Barriers and facilitators safeguarding children in dental care: clinical practice, attitudes and cooperation with social welfare services

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The "Problem Child" is a Child, not a Problem

Suzanne Bouffard

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LIST OF PAPERS

Paper I — Dentists' self-perceived stress and difficulties when performing restorative treatment in children

A. Rønneberg, K. Strøm, A. B. Skaare, T. Willumsen, I. Espelid

Eur Arch Paediatr Dent 2015; 16(4):341-7.

Paper II — Dentists' use of behavioural management techniques and their attitudes towards treating paediatric patients with dental anxiety

K. Strøm, A. Rønneberg, A. B. Skaare, I. Espelid, T. Willumsen

Eur Arch Paediatr Dent 2015; 16(4):349-55.

Paper III — Variation in caries treatment proposals among dentists in Norway: the best interest of the child

A. Rønneberg, A. B. Skaare, B. Hofmann, I. Espelid

Eur Arch Paediatr Dent 2017; 18(5):345-53.

(Errata to this publication follow the paper)

Paper IV — Barriers and factors influencing communication between dental professionals and Child Welfare Services in their everyday work

A. Rønneberg, H. Nordgarden, A. B. Skaare, T. Willumsen.

Int J Paediatr Dent. 2019; 00:1-8.

(Selected as "The editor's choice article" in Int J Paediatr Dent. 29:6)

(Certificated as 10% top downloaded paper 2018-2019 Int J Paediatr Dent.)

Paper V — Barriers affecting General Practitioners in their decision whether to report when faced with suspected child maltreatment and their communication with the Child Welfare Service

A. Rønneberg, L. Krogvold, A-L. Östberg, T. Willumsen

Article in manuscript

ABBREVATIONS

ACE	Adverse Childhood Experiences
ART	Atraumatic Restorative Treatment Technique
BMT	Behaviour Management Techniques
BMP	Behaviour Management Problems
CBT	Cognitive Behavioural Therapy
CI	Confidence Interval
CHC	Child Health Centres
CPS	Child Protective Service
CWS	Child Welfare Service
DA	Dental Anxiety
DDD	Dental Developmental Defects
DF	Dental Fear
DFA	Dental Fear and Anxiety
DMFT	Decayed, missed and filled teeth
EAPD	European Academy of Paediatric Dentistry
GPs	General Practitioners (doctors, physicians)
GDPs	General Dental Practitioners (only dentists, Paper I-III) and General Dental Professionals (dentists and dental hygienists, Paper IV)
ICBT	Internet-Based Cognitive Behavioural Therapy
LA	Local Anaesthesia, Local Anaesthetics and Local Analgesia
NOFOBI	Norwegian Association for Odontophobia (Norsk forening for odontofobi)
NSD	Norwegian Centre for Research Data (Until March 1 2016, it was known as Norwegian Social Science Data Services.)
OR	Odds Ratio
PD	Paediatric Dentist; in this thesis meant working specialists in paediatric dentistry and postgraduate students in paediatric dentistry
PDS/PDHS	Public Dental Service/ Public Dental Health Service (meaning the same)
PSD	Protective Stabilization Devices
REK	Regional Committees for Medical and health Research Ethics
SDF	Silver Diamine Fluoride
SPSS	Statistical Package for Social Sciences
UN	United Nations
UNCRC	The United Nations Convention on the Rights of the Child

EXPLANATIONS OF DIFFERENT EXPRESSIONS WITH THE SAME MEANING

Explanation of continuing education, postgraduate courses, continuing training programs and postgraduate education.

They are all expressions used for education and courses with varying length after graduation, but not a specific postgraduate specialist education programme. The paediatric specialist group included in Paper III are specialists in paediatric dentistry or postgraduate students under specialisation.

Undergraduate education and dental education are expressions used for dental education (master in odontology) in this thesis.

Explanation of the expression "self-efficacy" used in this thesis

In this thesis, self-efficacy refers to the dentist's beliefs in their ability to obtain an outcome (1). In our study, this refer to the dentist's own measure of self-reported ability to treat anxious patients with the question: "Do you find yourself good at treating patients with dental anxiety?"

SUMMARY

Dental health professionals in Norway examine children on a regular basis. Their behaviour and professionalism are crucial in safeguarding children according to the United Nations Convention on the Rights of the Child (Article 3); the best interest of the child shall be a primary consideration. During childhood and adolescence, children are influenced by caregivers, family members, friends, kindergarten, school, social environment, and institutions, as well as health personnel. They all influence the growing child in different ways. Fundamental cognitive, physical, and emotional development processes occur and will all have an impact on the future development of health-related behaviours and skills. Dental health professionals are challenged in relation to children with the need of operative treatment, dental fear and anxiety, and use of analgesia and conscious sedation and may experience suspicion of child maltreatment.

The main aim of this thesis was to explore barriers and facilitators to safeguarding children in healthcare services and paediatric dental clinic, particularly attitudes and actions taken by dental professionals to secure the best interest of the child.
A further aim was to compare dental professionals´ and general practitioners´ (general physicians') attitudes towards and routines in reporting suspicion of child maltreatment and their mutual collaborations with the Child Welfare Service (CWS).

Materials, methods and results

There are two cross-sectional studies and five papers included in this thesis.
Papers I–III are obtained from a study among dentists employed (n=611) in the Public Dental Health Services (PDHS) in eight of 19 Norwegian counties. Electronic questionnaires were distributed by e-mail, and the response rate was 65.4%.

Papers IV and V are based on almost identical questionnaires. One was sent to all general dental professionals (GDPs) (dentists and dental hygienists) in the PDHS in Oslo, and one was sent to all general practitioners (GPs) (physicians) in Oslo. The response rates were 75% and 35%, respectively.

Paper I explored factors that might be associated with the difficulties dentists encounter in performing restorative treatment in children: (i) self- perceived stress, (ii) clinical experience, (iii) use of conscious sedation, and (iv) use of local anaesthesia (LA).

More than half of the dentists (51.4%) found it frequently or always difficult to complete restorative treatment in the age group 3–5 years. Dentists who reported difficulty in performing restorative treatment did not use conscious sedation or LA more often than other dentists. Never–rarely/sometimes use of LA was reported by 58.9% of dentists when treating children in the age group 3–5 years and 29.5% of dentists when treating children in the age group 6–9 years.

In dental treatment of the age group 3–5 years and 6–9 years, there was a statistically significant association (OR, 2.5 [95% CI, 1.7–3.9], and OR, 2.0 [95% CI, 1.1–3.6], respectively) between dentists' feeling of stress before treatment of fearful patients and difficulties associated with restorative treatment. Dentists with <10 years practice had more stress than dentists with >10 years of practice (OR, 0.6 [95% CI, 1.7–3.9], and OR, 0.4 [95% CI, 0.2–0.8], respectively).

Paper II explored the relationship between (i) dentists' education in the treatment of dental anxiety, (ii) dentists' attitudes towards children and adolescents with dental anxiety, and (iii) dentists' use of behavioural management techniques (BMTs).

Dentists educated in Norway felt less stress and were less reluctant to treat patients with dental anxiety (13% vs. 24%, p=0.009, and 7% vs. 17%, p=0.005, respectively). Additionally, Norwegian-educated dentists more often felt they were making a contribution when treating fearful patients (77% vs. 49%, p<0.001) compared to those educated abroad. Female dentists also felt less reluctant to treat anxious patients than their male colleagues (7% vs. 15%, p=0.017). Female dentists, Norwegian-educated dentists, dentists with postgraduate courses, and dentists with good self-efficacy used significantly more BMTs.

Paper III explored the variation in treatment-related decisions among dentists in the Norwegian PDHS who treat severe caries in preschool children. The participants were asked to suggest the best treatment option in two case scenarios of severe caries in preschool children.

In this paper, we additionally invited 37 paediatric dentists (PDs) for having their opinion as a 'gold standard', regarding their speciality, and compared their replies to those of GDPs. Appropriate practice, for both GDPs and PDs, when presented a case of a 5-year-old child with pulpitis and pain due to deep caries, was new appointment with use of BMT or new appointment with conscious sedation. Acute treatment and child restraint, if necessary,

were supported by 10% of the GDPs educated within the Nordic countries and 20% of those educated in other countries (p=0.001). GDPs with >10 years of clinical practice proposed to perform less conscious sedation (p= 0.029) and BMT (p= 0.006) but more referrals for dental treatment under general anaesthesia (GA) (p= 0.048). A majority of the GDPs preferred to make a new appointment with planned BMT. This option was also supported by the PDs; however, all PDs preferred treatment with conscious sedation or referral for treatment under GA. Only half of the GDPs supported the use of conscious sedation, and few opted for a referral for treatment under GA. Prescription of antibiotics was not reported as appropriate for any of the groups.

The second case was that of a 5-year-old with caries but no ailments, pain, or fistulas. However, he had an uncooperative behaviour, and his mother was not interested in dental treatment for her son. Approximately 25% of dentists with >10 years of clinical practice supported postponement of treatment for 9 months, demonstrating a significantly greater frequency than that reported by their younger colleagues (p=0.002). Moreover, 22% of dentists who rarely used conscious sedation agreed to postpone the treatment, in contrast to those who frequently used sedation, of whom only 3% agreed to postpone treatment (p=0.028).

Paper IV explored (i) whether GDPs (dentists and dental hygienists) have mutual collaborations and communication with Child Welfare Services (CWS) and (ii) the potential barriers influencing GDPs' decisions to report suspicion of child maltreatment.

Furthermore, 90% of the responding GDPs had been requested by CWS to send copies of at least one child's dental chart as part of their work to unveil neglect and abuse. Half (51%) of the GDPs had received more than five such requests. Among the GDPs, 71% had reported suspicion of child maltreatment to the CWS, but 33% additionally answered that they had failed to report concerns to the CWS despite suspicion. More GDPs educated abroad had failed to report concerns, despite suspicion, compared with their colleagues educated in Norway (56% vs. 29%, p=0.038). Significantly more GDPs educated in Norway had received undergraduate education regarding child maltreatment (83% vs. 44%, p=0.003). 'Uncertainty of suspicion' was the most common reason for not reporting (67%). The use of a guideline was reported by 70%. GDPs who used a guideline were more likely to

have reported suspicion during the last year than those without a guideline (OR, 3.6; 95% CI, 1.1–11.4).

Paper V explored Norwegian GPs' communication with CWS and disclosed barriers and facilitators that influenced GPs in their decision whether to report concerns when faced with suspected child maltreatment.

Of the participants, 27% had never reported suspicion of child maltreatment to the CWS, and 17% reported that they have failed to report a concern, despite suspicion. 'Uncertainty of suspicion' was the most common reason for not reporting (40%), and three of five GPs reported that talking to families about child maltreatment might cause a risk of losing contact with the family. Almost one-third of respondents (30%) reported the use of a guideline regarding suspected child maltreatment. No specific, common guideline was referenced, but several respondents referred to chapters of the Norwegian legislation. Nearly all GPs (99%, n=179) had received at least one request from the Child Welfare Service regarding information about a child and the child's chart during their career, and 57% (n=104) had received more than five such requests.

GPs who reported having received continuing education (OR, 2.4; 95% CI, 1.1–5.4) and had work experience from child health centres (OR, 3.5; 95% CI, 1.3–9.3) were more likely to have reported child maltreatment at least once than those without such education or experience.

Conclusion

All the present findings regarding the professional's attitudes and clinical practice indicate barriers that should be highlighted in daily practice for safeguarding the best interest of the child. The present findings have highlighted the dentist's self-perceived stress, especially among dentists with limited clinical practice. Further, limited use of LA among children was revealed and needs to be highlighted. A future focus on supervision by establishing mentoring programs to guide young clinicians would probably be beneficial. Throughout the five papers included, the clinicians reported different types of uncertainty, which indicates that improving existing guidelines and/or developing new specified guidelines could be useful. The results show that many GDPs were educated abroad and demonstrated clinical practice deviating from the Norwegian dental curriculum. Clinical guidelines should embrace paediatric clinics using a biopsychosocial perspective and include different topics, such as

treatment options regarding severe caries in the primary dentition, use of LA, conscious sedation, and making referrals for GA.

Further, public national guidelines should include requirements on when and how to make referrals to the CWS and continuing education, emphasizing the use of BMTs and focusing on dental fear and anxiety. Additionally, focus on improved communication and feedback from the CWS should be emphasised.

INTRODUCTION

In Norway, the Public Dental Health Service (PDHS) offers free and regular comprehensive oral healthcare to all children and adolescents from birth. Nearly all children, from aged 3 to 18 years (98.4%), are enrolled in the PDHS (2). Considering the importance of the best possible childhood, early intervention and fulfilment of the United Nations Convention on the Rights of the Child (UNCRC) is an obligation of all health professionals. Thus, behaviour and professionalism are crucial in safeguarding vulnerable children according to the 'General Principles' of the UNCRC 1989 (Article 3): 'In all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration' (3, 4).

This statement is one of the *General Principles of the UNCRC*:

1. Nondiscrimination (Article 2)
2. Best interest of the child (Article 3)
3. Right to life survival and development (Article 6)
4. Right to be heard (Article 12)

Best interest of the child

As health professionals, we have the responsibility to fulfil the UNCRC and include a biopsychosocial approach to secure 'the best interest of the child' in our daily clinical practice. However, a clear and precise understanding of the 'best interest of the child' concept may seem elusive.

The Norwegian law is based on the principle that the national law is interpreted in accordance with international regulations. The UNCRC was fully incorporated into the Human Rights Act in 2003 (5). The incorporation of the UNCRC into the Human Rights Act has given greater weight to legal sources. The UNCRC take precedence over the Norwegian legislation (section 3 of the Human Rights Act) (6). This should be an overall consideration in the interests and views of children in all matters.

In 2008, UNICEF published guidelines on determining the best interest of the child. These guidelines describe the well-being of a child determined by a variety of individual

circumstances, such as age, level of maturity of the child, presence or absence of parents, and environment of the child (7). In the principle of the best interest of the child, there is a fundamental view that the child is the central person and one must safeguard the child's interests and needs in different contexts (8).

According to the UNCRC, children also have the right to be heard. In Norway, children aged ≥ 16 years can, as a general rule, consent to healthcare, and for children aged <16 years, the parents may consent (9). Preschool children are not fully autonomous, but they have to be informed, and their assent is important in the process and outcome. According to the Norwegian legislation, it is sufficient that only one parent consents to necessary healthcare to prevent harm to the child. Lowering the age limit for consent to healthcare from 16 to 15 years is under consideration. The Norwegian legislation concerning dental healthcare has no provisions on the best interest of the child or their rights to participate (10), but Norwegian law states that children from the age of 12 years should be heard in questions concerning their own health matters (9, 11). In line with the UNCRC Article 12, the law also establishes children's right to express their views as long as they are capable of having an opinion (12).

The UNCRC has recently highlighted the different nations' responsibility to develop procedures and criteria to provide guidance to all relevant individuals in authority in determining the best interest of the child in every area and giving it due weight as a primary consideration.

Sphere of impacts affecting the individual during childhood and adolescence

During childhood and adolescence, several impacts influence the developing child in their close and distant surroundings, including dental treatment. These phenomena may be illustrated according to the model shown in Figure 1.

The model demonstrates the sphere of impacts affecting the individual during childhood and adolescence, including adverse childhood experiences in the early years. Balancing all positive and negative experiences through childhood and adolescence is crucial, and ethical consideration regarding the principle of the best interest of the child should be considered.

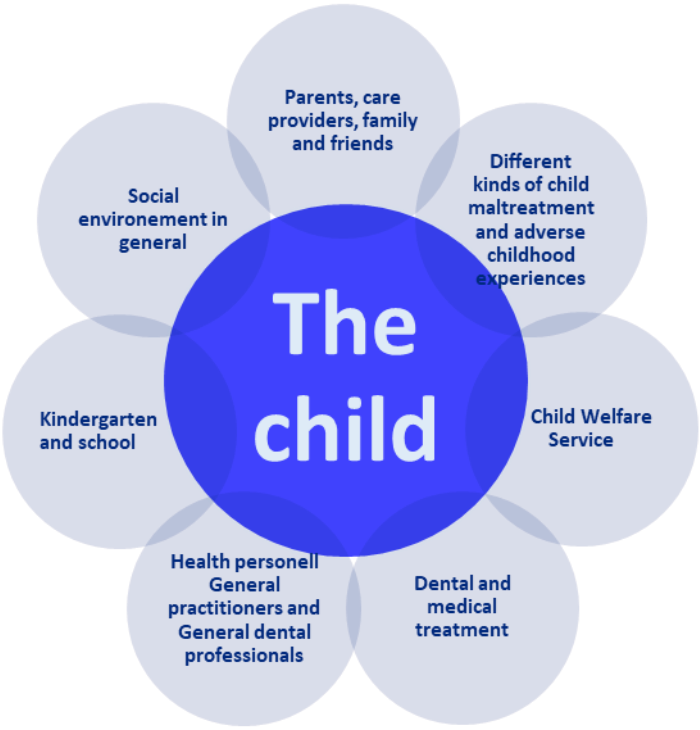


Figure 1. Different elements influencing the individual child during childhood and adolescence

The model shows a biopsychosocial approach to what can affect the individual child. A more traditional biomedical model would only leave no room for social, psychological, and behavioural impacts of different diseases on the child. Engel explains how the social and psychological conditions affect the biological impacts and vice versa. To explain dental caries, for example, a biopsychosocial model is useful as caries is a disease resulting from the diet and bacteria but strongly influenced by adverse lifetime experiences, maternal health, family, and environment (13-17).

There are several impacts during childhood and youth in the context of family, culture and community. Caregivers, family members, friends, kindergarten, school, social environment and institutions, and health personnel will all influence a child in different ways. The papers included in this thesis combined the dentist's feedback regarding undertaking restorative treatment, their use of local anaesthesia (LA), conscious sedation, general anaesthesia (GA), attitudes in treating patients with dental anxiety and immaturity, and general dental professionals (GDPs) and general practitioners (GPs) communication with Child Welfare Services (CWS).

During childhood, fundamental cognitive, physical, and emotional developmental processes occur, all of which have an impact on the future development of health-related behaviours and skills. Negative experiences related to painful health procedures and healthcare providers´ behaviour may also impact disparities in children's health and their health literacy, which may be important, especially for vulnerable children and their engagement in their own health and future health choices (18, 19). To strengthen children, young individuals and their healthcare providers' knowledge, motivation, and competence to make well-informed health decisions have been highlighted recently (19, 20).

Best interest of the child in a biopsychosocial perspective in dental paediatric context with a focus on behavioural management techniques (BMTs) and ethical considerations

The best interest of the child in the biopsychosocial perspective in a dental paediatric context should include a special focus on three of the topics from Figure 1 that may be influenced by dental professionals (Figure 2).

These are all topics relevant in 'daily dental practice', which are crucial for the patient's perception and experience of the dental treatment and GDPs' daily life as health professionals.

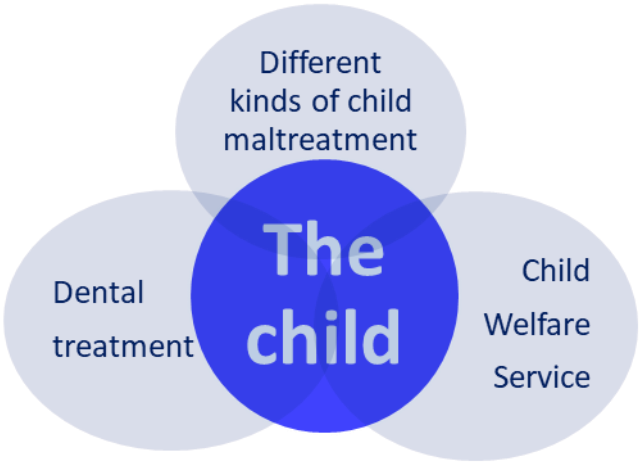


Figure 2. Three basic elements that may be influenced by dental professionals when meeting children, with a biopsychosocial approach.

1. Performing restorative treatment in children

The first obvious element of a biopsychosocial approach is how professionals meet the children's needs during a dental consultation.

