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Preparing for attack and recovering from battle: Understanding child sexual abuse survivors' experiences of dental treatment

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Abstract

Objective: The aim of this paper was to explore child sexually abused survivors' experiences of dental treatment in order to obtain a deeper understanding of them as dental patients.

Methods: Data were drawn from qualitative semi-structured interviews with 16 adult informants recruited from four different Centres against Sexual Abuse in Norway. Data analysis was developed according to the principles of grounded theory suggested by Charmaz.

Results: A conceptual framework was generated, and a core concept was constructed from the informants' reports of their experiences of dental treatment: *Preparing for attack and recovering from battle* based on four main categories: *(a) Expecting danger, (b) Battling anxiety, (c) Reliving abuse and (d) Struggling with the aftermath.*

Conclusions: The analyses increase the understanding of how child sexual abuse survivors prepare before—battle during—and recover after dental treatment. This study revealed child sexual abuse survivors' experiences of extensive anxiety, triggered by sensory stimuli such as sensations, movement, muscles, touch, sight, sound, smell and taste, associated with dental procedures per se, but also sensory stimuli similar to previous traumatic experiences. The findings suggest that child sexual abuse survivors' dental anxiety is primarily *trauma-driven* and possibly being one of the long-term effects of child sexual abuse. This may be an important contribution to the understanding of CSA survivors and should affect the approach of clinicians treating dental patients with such a history.

KEYWORDS

adult dentistry, child sexual abuse, dental experiences, grounded theory, patients' perspectives, qualitative research, trauma-driven dental anxiety

1 | INTRODUCTION

A history of childhood trauma is associated with a wide range of health problems in adulthood[1,2] including problems with dental care and dental anxiety.[3-8]

The prevalence of child sexual abuse (CSA) varies in studies between 10% and 20%, dependent upon the population and definition of CSA,[9-11] and indicates that dental staff probably treat patients with such histories on a regular basis.

Leeners et al[12] describe the similarities between the dental treatment situation and situations of sexual abuse where the child/patient is often left alone with a person with authority, and in charge of what is to be done. The child/patient is placed lying on their back in a horizontal position and is expected to trust the

authority, to co-operate, and simultaneously anticipate painful procedures.

Levine[13] introduces the concept 'traumatic coupling' to understand traumatized persons reality, where one stimulus is strongly linked to a specific response, and together they override normal orienting behaviour. Traumatic coupling refers to the dual relationship between sensations, images, behaviour, emotions and meaning. After going through a traumatic event, any stimulus may be perceived as similar to the previous traumatic experience (danger), leading to the same emotions (fear), and engaging the same behavioural response (fight, flight, freeze). The threat perception system of the brain is dictated by its learning history. These reactions are irrational and largely outside ones control. The traumatized is often not in touch with the fact that these sensations have their origins in traumatic experiences. Levine further argues that experiences of traumatic anxiety go far beyond the experience we usually associate with anxiety. The traumatized individual frequently experiences panic, and highly overdramatized reactions to trivial events indicating an overwhelmed nervous system.

Clinical experiences inspired the present authors to explore the complexity of dental care in people exposed to sexual abuse. According to these experiences, the sequela from CSA included both a psychological and a social component in addition to behavioural aspects of dental treatment. Thus, the present authors undertook this multidisciplinary qualitative study. The overall aim was to explore oral care challenges in CSA survivors from a psychological perspective, a social perspective as well as a dental perspective.[14] To be able to highlight these contrasting perspectives, it was decided to make in depth interviews with CSA survivors and to let three different professionals (a PhD social worker, a clinical phycologist and a dentist) analyse the same interviews from their respective professional perspectives.

Two articles were recently published. In the first study, the focus was set on social perspective of how oral health-related problems affect the lives of CSA survivors, and found that these problems affect their everyday lives in many ways including the understanding of self.[15] In the second study, the dental perspective focused on what makes adult dentistry possible for CSA survivors. This analysis supported a trauma-sensitive approach by dentists.[16]

These two perspectives gave knowledge about practical consequences of sexual abuse in dental situations. However, to succeed with implementing these findings in dental care, a deeper understanding and empathy from health workers are important. To be able to build empathy, knowledge of how CSA survivors think and feel about dental care is essential. Thus, addressing the psychological perspective by analysing the same study transcripts was considered important.

