100). The relationship between pain catastrophizing, pain-related anxiety, and posttraumatic stress symptoms in the first month (T1) and at 3 months (T2) postburn was examined. We have also examined the influence of these two variables on the course of the posttraumatic stress symptoms. Posttraumatic stress symptoms were measured with the Children's Responses to Trauma Inventory at 1 and 3 months postburn. Pain catastrophizing and pain-related anxiety were measured with respectively the Pain Catastrophizing Scale - Children and the Burn Specific Pain Anxiety Scale – Children within 1 month postburn. Results demonstrated that 8% of the children had scores that were indicative for posttraumatic stress symptoms within one month postburn and 3% at 3 months postburn. Pain-related anxiety had no significant direct effect on the posttraumatic stress symptoms at T1 and T2, but pain catastrophizing had. So, the more a child catastrophizes about pain, the higher the posttraumatic stress symptoms. Results from model testing showed an indirect effect of pain-related anxiety on posttraumatic stress symptoms via pain catastrophizing.

Preface

The last six months I have been working on my master thesis. When I started my master 'Clinical- and health psychology' I wanted to write my thesis about children. When I saw the opportunity to write a thesis about children who have been hospitalized for burns at the Association of Dutch Burn Centres, I directly became enthusiast. I am really glad I got this chance.

First I would like to thank Anne Bakker, my supervisor of the Association of Dutch Burn Centres. It took me a lot of train trips and time to go to Beverwijk, but it was worth it. I really enjoyed working here. Thank you for all your help, tips and understanding during these months. I also want to thank you for your time and patience. I admire your enthusiasm for your work and I wish you all the best. I want to thank Nancy van Loey as well for giving me extra supervision and advice. I also want to thank the other employees of the Association of Dutch Burn Centres for the great time I had here.

At last I would like to thank Rolf Kleber from Utrecht University for supervising me. Thank you for supporting me with my thesis and your critical notes.

I hope you enjoy reading my thesis.

Anique Jansen

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Introduction

In the Netherlands, each year approximately 8200 people visit an emergency department of a hospital with burns. Fifty-one percent of all burn injuries are caused by fire and flames. These are especially the most important causes in children between 5 and 19 years old (Consument en Veiligheid, 2011).

After a burn injury, the skin is severely affected. The skin is the largest organ of the human body and has several important functions. For instance, the skin serves as protection to mechanical and chemical threats and plays an important role in regulating the body temperature. Also, the skin has an aesthetic function and during sunlight the skin plays a role in the production of vitamin D (Brand-Van Tilburg, Baljon, Klasen, Van der Sijde, & de Vries, 2000).

Because of these important functions of the skin, it is not surprising that during centuries the mortality of patients with burns was high. Through medical improvements and dedicated burn centres many severely burned patients survive the trauma nowadays. Nevertheless, burn patients have to deal with a lot of consequences and impairments in their life. Whereas in the past most attention was paid to the physical consequences of burns, in the last decades there is a growing interest for the psychosocial impact of burn injuries (Van Loey, 2003).

Consequences of burns

A burn accident in general is a painful and unexpected event, which can have a great impact on a person's life. After the injury, the first consequences concern somatic complaints, discomfort and intense pain in the injured area (Delgado Pardo, Garcia, & Gomez-Cia, 2010). Severe burn injuries are one of the most painful injuries known and also the treatment procedures can be frightening (Langeland & Olff, 2008). There are two types of pain after burn injury, known as background pain and procedural pain. Background pain is the pain while the person is at rest. Procedural pain is the pain during interventions such as wound dressing changes (Van Loey, 2003). Burn patients often have to stay for a long period in specialized burn centres and may undergo extensive surgery (Saxe, Stoddard, Chawla et al., 2005).

There are some studies among young burn patients which indicate that pediatric burn survivors are doing well after burn injury (Noronha & Faust, 2007). Mentioning this, it is important to, besides the physical consequences, pay attention to the psychological consequences and the patient's emotional wellbeing. Among children, effects were found in the patient's own self-image

and self-esteem. Patients often show high levels of social anxiety and have more often attention deficits and behavioral disorders. Also, their school results might decrease (Delgado Pardo et al., 2010). In a review by Noronha and Faust (2007), several psychological reactions for children after a burn injury are described. For instance, depressive reactions such as suicidal ideation, aggressiveness and irritability, sleep disturbances and somatic complaints are common reactions to burn injured children. Another common psychological reaction to pediatric burn patients are anxiety and posttraumatic stress symptoms (Noronha & Faust, 2007).

Posttraumatic stress symptoms (PTSS) may develop after experiencing a traumatic event. In a review, Van Loey en Van Son (2003) reported prevalence rates of posttraumatic stress disorder (PTSD) among adult burn patients in burn research between 19 and 34% at one year follow up (Van Loey & Van Son, 2003). Characteristic symptoms of posttraumatic stress include repeated and unwanted re-experiencing of the event, hyperarousal, nightmares, difficulties in experiencing positive emotions and avoidance of stimuli and thoughts which could be reminders for the event (Ehlers & Clark, 2000; Saxe, Stoddard, Chawla et al., 2005). For the majority of people the symptoms decrease in the next few weeks or months, but in a significant subgroup the symptoms tend to persist (Ehlers & Clark, 2000; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995).

Risk factors for posttraumatic symptoms

As not all people who experience a burn trauma develop posttraumatic stress symptoms, it is of importance to identify factors that influence the risk of developing posttraumatic stress symptoms. Previous research identified risk factors among general trauma populations such as female gender, young age, pre-injury psychological and behavioral problems, and life stress (Brosbe, Hoefling, & Faust, 2011; Dissanaike & Rahimi, 2009; Green et al., 1991). Risk factors for PTSD in injured children have recently been reviewed by Langeland and Olff (2008). These child-specific predictors for PTSD include for example the child's previous trauma experiences, coping, the type of accident and the severity of injury (Langeland & Olff, 2008).

In burn literature among adults, researchers found severity of injury and female gender (Van Loey, Maas, Faber, & Taal, 2003), premorbid mood disorders (Fauerbach et al., 1997), and longer periods of hospitalization as risk factors (McKibben, Bresnick, Wiechman Askay, & Fauerbach, 2008). Prior studies on schoolaged children with burns reported that life stress was associated with acute traumatic stress symptoms, but only through its effect on the child's body image (Saxe, Stoddard, Chawla et al., 2005). Also, Saxe and colleagues found two different pathways for developing PTSD in children with burns. The first pathway was mediated by

separation anxiety and was influenced by the acute pain response of the child and the total burned surface area. The second pathway mediated by dissociation was only influenced by the total burned surface area (Saxe, Stoddard, Hall et al., 2005).

Theoretical background

Cognitive theories may provide a theoretical background for developing posttraumatic stress symptoms after experiencing a trauma. These theories suggest that the way people interpret situations can either prevent or cause psychological disturbances (Leeson & Nixon, 2011). For example, Beck's cognitive model of emotional disorders states that maladaptive schematic representations of the self, world and future are activated by certain life events. These maladaptive representations in turn can lead to a continuous presence of negative or threat-related thought, images and interpretations (Clark & Beck, 2010).