Dentists´ workload and occupational stress

The 2500-year-old Hippocratic Oath, also called the Declaration of Geneva, adopted by the World Medical Association in 1948, outlines, among others, the ethical principles of the global medical profession. The Declaration was revised in October 2017, and ethical principles, such as the obligation to express respect, beneficence, and medical confidentiality towards patients, were emphasised. Additionally, increasing workload, occupational stress, and potential adverse effects these factors can have on physicians, their health, and their ability to provide care of the highest standard were highlighted. As a consequence, the revised Declaration states that physicians should attend to their own health, well-being, and self-care to improve patient's care (21, 22).

Occupational stress may be defined as psychological stress related to one´s job. Concerning the topics addressed in this thesis, stress is used in regard to how a dentist perceived fearful patients and how these patients affected them with stressfulness. Health personnel are exposed to stress related to their work with children and adolescents and their guardians. Self-perceived stress among health workers is a variable that may impact decisions about diagnosis, treatment, and finally practice in the best interest of the child. Aishwarya et al. reported that high stress levels among dental students performing paediatric dental procedures could be reduced by gaining knowledge about BMTs (23). To the best of our knowledge, there are limited reports in literature on self-perceived stress among dentists treating children, and no specific instrument has been developed to measure stress among dentists performing such treatment. Thus, it should be of interest to develop adequate questions and explore dentist's self-perceived stress when performing restorative treatment among children and adolescents.

Behavioural management techniques (BMT)s, dental fear (DF), and dental anxiety (DA)

Different definitions are used in literature on DF, DA, and phobia. Fear, and, in the dental setting, DF, may be defined as a natural emotional reaction to one or more specific threating

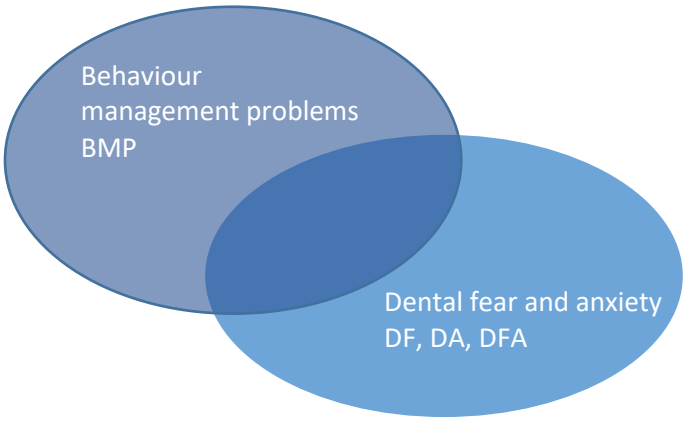
stimuli, i.e. specific objects like a needle or probe. DA may be defined as not attached to an object but a more nonspecific feeling of apprehension that something dreadful is going to happen during the dental visit and could be coupled with a sense of losing control. However, DF, DA, and dental fear and anxiety (DFA) are often used synonymous, and in the present thesis DF, DA, and DFA are used synonymous.

Dental phobia (DP) is characterised by a marked and persistent anxiety that significantly interferes with daily routine and social life. DP may be observed in relation to specific, i.e. drilling and injections, or general dental situations.

In this thesis, dental behaviour management problem (DBMP) is defined as a collective term for uncooperative and disruptive behaviours, resulting in delay of treatment or render treatment impossible, regardless of the type of behaviour or underlying mechanism (24-27).

To illustrate the relationship between different expressions and meanings regarding DF, DA, DFA, and BMP, Klingberg's figure (27) is inserted in Figure 3. BMP is what the dentist observes, and DF, DA, and DFA is what the patient feels, and they do not always correlate.

Figure 3. Relationship between dental fear and anxiety and behaviour management problems (27)



An important goal for PDHS should be to prevent DFA among children and adolescents, encourage the patients and their caregivers to attend the PDHS, follow advice and repeatedly meet for follow-up, and further use the dental service. In this context, the approach to the child as dental patient should be rooted in empathy, ethical considerations,

and autonomy and with the best interest of the child in mind (3, 28). BMTs should be one of the cornerstones of paediatric dentistry.

Klingberg and Broberg reported that dentists more easily identify DBMP than DFA and that an inexperienced dentist will encounter more DBMPs than an experienced dentist. Furthermore, a more experienced dentist more often senses the risk of DBMP and takes precautions.

DF is still a problem in children and adolescence although the prevalence is reduced. Early intervention is crucial because young children show more fear of different stimuli than older children (26, 29). Experiences of pain, discomfort, and inadequate communication and relations with the dental person, as well as the use of restraint in the dental setting, may be mediators for developing DA. Further, if untreated, DA may develop into a more severe type, DP. In 1998, 19% of Norwegian youths leaving the PDHS at the age of 18 years reported a high level of DFA (30). A follow-up study (31) in 2016 showed a statistically significant decrease to 8%. Another recent study found a DA prevalence of 12% in 16-year-old adolescents in northern Norway. A follow-up on the same population at 18 years of age showed no change in the percentage of DA during those 2 years (32). Based on these studies, one could assume that DA levels for adolescents have decreased over the last 20 years, but approximately 1 in 10 adolescents still report high DFA. The authors concluded that DA is a dental public health challenge and should become a focus to avoid escalation of the problem into adulthood (33) (31).

In collaboration with psychologists, behavioural science in dentistry has been highlighted in recent decades, both during undergraduate dental education and postgraduate courses and education and in the PDHS.

Several BMTs have demonstrated good outcomes in the prevention and treatment of DFA and DBMPs in children (24, 26, 34, 35). The methods are based on both pharmacological and psychological interventions. Communication and language skills are especially important to gain patients' trust and increase their feeling of coping and having control when undertaking dental treatment. In paediatric dental treatment situations, we must distinguish between a child's normal reluctance to unknown situations and DFA (36).

Preschool children's first visit to the dental clinic should be an area of focus, and the outcome should be a positive experience. Cooperation between the caregivers and dental team is essential.

Behavioural methods, such as good communication skills and tell-show-do, hypnotherapy, and variants of cognitive behavioural therapy (CBT), have all been shown to be beneficial when treating patients with DFA (37, 38). Öst and Skaret described CBT as a combination of cognitive and behavioural therapy that helps the patient to change his or her behaviour and learn to accept and test new ways of understanding his or her experiences (39). Berge et al. concluded that 10–16-year-old children, diagnosed with intraoral injection phobia, benefited positively from CBT (40). A Swedish research group newly published promising results for treating DA in children and adolescents using psychologist-guided Internet-based CBT. This is a future perspective, and the programme could be integrated into routine paediatric dental care and easily increase access to such treatment (41). To the best of our knowledge, all Nordic countries have focused on BMTs in both undergraduate and postgraduate education and courses. However, there seems to be a lack of knowledge according to how Norwegian dentists use BMT, and it should be of interest to explore the use of BMT among dentists in the PDHS in Norway. In all undergraduate and postgraduate curriculums regarding paediatric dentistry in Norway, BMT is given high priority; therefore, it is of interest to map Norwegian dentists' use of BMT according to country of education.

Considering the positive effects from behavioural methods in dental treatment of children, the reports concerning dentists' attitudes and use of BMT in daily practice is still relatively sparse, and further exploration should be of interest.

Use of restraint during dental procedures

Dental professionals meet challenges related to double roles as providers of safe dental treatment, comfort, and care with respect to the child's autonomy and appliers of possible restraint or holding. In this thesis, we use the term 'restraint', understood as 'the application of force with the intention of overpowering the child, and is by definition applied without the child's consent' (42). Restraint in paediatric practice, where good and effective dental care is on the agenda, awareness of ethical principles should be highlighted (26, 43, 44). The principle of beneficence, balancing harms and benefits for the best interest of the child, is

crucial. The principle of nonmaleficence (not doing harm) and justice (distribution, fairness, equity) and respect the autonomy is important to fulfil children's right to safe paediatric dentistry (45). Sometimes, there will be conflicts between necessary dental treatment and ethical principles: autonomy and beneficence. Balancing interests is important in the work of safeguarding children and is challenging and ethically demanding (44, 46).

A study by Svendsen et al. in 2017 addressed the use of restraint during medical procedures in paediatric care in hospitals and concluded that lack of guidance and scientific attention to restraint combined with conflicting interests and values among healthcare providers are problematic and affect the clinical care of children (42).

To the best of our knowledge, questions regarding restraint and ethical questions in connection with paediatric dentistry in the Norwegian PDHS have not received much focus in literature. This topic needs further exploration to better guide dental professionals to establish the best possible treatment strategies when facing ethical problems when treating oral diseases in children.

Children and pain: sedation and analgesia

Pain was originally defined by the International Association for the Study of Pain as 'an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage', and is always subjective (47, 48). However, in 2018, Cohen et al. proposed a revised definition of pain as follows: 'Pain is a mutually recognisable somatic experience that reflects a person's apprehension of threat to their bodily or existential integrity.'

Painful procedures during childhood and youths have been highlighted as important factors behind DFA and BMP (26) (49). Nermo et al. (2019) found experienced pain as an important factor for increasing (high level of pain) or decreasing (low level of pain) DA among youths (33).

In this context, pharmacological approaches to the management of DFA among children and adolescents may serve as valuable help. This applies when the child, after assessment, requires operative treatment and is uncooperative, or the GDP foresees that an

appropriate treatment can be uncomfortable for the child and create anxiety in a long-term perspective.

When using pharmacological sedation methods, it has been emphasised not to be administered alone, but along with psychological methods as a tool for relieving anxiety and managing behaviour in children undergoing dental treatment (50). Additionally, the use of sufficient analgesia is reported as essential. It has also been important to consider that children's understanding and learning about pain changes increase with age, in a developmental pattern, and is consistent with Piagetian theory about children's cognitive development (51).

The new angle, suggested in the definition of pain from 2018, is interesting because verbal reporting is the core of pain assessment, potentially allowing a broader approach to the pain definition. In nonverbal communication, e.g. with small children or disabled persons, this may be important (52, 53). If pain and anxiety is allowed to 'start', the pain tract will be remembered by the brain and could be difficult to 'erase', a description of overwhelming experiences that is stored in the somatic memory and expressed as changes in the biological stress response (54). Thus, prevention and alleviation of pain is a basic human right and should be highlighted as good paediatric clinical practice. The use of both LA and analgesics is essential in administering adequate pain control (55) and is essential in DFA prevention. A relation between pain experiences and level of dental fear is supported in several clinical studies. Children who have experienced ineffective pain control are more anxious than children who have effective pain control (56, 57).

In paediatric dentistry, there are a number of procedures that can cause pain, e.g. caries excavation, restorative procedures, endodontic treatment, periodontal treatment, dental trauma treatment, extractions, and minor surgical procedures. Pain management includes both pain prevention and reduction. Dentists have been recommended to use topical anaesthesia and LA and communicate with the child patient in a way that includes good psychological care (49).

There is sparse literature on pain, e.g. during and after tooth extractions and other painful dental procedures, but a recent study by Berlin et al. suggested that bilateral extraction of maxillary premolars is a suitable model for studies on pain management (58). The use of LA is regarded as a safe and effective method to minimise pain during dental

treatment (48). Moreover, the use of benzodiazepine or nitrous oxide sedation may reduce anxiety. In Figure 4, a conceptual model is developed to show how pain and anxiety reinforce each other and how appropriate pharmaceuticals may reduce both pain and anxiety.

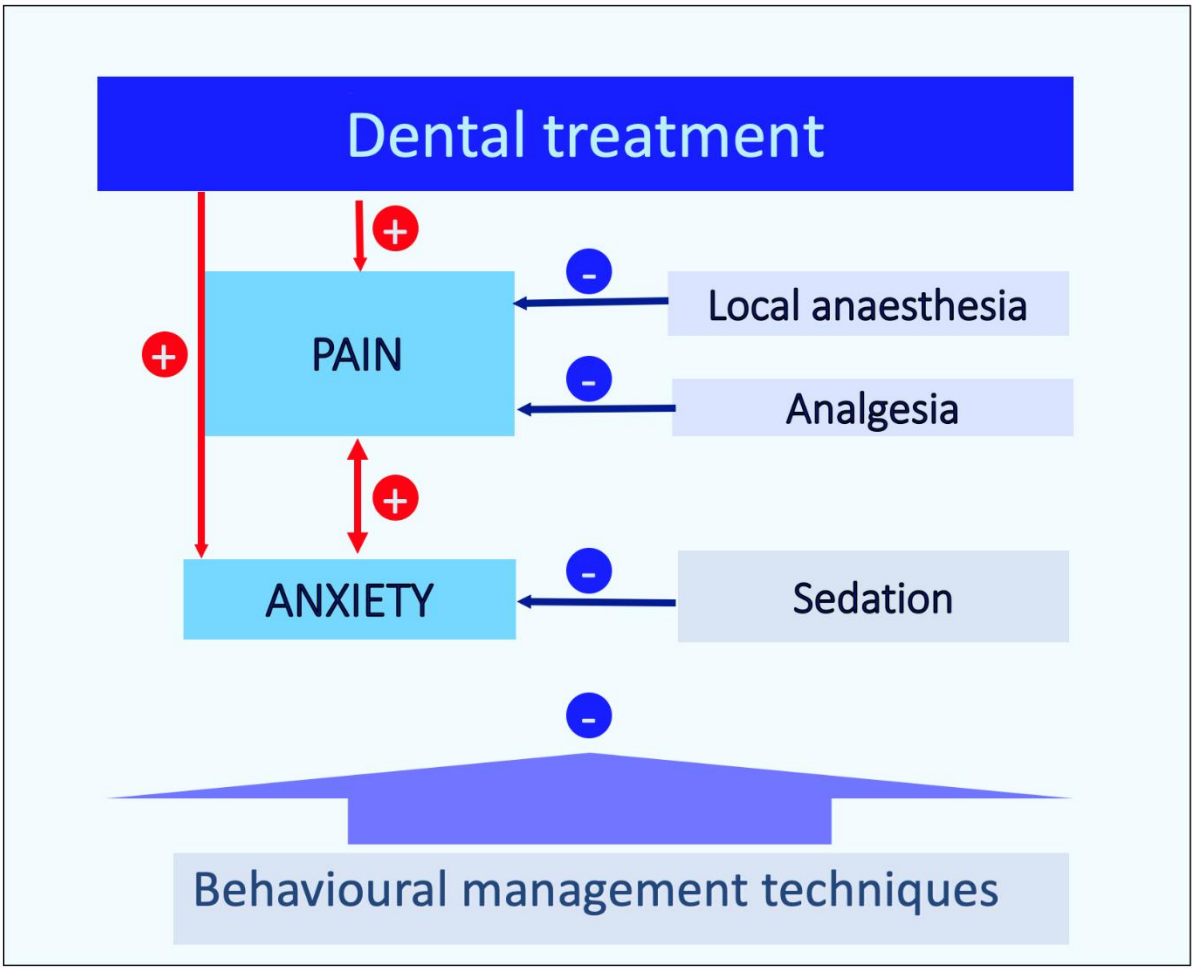


Figure 4. The model demonstrates how pain and anxiety during dental treatment reinforce each other. Each variable needs to be controlled by analgesia and sedation, respectively, along with psychological methods (BMT).

In 2017, Künisch et al. published a European Academy of Paediatric Dentistry (EAPD) policy document regarding the best clinical practice guidance for LA in paediatric dentistry, which proposes a best-practice guidance for helping clinicians to decide when and how to use LA (55). One important outcome was that LA, when administered appropriately, is clinically effective for pain control and safe with low risk of morbidity and adverse side

effects. Nevertheless, several authors have highlighted knowledge gaps regarding the effectiveness of pre- and postoperative use of analgesics (49) and use of LA regarding both injection technique and dosage recommendations (48, 55). Both Swedish and Danish reports indicate a general underuse of LA, analgesics, and sedatives when performing paediatric dentistry and that GDPs believe that children could not report pain with any degree of uncertainty. Berlin et al. (49), Wondium and Dahllöf (59), and Rasmussen et al. (60) reported that GDPs could feel stress when treating paediatric patients, especially related to injections, and further uncertainty on how to prevent pain (49). There is no known literature from Norway focusing on dentists' use of LA.

Considering the impact of sedation on anxiety, developing an effective sedative agent for use in children undergoing dental treatment and determining its effects should be important. In preschool children, conscious sedation with benzodiazepines is most commonly used. Oral midazolam has been shown in a Cochrane review to present moderate evidence as an effective agent. Administered in a juice drink, adverse effects were few and minor (61). Other sedatives were evaluated, but the authors concluded that there was insufficient evidence to draw any conclusions. There is a lack of well-designed and well-reported clinical trials to evaluate both potential sedation agents and clinicians' use and evaluation of effects of sedation agents.

During the last decades, there has been a systematic undergraduate and postgraduate education in behavioural science, including pharmacological (oral sedatives and nitrous oxide inhalation) and psychological methods, to help and reduce DFA. Both the Norwegian Dental Association and universities teaching dentistry in Norway have highlighted this education. Since 1993, the Norwegian Association for Odontophobia (NOFOBI) (62) has arranged annual symposiums with postgraduate courses regarding interdisciplinary collaboration between 'the dental team' (dentists, dental hygienist, and dental assistant) and psychologists with focus on DFA. Nevertheless, with this long-term commitment, there are little knowledge regarding how the dentists in the PDHS in Norway feel and think about DA and whether they use conscious sedation.

Caries and 'right treatment at the right time'

Dental caries is one of the most common unmet human diseases, affecting 60–90% of all school children worldwide according to the World Health Organization (WHO) (63). Caries was also the tenth of 291 most common health problems, assessed in the Global Burden of Disease Study in 2010 (64, 65). Due to dental caries, children lose school days and experience pain and develop infections, followed by increased use of antibiotics and pain killers, which may result in DA. Thus, as a common and chronic disease, caries has significant short- and long-term consequences (66-68). Caries prevalence in children has declined during the last decades, and the distribution is skewed with a majority having no caries, while some children have many carious teeth (69). In Norway, caries prevalence is considered low: in 2017, 81%, 60%, and 27% of all 5-, 12-, and 18-year-old children, respectively, had no dental caries experience (DMFT=0) (70). However, this statistic should receive attention because, when taking the opposite, 19%, 40%, and 73% of the children in Norway have caries, and some will require extensive dental care. In addition, enamel caries is not included in this statistic, indicating even a higher proportion of children with caries lesions (71, 72). Caries prevalence has been associated with missed dental appointments and DBMPs also in preschool children (73, 74), implying that the dental services should pay special attention to young children with caries.

Operative treatment of caries

When a child needs restorative treatment of permanent teeth due to caries, dental filling is not a permanent treatment. The restoration must be repaired and replaced several times in a lifetime perspective. A Norwegian survey revealed that, among the participating dentists, nearly 46% estimated the longevity of Class II restorations to be $\geq$ 10 years (75). Primary caries is still the most common reason for conducting operative treatment among dentists in the PDHS in Norway, and 57.5% of their working day is occupied by operative dentistry (76).

When children are diagnosed with caries in the primary dentition, a long-term and biopsychosocial approach is important to safeguard the best interest of the minor child. Tickle et al. (77) discussed different treatment options from the child's perspective. In some cases, instruction and motivation in dental hygiene in addition to fluoride applications may be a sufficient treatment, or the 'atraumatic restorative treatment technique' may be an

alternative to extensive restorations (78). The latter is a method based on caries excavation only with hand instruments and partial removal of caries. This method may be considered as a reasonable choice in some cases.

It is well known that fluoride can arrest caries lesions (79), and use of fluoride varnish in addition to toothbrushing with fluoridated toothpaste may be a treatment alternative in young children to arrest the caries lesion or postpone operative treatment. The literature has also demonstrated a renaissance regarding the use of silver diamine fluoride (SDF) when arresting and preventing caries in the primary dentition. Several authors have concluded that SDF is a safe and effective alternative technique to arrest caries in the primary dentition. This is especially highlighted in the debate of cost-effectiveness and areas with limited accessibility to dental treatment under GA (80-82). The best clinical practice may be debated, but paediatric clinicians should always focus on methods that demonstrate high safety levels for the child with the best longevity and without causing harm and risks (83).