The aim of the present study is to explore CSA survivors' experiences like thoughts, emotions, physical sensations and reactions of dental treatment in order to gain comprehensive knowledge of possible long-term effects of CSA in the context of oral health.

2 | METHOD

This study is part of a multidisciplinary study.[14-16] All informants were recruited through four Centres Against Sexual Abuse (SMSO). The SMSO centres (22 in Norway) are state-funded and function as a low-threshold service for persons with a history of sexual abuse.

The SMSO employees recruited informants they thought would be psychologically strong enough to elaborate on this topic. The inclusion criterion was Norwegian-speaking adults with a history of CSA. The informants were informed about the interviewer's profession that she had no official connection to the SMSO and that she was unknown to the informant. The informants were informed about confidentiality, their right to terminate participation at any time, and gave their written consent to participate. All interviews were conducted at the local SMSO to ensure a familiar environment and access to the support staff. All informants were later contacted by the interviewer to ensure professional support if necessary.

Twelve women and four men were interviewed. Background characteristics are presented in Table 1.

The authors constructed the interview guide. Open-ended questions were constructed based on reviews of literature and the clinical practice of the researchers.

The interviews lasted 1½ to 2 hours. The 16 respondents were interviewed by the three authors who had different professions: a social worker (4), a dentist (6) and a psychologist (6).

The interviews were calibrated by listening to each others' tapes of the first few interviews to minimize different interview focus and style.

TABLE 1 The informants' background characteristics

	Male	Age range informants	Female
Gender distribution informants	4	26-59	12
Gender distribution abusers	16		3
Age when abuse started	Before the age of 6 (10), Between the age of 6–12 (4) age 15 (1)		
Type of sexual abuse	Penetration (15), No penetration (1)		
Variation in number of abuse incidents	From 3 different rape situations to daily sexual abuse over several years		
Relation to the abuser(s)	Father (4), mother (1), stepfather (2), uncle (4), friend of family (4), social service worker (1), cousin (1), boyfriend, friend/ neighbour (5), brother (2) and grandfather (2)		
Self-evaluation of oral health	Poor/very poor (7), Good/very good (9)		
Regular dental treatment	Yes (7), No (9)		

The interviews were audio-taped, and verbatim transcripts were subsequently made by the interviewers. The data collection continued until saturation and new interviews failed to provide additional information. NVIVO 11 Pro software was used.

According to Charmaz[17] grounded theory, principles of open and focused coding were used as a set of techniques to analyse the qualitative data. This is a suitable method in research where little knowledge is available and few theories have been developed.

The analysis process was conducted according to Figure 1. Detailed synopsis of the analytic steps was seen in Appendix.

In Table 2, examples of quotations are given that led to the properties, main categories and the core concept.

The quotations are translated and condensed for the purpose of this article. The Regional Committee for Medical and Health Research Ethics, South East Norway, approved the study.

3 | RESULTS

From the initial analyses, negative experiences like 'someone is putting something inside my mouth' emerged as the main concern together with statements about 'lack of control' and 'the need for control'. During the focused coding, the strong need of control seemed to be a coping strategy due to the sense of being under threat. This leads to the conceptual framework 'preparing for attack and recovering from battle', capturing the four main categories that formed a pattern of their thoughts, feelings and sensations before, during and after dental treatment. The main categories 'expecting danger' and 'battling anxiety' reflect their mental and physical state when 'preparing for an attack', 'reliving abuse' reveals how they experience and cope with the sense of being attacked, while the main category 'struggling with aftermath' reflects the mental and physical process of 'recovering from battle' (Table 3).

3.1 | Expecting danger

Dental treatment was described as something they began to dread long before the appointment, and described thoughts and feelings associated with danger. The anticipation of danger is presented in the following three categories.