A model with the same central theme of maladaptive appraisals which plays an important role in the development and maintenance of psychopathology, is the cognitive model of Ehlers and Clark (2000). This model explains why some people do develop posttraumatic stress symptoms after a trauma and others do not. The authors propose that anxiety is a result of appraisals in relation to impending threat. There are two processes which can lead to the experienced anxiety in posttraumatic stress symptoms, i.e. individual differences in the appraisal of the trauma and/or its sequelae, and individual differences in the nature of the memory for the event and its link to other autobiographical memories (Ehlers & Clark, 2000).

Ehlers, Mayou, and Bryant (2003) explored whether the Ehlers and Clark model (2000) could be applied to children and adolescents as well. As expected, the results supported the role of cognitive predictors for PTSD in children such as negative interpretations of intrusions, thought suppression and persistent dissociation (Ehlers, Mayou, & Bryant, 2003).

One type of negative appraisal which can produce a sense of threat that may be of particular importance in the case of a severe injury is catastrophizing about pain. Catastrophizing is defined as an exaggerated negative orientation towards pain (Sullivan et al., 2001). It also concerns thinking about pain in terms of helplessness and an inability to cope with pain (Crombez et al., 2003). An example of a catastrophizing thought about pain is 'the pain is horrible and I think it never will be better'. In the cognitive model of Ehlers and Clark, people catastrophize when they experience a traumatic events and exaggerate the probability of further catastrophic events in general or use the trauma as evidence for negative appraisals as 'bad things always happen to me' (Ehlers & Clark, 2000). Such catastrophizing appraisals lead to current threat and accompanying

symptoms such as intrusions, arousal symptoms and strong emotions, which in turn leads to strategies with the intention to control threat and stress symptoms. Those strategies can maintain posttraumatic stress symptoms by preventing changes in the negative appraisals (Ehlers & Clark, 2000).

Consistent with this way of reasoning is the transactional model of stress (Lazarus and Folkman, (1984) in Sullivan et al., 2001) in which a distinction is made between appraisals, beliefs, and coping. Folkman and Lazarus (1988) defined coping as 'cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing of exceeding the resources of the person' (Folkman & Lazarus, 1988), p. 310). When confronted with a stressor, people evaluate whether a stressor is relevant, negative or stressful. This is called the primary appraisal. Those primary appraisals interact with secondary appraisals, which are beliefs about different options of coping and the possible effects of coping. Both primary and secondary appraisals influence whether and which coping responses will be maintained (Sullivan et al., 2001) In this context, pain catastrophizing can be seen as a cognitive appraisal that influences the way of coping after a traumatic experience.

Pain catastrophizing

Some studies focused on the relationship between pain catastrophizing, pain intensity, emotional distress, and pain-related anxiety. Experiments among adults and children showed that catastrophizing thoughts during painful stimulation leads to more intense pain and increased emotional distress (Sullivan et al., 2001). Severeijns and colleagues found that pain catastrophizing was related to pain-related anxiety and to both physical and emotional health indices such as psychological distress, depression and pain intensity (Severeijns, Van den Hout, Vlaeyen, & Picavet, 2002). Martin and colleagues (2010) examined the relationship between pain catastrophizing and posttraumatic stress in adults scheduled for general surgery. Their results showed that high levels of catastrophizing may increase fear of pain, which in turn may increase PTSS (Martin, Halket, Asmundson, Flora, & Katz, 2011). These findings suggest a link between pain catastrophizing and PTSS.

Pain-related anxiety

Another factor that may be related to posttraumatic stress symptoms is pain related anxiety. Pain-related anxiety refers to anxiety and worries about pain or pain-related events (Asmundson & Taylor, 1996; Gonzalez, Zvolensky, Hogan, McLeish, & Weibust, 2010)). For instance, people

may be afraid of the pain during wound care. Pain related anxiety might be a relevant factor in the development of anxiety psychopathology (Gonzalez et al., 2010). Three studies demonstrated that pain-related anxiety is related to posttraumatic stress. Taal & Faber (1997) found a positive association between pain related anxiety and posttraumatic stress during hospitalization in a study on 33 adult burn patients. Additionally, the more patients were suffering from PTSS, the more anxious they were before, during and after painful medical procedures (Taal & Faber, 1997b). In an other study, 242 adult burn patients participated which completed the Impact of Event scale, the Anxiety Dissociation Scale and the Burn Specific Pain and Anxiety Scale. Results show that pain-related anxiety predicted posttraumatic stress symptoms at 12 months post burn (Van Loey et al., 2003). Finally, Martin and colleagues also reported that fear of pain had a direct effect on PTSS (Martin et al., 2011).

The samples of these studies included only adults. To our knowledge, the relationship between posttraumatic stress symptoms and pain-related thoughts and emotions has not been investigated in children. Because children are at high risk for burn accidents, it is important to examine how pain-related anxiety and pain catastrophizing influence posttraumatic stress symptoms in children with burns. In addition, identifying early risk factor for posttraumatic stress is important to determine who will need and benefit from psychological treatment and to improve the content of the treatment. If pain-related anxiety and/or pain catastrophizing appear to have an important influence on the development and course of posttraumatic stress symptoms, the health care providers can pay more attention to these factors during hospitalization and medical procedures.

Hypotheses

To summarize, little is known about the risk factors and predictors of posttraumatic stress symptoms in children with burns. The aim of this study is to determine whether pain catastrophizing and pain-related anxiety are risk factors for posttraumatic stress symptoms in children who have been hospitalized for burns. We examine the relationship between pain catastrophizing, pain-related anxiety, and posttraumatic stress symptoms in the first month and at 3 months postburn. We will also examine the influence of these two variables on the course of the posttraumatic stress symptoms.

In this study, we hypothesized that:

1. *There is a positive correlation between pain catastrophizing and posttraumatic stress symptoms. The more children catastrophize about their pain, the higher the score on posttraumatic stress symptoms.*
2. *More pain-catastrophizing is associated with a smaller decrease in posttraumatic stress symptoms.*
3. *There is a positive correlation between pain-related anxiety and posttraumatic stress scores. The more children report pain-related anxiety, the higher the score on posttraumatic stress symptoms.*
4. *Higher pain-related anxiety scores are associated with a smaller decrease in posttraumatic stress symptoms.*

Furthermore, we explored the interrelation between the variables with structural equation modeling. Premorbid emotional symptoms, age, gender, and injury severity were also included in this model, to correct for potential confounding effects. Figure 1 shows the hypothesized model. The same model was tested for T2 and the course of the posttraumatic stress symptoms (PTSS) between T1 and T2.

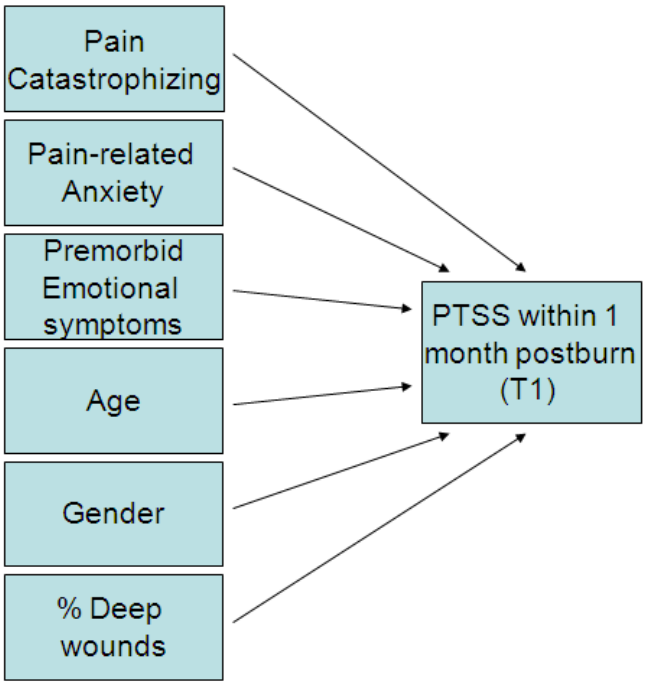

Figure 1. Schematic view of the tested model.