The best interest of the child in a biopsychosocial context should be in the dentist's mind during treatment planning in young children.

2. Dentists´ and physicians' responsibilities regarding child maltreatment

Child maltreatment

Child maltreatment is defined by the Centers for Disease Control and Prevention report 2008 and Gilbert et al. as 'Any act of commission or omission by a parent or other caregiver that results in harm, potential for harm, or threat of harm to a child. Harm does not need to be intended' (84, 85).

Adults exposed to different types of maltreatment as children have a higher risk of being victims of violence, being sex offenders themselves, having high-risk sexual behaviour, and having problems with drug abuse (86). In a dental context, sexual abuse may be associated with poor oral health and DFA (87). Maltreatment during childhood often causes increased economic costs related to medical expenses, legal costs, and lost productivity. A substantial economic burden is estimated by the WHO and Fang et al. that amounts to approximately 124 billion annually, approximately 1% of the national GDP in the USA, and

greater lifetime costs than both stroke and type 2 diabetes (88). The WHO highlights that the health sector has a crucial role in addressing the maltreatment of children (89).

Maltreatment has different forms. Physical abuse may be defined as use of physical force against a child that results in or has the potential to result in physical injury. Sexual abuse may be defined as any completed or attempted sexual act, sexual contact, or noncontact sexual interaction with a child by a caregiver. Psychological (or emotional) abuse may be defined as intentional behaviour that conveys to a child that he/she is worthless, flawed, unloved, unwanted, endangered, or valued only in meeting another person's needs. Witnessing intimate partner violence can also be classified as exposure to psychological abuse.

Neglect is the failure to meet a child's basic physical, emotional, medical/dental, or educational needs; failure to provide adequate nutrition, hygiene, or shelter; or failure to ensure a child's safety. It includes failure to provide adequate food, clothing, or accommodation and not seeking medical or dental attention when needed. Childhood neglect can be as damaging as or perhaps even more damaging to a child than physical or sexual abuse (84).

Sometimes, the mouth becomes focused of abuse and neglect. Receiving dental care and getting help to maintain good oral health is one of the basic needs of a child (90, 91). The British Society of Paediatric Dentistry defines dental neglect as 'the persistent failure to meet a child's basic oral health needs, likely to result in the serious impairment of a child's oral or general health or development'. Welbury further highlighted that 'the focus on this definition is on identifying unmet need so that the family can receive the support they need, rather than on apportioning blame. Children have a right to good oral health, which forms an integral part of their general health' (92).

Different kinds of child maltreatment often overlap; children may be victimised repeatedly and in various ways. The WHO and Stoltenborgh reported that 23% of children worldwide are exposed to some kind of physical abuse, 36% to emotional abuse, 16% to physical neglect and 18% of girls and 8% of boys to sexual abuse (93, 94). Furthermore, the WHO reported that approximately 41,000 children aged <15 years re victims of homicide annually (95).

In a self-reporting study in Norway, 21% of youths (18–19 years) have been exposed to physical violence from at least one parent during childhood, and 6% reported severe violence. Intimate partner violence was reported by 8% of young adults. A total of 23% reported some kind of sexual abuse (96).

In another Norwegian study (16–17 year olds), Myhre et al. reported that 13.3% of girls and 3.7% of boys had at some time been exposed to sexual abuse or assault. A total of 3.4% had experienced sexual abuse that could be defined as rape in accordance with the Norwegian law. A total of 8.5% reported experiencing at least one form of neglect. There were no differences between boys and girls (97).

Dentists´ and physicians' responsibilities regarding child maltreatment

In this thesis, the term 'child welfare' has been selected instead of 'child protection'. Kojan and Lonne described the difference in their article: 'The narrower term child protection usually refers to preventive measures and protection from abuse and neglect. Child welfare is a broader term and often, in addition to protective measures, includes different supportive measures for children and families' (98, 99).

The UNCRC 1989 is incorporated in the Norwegian law by a statutory provision, giving the UNCRC the same status as other statutory regulations and with supremacy over concurring statutory provisions. As a consequence, since 1999, all health personnel in Norway are mandated by legislation to report suspicion of child maltreatment (100). The CWS is also mandated to provide feedback after receiving a referral from the health personnel. Furthermore, the CWS is regulated under the Child Welfare Act (101).

As both GDPs and GPs meet children both in preventive healthcare situations and under diseases or accidents, these professions have particular responsibility to report to the CWS. Considering the important information medical and dental examinations may provide the CWS and that injuries resulting from physical abuse frequently are located in the face, head, and neck region (102-104), publications addressing barriers in collaboration between medical services are relatively rare. Talsma et al. also highlighted that communication and cooperation between GPs and the CWS need to be improved (105). Consequently, more research in this topic could improve quality of the CWS.

AIMS OF THE THESIS

Overall aim

The main aim of this thesis was to explore barriers and facilitators safeguarding children in healthcare services and paediatric dental clinic, particularly attitudes and actions taken by dental professionals to secure a biopsychosocial approach to the child's health.

Specific aims of the papers

Paper I

This study aimed to explore factors that might be associated with the difficulties dentists encounter in performing restorative treatment in children.

It was hypothesised that

- Dentists experience self-perceived stress when performing restorative dentistry for children aged 3–5 years and 6–9 years.
- Dentists seldom use LA when performing restorative dentistry for children aged 3–5 years and 6–9 years.

Paper II

This study aimed to explore the relationship between dentists' education in the treatment of DA, dentists' attitudes towards children and adolescents with DA, and dentists' use of BMTs.

It was hypothesised that

- Dentists who have attended postgraduate courses in DA more often used BMTs.

Paper III

This study aimed to explore the variation in choices of treatment-related decisions among dentists in the Norwegian PDHS who treat severe caries in preschool children. They were presented with two clinical scenarios with 5-year-old children, with and without symptoms.

It was hypothesised that

- Dentists would favour the use of conscious sedation when approaching severe caries in the primary dentition.
- Dentists would not prefer the use of restraint in the context of performing acute treatment in preschool children with pain due to caries.

Paper IV

This study aimed to explore whether GDPs have mutual collaborations and communication with CWS.

It was hypothesised that

- Uncertainty and lack of advisory support were barriers when suspecting child maltreatment.
- The CWS obtained information from health professionals.

Paper V

This study aimed to explore GPs' communication with the CWS and disclose barriers that influenced Norwegian GPs in their decision whether to report to the CWS when facing suspected child maltreatment.

It was hypothesised that

- Uncertainty and lack of advisory support were barriers when suspecting child maltreatment.
- The CWS obtained information from health professionals.

MATERIALS AND METHODS

The present thesis incudes five papers based on the promoted aims and hypotheses in two cross-sectional questionnaire studies.

The first study (Study 1) is presented in Papers I, II, and III. Papers IV and V are based on data from the second study (Study 2). Table 1 provides an overview of the theme, design, and participants of the studies. The entire questionnaires are included as appendix to this thesis (in Norwegian). In Study 2, the same questionnaire was used for Papers IV and V. A minor adjustment in the questionnaire to GDPs in Study 2 was performed before the questionnaire was distributed to GPs (both questionnaires are included in the appendix).

Table 1. Theme, design, and participants of the different studies

Paper	Theme	Design	Study	Participants
I	Dentists' self-perceived stress and restorative treatment, sedation, and LA	Cross-sectional	1	Dentists in the PDHS in eight counties (n=598)
II	Dentists' use of BMT and DFA	Cross-sectional	1	Dentists in the PDHS in eight counties (n=598)
III	Dentists' and specialised dentists' choice regarding treating severe caries in 5-year-old children	Cross-sectional	1	Dentists in the PDHS in eight counties (n=598) Paediatric specialised dentists (n=37)
IV	Communication between dental professionals and the Child Welfare Services	Cross-sectional	2	Dentists and dental hygienist (GDPs) in the PDHS in Oslo (n=116)
V	Exploring communication and factors and disclose barriers regarding general practitioners and suspected child maltreatment	Cross-sectional	2	General practitioners (physicians) in Oslo (n=525)

Study groups Papers I, II, and III

All dentists working in the PDHS in eight of 19 Norwegian counties were invited to participate in the study in February 2013. Dentists employed in the PDHS in Norway and performing dental treatment on patients aged between 2 and 18 years at least once a week were included.

The number of dentists per inhabitant in the selected counties was equal to the rest of Norway, and the counties were geographically spread, north, east, south, and west, and considered representative for the country in general regarding demographic variations (rural/urban areas). Geographical cluster sampling was used with county as units, and all clinicians in selected counties were included. Age and sex distribution among the respondents was equal to Statistics Norway's registry on PDs. A power analysis was performed, based on a difference between male and female replies of 10%, precision of 0.05 (α = 0.05), and power of 80% (β = 0.20), suggesting a necessary sample of 402 participants. A dropout rate of 30–40% was considered acceptable, and the respective Chief Dental Officers in the eight counties provided a total of 611 e-mail addresses (including all working dentists in the eight counties).

In Paper III, all working specialists and postgraduate students in paediatric dentistry in Norway (n = 37) were included in addition to general dental practitioners. The opinion of the majority of PDs was used to validate the dentists' replies.

Paper IV

This study was conducted in August and September 2017. The participants were GDPs, including all dentists and dental hygienists in the PDHS in the municipality of Oslo. The Chief Dental Officer of the PDHS in Oslo approved the study and provided all e-mail addresses for all employed dentists and dental hygienists (n=131).

Paper V

The population in this paper consisted of GPs in Oslo (n=525). The Norwegian Medical Association and Oslo Medical Association provided the e-mail addresses to the GPs.

Methods

Study 1: Papers I–III

To explore variables relevant in safeguarding children in paediatric dental clinic, a cross-sectional study design within a population of dental professionals (dentists) who treat children was selected. This study design was considered adequate to describe estimates of prevalence of clinical routines and dentist's attitudes and perform analyses to assess associations between different variables.

Questionnaire in Study 1: Papers I–III

Due to an assumption that one questionnaire would have higher response rate than those in three separate papers in the same population, questions for use in three separate papers (Papers I, II, and III) were incorporated into one questionnaire. The questionnaire for all three papers was designed systematically in the same process by an interdisciplinary group consisting of two professors in paediatric dentistry, one professor in behavioural science, one professor in medical ethics, one PhD student, and one specialist in paediatric dentistry. The interdisciplinary group also collaborated with Brahms et al. and included some questions previously used by Brahms et al. (2012) (106) (Table 2). These questions were translated from Swedish to Norwegian language. The translation process followed standard procedures; the original Swedish survey was translated into Norwegian language by two dentists who were fluent in both languages. These were then translated back to Swedish by two other dentists, who were also fluent in both languages. Then, the translations were compared with the original questionnaire, and the best translation was used in the final Norwegian questionnaire.

The questionnaire was developed in a four-stage process: (i) systemic review of existing literature to identify relevant published papers and gaps in relevant knowledge within the aims of the three studies, (ii) discussions within the research group until consensus was reached, (iii) a pilot study among eight experienced dentists, and (iv) the final version based on adjustments from feedback from the pilot study. The questionnaire consisted of 32 questions including two case scenarios regarding severe caries in the primary dentition. In this thesis, 15 questions from the questionnaire were selected (Table 2).

An electronic software programme, QuestBack® Norway (Oslo) was used to distribute the precoded questionnaire and collect the responses. Anonymity was ensured. Two reminders were sent to nonresponders 2 weeks apart.

Table 2. Questions used in Study 1 (Papers I, II, and III)
*Questions previously used by Brahm et al. (2012) (106)
PDHS = dentists in the PDHS;
PD = specialists and postgraduate students in paediatric dentistry

Questions	Paper			Responding dentists	
	I	II	III	PDHS	PD
Background variables					
Sex*	**X**	**X**	**X**	**X**	
Age*		**X**		**X**	
Years of practice*	**X**		**X**	**X**	
Country of education*	**X**	**X**	**X**	**X**	
Allocated treatment time of the age group 2–18 years*	**X**		**X**	**X**	
Postgraduate education					
Have you attended postgraduate courses in dental anxiety after graduation?		**X**		**X**	
Dentists use of behavioural management techniques					
How often do you use these behavioural management techniques when treating young patients with DA?*		**X**		**X**	
Treatment of children with dental anxiety					
How many of your patients between the ages of 2 and 18 years have anxiety for dental treatment?* (grade 0–100%)		**X**		**X**	
Do you find yourself good at treating patients with DA?*		**X**		**X**	
How do you feel/think about treating patients with DA?* (1–3 responses possible)		**X**		**X**	
Do you feel stress before treating a patient with known anxiety regarding dental treatment?* **(**that you know have dental fear)	**X**			**X**	
Dentists' evaluation on performing restorative treatment					
How often do you find it difficult to do restorative treatment in children and adolescents?	**X**		**X**	**X**	
Dentists' use of LA					
How often do you use LA when completing restorative treatment in children and adolescents?	**X**		**X**	**X**	
Dentists' use of conscious sedation					
How often do you use conscious sedation to perform treatment of patients between 2 and 18 years?	**X**		**X**	**X**	
Assessing standard for best practice					
Case scenario 1 and 2 (Table 5, Figures 5 and 6)			**X**	**X**	**X**

Background variables were reported as follows:

- **Sex** (female/male)
- **Age** (24–30, 31–40, 41–50, and >50 years)

  Paper II: Dichotomised into 'dentists aged ≤40 years' and 'dentists aged >40 years'
- **Years of practice** (0–5, 6–10, 11–15, 16–20, and >20 years)

  Papers I and III: Dichotomised into '0–10 years' and '>10 years'
- **Country of education (**Norway, other Nordic countries, EU countries, outside EU),

  Papers I and II: Dichotomised into 'Norway' and 'other countries (EU and non-EU)'

  Paper III: Dichotomised into 'Nordic countries' and 'other countries (EU and non-EU)'
- **Allocated treatment time of the age group 2–18 years** (do not treat children, 1–20%, 21–40%, 41–60%, 61–80%, and 81–100%)

  Papers I and III: Dichotomised into '0–60%' and '61–100%'

Postgraduate education was reported as follows:

- **Have you attended postgraduate courses in DA after graduation?** (Yes – a few, Yes – several, No)

  Paper II: Dichotomised into 'Yes' (Yes – a few and yes – several) and 'No'

Dentists' use of BMTs was reported as follows:

- **How often do you use these BMTs when treating young patients with DA?** With a five-point scale with alternatives: never/seldom/sometimes/often/always (one answer for each technique)
  - Tell-show-do, nitrous oxide sedation, distraction, systematic use of CBT, relaxation techniques, and hypnotherapeutic techniques
  - *Paper II: In the statistical analysis, the alternatives frequency of use was incorporated into a five-point scale (1=never, 2=seldom, 3=sometimes, 4=often, 5=always) and dichotomised into 'seldom' (1-3) and 'often' (4-5).*
  - *The sum score from all seven techniques was used as a coarse measure for the dentists' use of BMT (ranging from 7 (indicating no use of any technique) to 35, indicating use of all techniques).*

Treatment of children with DA was reported as follows:

- **How many of your patients between the ages of 2 and 18 years have anxiety for dental treatment?*** (grade 0–100%)

  Paper II: Dichotomised using median

- **Do you find yourself good at treating patients with DA?*** Yes – very good, Yes – pretty good, No – not so good, No – not at all *(This answer was removed as no one used this alternative. The tree remaining groups are used in Paper II)*

  The outcome of dentists' answers to this question was measured using the term 'self-efficacy'. In this paper, self-efficacy refers to dentists' beliefs in their ability to obtain an outcome, with the alternatives described above.
- **How do you feel/think about treating patients with DA?***

  (1–3 responses possible) stressful, difficult, positive challenge, exciting, reluctant, making a contribution, poor economics, and Others
- **Do you feel stress before treating a patient with known anxiety regarding dental treatment?*** (that you know have dental fear) very often, often, sometimes, rarely/never

  Paper I: Dichotomised to 'never, rarely, sometimes' and 'often, always'

Dentists' evaluation of performing restorative treatment was reported as follows:

- **How often do you find it difficult to do restorative treatment in children and adolescents?**

  Among children aged 3–5, 6–9, 10–14, and 15–18 years (alternatives: never, rarely, sometimes, often, and always)

  Papers I and III: Dichotomised to 'never, rarely, sometimes' and 'often, always'

Dentists' use of LA treatment was reported as follows:

- **How often do you use LA when completing restorative treatment in children and adolescents?**

  Among children aged 3–5, 6–9, 10–14, and 15–18 years (alternatives: never, rarely, sometimes, often, and always)

  Papers I and III: Dichotomised to 'never, rarely, sometimes' and 'often, always'

Dentists' use of conscious sedation was reported as follows:

- **How often do you use conscious sedation to perform treatment of patients between 2 and 18 years?** At least once a week, 1–3 times every month, 2–3 times every half year, rarely, and never

  Papers I and III: Dichotomised to 'never, rarely, 2–3 times every half year' and '1–3 times every month and at least once a week'

Assessing standard for best practice in Case scenarios 1 and 2 was conducted by reporting the following:

- **The PDs were instructed to characterise the different treatment options** as being 'best practice', 'acceptable', or 'non-acceptable' (Table 5, Figures 4 and 5).
  Paper III: Dichotomised into 'appropriate practice' (including 'best practice' and 'acceptable') and 'non-appropriate practice'

In Paper I, the dentists were asked about self-perceived stress when treating patients with DF. These questions were previously used by Brahms et al. and did not include any instrument for measuring stress.

In Paper II, questions regarding how the dentists assessed their competence to treat patients with DA and their competence regarding treatment of patients with DA were included (106). We wanted the dentist's opinion about the proportion of children who had DA, and the Children's Fear Survey Schedule-Dental Subscale was not used. In this paper, the term DA was used and not DF as that by Brahm et al. (2012). Unlike in Paper I, the present paper also included questions about postgraduate courses regarding DA. Postgraduate courses in this paper are defined as different types of courses after graduation (see page 10). We also asked the dentists about the country of education because some dentists in the Norwegian PDHS obtained dental education abroad. This information was considered useful as the curriculums may differ between the countries regarding topics like behavioural management, use of LA, and sedation.

In Paper III, two case scenarios shown in Figures 5 and 6 were included. To check the quality of the treatment choices of the GDPs, a population of dentists was evaluated to obtain the highest possible competence available for clinical assessment of the two scenarios. PDs were selected. In this thesis, this is referred to as a 'gold standard'. The PDs received a questionnaire with only the two hypothetical case scenarios from the original questionnaire. To ensure anonymity of this small group of specialised dentists, no background questions were asked. Working specialist in paediatric dentistry and postgraduate students in paediatric dentistry (PDs) have substantial postgraduate education and clinical practice in the treatment of complex oral health problems in children. Additionally, they are included in a national network of specialists and participate in regular

clinical discussions. Thus, they were considered to represent a ‘gold standard’ within treatment options, and the GDPs’ responses were compared to this ‘gold standard’.

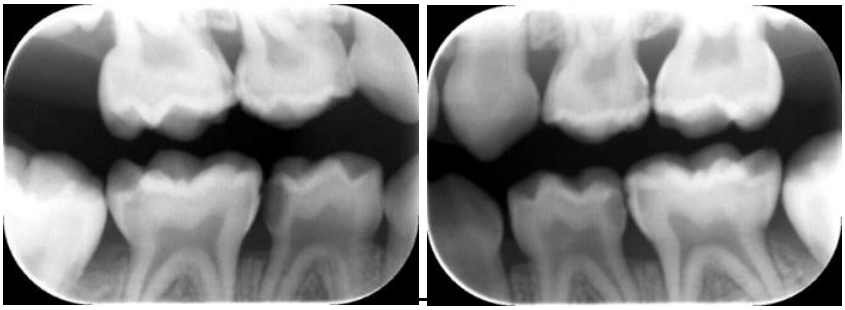


Figure 5. Case scenario 1. Bite-wing radiographs of a 5-year-old girl with pain due to severe caries.

Figure 6. Case scenario 2. A fearful and uncooperative 5-year-old boy with severe caries but no pain.