1. Fighting previous negative experiences with dentists/health professionals. Several had memories of negative feelings from being held down by dental staff and parents.

> I remember when I was four or five years old, and I had to have a tooth extracted. I do remember the dentist and another woman who covered my eyes and nose while they probably inserted the syringe with anaesthesia in my mouth. And I remember that I totally panicked.
>
> (ID11)

Some informants stated that they were not able to feel trust in dentists, or people in general.

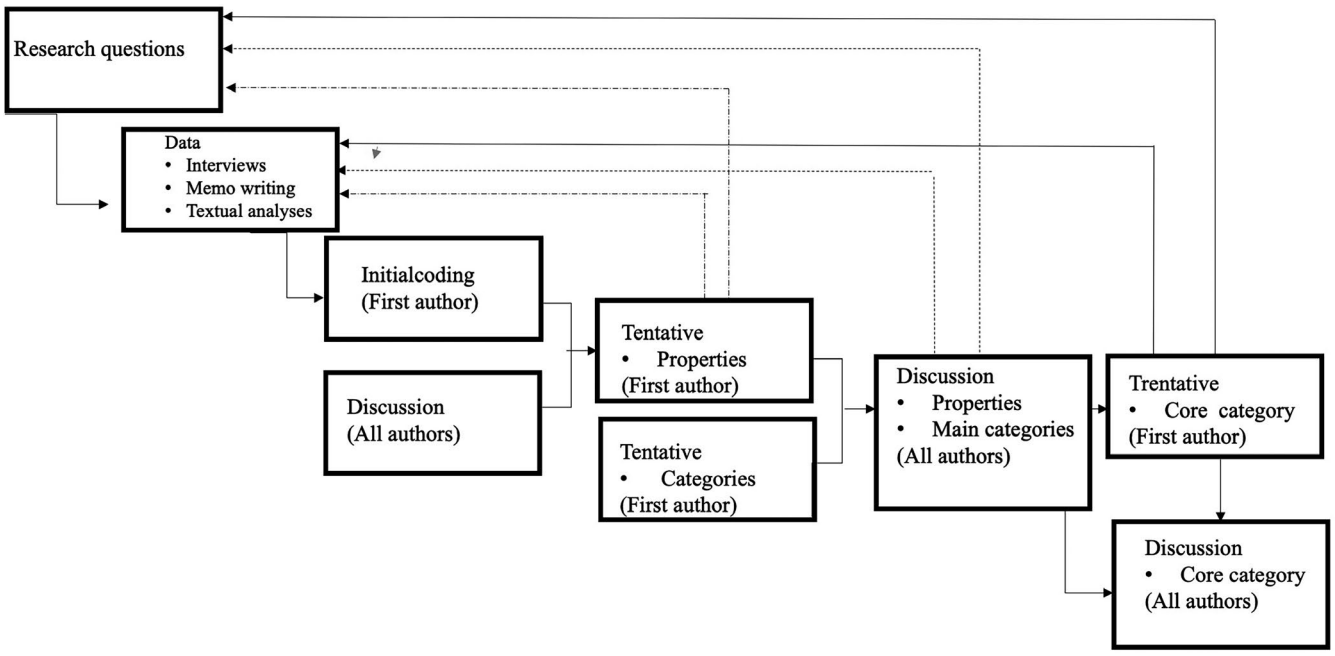

FIGURE 1 The analysis process followed principles suggested by Charmaz.[17] The analysis was performed consecutively during the interview process until saturation after 16 informants. In all stages of the analysis, the categories were checked with the data transcript and memo writing to ensure that the generation of categories from the data fitted the stories/data it represented

TABLE 2 Focused coding. Examples of quotes, codes, properties, main categories of 'preparing for attack and recovering from battle'