Methods

This study is part of a larger longitudinal study, in which three burn centres are located in the Netherlands, and four in Belgium. This longitudinal study investigates the psychosocial consequences of a pediatric burn event in children between 8 and 18 years old. The present study examines whether pain catastrophizing and pain-related anxiety are risk factors for posttraumatic stress symptoms in children who have been hospitalized for burns.

The Independent Ethics Committees of the Foundation 'Evaluation of Ethics in Biomedical Research' and 'Committee Medical Ethics of University Hospital' nationally approved this study in the Netherlands and Belgium. Local approval was obtained from all seven burn centres (Beverwijk, Groningen, and Rotterdam; Gent, Leuven, Antwerp and Brussels).

Procedure

Local researchers informed eligible parents and children about the study and handed additional written information. Families had 30 days to consider their participation. The first point of measurement (T1) was scheduled within the first month and consisted of an interview and questionnaires, i.e. the Burn Specific Pain Anxiety Scale for Children (BSPAS-C), Pain Catastrophizing Scale for Children (PCS-C) and Children's Responses to Trauma Inventory (CRTI), self-report version. At 3 months postburn, children completed the CRTI for the second time (T2). All parents and children (12 years and older) signed an informed consent form.

Participants

For the purpose of this study, we analyzed data from 100 children. Criteria for including participants in the study were 1) children between 8 and 18 years old with acute burns hospitalized in the participating burn centres, 2) minimal length of stay in the hospital $\geq$ 24 hours and 3) sufficient Dutch proficiency to understand and complete the questionnaires. Criteria for excluding the child were 1) children < 8 years old or $\geq$ 18, 2) children and/or parents with a poor understanding of the Dutch language thereby making them unable to understand and complete the relevant questionnaires, 3) children with inhalation injury only, 4) children with severe mental retardation and 5) deceased children.

Not all enrolled children completed the questionnaire at T1. These children are not included in the present analyses. Figure 2 shows the number of children hospitalized and the number and reasons for including and excluding these children.

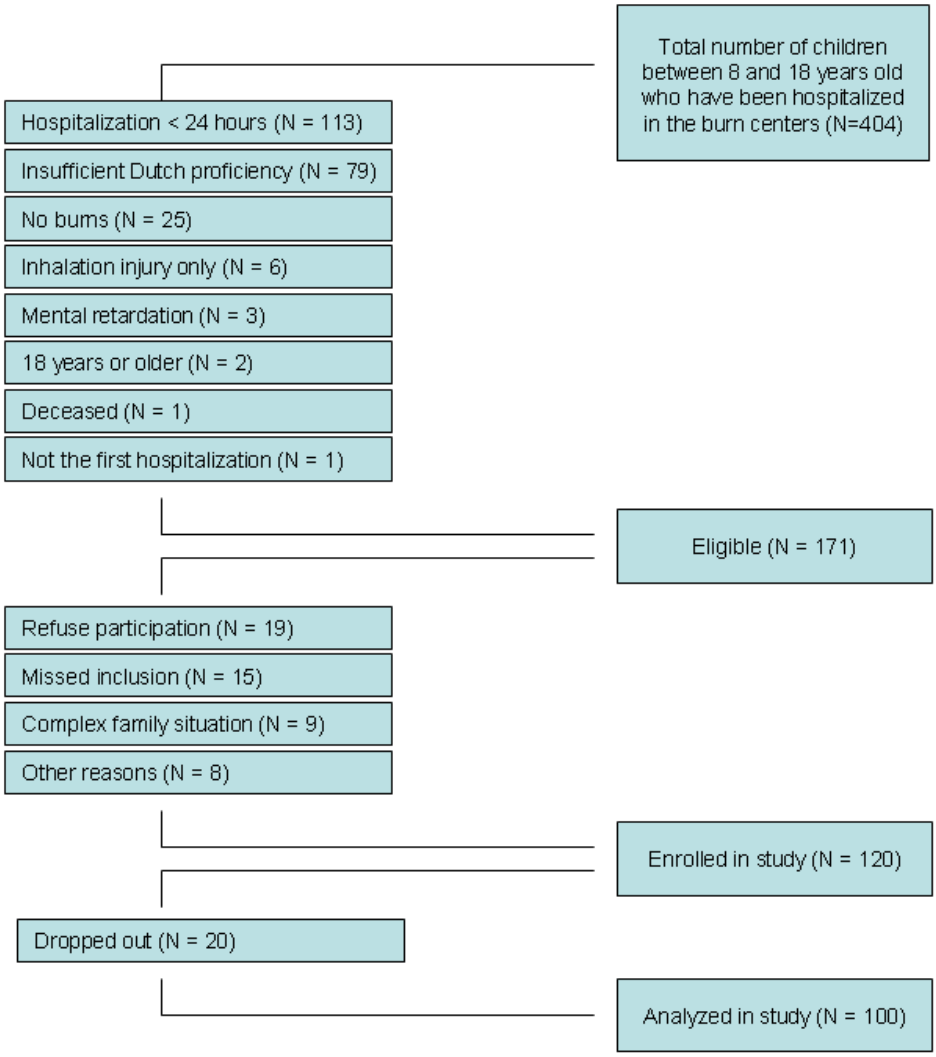

Figure 2. Overview of the participants

Independent samples T-tests were used to examine whether the children who were enrolled in the study differ from the children who were eligible but did not participate. There were no differences between the enrolled group (n = 120, see Figure 1) and the eligible but not participating group (n = 51), in terms of gender $t(162) = .20$, $p = .85$, age $t(164) = 1.99$, $p = .50$, length of stay in the hospital $t(163) = -1.19$, $p = .12$, percentage total burned surface area (TBSA) $t(160) = .1.03$, $p = .23$, percentage deep wounds $t(147) = -.14$, $p = .74$, and the number of surgeries $t(146) = .17$, $p = .87$.

Similarly, for the 100 children who completed the questionnaires at T1 and the eligible children that did not participate (n = 71), there were no differences regarding age ($t(164) = 1.84$, $p = .07$), gender ($t(162) = .22$, $p = .83$), burn characteristics (length of stay $t(163) = .19$ $p = .85$, TBSA $t(160) = .17$, $p = .87$, percentage deep wounds $t(147) = .79$, $p = .43$ and the number of surgeries $t(146) = 1.04$, $p = .30$).

Table 1 shows the characteristics of the children who are analyzed in this study. As can be seen, some characteristics of the children were not known. Table 1 shows that the boys and girls do not differ from each other on any characteristic.