Study 2: Papers IV–V

In Study 2, a cross-sectional study design was selected. The populations included were both GDPs and GPs in Oslo. To the best of our knowledge, there was a gap in the knowledge regarding collaboration between different health professionals and the CWS. To explore different variables for communication and collaboration with the CWS, a cross-sectional study design with an electronic questionnaire was found most appropriate. Both professions have both demanding and busy working days, and by using a questionnaire, we hopefully would obtain a sense of their thoughts and actions about reporting suspicion of child maltreatment and receiving requests regarding information of a child and barriers for not reporting suspicion, without burdening them too much.

Questionnaire in Study 2: Papers IV–V

The entire questionnaires (questionnaires regarding GDPs and GPs) are included in Norwegian as an appendix to this thesis.

In Study 2, we also selected a cross-sectional study design. The populations included were both GDPs (dentists and dental hygienists in the PDHS) and GPs in Oslo. To explore different variables for communication, potential barriers, and collaboration with the CWS, a cross-sectional study design with an electronic questionnaire was found most appropriate for measuring prevalence of different variables. Both professions have both demanding and busy working days, and by using a questionnaire, we hopefully would obtain a sense of their thoughts and actions about reporting suspicion of child maltreatment and receiving requests regarding information of a child and barriers for not reporting suspicion, without burdening them too much.

In both studies, a previously used questionnaire (105, 107, 108) was applied. All questions from the Swedish questionnaire (105), originally created for GPs, were translated and adapted to Norwegian conditions (adapted to the Norwegian governmental organisation) and terminology. In addition to asking GPs, we also wanted to ask the same questions to GDPs (in Paper IV used GDPs as a designation for both dentists and dental hygienists). Both professions examine and observe children during childhood and adolescence.

The question about receiving an inquiry from the CWS regarding a child's chart was added to the present questionnaire. To the best of our knowledge, there were no previously published data regarding this. The questionnaire was backtranslated into the Swedish language by a bilingual dentist, and the translation was judged to be good.

The questions were common for both GDPs and GPs and used in both studies. They are presented in Table 3 with identification of those explicitly adapted to GDPs and GPs.

Table 3. Questionnaire. Most items in the questionnaire were previously used by van Haeringen et al., Borres et al., and Talsma et al. (105, 107, 108)

[1]New question, not previously used by van Haeringen et al., Borres et al., or Talsma et al.

Questions	Paper		Respondents	
	IV	V	GDPs	GPs
Background variables				
Sex	**X**	**X**	**X**	**X**
Profession	**X**		**X**	
Country of undergraduate education	**X**	**X**	**X**	**X**
Work experience in years	**X**	**X**	**X**	**X**
Percent working time with children	**X**		**X**	
Working at Child Health Centres		**X**		**X**
Undergraduate and postgraduate education				
Undergraduate education regarding child maltreatment	**X**	**X**	**X**	**X**
Undertaken continuing education within the last 5 years	**X**	**X**	**X**	**X**
Guidelines and colleague/advisory support				
Availability of guidelines	**X**	**X**	**X**	**X**
Possibility of discussing with colleagues	**X**	**X**	**X**	**X**
Possibility of advisory support	**X**	**X**	**X**	**X**
Reporting, attitudes, and communication with the CWS				
Number of cases reported by GDPs to the CWS during their career	**X**	**X**	**X**	**X**
Number of cases reported by GDPs to the CWS in 2016 (last year)	**X**	**X**	**X**	**X**
Factors affecting reporting	**X**	**X**	**X**	**X**
Have you ever failed to report despite suspicion?	**X**	**X**	**X**	**X**
Receiving feedback from the CWS	**X**	**X**	**X**	**X**
Have you ever reported suspicion of child maltreatment to the police?	**X**	**X**	**X**	**X**
[1]During the last 5 years, how many times have you received an inquiry from CWS regarding information about a child's chart?	**X**	**X**	**X**	**X**
Attitudes towards reporting child maltreatment to the CWS	**X**	**X**	**X**	**X**

Background variables and dichotomizing were reported as follows:

- **Sex** (female/male)
- **Profession** (dentist, dental hygienist, GP)
- **Country of undergraduate education (**[1]dental/[2]medical**) (**Norway, other Nordic countries, EU countries, outside EU)

Papers IV and V: Dichotomised to 'Norway' and other Nordic countries and other countries (EU and non-EU)'

- **Years of practice** (0–2, 3–5, 6–10, 11–20, 21–30, >30 years)

  Papers IV and V: Dichotomised to '0–10 years' and '>10 years'

- **Percent working time with children** (0–25%, 26–50%, 51–75%, 76–100%)

  Papers IV and V: Dichotomised to '0–75%' and '76–100%'

- **[2]Working at Child Health Centres (CHCs):** Working at CHCs for children, CHCs for youth, and school health service vs never worked at CHCs.

  Paper V: Dichotomised into 'have worked on CHC and 'never worked at CHC'

Undergraduate and postgraduate education

- **Did you under your undergraduate education receive education regarding child maltreatment?** (Yes or No)
- **Have you undertaken continuing education within the last 5 years?**

  (Multiple response possible) **(**no, yes – several lectures and courses, yes – longer courses ≥ 2 days, others)

  Papers VI and V: Dichotomised to 'several lectures and courses/longer courses ≥ 2 days' and 'no continuing education'

Guidelines and colleague/advisory support

- **Availability of guidelines** (Yes or No, Optional comments to specify)
- **Possibility of discussing with colleagues** (Yes, No – I don't have time, No – I don't need to, No – my colleagues don't have time, I don't know)

  Papers IV and V: Dichotomised to 'Yes' and 'No – I don't have time, No – I don't need to, No – my colleagues don't have time, I don't know'

- **Possibility of advisory support** (Yes, No, I don't know, Optional comments to specify)

  Papers IV and V: Dichotomised to 'Yes' or 'No, I don`t know'

Reporting, attitudes, and communication with the CWS

- **Number of cases reported by GDPs to the CWS during their career** (0, 1–2, 3–5, 6–10, 11–20, 21–30, >30)

  Paper IV and V: In bi- and multivariate analyses, dichotomised to never reported vs reported one time or more

- **Number of cases reported by GDPs to the CWS in 2016 (last year)** (0, 1, 2–3, 4–5, >5)
- *Papers IV and V: In bi- and multivariate analyses, dichotomised to never reported vs reported one time or more last year*
- **Have you ever failed to report despite suspicion?** (Yes or No)
- **Factors affecting reporting.** Uncertainty of suspicion, the CWS was already in contact with the family, Fear of losing the family's trust and contact, Planned short-term follow-up of the child to assess the case better, Not expecting positive outcome for the child when reporting, Helped the child and family on my own, referral to other healthcare providers, Lack of knowledge about child maltreatment, Fear of personal threats, Inadequate time, My colleagues discouraged me to report (alternatives: never, rarely, sometimes, often, and always)

  Papers IV and V: Descriptive results in paper
- [3]**Receiving feedback from the CWS (**Never sent reports, Yes – CWS provided feedback, Yes – I was in contact with the CWS and received feedback, No – I was in contact but did not receive feedback, Either CWS nor I made contact)

  Papers IV and V: Descriptive results in paper
- **Have you ever reported suspicion of child maltreatment to the police?** (Yes or No, Optional comments to specify)
- [3]**During the last 5 years, how many times have you received an inquiry from the CWS regarding information about a child's chart?** (0, 1, 2–3, 4–5, >5)

  Papers IV and V: Descriptive results in paper
- **Attitudes towards reporting suspected child maltreatments to the CWS, with response alternatives:**

  1. It is easy to contact CWS
  2. I trust CWS investigations in suspected child maltreatment
  3. I trust CWS interventions in child maltreatment
  4. Speaking with families about child maltreatment may risk losing contact with the family
  5. I have a better chance of resolving maltreatment problems on my own

  Papers IV and V: Answers to the statements had options 1–5: 'Disagree = options 1–2', 'Neutral = option 3', and 'Agree = options 4-5'

Information, consent, and ethical considerations

The studies were given full ethical considerations according to the Norwegian Regional Committees for Medical and Health Research Ethics' (REK) guidelines for research. Information to and informed consent from participants were provided based on recommendations and standard templates from the REK. Anonymity was ensured, and it was voluntary to participate. All studies were approved by the Norwegian Centre for Research Data. The REK was consulted and indicated that their approval was not required. Anonymity was ensured.

Papers I and II

The study population received information in a cover letter to the questionnaire. The respective Chief Dental Officers approved that the questionnaires and cover letter could be distributed to the dentists.

Paper III

The participants received information and consented as in those in Papers I and II. In addition, all working PDs and postgraduate students in paediatric dentistry in Norway (n=37) were included. Written information was provided together with the electronic questionnaire, and anonymity was ensured by not asking any background questions (appendix questionnaire to PDs).

Paper IV

The participants were informed by their Chief Dental Officer in the PDHS in Oslo, who also approved the study along with the City Council of Oslo. The participants were provided with a cover letter with information following the electronic questionnaire.

Paper V

The Norwegian Medical Association provided the e-mail addresses to the GPs and approved the study in collaboration with Oslo Medical Association and the City Council of Oslo. The participants were sent a cover letter with information about the study, together with the questionnaire.

In the questionnaires, anonymity was ensured, and it was possible to refuse from responding.

Statistical analyses

Paper I

Data were analysed using the Statistical Packages for Social Sciences (SPSS, Inc. Chicago, IL, USA, version 21). Cross-tabulation with chi-square statistics was used to analyse differences regarding demographics, difficulties in performing restorative treatment, experience with the treatment of children, self-perceived stress, years of practice, and dentists' use of LA and sedation.

The McNemar's test was used to test differences between frequencies in two age groups of children. A bivariate logistic regression model was used to explore associations between 'difficulties in performing restorative treatment in the age groups 3–5 and 6–9 years' as dependent variable and dentists' stress before treating anxious patients and years in practice as independent variables.

Paper II

Data were analysed by cross-tabulation with chi-square statistics and logistic regression analysis. Cross-tabulation with chi square analysis was used to analyse the differences in dentists' sex, postgraduate courses, country of education, and self-efficacy. To determine the dentists' use of BMTs, a sum score was calculated by summarizing the use of different BMTs. Using median dichotomisation, dentists were divided into groups according to their use of BMT (low/high use of BMT). The results were used to calculate the odds ratio (OR) for the use of BMT when treating patients with DA.

Paper III

The dentists' practice profile, sociodemographic background, treatment options and precoded response choices were mapped and dichotomised. Thereafter, the data were cross-tabulated and tested using chi-square statistics. The consulted statistician advised the research group not to conduct any chi-square statistical analysis between the PDs and GDPs

due to the large difference in number of respondents (29 PDs vs. 391 GDPs) and their three options for answering.

Paper IV

The sample and questionnaire data were described by descriptive statistics. Chi-square test and bi- and multivariate logistic regression analyses were used to analyse the associations between six independent variables and three dependent dichotomised variables.

Paper V

To describe the study sample and questionnaire data, descriptive statistics were used. Data analyses were conducted using the chi-squared test and bi- and multivariate logistic regression to explore associations between six independent variables and three dependent dichotomised variables.

In all papers, data processing and all analyses were performed by the Dr. Philos candidate under supervision of a biomedical statistician.

RESULTS

In this section, the main results from five papers and comparison between papers IV and V are presented.

Detailed results, tables and figures, are presented in the original papers. Papers I–III are mainly based on the same study populations, and repetitive, overall common results will only be presented for the first paper.

Paper I

The material consisted of 391 GDPs, and 69.6% (n=270) were female. The response rate was 65.4% (n=391). The majority of the respondents (74.0%, n=288) obtained dental education from Norway.

Dentists' self-perceived stress when performing restorative treatment in children aged 3–5 years and 6-9 years

The results showed that 51.4% found it frequently or always difficult to complete restorative treatment in the age group 3–5 years. The proportion declined with patients' increasing age: 6–9 years, 13.9%; 10–14 years, 1.3%; and 15–18 years, 0.5%. Years in practice and dentists' self-perceived stress when treating fearful patients demonstrated statistically significant differences regarding the treatment of children aged 3–5 years and 6–9 years. There was no statistically significant difference between sex and country of education.

In the treatment of the age group 3–5 years, there was a statistically significant association between dentists' feeling of stress before treatment of patients with DF and difficulties associated with restorative treatment (Table 4). An association between number of years in practice and self-reported stress was found: dentists with >10 years of practice experienced less stress than those with <10 years of practice (Table 4).

Table 4. Binary logistic regression model with difficulty in performing restorative treatment in children and adolescents as dependent variable and dentists' perception of stress and years in practice as independent variables

Covariates	Difficult to perform restorative treatment	Age groups			
		3–5 years		6–9 years	
		OR	95% CI	OR	95% CI
Dentists felt stress before treating fearful patients	Rarely/never/sometimes	2.6	1.7-3.9	2.0	1.1-3.6
	Frequently/always	1.0	1.0	1.0	1.0
Years in practice	≤10 years	0.6	0.4-0.8	0.4	0.2-0.8
	>10 years	1.0	1.0	1.0	1.0

Dentists' use of LA when performing restorative treatment in children aged 3–5 years and 6–9 years

In the age groups 3–5 years and 6–9 years, dentists reported using LA never, rarely, or sometimes in 58.9% and 29.5% when performing restorative treatment, respectively. In the oldest ages group (15–18 years), the dentists reported to use LA frequently/always in 95.1% when performing restorative treatment. Dentists who reported difficulty in performing restorative treatment did not use conscious sedation or LA more often than other dentists.

Paper II

The material consisted of the same 391 GDPs as those in Paper I.

Of the respondents, 53% (n=208) reported having had postgraduate courses in DA and 72% (n=280) considered themselves to be 'pretty good' at treating patients with DA. There was no statistically significant difference regarding postgraduate education and country of education (Paper II).

Dentists' use of BMTs and attitudes towards DA

Dentists who reported that they considered themselves good at treating patients with DA consequently reported more positive attitudes towards these patients (Fig. 7).

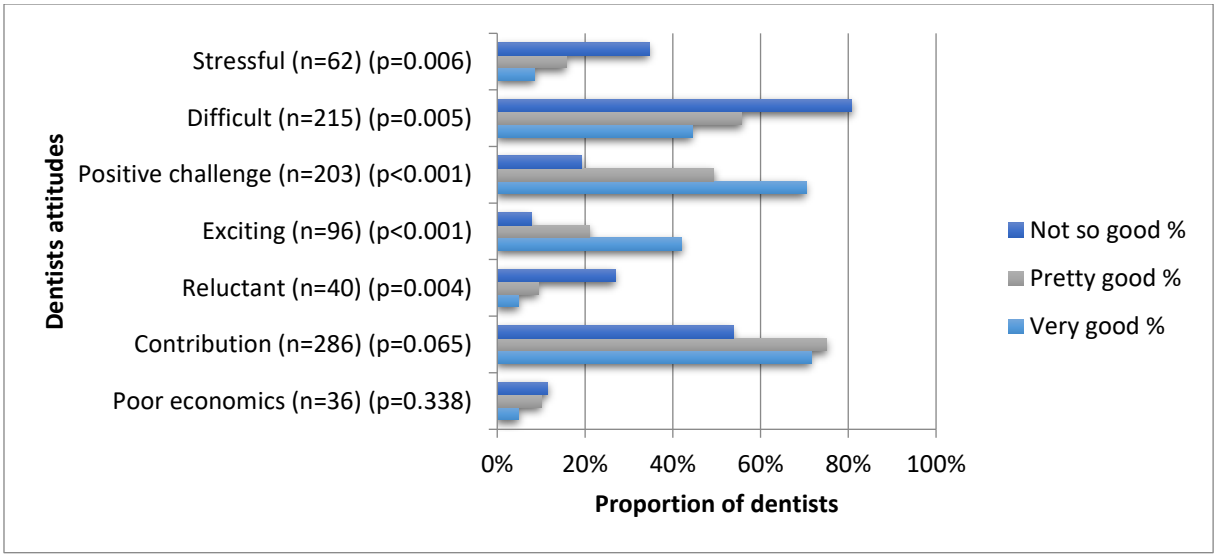


Figure 7. Attitudes towards treating patients with dental anxiety reported by dentists and comparison between different attitudes and dentist's response to the question: 'Do you find yourself good at treating patients with dental anxiety?'

Dentists aged <40 years (55% vs. 38%, p=0.001) and those with a dental education from abroad (57% vs. 43%, p=0.014) reported treating a higher proportion of patients with DA. Dentists educated in Norway also reported statistically significantly less stress (13% vs. 24%, p=0.009), were less reluctant to treat patients with DA (7% vs. 17%, p=0.005), and more often reported that it felt like they were making a contribution (77% vs. 49%, p<0.001) compared to dentists with education from abroad. Female dentists also felt less reluctant to treat patients with DA than their male colleagues (7% vs. 15%, p=0.017).

Of the BMTs used, 'tell-show-do' (87%, n=340) was most frequently reported, followed by relaxation (35%, n=132), distraction (25%, n = 94), systematic cognitive behaviour therapy (22%, n=84), conscious sedation (18%, n=69), sedation with nitrous oxide (2%, n=8), and hypnotherapeutic techniques (1%, n=4).

Male dentists (OR, 1.9 [95% CI, 1.1–3.0], p=0.014), dentists with no postgraduate course (continuing education) regarding DA (OR, 2.1 [95% CI, 1.3–3.3], p=0.001), dentists with education from abroad (OR, 2.8 [95% CI, 1.6–4.7], p<0.001), and dentists with poor self-efficacy (OR, 4.7 [95% CI, 1.6–13.7], p=0.004) used less BMT than the remaining dentists.

Paper III

A total of 37 PDs were invited in addition to the GDPs from Papers I and II, and 78% (n=29) of the PDs completed the survey.

Treatment options when approaching severe caries in the primary dentition

Both GDPs and PDs were presented with two common clinical case scenarios regarding 5-year-old children with severe caries in their primary teeth (Figures 5 and 6). The GDPs evaluated their preferred treatment choices. The PDs were provided the same treatment choices but with response alternatives: 'best practice', 'acceptable', and 'non-acceptable'. An assembly of the PDs' responses vs. GDPs' responses is presented in Table 5.

In case scenario 1, when the child presented with pulpitis and pain due to deep caries, neither the GDPs nor PDs supported the alternative of postponing treatment and recall in approximately 3–6 months.

A new appointment with use of BMT was the preferred approach for most GDPs (65.2%). This was rated as acceptable practice by the majority of PDs (62.1%). The majority of PDs assessed new appointment with conscious sedation (82.8%) and 37.9% referral for treatment under GA as best practice and 44.8% as acceptable. Only half of the GDPs would choose the use of conscious sedation, and few opted for referral for treatment under GA.

The results showed that GDPs with > 10 years of clinical experience proposed to perform less conscious sedation (p= 0.029) and BMT (p= 0.006) but more referrals for dental treatment under GA (p= 0.048). Dentists who reported undertaking sedation frequently were more likely to make a new appointment for sedation (p= 0.001), but those who rarely used sedation were more likely to postpone treatment and make a new appointment in 3–6 months (p= 0.007). Prescription of antibiotics was not reported as appropriate for any of the groups.

Table 5. Treatment options selected by the 391 general dental practitioners (GDPs) and specialists in paediatric dentistry (PDs) in case scenarios 1 and 2

Response options Case scenario 1	**GDPs** What kind of approaches would you choose for this patient? (2 marks possible)		**PDs** Which of these scenarios would you consider 'best practice', 'acceptable', and 'non-acceptable' treatment?					
			Best practice		Acceptable		Non-acceptable	
	n	%	n	%	n	%	n	%
1. Wait and convene in approximately 3–6 months	15	3.8	0	0.0	2	6.9	27	93.1
2. Acute treatment, hold if necessary	45	11.5	0	0.0	8	27.6	21	72.4
3. New appointment for BMT	255	65.2	7	24.1	18	62.1	4	13.8
4. New appointment with conscious sedation	196	50.1	24	82.8	5	17.2	0	0
5. Prescribe antibiotics and new appointment for treatment	17	4.3	3	10.3	4	13.8	22	75.9
6. Refer for treatment under general anaesthesia	25	6.4	11	37.9	13	44.8	5	17.2

Response options Case scenario 2	**The dentist decides that the patient will obtain a new notice in approximately 9 months. Do you find that the dentist has made the right decision?**			
	GDPs		**PDs**	
	n	%	n	%
Yes	75	19,2	0	0
No	316	80,8	29	100

In case scenario 2, the GDPs and the PDs answered the same question with the same option, yes/no. The child had no ailments, pain, or fistulas but had an uncooperative behaviour, and his mother was not interested in dental treatment for her son. The dentist decides that the patient will obtain a new notice in approximately 9 months.