Quotes	Codes	Properties	Main category	Core category
I remember one time I had to have a tooth extracted and a woman [the secretary] sat on top of me, holding me tight, while he [the dentist] pulled… *What kind of people choose to become a dentist?… Is it the kind that enjoys tormenting humans?* *… becomes easily uncertain of men…* *I was sceptic.* *Thinking: Is he [the dentist] really going to do what he says he is going to do…?* *… they [dentists] are very authoritarian,… bossy*	Memories of dental treatment as a child Trouble trusting people Sceptic to dentists, male dentist Describes dentist trait, motives Someone trying to win my trust Personal traits	Fighting previous negative experiences with dentists		Preparing for attack and recovering from battle
I am very sensitive to odours… odour is something safe and a scare *… you are afraid of the smell of rubber…* *… it smells of men.* *… and likewise, when a person breaths right in front of you… the sound of heavy breathing* *… have thought it's very scary with dentists if they have to touch me…*	Using odour to assess situation Using hearing to assess The sense of intimacy when someone is physical close	Assessing sensory stimuli	Expecting danger	
I must be clear in my head. *Sometimes, short notice is good; sometimes not. It depends on the mood I am in that day.* *Is it going to be a torment in slow motion?* *Oh my God, do I have to go back (to the dentist) again?*	Feeling exhausted from waiting Cancelling appointments Mental preparations Handling high level of stress Dreading the appointment	Mobilizing willpower		
It just closes back in my throat *Yes, I really just froze in a sense… when I was at the dentist…* *… when I am laying there, no, I just shut everything out in a way and only feel stressed and scared to death, and that I am not able to breathe.* *… you arrive [at the dentist's] and then the sweating, itching,… begins* *… when the dentist is groping in the back of the mouth, fingers are coming,… I freeze… yes, yes, stiffen, yes…* *I just disappeared in a way out of my body,…*	The throat feels tight Muscles stiff Paralyzing Scratching Tingling Racing heartbeat Muscles week Loosing contact with the body Hyperventilation Nauseous Stops breathing Painful to swallow Gagging	Interpreting body reactions	Battling anxiety	
…, and open the mouth and things are put in and out of my mouth, that makes me choke…. *Objects entering my mouth… The problem is the mouth… that's where everything happened* *… and if it [dental procedures]) takes too long, then I panic*	Instruments inside the mouth Fingers inside the mouth Mouth fills up with water Closing the mouth around something Being touched in the face	Registering unpleasant stimuli		

(Continues)

TABLE 2 (Continued)

Quotes	Codes	Properties	Main category	Core category
I cannot really say I am afraid of it [dental procedure]. But it is embarrassing. *… I felt the room closed around me… then I became afraid; very afraid, yes.* *… when the dentist is doing something in the back of my mouth, along with fingers coming, then…, then…, then I freeze… not in the sense of being cold… but stiffen.* *I seem very calm and secure to others, but personally it is chaos internally…. No one understands my dental anxiety..* *I am not afraid of him… because he acquired information about my background at an early stage*	Shame Fear Scared to death Emotional chaos inside Not afraid of one dentist	Being aware of emotions		
… and then they used their fingers and pulled a little in the cheek and mouth… that reminded me of sexual abuse… *… when the dentist needs to support the (participants) head, because he [dentist] is drilling… I experience that as a violent assault.* *… a couple of assaults where condoms were used and when they [the dental staff] used rubber gloves, it reminded me of that [sexual abuse]*	Pulling cheek out with finger Dentist supporting hand to my head Someone is doing something physical with me Someone`s fingers inside my mouth The taste and smell of rubber(gloves) The sight of big hands Someone close to my face The sound of heavy breathing Pain inside the mouth Mouth open over a longer period of time Spitting Feels the neck is stretching	Being invaded		
The things with having people so close to you in a way… the feeling of them being so close, not being able to get away from them… *… you sit in that chair and are tilted on your back…* *You were paralyzed*	Someone being physical close Feels impossible to escape Someone tilts you down on your back Someone leans over you Feeling helpless Feeling powerless Paralysed	Feeling trapped	Reliving abuse	
… the dentist must be in charge… you become so small… you have nothing to say, *It the treatment] enhances a strong feeling of not being important…* *I become cold. Nothing is of importance to me at all.* *I believe it reminds me somewhat of the situation where you kind of, someone is just using you for something and you cannot really do anything about it*	Feels like the treatment is against my will Someone is doing something without my consent The feeling of being unimportant Becomes emotional cold, do not care Focus on enduring	Finding oneself in an objectified position		