Table 1: Descriptives of participating children

	Total	Boys	Girls	Difference between boys and girls
N	N = 100	N = 72	N = 28	
Age	12.8 years	13.1 years	12 years	$t(94) = 1.67$, $p = .10$
Length of stay	17.7 days	18.5 days	15.5 days	$t(93) = .43$, $p = .56$
TBSA	8.7 %	8.8 %	8.3 %	$t(94) = .21$, $p = .84$
% Deep wounds	3.9 %	3.8 %	3.8 %	$t(93) = .05$, $p = .97$
Surgeries	0.95	1	0.84	$t(93) = .32$, $p = .75$

Instruments

Children's Responses to Trauma Inventory (CRTI)

The CRTI is a self-report measure for posttraumatic stress reactions in children. This questionnaire is originally developed by Eland & Kleber in 1996. In this study we used the revised version from Alisic, Eland, & Kleber (2006). Children were asked to indicate to what extent a reaction to a traumatic event was present during the past 7 days. The questionnaire consists of 34 items. An example of an item is: 'Think about last week. Did you prefer talking about other things than the event?' The items are measured on a 5-point Likert scale, where 1 is 'not at all or never' and 5 is 'very much or always'. Scores on the total scale can range from 34 to 170. Higher scores indicate greater symptomatology (Alisic & Kleber, 2010). The questionnaire has four subscales; 1) intrusion, 2) avoidance, 3) arousal and 4) other child-specific reactions. The psychometric properties were good to excellent. The internal consistency of the CRTI was good to excellent with a Cronbach's alpha for the total measure of .92 (Alisic, Eland, Huijbregts, & Kleber, 2011).

Pain Catastrophizing Scale - Children (PCS - C)

The original version, the PCS, was developed by Sullivan, Bishop and Pivik in 1995 (Sullivan, Bishop, & Pivik, 1995). Crombez and colleagues developed an adapted version for children (PCS-C) and this questionnaire consists of 13 items (Crombez et al., 2003). Participants are asked to reflect on past painful experiences and to indicate the degree to which they experienced thoughts or feelings during pain on a five-point scale, ranging from 0 (not at all) to 4 (a lot). The scale consist of three subscales, i.e. 'rumination', 'magnification' and 'helplessness' (Severeijns et al., 2002). An example of an item of the PCS-C is 'The pain is terrible and I think it never will be better'.

A factor analysis of the PCS-C performed by Crombez and colleagues showed that the three-factor model explained the data significantly better than the one- and two-factor models (RMSEA = 0.057 and CFI = 0.91). These results show that the PCS-C is a valid and stable instrument for assessing catastrophic thinking about pain in children and adolescents (Crombez et al., 2003).

We performed a confirmatory categorical factor analysis with Mplus version 6.1, to test if the three factor model also adequately fitted the data in this study. Three fit indices were examined to evaluate the fit of each model. These indices are 'root mean square error of approximation' (RMSEA) (<.10: reasonable fit, <.05: good fit), 'comparative fit index' (CFI) (>.90: reasonable fit, >.95 good fit) and Tucker-Lewis fit index (TLI) (>.90: reasonable fit, >.95 good fit). The analysis showed results comparable to Crombez et al., (RMSEA = 0.067, CFI = 0.979 and TLI = 0.975). The reliability of the questionnaire was good, with a Cronbach's alpha of .89. The PCS-C was completed at T1.

Burn Specific Pain Anxiety Scale – Children (BSPAS-C)

This questionnaire is derived from the Burn Specific Pain Anxiety Scale, developed by Taal and Faber. This is a nine-item self-rating scale for detecting feelings of anxiety and worry in adult patients with burns. An example of an item is: ''I'm afraid for the pain of the wound care'. The reliability and validity of this scale are good (Taal & Faber, 1997a). For the present study, an adapted version for children is developed. This questionnaire has 5 items and is measured on a 4-point Likert scale. A higher score on this scale indicates more anxiety. Because the psychometric properties of this scale were not examined yet, we performed a confirmatory categorical factor analysis in M-plus with categorical data. Results of this factor analysis confirmed the hypothesized one-factor structure: RMSEA = 0.084, CFI = 0.987 and TLI = 0.975. Reliability of the questionnaire was good, with a Cronbach's alpha of .79. The BSPAS-C was completed at T1.

Strength and Difficulties Questionnaire (SDQ)

The SDQ is a brief behavioral screening questionnaire developed by Goodman (1997) and has 5 subscales (Goodman, 1997). In this study, we used the subscale 'emotional symptoms' as an indicator of premorbid emotional symptoms of the child. This scale is included as a control variable, because the degree of emotional symptoms prior to the burn event may influence the degree of anxiety symptoms after the injury. The SDQ was completed at T1 by the parent of the child.

Demographic data and injury severity

Child characteristics, such as age and gender, were recorded from the medical file. Total burned surface area (TBSA) was used as an indicator of injury severity. TBSA is the sum of the estimated percentage of partial and full thickness burns (Van Loey & Van Son, 2003). One hand with fingers closed, corresponds to 1% TBSA (Brand-Van Tilburg et al., 2000). TBSA includes all the second and third-degree burns. Percentage deep wounds contents the percentage of only the full thickness burns.

Statistical analyses

SPSS version 17.0 (SPSS Inc, Chicago, IL, USA) was utilized to analyze the hypotheses as described in the introduction. Group comparisons were performed with an independent sample t-test. The relationship between the outcome variable (posttraumatic stress symptoms) and hypothesized impacting variables (pain-catastrophizing and pain-related anxiety), while controlling for child and burn characteristics, was tested with multiple regression analyses. Mplus was used to carry out factor analyses and model testing. Mplus is a statistical modeling program, which has special features for missing data, complex survey data, and multilevel data (Muthén & Muthén, 2010). For further explanation about Mplus, see Mplus Users Guide, sixth edition (Muthén & Muthén, 2010).

Results

Posttraumatic stress symptoms, pain catastrophizing and pain-related anxiety in children with burns

To examine the posttraumatic stress symptoms, pain catastrophizing and pain-related anxiety among the children in the seven burn centres, respectively the CRTI, the PCS and the BSPAS-C were used. Table 2 shows the mean scores.

Table 2. Mean scores of posttraumatic stress symptoms (PTSS), pain catastrophizing and pain-related anxiety

	N	M (SD)	Range
PTSS T1	100	65.45 (16.82)	34 - 109
PTSS T2	69	58.71 (19.85)	33 - 131
PTSS T2-T1	69	-5.51 (19.28)	-46 - 50
Pain catastrophizing	99	23.98 (8.87)	13 - 53
Pain-related anxiety	97	7.69 (6.11)	0 - 25

Based on the scoring instructions in the revised manual of the CRTI (Alisic, Eland, Huijbregts & Kleber, 2011) [1], 8 out of 100 children scored an indication for PTSD at T1. At T2, 2 out of 69 children met this indication. These 2 children had not an indication for PTSD at measure point 1.

The children in this study had lower scores than the norm group as published in the CRTI manual (see table 3). Normative data were derived from a group of children with different kind of trauma's, for instance sexual violence (45.3%), (traffic)accidents (38.1%), and lost or injured loved one (10.4%). The mean interval between experiencing the trauma and filling in the questionnaire was 461 days (SD = 920, range 2-5631 days) (Alisic, Eland, Huijbregts, & Kleber, 2011).

Table 3. Mean scores of posttraumatic stress symptoms among children with burns compared to normative data

	Norm group	Analyzed group T1	Analyzed group T2
8 – 12 years old	73.27	68.34	64.60
13 – 18 years old	95.50	61.31	52.58

[1] For scoring the CRTI we used the presence of number of symptoms in the subscales. When a child scored in the subscale 'intrusion' at least 1 time score 4 or 5, in 'avoidance' at least 3 times score 4 or 5 and in 'arousal' at least 2 times score 4 or 5, the child met the indication for PTSD.