All PDs reported that the dentist had made a wrong decision. Four of five GDPs reported the same. Approximately 25% of dentists with >10 years of clinical practice supported the postponement of treatment for 9 months, demonstrating a significantly greater frequency than that reported by their younger colleagues (p=0.002). Moreover, 22% of dentists who rarely used conscious sedation agreed to postpone the treatment, in contrast to those who frequently used sedation, of whom only 3% agreed to postpone treatment (p=0.028).

Nearly all GDPs made additional comments on this case, and a general tendency was terms, such as training BMTs, habituation, close follow-ups, prevention of pain and orthodontic malocclusion, and care for upcoming permanent first molars.

Use of restraint in the context of performing acute treatment in preschool children with pain due to caries

The performance of acute treatment and child restraint, if necessary, was not reported as best practice by none of the PDs but considered as a treatment option by 11.5% of GDPs. Furthermore, 10% of GDPs educated within the Nordic countries and 20% of those educated in other countries (p=0.001) would select this alternative.

Assembly of the main results from Papers I, II, and III (not published)

Papers I–III explored how clinicians perform their daily paediatric practice and how sex, country of education, years in practice, and use of BMT, LA, and sedation affected clinical practice and treatment choices. Furthermore, Paper III explored the choice of treatment in two hypothetical case scenarios. Table 6 provides an overview of the main results from the three papers, and a summary is presented as follows:

Female dentists

- used significantly more BMT
- felt less reluctant to treat patients with DA

Dentists with ≤10 years of practice

- had more difficulties in performing restorative treatment in children aged <10 years
- more often wanted to make a new appointment for conscious sedation when a preschool child had pain due to severe caries (case scenario 1, Paper III)
- more often wanted to make a new appointment for BMT when a preschool child had pain due to severe caries (case scenario 1, Paper III)
- did not want to postpone treatment for 9 months as supported by many of their older colleagues (case scenario 2, Paper III)

Dentists more often felt stress when treating fearful patients when

- the child was aged <10 years

Dentists who used sedation frequently

- more often wanted to make a new appointment for conscious sedation when a preschool child had pain due to severe caries (case scenario 1, Paper III)

Dentists with education from Norway and the Nordic countries

- more often wanted to make a new appointment for conscious sedation when a preschool child had pain due to severe caries (case scenario 1, Paper III)
- more often wanted to use BMT

- felt less reluctant to treat patients with DA
- less often wanted to perform acute treatment and 'hold the child' if necessary (used less restraint)

Dentists who had participated in postgraduate courses regarding treating patients with DA
- more often used BMTs (Paper II)

Specialists and dentists undergoing specialist training in paediatric dentistry (PDs)
- favoured BMT, use of conscious sedation, and referrals for GA when a 5-year-old child presented with severe caries (case scenario 2, Paper III)

It should also be highlighted that this study showed that nearly 60% of the responding GDPs reported that they never, rarely, or sometimes used LA when performing restorative treatment in children aged 3–5 years.

Table 6. Overview and assembly of the main results from Papers I–III (not published)

	Difficulties complete restorative treatment 3–5 years **Paper I**	Difficulties complete restorative treatment 6–9 years **Paper I**	New appointment for conscious sedation **Paper III**	Reluctant to treat patients with dental anxiety **Paper II**	Acute treatment – hold if necessary **Paper III**	Use of BMT		Refer for GA
						Sum score BMT **Paper II**	New appointment for BMT **Paper III**	**Paper III**
	%	%	%	%	%	%	%	%
Women	52	14	53[3]	7*	13[3]	57*	63[3]	6[3]
Men	49	14	43[3]	15*	9[3]	41*	70[3]	8[3]
Undergraduate education from Norway	49	13	54*[1]	7*	10*[1]	59*	64[1]	5[1]
Undergraduate education from abroad	58	18	35*[2]	17*	20*[2]	33*	68[2]	11[2]
Years of practice <10 years	60*	20*	56*		9		72*	4*
Years of practice >10 years	44*	9*	45*		14		59*	9*
Conscious sedation (never rarely, 2–3 times half year) Study I	66	63	43*		13		67	6
Dentists feeling stress when treating fearful patients (often, always) Study I	86*	31*						
Dentists use of LA (never, rarely, sometimes) Study I	59	32						
Postgraduate education (yes) Study II						60*		

* p<0.05 [1]Nordic countries [2]Countries other than the Nordic countries [3]Not published

Paper IV

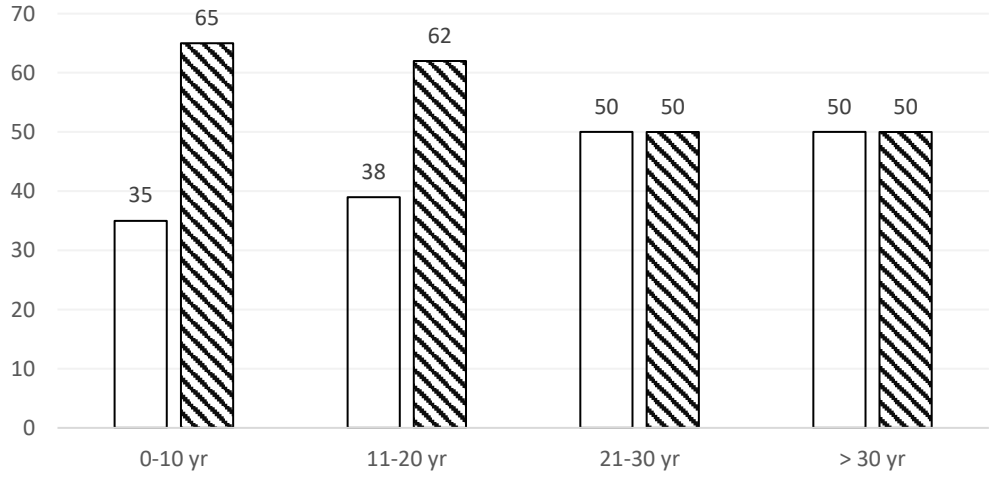
The questionnaire was distributed to 116 GDPs. The response rate was 75% (n=87), of which 93% were female. Of the respondents, 56% (n=49) were dentists, and 37% (n=32) were hygienists. Of these, 7% (n=6) did not answer the question regarding professional title. All hygienists were women, and six dentists were men. In Paper IV, dentists and dental hygienist merged to one group named GDPs.

CWS obtained information from health professionals

Ninety percent of the responding GDPs had been requested by the CWS to send copies of at least one child's dental chart as part of their work to unveil neglect and abuse. Half (51%) of the GDPs had received more than five such requests. In addition, 71% of GDPs had reported suspicion of child maltreatment to the CWS, and 33% answered that they had failed to report to the CWS, despite suspicion (this is later in the text referred to as 'failed to report suspicion'). Only one GDP had made a report to the police.

Figure 8 illustrates the relationship between years of work experience and reporting/not reporting to the CWS during the previous year.

Figure 8. Percentage of GDPs who did (hatched columns) or did not (open columns) report suspicion of child maltreatment during the previous year relative to work experience



Barriers for reporting when suspecting child maltreatment

More GDPs with education from countries other than Norway had failed to report suspicion during their career compared with their colleagues educated in Norway (56% vs. 29%, p=0.038). Significantly more GDPs educated in Norway reported having obtained an undergraduate education regarding child maltreatment (83% vs. 44%, p=0.003). Moreover, 88% had obtained continuing education on the subject during the previous 5 years.

The most common reason for not reporting to the CWS was 'uncertainty of suspicion' (67%).

Seventy percent of the respondents reported using a guideline on reporting of suspected child maltreatment, but there were no reports of a specific uniform guideline. The multivariate logistic regression analysis revealed that GDPs who used a guideline were also more likely to have reported suspicion during the previous year than those who did not use a guideline (OR, 3.6; 95% CI, 1.1–11.4). Further, GDPs working ≤75% with children were more likely to report suspicion of child maltreatment during their career than GDPs working mainly with children (OR, 4.9; 95% CI, 1.5–16.3), and similar GDPs with education from abroad had a higher probability of reporting to the CWS during the previous year than those educated in Norway (OR, 13.5; 95% CI, 1.5–124.9).

Table 7. Multivariate logistic regression models exploring the association between failing to report suspicion, reported suspicion during the whole career, reported suspicion during the previous year, and characteristics of the respondents

		Failing to report suspicion, yes	Reported child maltreatment during the whole career	Reported child maltreatment during the previous year
		OR (95% CI)	OR (95% CI)	OR (95% CI)
Work experience	≤10 years	1.0	1.0	1.0
	>10 years	0.5 (0.1–1.8)	1.1 (0.3–4.4)	2.3 (0.6–8.6)
Country of dental education	Norway	1.0	1.0	1.0
	Abroad	0.3 (0.1–1.2)	1.8 (0.4–8.6)	13.5 (1.5–124.9)*
Undergraduate education	Yes	1.0	1.0	1.0
	No	0.5 (0.1–2.2)	1.0 (0.2–5.0)	1.8 (0.3–9.2)
Continuing education	No	1.0	1.0	1.0
	Yes	0.3 (0.03–1.7)	0.5 (0.1–2.8)	1.8 (0.3–9.9)
Guidelines	No	1.0	1.0	1.0
	Yes	0.9 (0.3–2.8)	2.1 (0.7–6.8)	3.6 (1.1–11.4)*
Percent working time with children	>75%	1.0	1.0	1.0
	≤75%	0.5 (0.2–1.5)	4.9 (1.5–16.3)*	1.9 (0.6–5.8)

*p<0.05, reduced number because of internal dropout

Paper V

Of the 525 GPs who received the questionnaire, 183 (35%) responded, of whom 53% were women.

CWS obtained information from health professionals

Nearly all GPs (99%, n=179) had received at least one request from the CWS regarding information about a child and the child's record during their career, and 57% (n=104) had received more than five such requests.

Moreover, 27% of respondents had never reported suspicion of child maltreatment to the CWS, and 17% answered that they had failed to report a concern, despite suspicion.

Barriers for reporting when suspecting child maltreatment

The most common reason for not reporting was 'uncertainty of suspicion' (40%), and three of five GPs reported that talking to families about child maltreatment might cause a risk of losing contact with the family.

Almost one-third of respondents (30%) reported the use of a guideline regarding suspected child maltreatment. No specific common guideline was referenced, but several respondents referred to chapters of the Norwegian legislation. The number of cases reported during the previous year in relation to work experience is presented in Figure 9.

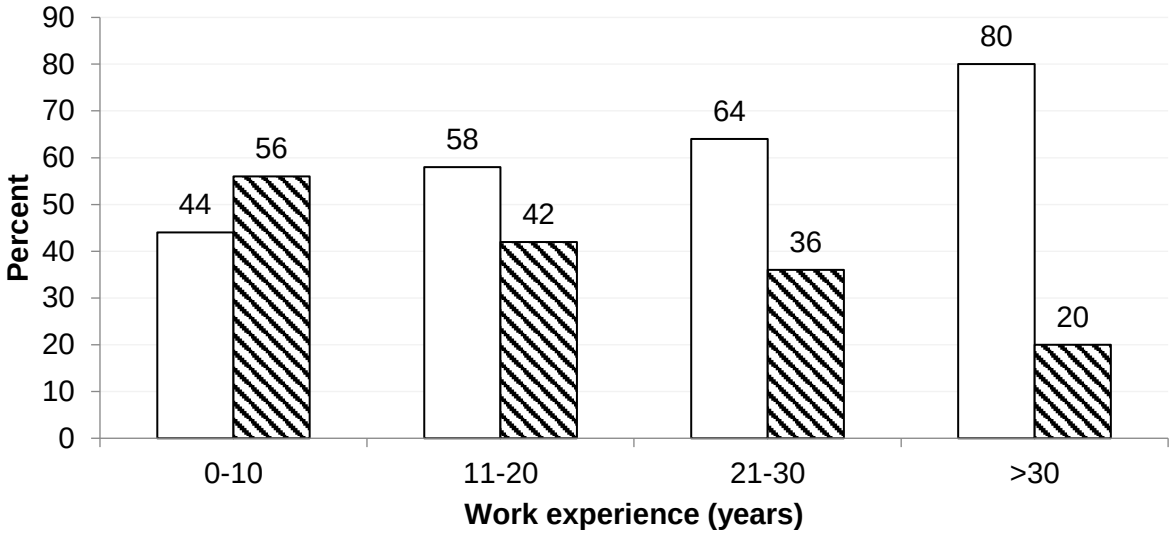


Figure 9. Percentage of GPs who did not report suspicion of child maltreatment over the previous year (open columns) and those who did in relation to work experience (hatched columns)

The results from the multivariate analyses showed that GPs who reported having received continuing education (OR, 2.4; 95% CI, 1.1–5.4) and who had work experience from CHCs (OR 3.5, 95% CI 1.3-9.3) were more likely to have reported child maltreatment at least once than those without such education or experience.

GPs with <10 years of work experience (OR, 2.7; 95% CI, 1.2–6.1) working at the CHC (OR, 3.5; 95% CI, 1.1–11.5) were more likely to have reported a suspicion during the previous year (Table 8).

Table 8. Multivariate logistic regression models exploring the association between failing to report suspicion, reported suspicion during the whole career, reported suspicion during the previous year, and characteristics of the GPs

		Failing to report suspicion, yes	Reported child maltreatment in the whole career	Reported child maltreatment during the previous year
		OR (95% CI)	OR (95% CI)	OR (95% CI)
Work experience	≤10 years	0.6 (0.2–1.8)	0.8 (0.3–1.9)	2.7 (1.2–6.1)*
	>10 years	1.0	1.0	1.0
Country of medical education	Abroad	1.1 (0.4–2.7)	0.9 (0.4–2.1)	1.6 (0.8–3.3)
	Norway	1.0	1.0	1.0
Undergraduate education	No	1.7 (0.7–3.9)	1.0 (0.4–2.3)	1.0 (0.5–2.1)
	Yes	1.0	1.0	1.0
Continuing education	Yes	3.0 (1.3–6.7)*	2.4 (1.1–5.4)*	1.3 (0.7–2.5)
	No	1.0	1.0	1.0
Guidelines	Yes	1.2 (0.5–2.8)	1.3 (0.6–3.0)	1.2 (0.6–2.4)
	No	1.0	1.0	1.0
Ever worked at the CHC	Yes	1.2 (0.3–4.8)	3.5 (1.3–9.3)*	3.5 (1.1–11.5)*
	No	1.0	1.0	1.0

*p<0.05, reduced number because of internal dropout

Comparison of the main results from Papers IV and V (not published)

Table 9 demonstrates that both GDPs and GPs reported to the CWS to a large extent but more GDPs had failed to report child maltreatment to the CWS despite suspicion. GDPs also reported more uncertainty when suspicion occurred, but both professional groups often felt uncertain to a large extent.

More GDPs reported the use of a local guideline on suspicion of child maltreatment, and both professional groups missed the possibility of discussing the suspicion with an advisory support person.

Nearly all GDPs and GPs had been asked by the CWS to provide a child's chart, and more than half had been asked more than five times.

Table 9. Comparison of the main results regarding GDPs and GPs in Paper IV and V (not published)

	GDPs	**GPs**
	%	%
Reported child maltreatment in the whole career	71	73
Failed to report despite suspicion	33	17
Reason for not reporting: 'Uncertainty of suspicion'	67	40
Using a 'guideline'	70	30
Missing advisory support	62	48
Request from the CWS regarding information on a child's chart	90	99
>5 requests	51	57

DISCUSSION

Methodological considerations

This thesis included cross-sectional studies with electronic questionnaires. With a cross-sectional study design, it is possible to perform surveys that include multiple variables and calculate prevalence. Cross-sectional studies will only mirror a 'snapshot' at the time the survey is conducted and will not provide knowledge on cause and effects.

All questionnaire studies have limitations. The studies will not include everyone; e.g. some GDPs may be uncomfortable with Norwegian terminology, or some participants may dislike questions regarding clinical issues and choose not to complete the questionnaire. Another limitation with questionnaires may be caused by misunderstandings, and some participants may answer in a socially desirable way rather than their actual clinical activity. For instance, the participants may have confused the terms DA and BMPs as these terms may be used confusingly when treating children and adolescents who avoid dental treatment. Moreover, the term 'children being hesitant to' was used in the initial information to the dentists in Study 1. However, the questions in the study itself are clear that it is DFA that is being asked. Nevertheless, this is an obscurity and can be considered as a limitation of the study as the respondents may have placed different meanings in the answers. Another example may be that the dentists in Paper III assessed differently when examining pictures and relative sparse information than when having the actual child in the dental clinic. However, the clinical scenarios should reflect daily issues in paediatric dentistry.

Electronic questionnaires are time-consuming and dependent on the respondent's time in a busy daily practice. Although both GDPs and GPs were representative concerning age and sex, it may be speculated that the most interested dentists/dental hygienists or GPs have responded.

It is desirable to use questionnaires tested for validity and reliability. However, literature search revealed a lack of questionnaires tested for reliability and validity to address the issues in this thesis. Thus, we used published studies not tested for reliability and validity from Sweden (Paper I, Brahms et al., Study 1; Talsma et al., Study 2) that covered the topics to increase external validity and generalisability. Additionally, the

questionnaires were piloted and adjusted before data collection to improve their internal validity.

Both questionnaires in Studies 1 and 2 included multiple precoded alternatives. Multiple alternatives were considered important to increase the respondent's possibilities to choose an alternative corresponding with their opinion. With advisory support by the statistician, variables were dichotomised by replacing the original measured data with two values. We merged the categories in two ways: cutting by the midpoint of distribution and merging categories with almost the same meaning, e.g. 'alternatives: never, rarely, sometimes, often and always – dichotomised to "never, rarely, sometimes" and "often, always"'. Although, we assessed the alternatives thoroughly and prespecified the categorisation before conducting the statistical analysis, an implication may be loss of information between individuals and loss of statistical power.

Papers I–III

A strength in Papers I–III may be that nearly all children (98.4% in 2018) are enrolled in the PDHS, and questioning the GDPs in the PDHS will in this way cover the child population very well.

Concerning the number of dentists to ask, power analysis was performed to calculate the necessary number of participants. A test power of 80% was selected to detect the difference among sexes. If the difference in points was at least 10%, it showed a need for 402 participants. Study 1 was 9 participants short for achieving sufficient power. Thus, the risk of Type I error (rejection of a true null hypothesis, resulting in a false positive result) and Type II error (nonrejection of a false null hypothesis, resulting in a false negative result) is present.

The strategic selection of eight counties was based on demographic variations in rural/urban areas among different regions in Norway (north, middle, east, west, and south). This selection was preferred over a randomised selection due to the large variations in population density and number of public dentists in the different counties in Norway.

Although less than expected, the response rate (65%) may be considered fairly good due to the overload of questionnaires in recent years and the rapid increase in Internet and email surveys. The response rate was comparable to those of other studies (109-111).

With 402 participants, approximately one-third of all GDPs in the PDHS in Norway responded to the questionnaire. As there was no statistically significant difference between the study sample and all GDPs in Norway with respect to age and sex distribution, the results were considered representative of Norwegian GDPs (112). The high percentage of dentists asked together with the high percentage of Norwegian children being treated in the PDHS may be considered a strength in the study and support the external validity and generalisation of the results.

Papers IV–V

These two surveys were initiated after a collaboration with the City Council of Oslo, Department of Healthcare. The municipality of Oslo (666.759 inhabitants in 2017) is the capital of Norway (5.258.317 inhabitants in 2017). According to the size of Oslo, we chose to invite all GDPs in the PDHS and all GPs in a cross-sectional questionnaire study. This study design was considered adequate to describe estimates of prevalence of communication, barriers, and collaboration with the CWS.