(Continues)

TABLE 2 (Continued)

Quotes	Codes	Properties	Main category	Core category
I do not remember… then… I completely disconnect… I am not present *I try to stay in my body.* *But in a sense that is what I always have done during the abuse and everything… you must get away*	Disconnecting myself Experiencing memory loss Fighting with the urge to mentally escape Tries to escape with daydreaming Loosing track of time and place	Fighting detachment from the situation		
I get so many pictures of grandad when I have… or when I was at the dentist then. *… when I see the face of [name of the dentist], it resembles that of my uncle. It is almost as though he is also in the room.* *I feel as if I am being abused again*	Evoking images of abuse (flashbacks) Images of the abuser in the room Feeling the abuse happening	Replacing the dentist with the abuser		
I don't remember [the dental treatment]… I disconnect… *… she did what she could do to make it easier, but nevertheless I could not handle it [the treatment]*	Experiencing memory loss Guilt Shame Sad	Processing delayed reactions	Struggling with aftermaths	
… I actually collapsed a little afterwards… was really quite nauseous and depressed	Body exhausted Nauseous	Being physically exhausted		

2. Assessing sensory stimuli. Specific sensory stimuli of sight, smell, taste, hearing and touch was something the informants associated with negative feelings including escalating anxiety.

> Yes, it's the smell at the dentist's; to me personally, the mouth liquid with disinfection is stressing me. I don't know what causes the typical smell at the dentist … I'm thinking: 'Now I'm on my way to the torture chamber.' … Yes, but in quotes … My hands are clammy; I often have a higher heart rate, and I feel unsafe.
>
> (ID15)

The sound of heavy breathing from the dental staff, having the mouth open for long periods, the dentist's body odour, and the smell and taste of rubber triggered the sense of being in danger more so than pain from the drill.

Furthermore, the body position, someone being physically close from behind, or leaning over the informant contributed to the perception of being in danger and possibly under attack.

> … just being laid back and the mouth kept open … I find it … I don't know, but that's what I have been afraid of. Not the pain.
>
> (ID11)

> I hate to get things around my neck. So, getting that paper napkin around my neck is just terrible. …
>
> (ID12)

3. Mobilizing willpower. The informants reported a mental fight to mobilize enough willpower to do the opposite of what the body dictated, which often led to postponing or cancelling appointments, and not being able to complete the dental treatment by returning several times to finish.

> You get a reminder in your mailbox about the appointment, and right away I started to prepare myself with a lot of tension. I think I was exhausted before I got there, to the dentist's.
>
> (ID3)

3.2 | Battling anxiety

Almost every informant described the dental treatment situation as anxiety-provoking, and just by talking about the topic during the interview some experienced bodily reactions such as nausea. Some informants had used the same dentist for many years and described

TABLE 3 Main categories and properties of 'Preparing for attack and recovering from battle'

Core concept	Main categories	Properties
Preparing for attack and recovering from battle	Expecting danger	Fighting previous negative experiences with dentists Assessing sensory stimuli Mobilizing willpower
	Battling anxiety	Interpreting body reactions Registering unpleasant stimuli Being aware of emotions
	Reliving abuse	Being invaded Feeling trapped Finding oneself in an objectified position Fighting detachment from the situation Replacing the dentist with the abuser
	Struggling with aftermath	Being physically exhausted Processing reactions

the relationship as crucial in coping with the dental treatment. Three interrelated categories of battling anxiety were identified.