Relationship between pain catastrophizing, pain-related anxiety and posttraumatic stress symptoms

Table 4 demonstrates the correlation between posttraumatic stress symptoms, pain-related anxiety, pain catastrophizing and child- and burn characteristics. Posttraumatic stress symptoms at T1 were related to premorbid emotional symptoms, pain-related anxiety, pain catastrophizing, posttraumatic stress symptoms at T2 and the difference score of posttraumatic stress symptoms between T2 and T1. There was no relation between posttraumatic stress symptoms at T1 and gender, age and percentage deep wounds. Posttraumatic stress symptoms at T2 were related to premorbid emotional symptoms, pain-related anxiety, pain catastrophizing, posttraumatic stress symptoms at T1, the difference score of posttraumatic stress symptoms between T2 and T1 and age. Posttraumatic stress symptoms at T2 did not correlate with gender and percentage deep wounds. There was no relation between the difference score of posttraumatic stress symptoms between T2 and T1 and any of the variables of child and burn characteristics.

Table 4. Correlation matrix of the analyzed variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. CRTI T1	1	.42**	.36**	.52**	.52**	-.17	.10	.09	.22*
2. CRTI T2	-	1	.68**	.28*	.51**	-.28*	.04	.06	.27*
3. CRTI difference score	-	-	1	-.10	.11	-.13	.01	.08	.12
4. BSPAS-C	-	-	-	1	.51**	.28**	.14	.08	.17
5. PCS	-	-	-	-	1	-.25*	.03	.16	.02
6. Age	-	-	-	-	-	1	.17	.05	.22*
7. Gender	-	-	-	-	-	-	1	.01	.05
8. Percentage deep wounds	-	-	-	-	-	-	-	1	-.05
9. SDQ: Emotional symptoms scale	-	-	-	-	-	-	-	-	1

Note. CRTI = Children's Responses to Trauma Inventory ; BSPAS-C = Burn Specific Pain Anxiety Scale; PCS = Pain Catastrophizing Scale; SDQ = Strength and Difficulties Questionnaire.
*p<.05, **p<.01.

Influence of pain catastrophizing and pain-related anxiety on posttraumatic stress symptoms

Regression analyses shows that, when controlling for age, gender, percentage deep wounds and the emotional symptom scale of the SDQ, pain-related anxiety had no significant effect on posttraumatic stress symptoms at T1 (p =.24), T2 (p = .82) and the course of posttraumatic stress symptoms (p = .17). Differently, controlling for child and burn characteristics, pain catastrophizing was a good predictor for posttraumatic stress symptoms at T1 (β = .47, p = .00) and T2 (β = .51, p = .00). This was not the case for the course of the symptoms (p =.14).

Model testing

Results from the regression analyses showed that pain catatrophizing, but not pain-related anxiety, was directly related to posttraumatic stress symptoms after a burn injury. Possibly, pain-related anxiety has an indirect effect on posttraumatic stress symptoms. To examine how pain catastrophizing and pain-related anxiety interrelate to posttraumatic stress symptoms, we tested several models in Mplus using structural equation modeling (SEM).

We first analyzed what direction and connection pain-related anxiety and pain catastrophizing had on posttraumatic stress symptoms, without all the other variables. Results indicated that a model with pain-related anxiety influencing catastrophizing, which in turn influenced posttraumatic stress symptoms fitted the data best. Although fit indices were not good (see Table 5) this model constitutes the basis for further analysis.

By adding the child and burn characteristics, the model showed better fit for posttraumatic stress symptoms at T1. The best model for the data in this study is shown in Figure 3. This model shows that pain catastrophizing is a mediator for the relation between pain-related anxiety and posttraumatic stress symptoms, when controlling for the other variables. This indicates that when a child scores high on pain-related anxiety, the risk for developing posttraumatic stress symptoms increases when the child also catastrophizes about pain. For posttraumatic stress symptoms at T2, the same model showed a good fit to the data and β-values for this model were approximately similar to the model for posttraumatic stress symptoms at T1.[2]

To predict the change in posttraumatic stress symptoms between T2 and T1, we analyzed the posttraumatic stress symptoms at T2, while controlling for the score at T1. As can be seen in Table 5, the model for the change in posttraumatic stress symptoms between T2 and T1 did not fit the data well. By testing more models in Mplus, it seems that an model in which there is an indirect effect of pain catastrophizing on posttraumatic stress scores via T1, fits better. To examine how this connection works and what model fits best for the course of the symptoms is beyond the scope of this thesis.

[2] β-values for PTSS at T2: pain catastrophizing: .54, pain-related anxiety: .48, premorbid emotional symptoms: -.04, age: -.11, gender: -.01 and percentage deep wounds: .15.

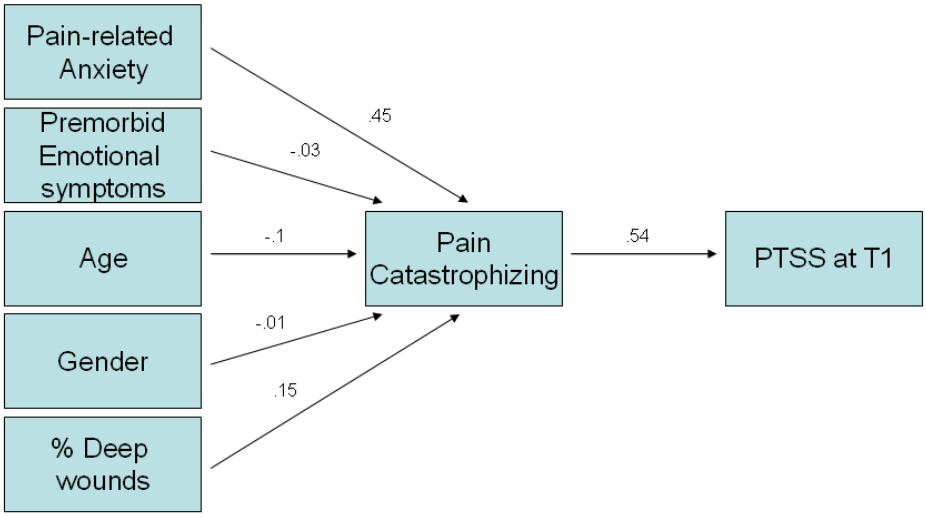

Figure 3. Final model for posttraumatic stress symptoms within one month postburn.

Table 5. Tested models in Mplus

Model	N	P-value Chi-Square	TLI	CFI	RMSEA	AIC	BIC	R square
P-A → P-C → PTSS T1		.001	.626	.875	.299	1485	1500	
P-A-C → P-C → PTSS T1 Age → Gender → % Deep → PEs →	83	.302	.953	.979	.05	1242.100	1266.288	PTSS T1: 28.9% P-C: 27.9%
P-A-C → P-C → PTSS T2 Age → Gender → % Deep → PEs →	83	.258	.923	.965	.061	1115.433	1139.621	PTSS T2: 28.7% P-C: 27.8%
P-A → P-C → PTSS T2 → PTSS T1 Age → Gender → % Deep → PEs →	83	.001	.396	.722	.188	1113.111	1139.719	PTSS T2: 28.8% P-C: 27.7%

Note: P-A = Pain-related anxiety; P-C = Pain catastrophizing; PTSS = Posttraumatic stress symptoms; PEs = Premorbid emotional symptoms.