The response rate must be considered good among the GDPs (75%) but not among the GPs (35%). However, the sample of GPs may be considered representative of the Norwegian GP population with respect to age, sex, and practice (113). The low response rate is considered the most prominent limitation of the study among the GPs; however, in accordance with other studies among GPs, it showed low response rates, as GPs are a professional group with low survey response rates in general (107, 114-116). After consulting the Norwegian Medical Association, it was decided to create an electronic questionnaire because it was evaluated that a representative selection of GPs was even more difficult to contact in any other way. It may be speculated that GPs who have focus on child maltreatment and consequently more often have had communication or collaboration with the CWS have responded. Thus, our results concerning the prevalence of reporting to the CWS may be overreported. Nevertheless, a strength is that the sample that responded is representative in terms of age and sex in relation to physicians in Norway.

It could be questioned whether an electronic questionnaire was the most appropriate way to obtain information from GPs. However, this study revealed that further

studies, including qualitative studies, could be highlighted for more in-depth knowledge about barriers, communication, and collaboration.

In Paper IV, dentists' and dental hygienists' answers were merged into one group called GDPs. It could be questioned if it would have been interesting to compare the two professional groups, but in Norway, both professions are in the first-line services for public dental healthcare. They have similar education regarding child maltreatment and participate in the same postgraduate courses. Comparing the two groups would have resulted in small groups, and one would have to question if the results would have been representative and generalisable.

Concluding methodological remarks

In both studies, the populations may be considered representative, with the limitations and considerations addressed above. Selection and information bias discussed above may threaten the internal validity of the study, which is important when considering generalisation. In contrast, both studies can be replicated.

The questionnaires were previously used by Swedish researchers, and the results from the studies included in this thesis are compared with results from other international studies. Overall, these studies may be a good starting point for further studies and highlight a deeper clinical insight, with specific validated measuring instruments both in Norway and abroad (117).

Main results

This thesis aimed to explore barriers and facilitators safeguarding children in healthcare services and a perspective on how dentists assess children's participation in a paediatric dental treatment situation, particularly attitudes and actions taken by dental professionals to secure a biopsychosocial approach to the child's health and in the best interest of the child.

In this context, the two studies explored how dental professionals performed paediatric clinical practice and interdisciplinary collaboration and assessed and compared GDPs´ and GPs´ attitudes to, and routines for, reporting suspicion of child maltreatment and if they had mutual collaborations with the CWS.

All five papers included in the present thesis explored possible barriers to, and factors modulating, actions taken by healthcare personnel to secure the best interests of children.

Hypothesis 1: Dentists experience self-perceived stress when performing restorative treatment in children aged 3-5 years and 6–9 years

Conclusion: The results confirmed the hypothesis.

The present thesis shows that dentists experienced self-perceived stress, especially when treating children aged <10 years. Further, dentists with <10 years of practice reported more stress and more difficulties during restorative treatment sessions.

A study from 2018 reported that students, GDPs, and PDs may find operative paediatric dental treatment stressful, although PDs have lower levels of stress (118). These findings are in accordance with results from the present thesis and that of Boran et al. and may be due to the greater professional experience of the specialists (118, 119). Chipchase et al. indicates that anxiety-provoking clinical stressors affect dentists' clinical decision-making, which is important to highlight in connection with the delivery of high-quality dentistry (120). This finding is further supported by other studies, indicating that increased stress among dentists may affect their performance and, secondarily, be a major threat to the physical and mental health of patients (118, 121, 122). The results of the study (Paper I) support that dentistry must be a stressful occupation, and to prepare young dentists, the support of a mentor during stress or decision-making in different clinical situations could be

useful. The use of a mentor has previously been shown beneficial (123-126). Fifteen years ago, in Sweden, Dahllöf et al. highlighted the importance of methods in undergraduate paediatric dental education, with simplification of the transition from student to independent professional PD with personal responsibility as a key element. Self-reflection was highlighted, and students' need for feedback was difficult to satisfy (127). These findings further confirm the complexity of being a PD. Undergraduate dental training and the first years as educated professional dentist should gain focus.

Hypothesis 2: Dentists seldom use LA when performing restorative treatment in children aged 3–5 years and 6–9 years

Conclusion: The results confirmed the hypothesis.

It was both surprising and worrying that nearly 60% of the dentists in Study 1 did not use or seldom use LA in children aged 3–5 years and, in the age group 6–9 years, nearly 30% did not. This result is supported by a Swedish study that concluded that there is an underuse of LA when performing dental treatment among children and adolescents. Further, they report that PDs used LA equally often when treating primary and permanent teeth compared to GDPs, who used less LA when treating primary teeth (49).

In this thesis, we have not asked about dentists' stress related to performing LA injections. This is also an angle that is important to focus on all the time that so many dentists refrained to perform LA in younger children.

Small children cannot speak up for themselves, do not fully understand the origin of pain, and must be taken care of by professionals. The development of DFA and BMPs may be the result of experiences of pain and discomfort as a young child (17, 34, 128). Pain in conjunction with dental treatment in children and adolescents should be prevented and minimised according to a systematic review by Klingberg et al. (48). Children's DFA may lead to BMPs, which again may act as a barrier in undertaking adequate and high-quality dentistry (26).

It is important to treat every child individually, and dentists treating children should always conduct a thorough interview for disclosing previous experiences regarding both dental and medical treatment history and further the parent's possible DF (25). The use of

LA and the injection itself can cause anxiety to the minor child, and administration is a known stressor (49, 59, 60), but different adaption techniques and strategies for managing LA should be highlighted.

The results from Paper I regarding never or rarely using LA among younger children are concordant to the conclusion by Berlin et al., who raised questions about dentists' use of pain-reducing strategies and an underuse of LA when treating children and adolescents (49). Our findings of LA underuse is supported by Berlin et al., who reported that GDPs use LA less frequently for primary than permanent teeth (49). Pain prevention is essential in paediatric dentistry and should always gain attention (29, 129, 130). A potential of creating painful experiences should be avoided, and our findings, even if not statistically significant, should raise reasonable concern regarding safeguarding children from painful dental procedures during childhood and, further, the consequences.

In paediatric clinical practice, analgesia is one of the cornerstones. The EAPD strongly suggests to focus on knowledge gaps regarding information on the use of LA in children aged <4 years. The EAPD further supports the statement that LA, when administered appropriately, is a safe procedure in children and adolescents with low risks of morbidity and side effects (55, 131).

In this thesis, the use of LA has been discussed, but the use of analgesics in paediatric practice has not been addressed. Along with both LA and sedation, the use of GA should gain attention at the same level and be included in future guidelines. There is a knowledge gap concerning the use of GA pre- and postoperatively, but paediatric pain-reducing strategies should be on the agenda. A Swedish study in 2017 concluded that PDs used GA more frequently than GDPs (49).

Hypothesis 3: Dentists who attended postgraduate courses in DA more often used BMTs
Conclusion: The results confirmed the hypothesis.

The use of BMT, as described in the introduction part of the thesis, has been shown beneficial when performing dental treatment in patients with DFA. BMT is also important in preventing DFA. In all undergraduate and postgraduate curriculums regarding paediatric dentistry in Norway, BMT is given high priority.

Dentists educated outside the Nordic region used more restraint, less conscious sedation, and less BMT and felt more reluctant to treat patients with DA. Furthermore, dentists with postgraduate courses used BMT more often, and PDs and dentists with postgraduate courses favoured BMT, use of conscious sedation, and referrals for dental treatment under GA (Papers II and III) (45, 132).

The papers included in this thesis reveal a large number of female respondents, reflecting the sex distribution of GDPs employed in the PDHS. The results showed that female dentists used BMT significantly more often and felt less reluctant to treat patients with DA; otherwise, there were no sex-related differences. This finding contradicts those of other studies showing that sex may have effects on how the patients are treated (133-135).

Hypothesis 4: Dentists would favour the use of conscious sedation when approaching severe caries in the primary dentition

Conclusion: The results partly confirmed the hypothesis.

All dental treatments in the PDHS in Norway (except orthodontics) are free of charge. Nevertheless, there were different opinions about treatment options regarding severe caries in 5-year-old children. The results demonstrated the absence of an established common understanding concerning which treatment is in the best interest of each child, by both the GDPs and PDs. The opinions of the PDs in Paper III were considered as a 'gold standard', regarding their speciality. Randomised clinical trials on dental treatment procedures among children are rare (136), but the present results showing different approaches to treat severe caries in preschool children are in accordance with similar studies among GDPs and PDs in the UK and Hong Kong (137, 138).

A newly published study from Norway, evaluating dentist's treatment of deep caries or severe dental development defects in young individuals, reported a notable disparity between the clinician's treatment decisions. Therefore, the authors indicate that dentists evaluate each case individually and base their decision on what they consider is the best for the individual child (139). However, in regard to arresting caries in the primary dentition, different treatment options are discussed, and it could be questioned if guidelines could be useful in safeguarding a biopsychosocial and long-term approach from a small child's

perspective, who shows fear of more and different stimuli than older children (26, 29, 77, 78, 139).

Dentists with work experience of <10 years reported more difficulties when performing restorative treatment in all examined age groups. They described that they more often made a new appointment with children with severe caries instead of treating them immediately and introduced BMTs and/or sedation more often than their more experienced colleagues. This demonstrated that being a young dentist is challenging, especially when the patient is a child with the need for operative treatment. Again, as a consequence of these results, both a mentor arrangement and guidelines could be beneficial and need further focus in research. One positive outcome is that younger dentists favouring conscious sedation as a tool for good-quality paediatric dentistry.

One of three dentists who found it difficult to perform restorative treatment in children aged <10 years used conscious sedation (Paper I). When presented with a case scenario of a 5-year-old child with severe caries, followed by pain, half of the GDPs ticked sedation as an option, but all PDs made this as best practice or acceptable (Paper III). These findings highlight that knowledge and skills regarding dental care using sedation are important.

Conscious sedation is preferable as premedication in paediatric dentistry, to facilitate both the delivery of dental treatment and treatment in children with DFA (27, 61). Sedation alone does not treat DFA. The goal is to have the child in a state of sedation where they can communicate, cooperate, and keep their mouth and eyes open. Then, sedation may increase the effectiveness of different BMTs. However, the use of benzodiazepines as a sedative usually creates some degree of amnesia, which should be considered and used in a positive way for future coping ability and learning. Furthermore, conscious sedation is an alternative to GA in patients with DA and BMP (140) and when there is a lack of availability and capacity for GA. Further, it is preferable from an economic point of view.

The results revealed that few GDPs would make referrals for GA, but among the PDs, this option was judged appropriate.

A German study showed that dental caries with pulpal complications on children aged <5 years were the most important reason for children to undergo GA (141).

Nevertheless, when a child has severe caries, the family's social and socioeconomic status is also important on whether to choose sedation or GA. The aim of using GA when the reason is severe caries in children is to restore optimal oral health in a single visit and prevent development of anxiety as a result of several dental appointments with extensive restorative treatment and fatigue in both the child and caregivers and sometimes the dentist. GA should be considered as a good treatment as long as subsequent follow-ups are established as well as education and motivation of the caregivers in oral health behaviour to maintain children's oral health (142). It is important to influence the child and caregivers to attend dental appointments, prevent DFA and BMP, and further follow advice and communicate in relation to a future good oral health. As described earlier, in Norway, all dental treatment procedures are free for children aged <18 years, and consequently, economics is not an issue, and the best interest of the child should be a primary consideration. The case scenarios discussed in this thesis have no information of the families and their social or socioeconomic status; nevertheless, severe caries should always be judged with the possible treatment alternatives available, and it should be considered whether there is a reason to report suspicion of dental neglect to the CWS.

In this thesis, interventions regarding different domains in paediatric dentistry have not been discussed. However, in 2015, Mejàre et al. concluded that, excluding evidence of a caries, preventive effect of daily use of fluoride toothpaste and fissure sealing with resin-based materials, there is an urgent need for good-quality primary clinical research in most domains in paediatric dentistry (143).

Hypothesis 5: Dentists would not prefer the use of restraint in the context of performing acute treatment in preschool children with pain due to caries

Conclusion: The results partly confirmed the hypothesis.

In our study, nine of ten dentists would not use restraint when the preschool child was in pain due to severe caries. However, one of five GDPs educated outside the Nordic region opted he use of restraint. Due to both the child's future perspective and ethical considerations, this is worrying. This finding further reveals and emphasises the importance of highlighting the discussion about restraint in paediatric clinical practice. In this context, future implemented guidelines regarding operative dental treatment among children aged

<10 years should include discussion and recommendations regarding restraint in paediatric practice.

Providing a positive long-term perspective for the child should be given priority. Forced dental treatment to a child can lead to future DFA and BMPs (26, 43). As further discussed, younger children are not fully autonomous, and the principles of the UNCRC stated that children and young individuals have the right to be heard (Article 12); further, it should be illuminated that children have the right to the highest attainable standard of health and facilities for the treatment of illness and rehabilitation of health that a country can deliver (Article 24).

Hypothesis 6: Uncertainty and lack of advisory support were barriers when suspecting child maltreatment

Conclusion: The results confirmed the hypothesis.

The WHO has pinpointed the health sectors' crucial role in addressing child maltreatment (89). Bradbury-Jones et al. have highlighted the dental professions role regarding identifying child maltreatment and intersection with child oral health (144). In Papers IV and V, we focused on how dental professionals (both dentists and hygienists, GDPs) and GPs could contribute to fulfilling this statement from the WHO through mapping their attitudes towards child maltreatment and interdisciplinary collaboration with the CWS.

The findings reveal that nearly two-thirds of the professionals had at some time reported child maltreatment to the CWS. However, 33% of the GDPs and 17% of the GPs had failed to report an issue despite having suspicion. These results are consistent with an earlier study from Brattabø et al. (145). The main reason for not reporting was 'uncertainty of suspicion'. Many GPs also highlighted the risk of 'losing contact with the family' as a barrier to not reporting suspicion. Half of the GPs and >60% of the GDPs expressed that they would like to have easily accessible advisory support from the CWS to discuss suspicion, decrease uncertainty, and improve the quality of care for the potentially abused child. These findings are consistent with other studies (105, 146, 147).

Another factor related to reporting suspicion to CWS was continuing education, which seems, according to this thesis, to be greatly important in paediatric dentistry. Of the

GPs, 40% had undertaken continuing education regarding child maltreatment, and among the GDPs, twice as many had received continuing education in the previous 5 years.

Hypothesis 7: CWS obtained information from health professionals

Conclusion: The results partly confirmed the hypothesis.

When asked about collaboration and communication with the CWS, nearly all GPs and 90% of GDPs had received a request from the CWS regarding a child's chart. More than half of the professionals had received more than five requests. These findings are encouraging, partly because both professions meet almost every child during childhood, and when the CWS investigates suspicion of child maltreatment, it is of great importance to illuminate the situation as thoroughly as possible. When highlighting quality in CWS, improved communication between health professionals and CWS will probably improve care (146, 148). The CWS has to collect as many pieces of the 'puzzle' as possible from the different professionals involved with children. To our best knowledge, there are no corresponding numbers in the literature. However, a Swedish study showed that dental neglect and failure to attend dental appointments are the most common reasons for reporting to the CWS, and 86% of children referred from the dental care services were previously known by the CWS (149). These findings illuminate and support that the CWS, when investigating a case, should make a request to the PDHS about a child's chart, and dental treatment needs can be an indicator of a child's need for support and follow-up by the CWS (149). Further, in Finland, every university hospital specialised in evaluating child maltreatment cases have teams including a dentist (150).

As a consequence of uncertainty, is there a need of national guidelines?

The present studies revealed that there are no common national guidelines in use by dentists in Norway, concordant with other European studies, which may lead to uncertainty and nonreporting (105, 108, 116, 149, 151-155). Regarding child maltreatment, the GPs mainly referred to Norwegian legislation, and the GDPs referred to a local guideline. Lack of guidelines must be considered as a barrier in reporting suspicion of different types of child

maltreatment, and our findings highlight the importance of developing national guidelines to reduce uncertainty and strengthen clinicians in their daily practice.

Further, the use of a mentor has previously been addressed. As a consequence of our findings that both GDPs and GPs felt uncertainty when suspicion arouses and both professional groups missed the possibility of discussing the suspicion with an advisory support person, again, a mentor arrangement could be beneficial.

Exercising paediatric clinical practice and decision-making is challenging, for GPs, dentists, and dental hygienists. Further, uncertainty is a keyword when both GDPs and GPs suspect child maltreatment. We have also illuminated that clinical stressors may affect dentists clinical decision-making (120).

Molander focused on the exercise of discretion ('clinical judgement') among professionals in their judgement and clinical decision-making (156). As described earlier, GDPs and GPs meet nearly all children. Discretion in the decision concerning whether to report a suspicion to the CWS is a complex judgement. It is based on the clinicians' previous interactions with the family and CWS, followed by their expectations regarding whether the CWS will investigate or manage a benefit for the child or family (146). Both GDPs and GPs aim to build and maintain relationship with families and provide continuity, encouraging the establishment of trust and maintenance of contact (157).

The findings regarding a previous Norwegian study focusing on thresholds for reporting suspected child maltreatment among teachers and vicars are also of interest. Confidentiality was the most important reason for not reporting among the clergies. The author concluded that personnel in schools and churches require knowledge about child abuse and neglect, insight on laws that regulate confidentiality and mandatory reporting, and thorough understanding of the relationship between their political, professional, and personal responsibilities (158). Neither the GPs nor GDPs in this study highlighted confidentiality as a barrier, but when compiling future guidelines, confidentiality should also gain attention.

Implementations of the main findings and possible relevance in paediatric clinical practice

Based on the results and discussion in this thesis, implementations of the main findings can be described according to two main topics in the introduction of this thesis.

Performing restorative treatment in children

Dentists' and physicians' responsibilities regarding child maltreatment

The UNCRC is a general guideline for all worldwide. However, different countries have different legislations and approaches to paediatric treatment. Nevertheless, we are obligated to have a basic understanding of keeping the best interest of the child in mind by meeting the various articles in the UNCRC.

Performing restorative treatment in children

Through Study 1, this thesis has focused on dentist's stress when performing restorative treatment and lack of use of LA among younger children, and further the study has revealed that younger dentists and PDs favoured sedation. However, the use of sedation is insufficient when dentists feel stress when performing restorative treatment in younger children. Dentists' with education from abroad used more restraint, were more reluctant to treat patients with DA, used less BMT and sedation, and had more (not statistically significant) difficulties when performing restorative treatment.

These findings indicate that implementations of national guidelines could increase quality of practitioners in daily practice. In medicine in general, they more frequently use 'clinical/patient pathways' in safeguarding the patients and guiding clinicians to perform the right procedures at the right time.

Considering that 23% of all dentists working in Norway have received their education from abroad and most dentists educated abroad are working in the PDHS (approximately 30% of all dentists in the PDHS, and the number is increasing) (159), it further supports implementation of guidelines regarding paediatric dentistry in Norway. Dentists with education from Norway have completed clinical practice in the PDHS as part of their education and have some knowledge about Norwegian PDHS. Nevertheless, the importance

of postgraduate courses has also been highlighted and should be integrated in future guidelines.

Each country needs to develop their own specific guidelines according to national legislation but have The UNCRC as a basic element. Moreover, it is important that guidelines regarding different procedures and professions are both specific for each profession and integrated for mutual collaboration among different professions working with children and in electronic editions linked to one another. Thus, national guidelines will be important to ensure good quality in paediatric dentistry.

As described in Paper I, the support of a mentor or coach during stress or 'decision-making in different clinical situations' should gain attention. We have revealed that younger GDPs are more stressed and have greater difficulties in performing restorative treatment. In this context, regardless of country of education, all newly educated dentists probably would benefit from a mentor arrangement.

Dentists' and physicians' responsibilities regarding child maltreatment

Regarding Study 2 in this thesis, we focused on how GDPs and GPs in Oslo act according to barriers, collaboration, and communication with the CWS. The results have revealed that the CWS frequently asks GDPs and GPs of information regarding a child, but the CWS could improve their feedback to health personnel who have reported their suspicion regarding a child. In addition, uncertainty concerning whether to report suspicion of child maltreatment is highlighted in Papers IV and V. These findings are mainly descriptive, and especially among GPs, the response rate was unsatisfactory. Nevertheless, the results should provide some indications of topics to illuminate in clinical practice.