1. Interpreting body reactions. Various physical experiences were reported: muscular tension, the throat felt tight, the body felt paralysed and muscles felt weak. The informants reported increased heartbeat, losing contact with the body, hyperventilation, feeling nauseous, holding their breath, painful to swallow and gagging. All these descriptions are well-known and descriptions expected by all dental anxiety patients, and were not found to be exclusively linked to patients with a history of CSA.
2. Registration of unpleasant stimuli. Three main reactions were reported: registration of objects inside the mouth, the sensation of fluid filling up the oral cavity and the tactile perception of being touched on the face and neck region. The focus again was not on the dental instruments that may cause minor injury, but rather something or someone invading the informant in a sense that makes the stimuli unbearable.

> I can sense the mouth becoming filled. Then comes [makes the sound of gagging]. Then everything stops, and I can't continue.
>
> (ID2)

> But as soon as they get close to my mouth or I am instructed to open my mouth, it's like my whole body starts to swell and it's difficult to breath....
>
> (ID6)

3. Being aware of emotions. Awareness of anxiety to different degrees, shame and relief when the treatment was completed. Several experienced emotional safety with their regular dentist, and only two informants expressed concern about becoming aggressive towards the dentist when anxiety escalates.

> When I'm there (at the dentist) and lying down (moaning) ... no, I`m just shutting it all out in a way, and I feel so stressed and terrified.
>
> (ID3)

3.3 | Reliving abuse

Most of the informants emphasized how they experienced the dental treatment as a reminder of previously painful and intimidating CSA situations, categorized in five subcategories.

1. Being invaded. The physical contact with the dentist gave many informants a strong sense of someone transgressing their boundaries.

> The thing with having people so close to you in a way ... it is as if you have no control yourself. The feeling of them coming so close, you can't get them away from you ... the feeling of them breathing on you, sort of, oh ... It causes flashbacks from when I was ten years old. ... Mmm, he [the abuser] was always coming close to my face, trying to kiss me or something ... oh! ... I dislike anyone coming too close to my face.
>
> (ID7)

2. Feeling trapped. The body position during dental treatment seemed to enhance the feeling of being trapped. The informants found themselves in a situation with no possibility to escape.

> Likewise, when you are sitting in the dentist's chair and are being tilted backwards... and they are coming

> … ah, that feeling of the dental staff leaning over you … and, no! … You feel you have no chance. I believe I almost had the same feelings there [at the dentist's] as I had during the abuse.
>
> (ID3)

3. Finding oneself in an objectified position. Several of the informants said that they felt as though they were an object with no ability to influence the situation; some experienced dental treatment as something bad which had been done to them against their will.

> I'm being challenged when I have to lie down on my back, when someone is doing something to me, and I think that is associated with the sexual abuse, and sometimes to the experiences of violence, being beaten. Some of it is painful, and some is unpleasant [during dental treatment] and nothing is being communicated about what is going on, so you find yourself just lying there on your back and take what's coming.
>
> (ID16)

4. Fighting detachment from the situation. This subcategory is developed based on the informants' reports of memory loss, fighting the urge mentally to escape, losing track of time and a sense of being detached from oneself.

> I try to stay within my body, I think. But when the pictures [from abuse] come up [during dental treatment], I must talk to myself: 'I'm an adult now, right … You are here. You are here and now.'
>
> (ID14)

5. Replacing the dentist with the abuser. Some of the informants told about how they experienced mental pictures of the abuser—that the dentist looked like the abuser, and that the dentist even became the abuser during dental treatment.

> Interviewer: You say you're being 'pulled back'. If you are being pulled back when you are sitting in the dental chair, how are you being pulled back?
>
> ID3: Yes, it's no problem to sit in the dental chair and recall what happened [during abuse]. I can be pulled back to the extent I feel as if it [the abuse] is happening again.
>
> Interviewer: Does your mind know that you are there, at the dentist?
>
> ID3: No.… It varies between being at the dentist and being back in the old days.
>
> Interviewer: You can see the abuser, sort of?
>
> ID3: Yes.
>
> Interviewer: The dentist becomes the abuser?
>
> ID3: Yes, that may happen. I react in different ways. This is one way.