Fit indices in SEM: P-value Chi-Square n.s., TLI >.90=acceptable/.95=good, CFI > .90=acceptable/.95=good, RMSEA <.10=acceptable/.05=good, AIC and BIC minimize.

Discussion

The aim of this study was to investigate the relationship between pain catastrophizing, pain-related anxiety and posttraumatic stress symptoms in children with burns. To our knowledge, this had not been examined in children. Because not all children with burns develop posttraumatic stress symptoms, it is important to determine what factors can increase the risk of developing these symptoms.

Influence of pain catastrophizing and pain-related anxiety on posttraumatic stress symptoms

In accordance with our hypothesis, pain catastrophizing did have an effect on posttraumatic stress symptoms. Results showed that the more a child catastrophizes about pain, the more posttraumatic stress symptoms the child experienced at T1 and T2. This is consistent with previous studies, which noted a relationship between pain catastrophizing and emotional distress (Severeijns et al., 2002; Sullivan et al., 2001). However, our finding is not in line with a study among adults performed by Martin et al. (2011) who suggested that pain catastrophizing had no direct effect on posttraumatic stress symptoms (Martin et al., 2011). Catastrophizing about pain had no influence on the course of the symptoms in our study.

Our results show that pain-related anxiety had no direct significant effect on the posttraumatic stress symptoms, neither within one and three months postburn nor on the course of the symptoms. This indicates that the degree of how anxious a child is about pain or pain-related events, has no direct influence on the amount of posttraumatic stress symptoms they experience. This is not consistent with our hypotheses and other studies (Martin et al., 2011; Taal & Faber, 1997b; Van Loey et al., 2003).

However, model testing demonstrated an indirect effect of pain-related anxiety on posttraumatic stress symptoms via pain catastrophizing. So, pain catastrophizing serves a mediator for the relationship between pain-related anxiety and posttraumatic stress symptoms. This indicates that when a child is anxious about pain, this is a risk factor for posttraumatic stress symptoms if the child also catastrophizes about pain. Oppositely, Martin and colleagues (2011) found no effect of pain catastrophizing but an effect of pain-related anxiety on posttraumatic stress symptoms, and they suggest a possible indirect effect of pain catastrophizing on posttraumatic stress symptoms via pain-related anxiety (Martin et al., 2011).

The cognitive model by Ehlers and Clark (2000) supports our findings on both the direct effect of pain catastrophizing on posttraumatic stress symptoms and pain catastrophizing serving as

a mediator between pain-related anxiety and posttraumatic stress symptoms. From this view, pain catastrophizing involves negative thoughts about the consequences of the injury, the pain children experience and their future. These negative thoughts lead to current threat and to maladaptive strategies to control threat and stress symptoms (Ehlers & Clark, 2000). Therefore, in children who are more anxious about pain or pain-related events, these anxious feelings will be accelerated by the catastrophic thoughts they have. Eventually, they will experience more stress symptoms than children who do not have those catastrophic thoughts.

Posttraumatic stress symptoms

In this study, 8% of the children had scores that were indicative for PTSD within one month postburn and 3% at 3 months postburn. Notably, the children who scored an indication for PTSD at 3 months postburn, did not score this indication in the first month postburn. Among the 8% of the children who met the indication for PTSD within one month postburn, the posttraumatic stress symptoms decreased. Also, the overall average posttraumatic stress symptoms decreased slightly. This is consistent with previous research (Horowitz, 1986); Le Brocque, Hendrikz & Kenardy, 2009).

Compared to normative data, children in this study experienced on average less posttraumatic stress symptoms. This may be due to the fact that the norm group mainly consist of children who were already clinically referred to a psychotrauma centre. So, of all the children who experienced a potentially traumatic event, only the children who needed psychological help were included in the norm group. This is a big difference with the children in our sample in which almost every child with burns could be included, and not only the severe injured children. Besides this, an explanation for the lower scores on posttraumatic stress symptoms among children in this study compared to the norm group, may be that the norm group consisted to a large extent (45.3%) of children who experienced sexual violence. It has been reported that victims of sexual violence experience great posttraumatic stress symptoms. Copeland, Keeler, Angold and Costello (2007) examined posttraumatic stress symptoms among 1420 children who experienced several trauma's. In accordance with earlier findings, their results showed that children who experienced violent events or sexual trauma reported the highest rates of posttraumatic stress symptoms compared to other trauma's such as physical illness or a fire accident (Copeland, Keeler, Angold and Costello, 2007).

Children in this study also report less posttraumatic stress symptoms than in other studies among burn injured adults and children. A review shows a prevalence of PTSD in adults within one

month postburn ranging from 2.2% to 26%. The prevalence described in this review of PTSD between two and four months postburn ranged from 8,9% to 54% (Van Loey & Van Son, 2003). In a study of Saxe and colleagues in 2005, 72 children between 7 and 17 years old participated. Results show that 31% met full criteria for acute stress disorder within two weeks postburn.

It is important to consider that the indication for PTSD in our study was based on the presence of a minimum number of symptoms in the subscales. This means that children scoring just below the minimum number of symptoms in one of the subscales, did not score an indication for PTSD, while they might show little differences with children who did receive the indication for PTSD.

As described earlier, the children who scored an indication for PTSD at 3 months postburn, did not score this indication in the first month postburn. The children who met the indication for PTSD at T2 but did not at T1, might suffer from PTSD with a delayed onset. Although these children do not meet the criteria for PTSD with delayed onset according to the DSM-IV, which describes that at least 6 months have passed between the traumatic event and the onset of the symptoms (DSM-IV, 2000), the symptoms increase over time. Ehlers and Clark (2000) suggest that the delay occurs either because some later event gives the original trauma or its sequelae a much more threatening meaning or because some of the stimuli that are particularly potent reminders of the traumatic event were not available until some times afterwards (Ehlers & Clark, 2000). In this study, possibly the long-lasting pain, possible surgeries, and the number of wound care procedures can cause an increase in posttraumatic stress symptoms. Furthermore, it could be that once children return to home within three months postburn, they are more reminded to the trauma which increases the posttraumatic stress symptoms.

Limitations and future directions

This study has some limitations that merit note. First is the exclusion of children who do not sufficiently speak the Dutch language. As can be seen in Figure 2 in the Methods section, almost 20% of the excluded children were due to insufficient Dutch proficiency. For this reason it is important for future studies to include the total population of children with burns. Of the 79 children who were excluded because of insufficient Dutch proficiency, 48 children were French speaking children from the burn centre in Brussels. A large part of the other 31 children consists of immigrants in Belgium and the Netherlands. A possible solution for this problem would be translated questionnaires. By solving this problem, the sample would be bigger and the results would be more generalizable to the total Dutch and Belgian burn population.

Further, the analyzed group consists of 100 children. However, only 69 of these children filled in the questionnaire at T2. The size of the sample is adequate, but the power of this study would increase if all the 100 children filled in the questionnaire at T2. Also, pain catastrophizing and pain-related anxiety were only measured at T1. Perhaps, these scores increase after T1 because of the number of wound dressing changes and they may undergo extensive surgery. Future studies might address this issue and measure pain catastrophizing and pain-related anxiety also at a later point in time after the burn event.