Recently, child maltreatment has received increasing focus, and it should be a primary consideration for all paediatric clinicians to highlight this topic. Our study disclosed that uncertainty among all clinicians is pinpointed and, again, as described above, national guidelines should be implemented.

Child maltreatment is a sensitive issue, and one is anxious of making a wrong decision. In the same context as above, both specific guidelines and mentor arrangement or at least some advisory support seems to be important in paediatric clinical practice. Further,

to improve the quality, for both the health professionals and CWS, mutual collaboration and communication need to be on the agenda. The CWS has to ask both GDPs and GPs about information regarding a child, but this should further be formalised by the authorities. Likewise, feedback from the CWS after reporting child maltreatment is needed. As the study illuminated, uncertainty among professionals is a barrier, and systems and guidelines need to be developed to improve the quality at all levels and safeguard the child. Early intervention is crucial when a child is exposed to child maltreatment. Improvements from both the CWS and health professionals that will ensure that children obtain help are crucial in their health – both oral and general – in a lifetime perspective.

Figure 10 provides an illustration of the described topics from all papers included in this thesis, which should be implemented in clinical practice, simultaneously keeping the general subject of best interest of the child in mind in a biopsychosocial approach. The frames in the figure reflect thoughts and common denominators that have matured during the discussion undertaken in this thesis and hopefully will be applied in paediatric clinical practice.

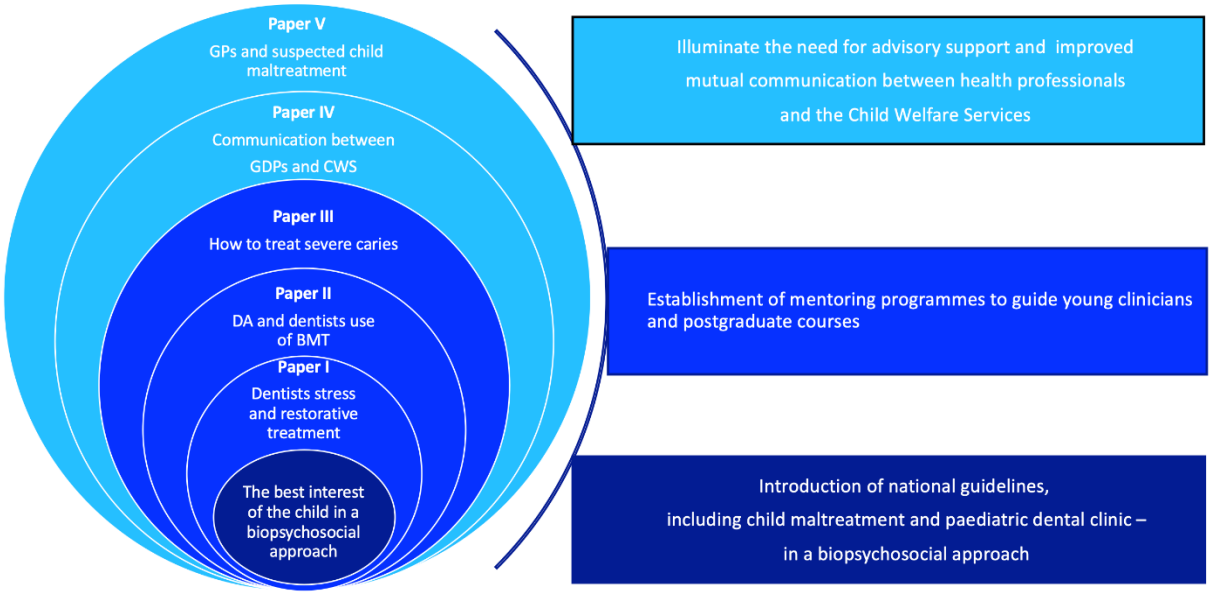


Figure 10. How 'the best interest of the child' is a central and general subject through all the papers included in this thesis

Conclusion

This thesis has revealed several barriers in daily paediatric clinical practice. Important topics regarding clinicians' attitudes and clinical practice should gain further attention for good and effective dental healthcare to safeguard the best interest of the child in a biopsychosocial approach.

Dentist's self-perceived stress, especially among those with limited clinical practice, and their difficulties when performing restorative treatment and lack of use of LA among younger children were barriers in safeguarding the best interest of the child. It is worrying that a large proportion of Norwegian GDPs do not use LA when performing restorative treatment in children aged <9 years. Children are the most vulnerable patient group and cannot speak up for themselves. Pain prevention in paediatric dentistry should be focused in research.

The use of BMTs was highlighted and should gain attention in both prevention of DFA and follow-up after GA.

The results in this thesis illuminate the difficulty in making referrals to the CWS when suspicion of child maltreatment arouses. Uncertainty is a reason for not reporting, and both GDPs and GPs indicated the need for accessible advisory support together with improved mutual communication and feedback from the CWS. It was found that >90% of GPDs and GPs had received a request regarding information of a child's chart. This finding must be highlighted as a quality in the child welfare investigation of a possible child maltreatment case.

Assessing the results of the five papers included in this thesis, preventing pain when performing dental treatment should be illuminated, as well as the necessity of BMT, conscious sedation, and sometimes GA.

Generally, GDPs must safeguard the vulnerable child by preventing dental fear and anxiety (DFA) and provide them a good and safe 'dental lifetime perspective'.

Future perspective

The cross-sectional studies included in this thesis have revealed several issues that need further profound research.

Future research regarding the identified barriers is essential in the development of high-quality paediatric dentistry on 'the best interest of the child in a biopsychosocial approach'. Qualitative research may be a future task for the clarification and more thorough investigation of important barriers revealed in this thesis.

Furthermore, qualitative research will likely provide additional information concerning clinicians' opinions and actions, providing more profound insight into daily practice. This thesis has highlighted stress among dentists when performing restorative treatment but does not focus on performing injections. It should further be focused on why nearly 60% of dentists do not use LA in children aged <6 years. Dentists' stress related to dental treatment should gain attention and in the context of performing injections, which is especially important in children to prevent DFA.

There is still a gap in the knowledge regarding paediatric dentistry and adequate pain control. Clinical trials are sparse, but we should highlight the importance of this topic and contribute to further clinical research. In this context, the keywords are 'painless' and 'safe treatment' in an effective and confident regime that all dentists will use.

Stress among dentists in the paediatric practice has been addressed, and more profound research with quality methods may open the development of guidelines and mentor arrangements. Working with children is challenging, rewarding, and exciting, but it is important to safeguard both the child as a patient and the dentist in their daily practice.

Additionally, communication and collaboration between the CWS should gain attention. A qualitative research angle with individual or group interviews could help clarify some of the detected barriers and hopefully facilitate some changes in the management of different systems within the services working with children and adolescents.

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Appendix

Study 1

Questionnaire to the general dental practitioners (GDPs)(dentists)

Tannlegers forhold til barn og unge med angst for tannbehandling

Kjære tannlege

Avdeling for pedodonti og atferdsfag, Det odontologiske fakultet, Universitetet i Oslo, ønsker å undersøke rutiner og synspunkter blant offentlig ansatte tannleger når det gjelder barn og unge i alderen 2-18 år som vegrer seg for tannbehandling.

Spørreskjemaet (QuestBack) sendes elektronisk til alle offentlig ansatte tannleger i x fylker. Undersøkelsen er anonym og tar ca.10 minutter å besvare. Dersom det er ønskelig, vil vi redegjøre for våre funn i de respektive fylker. Resultatene vil også bli publisert i fagtidsskrift. Undersøkelsen er godkjent og støttet av fylkestannlegen/direktør for tannhelsetjeneste. Det er frivillig å være med og du har mulighet til å trekke deg når som helst underveis, uten å måtte begrunne dette nærmere.

Målet med undersøkelsen er å utforske tannlegers erfaring med pasienter som vegrer seg for tannbehandling. Vi ønsker også å se på hvilke hjelpemidler tannlegene bruker i behandlingen av denne pasientgruppen. Til sist vil vi også se på rutiner og erfaringer i forhold til bruken av sedasjon og narkose ved tannbehandling.

Undersøkelsen er godkjent av Norsk samfunnsvitenskapelige datatjeneste(personvernombudet for forskning).

På forhånd, takk for hjelpen!

Vennlig hilsen

Anne Rønneberg og Kjetil Strøm

Professorene Ivar Espelid, Anne B. Skaare, Tiril Willumsen

PhD stipendiat Kjetil Strøm og klinikksjef Anne Rønneberg

on

Din identitet vil holdes skjult

Les om retningslinjer for personvern. (Åpnes i nytt vindu)

	4440003		113
	0	True	0
0	True		

---

1) Alder

24-30 år 31-40 år 41-50 år Eldre enn 50 år

2) I hvor mange år har du praktisert som tannlege?

0-5 år

6-10 år

11-15 år

16-20 år

Mer enn 20 år

3) Kjønn

Kvinne

Mann

4) Utdanningsland

Norge

Andre land i Norden

Andre land innenfor EU/EØS

Land utenfor EU/EØS

5) Hvor mange prosent av din kliniske tid bruker du til behandling av barn og unge 2-18 år?

Behandler ikke barn og unge

1-20%

21-40%

41-60%

61-80%

81-100%

6) Stillingsprosent innenfor Den offentlige tannhelsetjenesten

1-20%

21-40%

41-60%

61-80%

81-100%

7) Tannklinikken hvor jeg jobber er en:

Enmannsklinikk (1 tannlege)

- Storklinikk (flere tannleger)
- Annet, i tilfelle hva:

8) Har du lystgassautorisasjon?

- Ja
- Nei

9) Har du tatt kurs med tema angst for tannbehandling etter din tannlegeeksamen?

- Ja, enkelte
- Ja, flere
- Nei

10) Hvor ofte benytter du deg av følgende behandlingsmetoder for pasienter med angst for tannbehandling?

	Svært ofte	Ofte	Av og til	Sjelden/aldri
Tilvenning, som Tell-Show-Do				
Sedasjon				
Lystgass				
Distraksjon				
Kognitiv atferdsterapi				
Avslapningsteknikker				
Hypnoterapeutiske metoder				
Andre				

11) Hvordan opplever du selv det å gå til tannlegen?

- Det bekymrer meg ikke
- Jeg liker det ikke eller syns det er litt ubehagelig
- Jeg er veldig redd eller syns det er veldig ubehagelig
- Jeg er livredd

12) Omtrent hvor stor andel av dine pasienter mellom 2 og 18 år har angst for tannbehandling? (i %)

Velg alternativ

13) Føler du deg stresset i forkant av behandling av en pasient som du vet har angst for tannbehandling?

- Svært ofte
- Ofte
- Av og til
- Sjelden/aldri

---

14) Samarbeider du med tannpleier når det gjelder tilvenning av pasienter som har angst for tannbehandling?

- Ja
- Nei

Denne informasjonen vises kun i forhåndsvisningen

Følgende kriterier må være oppfylt for at spørsmålet skal vises for respondenten:

- (
  - Hvis Samarbeider du med tannpleier når det gjelder tilvenning av pasienter som har angst for tannbehandling? *er lik* Ja
-)

15) Hvor fornøyd er du med samarbeidet med tannpleier om pasienter som har angst for tannbehandling?

- Svært lite fornøyd
- Lite fornøyd
- Fornøyd
- Svært fornøyd

---

16) Opplever du at du er flink til å behandle pasienter som har angst for tannbehandling?

- Ja, meget
- Ja, ganske
- Nei, ikke spesielt
- Nei, på ingen måte

---

17) Hva syns du i dag om din grunnutdanning vedrørende temaet angst for tannbehandling?

- Ville hatt mer
- Passe mengde
- Ville hatt mindre
- Har ikke hatt noen

---

18) Hvordan synes du det er å behandle en pasient med angst for tannbehandling? (Velg de alternativene som er viktigst for deg, maks 3 stk.) 3

- [ ] Stressende
- [ ] Tungt/Vanskelig
- [ ] En positiv utfordring
- [ ] Spennende
- [ ] Vil helst slippe

- [ ] Det føles at man gjør noe nyttig/at man bidrar
- [ ] Uøkonomisk, høyt tidsforbruk
- [ ] Annet, i tilfelle hva:

---

19) Jeg er fornøyd med min fylkeskommunes tilbud til pasienter som har angst for tannbehandling

○ Helt enig ○ Delvis enig ○ Delvis uenig ○ Helt uenig

---

20) Hvor ofte synes du det er vanskelig å utføre fyllingsterapi på barn og unge?

	Svært ofte	Ofte	Av og til	Sjelden/aldri
Barn mellom 3-5 år	○	○	○	○
Barn mellom 6-9 år	○	○	○	○
Ungdom mellom 10-14 år	○	○	○	○
Ungdom mellom 15-18 år	○	○	○	○

---

21) Hvor ofte bruker du lokalanestesi ved fyllingsterapi på barn og unge?

	Svært ofte	Ofte	Av og til	Sjelden /aldri
Barn mellom 3-5 år	○	○	○	○
Barn mellom 6-9 år	○	○	○	○
Ungdom mellom 10-14 år	○	○	○	○
Ungdom mellom 15-18 år	○	○	○	○

Kasuistikk 1:

Du får henvist en 5 år gammel jente fra tannpleier. I journalen står det at hun er svært urolig og har smerter om natten på grunn av karies. Barnet motsetter seg undersøkelse, men du får undersøkt raskt og tatt to røntgenbilder (se under). Etter røntgenopptakene vil ikke jenta mer og klamrer seg til mor. Du vurderer at det er vanskelig å gjennomføre behandling idag, men mor ønsker behandling utført med en gang. Pasienten er frisk, ingen faste medisiner.

22) Hvilke tilnærminger ville du valgt for denne pasienten? Sett inntil 2 kryss 2

- [ ] Avvente til pasienten er blitt eldre og mer behandlingsmoden. Innkalle pasienten om 3-6 måneder.
- [ ] Akuttbehandle barnet samme dag, holde om nødvendig.
- [ ] Gi ny time for tilvenning/behandling (innen noen uker)
- [ ] Gi ny time for behandling under sedasjon (innen noen uker)
- [ ] Forskrive antibiotika og gi ny time for behandling (innen noen uker)
- [ ] Henvise for tannbehandling i narkose
- [ ] Henvise til andre med mer kompetanse på barn som vegrer seg.
- [ ] Annet

Kasuistikk 2:

Gutt som er 5,5 år gammel møter til tannlegen for ordinær undersøkelse sammen med mor. Han har ikke vært hos denne tannlegen før. Gutten har ikke smerter eller plager med tennene, ifølge mor. Han fikk ekstrahert tenner hos en annen tannlege ved tre års alder og er nå svært engstelig og urolig i tannlegestolen. Røntgenundersøkelse lot seg ikke gjennomføre, men klinisk undersøkelse viste ingen fistler eller abscesser. Mor er ikke spesielt interessert i at gutten skal ha tannbehandling nå ettersom han ikke har vondt. Hun får vite at det er melketennene som har karies og at de blivende tennene er i frembrudd.

23) Tannlegen beslutter at gutten skal få ny innkalling om ca. 9 måneder. Synes du at tannlegen har tatt rett beslutning?

- Ja
- Nei, begrunn svaret:

---

24) Hvor ofte (gjennomsnittlig) benytter du sedasjon for å få gjennomført tannbehandling på pasienter mellom 2 og 18 år?

- En eller flere ganger i uken
- 1-3 ganger i måneden
- 2-3 ganger i halvåret
- Sjelden
- Aldri

---

25) Hvilket av disse sedasjonsmidlene bruker du oftest? (sett et kryss)

- Midazolam
- Flunitrazepam
- Diazepam
- Oxazepam
- Lystgass
- Lystgass i kombinasjon med et benzodiazepin

---

26) Hvis du bruker sedasjon, hvor ofte synes du at sedasjon er til hjelp i vanskelige behandlingssituasjoner?

- Svært ofte
- Ofte
- Av og til
- Sjelden/aldri

---

27) Når tannleger i ditt fylke henviser en pasient mellom 2 og 18 år til tannbehandling i narkose, ca. hvor lang ventetid forventer du? Svar i antall uker:

Velg alternativ

---

28) Når du henviser pasienter mellom 2 og 18 år til tannbehandling i narkose, gjøres det prioriteringer på narkoseventelistene ut fra: (Flere kryss mulig)

- [ ] Pasientens alder
- [ ] Behandlingsbehov
- [ ] Sykdomstilstander/syndromer

☐ Annet, i tilfelle hva:

☐ Vet ikke

29) Har fylkeskommunen rutiner for oppfølging av pasienter mellom 2 og 18 år som har mottatt tannbehandling i narkose?

○ Nei

○ Ja

○ Vet ikke

Denne informasjonen vises kun i forhåndsvisningen

Følgende kriterier må være oppfylt for at spørsmålet skal vises for respondenten:

- (
  - Hvis Har fylkeskommunen rutiner for oppfølging av pasienter mellom 2 og 18 år som har mottatt tannbehandling i narkose? *er lik* Ja
-)

30) Beskriv kort fylkeskommunens rutiner for oppfølging av pasienter mellom 2 og 18 år som har mottatt tannbehandling i narkose

31) Hvordan bedømmer du om en pasient har angst for tannbehandling?

32) Har du til sist noen kommentarer til undersøkelsen?

Study 1

Questionnaire to the Paediatric dentists

(PDs)(specialised dentists)

Kjære pedodontist.

Vi henvender oss til deg som spesialist eller spesialistkandidat, fordi vi trenger din vurdering av to kasuistikker som har vært benyttet i en spørreundersøkelse til tannleger i Den offentlige tannhelsetjenesten.

QuestBack ivaretar anonymitet, og vi vet ikke hvem som svarer hva. Systemet vil sørge for at det blir sendt ut to purringer. Svarfrist er 31.05.2015.

Denne QuestBack blir sendt til alle spesialister og spesialistkandidater i pedodonti i Norge. Det er en liten undersøkelse, og tar under 5 minutter.

På forhånd takk!

Vennlig hilsen

Anne Rønneberg, Anne Skaare og Ivar Espelid

Klikk her for å delta <https://response.questback.com/isa/qbv.dll/SQ?s=sbEgmsKP-i7w50ksO2dB7YdtuimLuWvPyO5lkG-9LlTzUAo8bXFh7OIdwJ8Civn80>
Tjenesten er levert av www.questback.com <http://questback.com> - Questback Essentials

Kjære pedodontist

Vi henvender oss til deg som spesialist eller spesialistkandidat, fordi vi trenger din vurdering av to kasuistikker som har vært benyttet i en spørreundersøkelse til tannleger i Den offentlige tannhelsetjenesten.

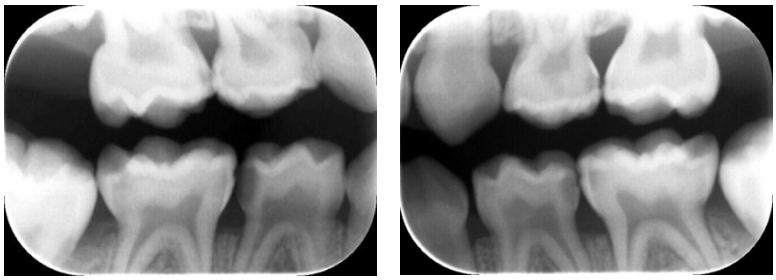
QuestBack ivaretar anonymitet, og vi vet ikke hvem som svarer hva. Systemet vil sørge for at det blir sendt ut to purringer. Svarfrist er 31.05.2015.
Denne QuestBack blir sendt til alle spesialister og spesialistkandidater i Norge.
Det er en liten undersøkelse, og tar under 5 minutter.

På forhånd takk!

Vennlig hilsen
Anne Rønneberg, Anne Skaare og Ivar Espelid

Kasuistikk 1

Du får henvist en 5 år gammel jente fra tannpleier. I journalen står det at hun er svært urolig og har smerter om natten på grunn av karies. Barnet motsetter seg undersøkelse, men du får undersøkt raskt og tatt to røntgenbilder (se under). Etter røntgen opptakene vil ikke jenta mer og klamrer seg til mor. Du vurderer at det er vanskelig å gjennomføre behandling i dag, men mor ønsker behandling utført med en gang. Pasienten er frisk, ingen faste medisiner.