3.4 | Struggling with the aftermath

Some informants reported a mental and physical struggle afterwards which the research group found important to include. One reported nightmares of abuse; another informed of delayed reactions like after being abused. The aftermath is divided into two properties.

1. Processing delayed reactions. Informants reported concealing their emotional struggle from the dental staff.

> But like, when you are tense and in abuse situation much of the time, you are alerted and when you get away from the situation, sort of safe on the ground, then the emotional reactions emerge in the aftermath.
>
> (ID9)

> It was difficult afterwards … you do not know what she has done inside there [the mouth] …
>
> I am no longer able to speak for myself. So, people get to do as they please, and then I cope with it afterwards.

2. Being exhausted physically. A few informants reported being physically exhausted and in need of a rest to recover from the strain experienced during the dental treatment.

> I went straight back home to sleep. My body was exhausted. All my muscles were battered. Just as if I had been in a fight.
>
> (ID12)

4 | DISCUSSION

The present study explored reports by 16 informants with a history of CSA concerning their experiences during dental treatment. It is to the authors' knowledge unique to analyse dental care from the perspective of CSA survivor from different professional perspectives:

social, dental and psychological. This may contribute to a deeper understanding of the complexity concerning oral health in CSA survivors. The reliability and validity of interpretive qualitative research have been questioned because of the subjective nature of both data collection and analysis in this type of research. In the present study, the interview process as well as the analytic process illustrates the constructivist view of data generation as a process in which both the informants and the researchers are actively engaged in co-construction meaning. Thus, the findings of this study reflect the researchers' interpretation of the subjective experiences of CSA survivors in dental treatment.

The findings suggest that the majority of those interviewed struggled with anxiety reactions, primarily triggered by similarities to CSA experiences. This indicates an important difference to dental anxiety, developed exclusively from negative dental experiences.

The study supports the research of de Jongh et al[20] on the matter that traumatic experiences outside the dental treatment situation, as victim of a violent crime, seem to predict dental anxiety even when dental treatment is not imminent.

The stories that were told revealed strong negative experiences before, during and after dental treatment. The experiences are described as struggling with a wide range of reactions understood as preparing for, fighting and recovering from a mental and physical battle.

Our findings correspond to the theoretic concept of traumatic coupling where traumatized persons may experience certain sensations, which generate emotional and physical responses coupled to traumatic memories, irrelevant to what is actually going on.

Findings such as feeling invaded, trapped and powerless in addition to sensations like water accumulating inside the mouth, pain, the sound of heavy breathing, the body lying horizontally on the back, physical closeness to the dentist and body odour, all seem possible traumatic couplings. For instance, the finding that the sound of the dentist breathing triggers a traumatic coupling which leads to re-experiencing the horrors of abuse. In this way, perception similarities can reactivate trauma-related memories, because overwhelming experiences may be stored exclusively as a sensory experience without words and thoughts.[21]

van der Kolk[22] explains these kinds of reactions by neuronal networks in the brain that become activated by sensations, emotions and feelings which correspond to the sensations and emotions, or feelings experienced at the time of the trauma. Being traumatized means continuing to organize one's life as though the trauma is still going on, and new experiences are coloured by this past. The alertness towards external and internal triggers (preparing for attack) that set off typical anxiety reactions from a strong sense of being attacked illustrates this.

Steven Porges[23,24] introduced the universal polyvagal theory of self-regulation.

When we perceive stimuli from our environment through our senses, including behaviour cues from others, the mechanism called neuroception automatically indicates degrees of safety, danger and threat. The automatic survival strategies—fight, flight, freeze and immobilizing state—are activated. Initially, the social engagement circuit dominates if the individual feels safe enough and the anxiety reaction can be subdued through social interaction. This could be the result of dentists successfully applying social engagement strategies, reported from the same study population. A few informants managed to engage in dental treatment with no anxiety. All of them described having a long-lasting and safe relationship with the dentist.[16]

On the other hand, if individuals feel threatened and social engagement fails, the individual will go into the physiological state that supports fight/flight/freezes behaviour. If fight does not reduce the experience of being under threat, the most primitive branch of the vagus nerve is activated. Then, a parasympathetic over-activation leads the individual 'down' to a hypo-activating state of immobilization seen as passivity, numbness and disconnected to the environment.[25] Several of the informants describe this hypo-activated state in the category of *fighting detachment from the situation*. They describe not being present and vaguely remember what was done during dental treatment. The informants described experiences of being attacked, and the system of mutual social engagement might, to some degree, have been turned off.