A possible important factor that might influence pain-related anxiety and pain catastrophizing is anxiety sensitivity. Martin and colleagues define anxiety sensitivity as ‘’the fear of anxiety-related sensations, for example rapidly beating heart, based on the belief that these sensations will have harmful consequences’’ (Martin et al., 2010, p. 518). In their study, they found that anxiety sensitivity has a direct effect on both fear of pain and catastrophizing. In this study we included the score of the emotional symptoms scale of the SDQ. This scale measures premorbid emotional problems and contains the factors fear and worries (Goodman, 2001). However, this is not a measurement for anxiety sensitivity. Future research could include anxiety sensitivity as an impacting variable to examine how this factor is related to pain-related anxiety, pain catastrophizing and posttraumatic stress symptoms in children with burns.

Another factor that should be included in future research is ‘pain intensity’. As described in the Introduction, burns cause severe pain and the treatment procedures can be very painful as well. The pain a child experiences after the accident and during treatments may induce psychopathological responses such as posttraumatic stress symptoms (Langeland & Olff, 2008). It is also plausible that pain induces pain-related anxiety and pain catastrophizing. If a child experiences a lot of pain, he or she could be intimidated by wound dressing changes and could think more negatively about the recovery of the burns.

Implications

Notwithstanding the limitations, this study is, to our knowledge, the first study that examined the influence of pain catastrophizing and pain-related anxiety on posttraumatic stress symptoms in children who have been hospitalized for burns. Our results add valuable knowledge for the treatment of children after a burn injury. Pain-catastrophizing may be an important point of attention for all who work with burn injured children (in the hospital). If it appears that a child tends to catastrophize about his or her pain, nurses or therapists can pay more attention to this. Ehlers and Clark suggest that problematic appraisals about the traumatic event should be modified

through, for example, cognitive behavioral therapy, in order to decrease the sense of current threat (Ehlers & Clark, 2000). An earlier intervention on pain catastrophizing, could contribute to less posttraumatic stress symptoms in the acute aftermath of a burn event.

Conclusion

In conclusion, this study provides valuable insights for exploring risk factors for posttraumatic stress symptoms in children with burns. Our results indicate the important role of pain catastrophizing on the level of posttraumatic stress symptoms within three months after the burn injury. The study may direct further research on traumatic stress after a pediatric trauma. But, in my view, most important is that the study is useful to improve clinical treatment for children with burns.

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Appendix A: Children's Responses to Trauma Inventory (CRTI)

Denk aan de afgelopen week ...		niet of nooit	bijna niet of bijna nooit	een beetje of soms	nogal of redelijk vaak	heel erg of altijd
1.	Moest je aan de gebeurtenis denken?	○	○	○	○	○
2.	Was je bang als je aan de gebeurtenis dacht?	○	○	○	○	○
3.	Voelde je je lichamelijk naar als iets je deed denken aan de gebeurtenis? (bijvoorbeeld dat je ging zweten of dat je hart bonkte)	○	○	○	○	○
4.	Was je bang als je iets of iemand zag die met de gebeurtenis te maken had?	○	○	○	○	○
5.	Heb je akelige dromen gehad?	○	○	○	○	○
6.	Heb je nagespeeld wat er is gebeurd?	○	○	○	○	○
7.	Leek het alsof de gebeurtenis opnieuw plaatsvond?	○	○	○	○	○

Denk aan de afgelopen week ...		niet of nooit	bijna niet of bijna nooit	een beetje of soms	nogal of redelijk vaak	heel erg of altijd
8.	Wilde je liever over andere dingen dan de gebeurtenis praten?	○	○	○	○	○
9.	Probeerde je aan andere dingen dan de gebeurtenis te denken?	○	○	○	○	○
10.	Probeerde je weg te blijven van dingen of plaatsen of mensen die je deden denken aan de gebeurtenis?	○	○	○	○	○
11.	Probeerde je te ontkennen dat het is gebeurd?	○	○	○	○	○
12.	Had je het gevoel dat je de hechte band met mensen om je heen kwijt was?	○	○	○	○	○

Denk aan de afgelopen week ...	niet of nooit	bijna niet of bijna nooit	een beetje of soms	nogal of redelijk vaak	heel erg of altijd
13. Vond je het moeilijk om je belangrijke dingen uit de gebeurtenis te herinneren?	O	O	O	O	O
14. Vond je het saai of vervelend om met hobby's bezig te zijn die je eerst leuk vond?	O	O	O	O	O
15. Vond je het saai of vervelend om met vrienden op te trekken?	O	O	O	O	O
16. Voelde je je anders dan andere kinderen/jongeren?	O	O	O	O	O
17. Heb je je gevoelens verborgen?	O	O	O	O	O
18. Dacht je negatief over je toekomst?	O	O	O	O	O

Denk aan de afgelopen week ...	niet of nooit	bijna niet of bijna nooit	een beetje of soms	nogal of redelijk vaak	heel erg of altijd
19. Vond je het moeilijk om je te concentreren?	O	O	O	O	O
20. Had je slaapproblemen?	O	O	O	O	O
21. Was je boos op anderen?	O	O	O	O	O
22. Schrok je snel? (bijvoorbeeld van plotselinge harde geluiden)	O	O	O	O	O
23. Heb je ruzie gehad?	O	O	O	O	O
24. Hield je in de gaten of er gevaar dreigde?	O	O	O	O	O

Denk aan de afgelopen week ...	niet of nooit	bijna niet of bijna nooit	een beetje of soms	nogal of redelijk vaak	heel erg of altijd
25. Heb je gehuild?	O	O	O	O	O
26. Voelde je je schuldig over dingen uit de gebeurtenis?	O	O	O	O	O
27. Had je lichamelijke klachten? (bijvoorbeeld buikpijn of hoofdpijn)	O	O	O	O	O
28. Was je moe?	O	O	O	O	O
29. Deed je dingen waar je vroeger al mee opgehouden was? (bijvoorbeeld duimzuigen, nagelbijten)	O	O	O	O	O
30. Was je onvoorzichtig?	O	O	O	O	O
31. Vond je het moeilijk wanneer je vader of moeder wegging?	O	O	O	O	O
32. Was je bang voor het donker?	O	O	O	O	O
33. Was je bang om 's nachts naar de wc te gaan?	O	O	O	O	O
34. Voelde je je verdrietig?	O	O	O	O	O

Appendix B: Pain Catastrophizing Scale - Children (PCS - C)

Vragenlijst gedachten en gevoelens bij pijn (PCS-C)

Instructie
Wij willen graag weten wat jij denkt en voelt als je pijn hebt. Hieronder staan zinnen die verschillende gedachten en gevoelens beschrijven die mogelijk met pijn te maken hebben. Probeer aan te geven hoe goed ze weergeven wat jij denkt en voelt als je pijn hebt door onder elke zin het best passende te omcirkelen.

Ik vraag mij voortdurend af of de pijn wel zal ophouden

Helemaal niet een beetje nogal erg heel erg

Door de pijn heb ik het gevoel dat het zo niet verder kan

Helemaal niet een beetje nogal erg heel erg

De pijn is verschrikkelijk en ik denk dat het nooit beter zal worden.

Helemaal niet een beetje nogal erg heel erg

De pijn is afschuwelijk en ik voel dat de pijn mij helemaal de baas is.

Helemaal niet een beetje nogal erg heel erg

Door de pijn heb ik het gevoel dat ik het niet meer uithoud.

Helemaal niet een beetje nogal erg heel erg

Ik ben bang dat de pijn erger zal worden

Helemaal niet een beetje nogal erg heel erg

Door de pijn blijf ik denken aan andere pijnlijke gebeurtenissen

Helemaal niet een beetje nogal erg heel erg

Ik verlang hevig dat de pijn weggaat

Helemaal niet een beetje nogal erg heel erg

Ik kan de pijn niet uit mijn gedachten zetten

Helemaal niet een beetje nogal erg heel erg

Ik blijf denken hoeveel pijn het wel doet

Helemaal niet een beetje nogal erg heel erg

Ik blijf denken hoe graag ik zou willen dat de pijn ophoudt

Helemaal niet een beetje nogal erg heel erg

Ik kan niets doen om de pijn te stoppen

Helemaal niet een beetje nogal erg heel erg

Door de pijn vraag ik mij af of er iets ernstigs kan gebeuren

Helemaal niet een beetje nogal erg heel erg

Ziekenhuis -Vragenlijst voor Kinderen (BSPAS-A - Child)

Wat moet je doen ?

Hieronder staan zinnen die jongens en meisjes die in het ziekenhuis worden behandeld soms gebruiken als ze willen zeggen hoe ze zich voelen.

Lees elke zin heel goed en kruis het vakje aan van hoe jij je **op dit moment** voelt.

1. Wanneer de wonden worden verzorgd kan ik me:	☐ ontspannen	☐ niet zo goed ontspannen	☐ moeilijk ontspannen	☐ helemaal niet ontspannen
2. De pijn maakt me:	☐ helemaal niet nerveus en onrustig	☐ een beetje nerveus en onrustig	☐ nogal nerveus en onrustig	☐ heel erg nerveus en onrustig
3. Ik voel dat mijn spieren zich spannen wanneer de wondverzorging echt begint	☐ voel ik helemaal niet	☐ voel ik een beetje	☐ voel ik nogal	☐ voel ik heel erg
4. Ik ben bang voor de pijn van de wondverzorging	☐ ben helemaal niet bang	☐ ben een beetje bang	☐ ben nogal bang	☐ ben heel erg bang
5. Bij alles wat ze in het ziekenhuis met me doen moet ik denken aan de pijn die ik er misschien van zal krijgen	☐ denk helemaal niet aan de pijn	☐ denk een beetje aan de pijn	☐ denk redelijk veel aan de pijn	☐ denk heel veel aan de pijn

Appendix D: Strength and Difficulties Questionnaire (SDQ)

SDQ - Sterke Kanten en Moeilijkheden - Vragenlijst voor Ouders

Strenghts and Difficulties Questionnaire

Wilt u alstublieft voor iedere vraag een kruisje zetten in het vierkantje voor "niet waar", "een beetje waar" of "zeker waar". Het is van belang dat u alle vragen zo goed mogelijk beantwoordt, ook als u niet helemaal zeker bent of als u de vraag raar vindt.
Wilt u alstublieft uw antwoorden baseren op het gedrag van uw kind in de laatste zes maanden.

Naam van uw kind: _____ ☐ jongen ☐ meisje Geboortedatum: ____/____/____ dag maand jaar

School: _____

Datum: ____/____/____ dag maand jaar

Mijn kind:	niet waar	een beetje waar	zeker waar
1. Houdt rekening met gevoelens van anderen	☐	☐	☐
2. Is rusteloos, overactief, kan niet lang stilzitten	☐	☐	☐
3. Klaagt vaak over hoofdpijn, buikpijn, of misselijkheid	☐	☐	☐
4. Deelt makkelijk met andere kinderen (bijvoorbeeld speelgoed, snoep, potloden, enz.)	☐	☐	☐
5. Heeft vaak driftbuien of woede-uitbarstingen	☐	☐	☐
6. Is nogal op zichzelf, neigt er toe alleen te spelen	☐	☐	☐
7. Is doorgaans gehoorzaam, doet gewoonlijk wat volwassenen vragen	☐	☐	☐
8. Heeft veel zorgen, lijkt vaak over dingen in te zitten	☐	☐	☐
9. Is behulpzaam als iemand zich heeft bezeerd, van streek is of zich ziek voelt	☐	☐	☐
10. Is constant aan het wiebelen of wriemelen	☐	☐	☐
11. Heeft minstens één goede vriend of vriendin	☐	☐	☐
12. Vecht vaak met andere kinderen of pest ze	☐	☐	☐
13. Is vaak ongelukkig, in de put of in tranen	☐	☐	☐
14. Wordt over het algemeen aardig gevonden door andere kinderen	☐	☐	☐
15. Is gemakkelijk afgeleid, heeft moeite om zich te concentreren	☐	☐	☐
16. Is zenuwachtig of zich vastklampend in nieuwe situaties, verliest makkelijk zelfvertrouwen	☐	☐	☐
17. Is aardig tegen jongere kinderen	☐	☐	☐
18. Liegt of bedriegt vaak	☐	☐	☐
19. Wordt getreiterd of gepest door andere kinderen	☐	☐	☐
20. Biedt vaak vrijwillig hulp aan anderen (ouders, leerkrachten, andere kinderen)	☐	☐	☐
21. Denkt na voor iets te doen	☐	☐	☐
22. Pikt dingen thuis, op school of op andere plaatsen	☐	☐	☐
23. Kan beter opschieten met volwassenen dan met andere kinderen	☐	☐	☐
24. Is voor heel veel bang, is snel angstig	☐	☐	☐
25. Maakt opdrachten af, kan de aandacht goed vasthouden	☐	☐	☐

Heeft u opmerkingen?

_____

_____

Hieronder niet schrijven

7835098774

ZOZ: Er staan nog een paar vragen aan de andere kant

Denkt u over het geheel genomen dat uw kind moeilijkheden heeft op één of meer van de volgende gebieden: emoties, concentratie, gedrag of vermogen om met andere mensen op te schieten?

Nee	Ja, kleine moeilijkheden	Ja, duidelijke moeilijkheden	Ja, ernstige moeilijkheden
☐	☐	☐	☐

Als u "Ja" heeft geantwoord, wilt u dan alstublieft de volgende vragen over deze moeilijkheden beantwoorden?

- Hoe lang bestaan deze moeilijkheden?

Korter dan een maand	1–5 maanden	6–12 maanden	Meer dan een jaar
☐	☐	☐	☐

- Maken de moeilijkheden uw kind overstuur of van slag?

Helemaal niet	Een beetje maar	Tamelijk	Heel erg
☐	☐	☐	☐

- Belemmeren de moeilijkheden het dagelijks leven van uw kind op de volgende gebieden?

	Helemaal niet	Een beetje maar	Tamelijk	Heel erg
THUIS	☐	☐	☐	☐
VRIENDSCHAPPEN	☐	☐	☐	☐
LEREN IN DE KLAS	☐	☐	☐	☐
ACTIVITEITEN IN DE VRIJE TIJD	☐	☐	☐	☐

- Belasten de moeilijkheden u of het gezin als geheel?

Helemaal niet	Een beetje maar	Tamelijk	Heel erg
☐	☐	☐	☐

Dank u wel voor uw medewerking

In te vullen door de arts of verpleegkundige van de JGZ

Rood	=	Emotionele problemen	_____ pnt	Wit	=	Pro-sociaal gedrag	_____ pnt
Geel	=	Gedragsproblemen	_____ pnt				
Groen	=	Probl. leeftijdsgenoten	_____ pnt				
Blauw	=	Hyperactiviteit	_____ pnt				
			_____ +				
SDQ Totaalscore:			_____ pnt				

Vragenlijsten en sjablonen kunnen worden besteld bij: Markant Congressen, Betsy Perkhoeve 8, 7207 GD Zutphen
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