The findings suggest that dentists may unintentionally contribute to the feeling of being invaded and being in an objectified position (victim) during dental treatment possibly due to traumatic coupling. Clinician's interpersonal approach ought to include specific communication and behaviour skills which decrease the patient's experiences of being invaded, trapped and objectified. By meeting the expressed needs of CSA survivors reported in our second study,[16] the different traumatic couplings might be reduced, and the sense of being attacked during dental treatment might diminish.

For dental staff to have this insight is considered important in terms of giving empathy adequate for a trauma-sensitive approach,[16,26] with the aim of reducing traumatic couplings and the risk of reliving traumatic experiences of abuse during and after dental treatment.

A broader variation of data material could have strengthened the findings by recruiting informants who were less traumatized by the abuse.

In conclusion, the findings confirm the complexity of dental care and treatment in CSA survivors. The analysis of the psychological perspective giving the core concept 'Preparing for attack and recovering from the battle' increases insight in how dental care affects life in general,[15] before, during and after dental treatment.

The findings may enhance a deeper understanding and empathy from health workers when faced with the social challenges of CSA survivors in their everyday life.[15] In order to express genuine empathy in a trauma-sensitive approach by dentists, this psychological perspective is very important.[16]

The analyses increase the understanding of how child sexual abuse survivors prepare before—battle during—and recover after dental treatment. The analysis revealed CSA survivors' experiences of extensive anxiety, triggered by sensory stimuli associated with dental procedures per se, but also sensory stimuli similar to previous

traumatic experiences. The findings suggest that CSA survivors' dental anxiety primarily is trauma-driven and possibly one of the long-term effects of child sexual abuse. This may be an important contribution to the understanding of CSA survivors and should affect the approach of clinicians treating dental patients with such a history.

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AUTHOR CONTRIBUTIONS

We confirm that all co-authors have contributed accordingly to the ICMJE criteria. Fredriksen as first author claims the overall responsibility for the manuscript and as accordingly contributed most in analysis, writing and editing of this research. Willumsen, Søftestad and Kranstad have contributed substantially to conception and design, analysis and interpretation of data, and revising the manuscript. All authors approve this version to be published and agree to be accountable for this work.

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APPENDIX

SYNOPSIS OF THE ANALYTIC STEPS

In the first analytic step, all authors read and re-read all interviews with open-minded awareness in effort to find a holistic view and overall 'first impression' of each interview. This process led to a specific interest in the experiences of the informants when they received dental treatment.[18] The second step, the first author separated, sorted and synthesized larger amounts of material by coding segments of the interviews with a short name that summarized each piece of material in a process from open to focused coding (Table 2). NVIVO software was used to organize the material. The third step included comparisons of the coded segments between all interviews. The analytic process included re-reading of data, arranging and re-arranging tentative categories. In the fourth step, the first author developed the constructed codes to analytical concepts to tentative categories. The analysis was at this stage compared and enriched with insights from previous theoretical and empirical material by moving between the material and the other literature. The fifth step, the co-authors examined the tentative categories independently in order to strengthen the analyses, to ensure multiple perspectives, and to reduce bias.[19] Inspired of the discussion of these interpretations, the first author elaborated on the preliminary analysis, aiming at developing categories that were as conceptual as possible, with abstract power, general reach, analytical direction and predict wording.[17] Thus, the final analytical categories were established upon the basis of coded segments of the interviews. The findings of this study reflect the researchers' interpretation of the subjective experiences of CSA survivors (see Section 3).