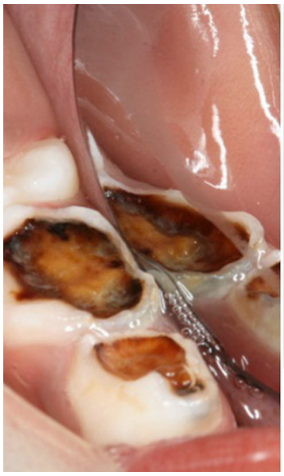
- **Hvilke tilnærminger ville du valgt for denne pasienten? Sett inntil 2 kryss**

  - ☐ Avvente til pasienten er blitt eldre og mer behandlingsmoden. Innkalle pasienten om 3-6 måneder.
  - ☐ Akuttbehandle samme dag, holde om nødvendig.
  - ☐ Gi time for tilvenning/behandling (innen noen uker)

- ☐ Gi time for behandling under sedasjon (innen noen uker)
- ☐ Forskrive antibiotika og gi ny time for behandling (innen noen uker)
- ☐ Henvise for tannbehandling i narkose
- ☐ Henvise til andre som har med kompetanse på barn som vegrer seg.
- ☐ Annet……..(skrivefelt)

Kasuistikk 2

Gutt som er 5,5 år gammel møter til tannlegen for ordinær undersøkelse sammen med mor. Han har ikke vært hos denne tannlegen før. Gutten har ikke smerter eller plager med tennene, ifølge mor. Han fikk ekstrahert tenner hos en annen tannlege ved tre års alder og er nå svært engstelig og urolig i tannlegestolen. Røntgenundersøkelse lot seg ikke gjennomføre, men klinisk undersøkelse viste ingen fistler eller abscesser. Mor er ikke spesielt interessert i at gutten skal ha tannebehandling nå ettersom han ikke har vondt. Hun får vite at det er melketennene som har karies og at de blivende tennene er i frembrudd. (Se kliniske bilder)



Tannlegen har besluttet at gutten skal få ny innkalling om ca. 9 måneder. Synes du at tannlegen har tatt rett beslutning?

- ☐ Ja
- ☐ Nei, begrunn svaret: ……

Study 2

Questionnaire to the general dental professionals

(GDPs)

(dentists and dental hygienists)

Til alle tannpleiere og tannleger i Oslo kommune.

Familievold og barnemishandling er viktige tema. Tannleger og tannpleiere er en yrkesgruppe som undersøker og snakker med barn, og har en lovpålagt opplysningsplikt ved eventuell faglig begrunnet bekymring.

Denne undersøkelsen skal kartlegge barrierer i forbindelse med melding til barnevern. Undersøkelsen støttes av fylkestannlege, avdelingsdirektør i Helseetaten, Oslo kommune,

Lene Helweg-Larsen, presidenten i Den norske tannlegeforening Camilla Hansen Steinum, ordfører Marianne Borgen, byråd Inga Marte Thorkildsen og presidenten i Den norske legeforening Marit Hermansen.

Samme undersøkelse vil bli sendt til alle fastleger i Oslo. Undersøkelsen er anonym og tar 5-10 min. Den er vurdert av NSD med prosjektnr. 51237, og tilfredsstiller kravene i personopplysningsloven. Håper du vil bidra til høy svarprosent!

På forhånd tusen takk.

Vennlig hilsen

Lene Helweg-Larsen

Avdelingsdirektør, fylkestannlege tannhelsetjenesten i Oslo

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Barrierer for å melde barnemishandling - en spørreundersøkelse blant tannleger og tannpleiere i Tannhelsetjenesten i Oslo

Denne undersøkelsen skal kartlegge barrierer i forbindelse med å melde bekymring vedrørende barnemishandling.

Barnemishandling defineres her som omsorgssvikt, fysisk eller psykisk vold og seksuelle overgrep.

Din identitet vil holdes skjult.

Les om retningslinjer for personvern. (Åpnes i nytt vindu)

Bakgrunnsopplysninger

1) Kjønn

- Mann
- Kvinne

2) Hvor gammel er du?

- 20-30 år
- 31-40 år
- 41-50 år
- 51-60 år
- > 60 år

3) Er du

- Tannlege
- Tannpleier

4) Hvor har du tatt din grunnutdanning?

- Norge
- Norden
- Annet EU/EØS-land
- Land utenfor EU/EØS

5) I hvor mange år har du arbeidet som tannlege eller tannpleier?

- 0-2 år
- 3-5 år
- 6-10 år
- 11-20 år
- 21-30 år
- > 30 år

6) Hvor mange prosent av din kliniske tid buker du til behandling av barn og unge 0-18 år?

- 0-25 %
- 26-50 %
- 51-75 %
- 76-100 %

7) Hvor mye arbeider du i prosent av full stilling??

- 0-25 %
- 26-50 %
- 51-75 %
- 76-100 %

Utdanning og rutiner i forhold til barnemishandling

8) Fikk du under din grunnutdanning noen undervisning innenfor området barnemishandling?

- Ja
- Nei

9) Har du gjennom de siste 5 årene gjennomgått opplæring om barnemishandling? Flere alternativ kan avkrysses

☐ Nei

☐ Ja, jeg har deltatt på enkelte forelesninger/kurs
☐ Ja, jeg har deltat på lengre kurs (2 dager eller mer)
☐ Annet

10) Forholder du deg til en retningslinje eller en veileder når det gjelder melding av barnemishandling?

- ○ Nei
- ○ Ja, (Vennligst spesifiser retningslinje/veileder):

11) Tror du at du har støtte av din nærmeste sjef/leder ved vurdering og melding av bekymring for mistenkt barnemishandling?

☐ Ja
☐ Tvilsomt
☐ Nei
☐ Vet ikke
☐ Kommenter gjerne:

12) Har du mulighet for å samtale/diskutere med kolleger om å vurdere å melde mistenkt barnemishandling?

- ○ Ja
- ○ Nei, jeg har ikke tid til slike samtaler
- ○ Nei, jeg har ikke behov for slike samtaler
- ○ Nei, mine kollegaer har ikke tid til slike samtaler
- ○ Vet ikke

13) Savner du/ønsker du en ressursperson som du kan konsultere ved mistanke om barnemishandling?

☐ Ja
☐ Nei
☐ Kommenter gjerne:
☐ Vet ikke

Din erfaring ved mistanke om barnemishandling og bekymringsmeldinger

14) Gjennom ditt yrkesliv, hvor mange ganger har du sendt bekymringsmelding til barnevernet ved mistanke om barnemishandling?

- 0
- 1-2
- 3-5
- 6-10
- 11-20
- 21-30
- > 30

15) I løpet av 2016, hvor mange ganger har du sendt bekymringsmelding til barnevernet?

- 0
- 1
- 2-3
- 4-5
- > 5

16) Gjennom ditt yrkesliv, har du noen gang unnlatt å sende bekymringsmelding til barnevernstjenesten ved mistanke om barnemishandling?

- Ja
- Nei

17) Hvis du ikke meldte din bekymring til barnevernet, hva var grunnen? Flere alternativ kan avkrysses

- [ ] Jeg hadde/har for lite kunnskap om barnemishandling
- [ ] Jeg hadde liten tid
- [ ] Jeg følte meg usikker i forhold til min mistanke
- [ ] Mine kollegaer frarådet meg å melde
- [ ] Min sjef/leder frarådet meg å melde
- [ ] Jeg planla en rask oppfølging av barnet for å kunne bedømme saken bedre
- [ ] Jeg henviste til en annen helseinstans isteden for å melde selv
- [ ] Jeg hjalp barn og foreldre på egen hånd

☐ Jeg ville ikke risikere å miste foreldrenes fortrolighet og miste kontakten med familien
☐ Jeg var urolig for å bli truet i min stilling eller truet privat
☐ Jeg visste at barnevernet allerede hadde kontakt med familien
☐ Jeg forventet ikke at min bekymringsmelding ville ha positive konsekvenser for barnet
☐ Annet

18) Etter en eventuell bekymringsmelding, har du fått tilbakemelding fra barnevernet?

- ○ Jeg har aldri sendt en bekymringsmelding til barnevernet
- ○ Ja, barnevernet tok kontakt og ga tilbakemelding
- ○ Ja, jeg tok selv kontakt og fikk tilbakemelding
- ○ Nei, jeg tok kontakt med barnevernet, men fikk ingen tilbakemedling
- ○ Nei, verken jeg eller barnevernet tok kontakt

19) Har du noen gang sendt en anmeldelse til politiet ved mistanke om barnemishandling?

☐ Ja
☐ Nei
☐ Kommenter gjerne:

20) Gjennom de siste 5 år, hvor mange ganger har du mottatt anmodning fra barnevernet om å sende opplysninger vedrørende en pasient?

- ○ 0
- ○ 1
- ○ 2-3
- ○ 4-5
- ○ > 5

21) Angi i hvilken grad du er enig i følgende påstander (1: stemmer ikke i det hele tatt 5: stemmer helt)

	1	2	3	4	5
Det er lett å ta kontakt med barnevernet	○	○	○	○	○
Jeg har tillit til barnevernets måte å utrede mistanke om barnemishandling	○	○	○	○	○

	1	2	3	4	5
Jeg har tillit til barnevernets måte å gripe inn ved barnemishandling	○	○	○	○	○
Jeg gir selv bedre hjelp til familier hvor det forekommer barnemishandling	○	○	○	○	○
Samtaler om barnemishandling medfører en risiko for å miste kontakten med den involverte familien	○	○	○	○	○
Barnevernet henlegger saker ved mistanke om barnemishandling på en riktig måte	○	○	○	○	○
En bekymringsmelding skal kun sendes ved gjentatt barnemishandling	○	○	○	○	○
En bekymringsmelding skal kun sendes ved sterk mistanke om barnemishandling	○	○	○	○	○
Hvis det mangler overbevisende dokumentasjon ved mistenkt barnemishandling, kan man overveie å vente med å melde, for å beholde kontakten med familien og utrede mer	○	○	○	○	○

Avslutningsvis

22) Var det noe du reflekterte over når du svarte på spørreskjemaet, og/eller er det noe ytterligere du tenker kan være av betydning?

Beskriv med egne ord:

[Send]

Study 2

Questionnaire to the general practitioners

(GPs)

(doctors, physicians)

Til alle fastleger i Oslo kommune.

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Vennlig hilsen

Johan Torper

Medisinsk fagsjef, Byrådsavdeling for eldre, helse og sosiale tjenester

Anne Rønneberg

Klinikksjef, spesialist i pedodonti

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Les om retningslinjer for personvern. (Åpnes i nytt vindu)

Bakgrunnsopplysninger

1) Kjønn

- Mann
- Kvinne

2) Hvor gammel er du?

- 20-30 år
- 31-40 år
- 41-50 år
- 51-60 år
- > 60 år

3) Hvor har du tatt din medisinske grunnutdanning?

- Norge
- Norden
- Annet EU/EØS-land
- Land utenfor EU/EØS

4) I hvor mange år har du arbeidet som lege?

- 0-2 år
- 3-5 år
- 6-10 år
- 11-20 år
- 21-30 år
- > 30 år

5) Hvor mange prosent av din kliniske tid bruker du til behandling av barn og unge?

- 0-25 %
- 26-50 %
- 51-75 %
- 76-100 %
- > 100 %

6) Hvor mye arbeider du i prosent av full stilling?

- 0-25 %
- 26-50 %
- 51-75 %
- 76-100 %
- > 100 %

7) Har du erfaring med å arbeide på helsestasjon for barn?

- Jeg arbeider på helsestasjon for barn
- Jeg arbeidet tidligere på helsestasjon for barn
- Jeg har aldri arbeidet på helsestasjon for barn

8) Har du erfaring med å jobbe på helsestasjon for ungdom?

- Jeg arbeider på helsestasjon for ungdom
- Jeg arbeidet tidligere på helsestasjon for ungdom
- Jeg har aldri arbeidet på helsestasjon for ungdom

9) Har du erfaring med å jobbe i skolehelsetjenesten?

- Jeg arbeider i skolehelsetjenesten
- Jeg har arbeidet i skolehelsetjenesten

- ○ Jeg har aldri arbeidet i skolehelsetjenesten

Utdanning og rutiner i forhold til barnemishandling

10) Fikk du under din grunnutdanning undervisning innenfor området barnemishandling?

- ○ Ja
- ○ Nei

11) Har du gjennom de siste 5 årene gjennomgått opplæring om barnemishandling? Flere alternativ kan avkrysses

- ☐ Nei
- ☐ Ja, jeg har deltatt på enkelte forelesninger/kurs
- ☐ Ja, jeg har deltatt på lengre kurs (2 dager eller mer)
- ☐ Annet:

12) Forholder du deg til en retningslinje eller veileder når det gjelder melding av barnemishandling?

- ○ Nei
- ○ Ja, (Vennligst spesifiser retningslinje/veileder):

13) Tror du at du har støtte fra din nærmeste sjef/leder ved vurdering og melding av bekymring for mistenkt barnemishandling?

- ☐ Ja
- ☐ Tvilsomt
- ☐ Nei
- ☐ Kommenter gjerne:
- ☐ Vet ikke

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- ○ Nei, jeg har ikke tid til slike samtaler
- ○ Nei, jeg har ikke behov for slike samtaler
- ○ Nei, mine kolleger har ikke tid til slike samtaler
- ○ Vet ikke

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☐ Ja
☐ Nei
☐ Kommenter gjerne:
☐ Vet ikke

Din erfaring ved mistanke om barnemishandling og bekymringsmeldinger

16) Gjennom ditt yrkesaktive liv, hvor mange ganger har du sendt bekymringsmelding til barnevernet ved mistanke om barnemishandling?

- ○ 0
- ○ 1-2
- ○ 3-5
- ○ 6-10
- ○ 11-20
- ○ 21-30
- ○ >30

17) I løpet av 2016, hvor mange ganger har du sendt bekymringsmelding til barnevernet?

- ○ 0
- ○ 1
- ○ 2-3
- ○ 4-5
- ○ > 5

18) Gjennom ditt yrkesaktive liv, har du noen gang unnlatt å sende bekymringsmelding til barnevernstjenesten ved mistanke om barnemishandling?

- ○ Ja
- ○ Nei

19) Hvis du ikke meldte din bekymring til barnevernet, hva var grunnen? Flere alternativ kan avkrysses

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☐ Jeg hadde liten tid
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☐ Mine kolleger frarådet meg å melde
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☐ Jeg henviste til en annen helseinstans isteden for å melde selv
☐ Jeg hjalp barn og foreldre på egen hånd
☐ Jeg ville ikke risikere å miste foreldrenes fortrolighet og miste kontakten med familien
☐ Jeg var urolig for å bli truet i min stilling eller truet privat
☐ Jeg visste at barnevernet allerede hadde kontakt med familien
☐ Jeg forventet ikke at min bekymringsmelding vil ha positive konskvenser for barnet
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20) Etter en eventuell bekymringsmelding, har du fått tilbakemelding fra barnevernet?

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○ Nei, verken jeg eller barnevernet tok kontakt

21) Har du noen gang sendt anmeldelse til politiet ved mistanke om barnemishandling?

☐ Ja
☐ Nei
☐ Kommenter gjerne:

22) Gjennom de siste 5 år, hvor mange ganger har du mottatt anmodning fra barnevernet om å sende opplysninger vedrørende en pasient?

○ 0
○ 1

- 2-3
- 4-5
- > 5

23) Angi i hvilken grad du er enig i følgende påstander? (1: stemmer ikke i det hele tatt 5: stemmer helt)

	1	2	3	4	5
Det er lett å ta kontakt med barnevernet					
Jeg har tillit til barnevernets måte å utrede mistanke om barnemishandling					
Jeg har tillit til barnevernets måte å gripe inn ved barnemishandling					
Jeg gir selv bedre hjelp til familier hvor det forekommer barnemishandling					
Samtaler om barnemishandling medfører en risiko for å miste kontakten med den involverte familen					
Barnevernet henlegger saker ved mistanke om barnemishandling på en riktig måte					
En bekymringsmelding skal kun sendes ved gjentatt barnemishandling					
En bekymringsmelding skal kun sendes ved sterk mistanke om barnemishandling					
Hvis det mangler overbevisende dokumentasjon ved mistenkt barnemishandling, kan man overveie å vente med å melde, for å beholde kontakten med familien og utrede mer					

Avslutningsvis

24) Var det noe du reflekterte over når du svarte på spørreskjemaet, og/eller er det ytterligere noe du tenker kan være av betydning?

Beskriv med egne ord:

Paper IV

IV

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ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF PAEDIATRIC DENTISTRY WILEY

Barriers and factors influencing communication between dental professionals and Child Welfare Services in their everyday work

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Abstract

Background: Among various health professionals, general dental professionals (GDPs) screen children frequently, giving them a unique opportunity to act upon suspicion of child maltreatment. The dental team has received considerable attention regarding safeguarding children.

Aim: The aims of this study were to explore whether GDPs have mutual collaboration and communication with the Child Welfare Services (CWS), and potential barriers for reporting child maltreatment.

Design: An electronically pre-coded questionnaire was sent to all GDPs (n = 131) in the Public Dental Health Service (PDHS) in Oslo. Frequency distributions and statistical analysis were carried out by chi-squared statistics and multivariate logistic regression analysis.

Results: The response rate was 75%. Ninety per cent of GDPs had received requests from CWS to provide a child's dental chart. General dental professionals reported child maltreatment frequently (71%), but CWS only gave feedback in 55% of the cases. Uncertainty was the most common reason for not reporting and 33% of the GDPs had chosen not to send a report despite suspicion. Using guidelines increased frequency of reporting (OR 3.6).

Conclusions: Mutual collaboration and communication should be improved in the task of safeguarding children. Uncertainty and lack of guidelines may act as barriers for not reporting to the CWS.

KEYWORDS

child abuse, child maltreatment, Child Welfare Services, dental professionals, paediatric dentistry

1 | INTRODUCTION

Norwegian dental professionals, since 1992,[1] have been mandated to report suspicion of child maltreatment. Such reporting has been required by legislation since 1999,[2] as obligated by the UN Convention on the Rights of the Child.[3] Various types of abuse and neglect frequently manifest in the orofacial and head and neck region.[4-8] Some studies have also revealed a high prevalence of untreated dental caries lesions among physically and sexually abused children.[9,10] Children enrolled in Child Welfare Services (CWS) have also shown increased caries activity in their primary dentition.[11] These findings emphasize the dental professionals' accountability to use their professional discretion to observe and fulfil their

actual and legal duty to report suspicion of child maltreatment to the CWS.

Through 'The Adverse Childhood Experience Study' (ACE Study), Felitti et al highlighted the associations between exposure to abuse and household dysfunction during childhood and alcoholism, smoking, drug abuse, severe obesity, suicide attempt, and/or depression later in life. Such unhealthy lifestyles contribute as a leading cause of illness and death in adults. The ACE study also includes neglect, comprising the subgroup of dental neglect.[12] Dental neglect is defined as a wilful failure of the parent or guardian to seek and follow through with treatment necessary to ensure a level of oral health essential for adequate function and freedom from pain and infection.[13] Different kinds of maltreatment commonly overlap, and many children are victimized repeatedly in various ways.[14,15]

Early intervention is crucial, and over the past years, dental teams have received considerable attention regarding safeguarding children. Studies worldwide from the UK, Sweden, Denmark, the Netherlands, Brazil, Croatia, Greece, the United Arab Emirates, and Norway have contributed to knowledge on the report rates and factors influencing reporting suspicion,[4,16-34] but still we lack knowledge regarding mutual collaboration and communication between CWS and general dental professionals.

Compared to previous international studies, a recent study revealed that Norwegian public dental health personnel report child maltreatment to CWS at a relatively high rate. Of the respondents, 60% reported having sent one or more referrals to the CWS, which is more than twice as much compared to other European countries.[18,24,34,35]

The Public Dental Health Service (PDHS) in Norway offers free comprehensive oral health care to all children aged 0-18 years. Nearly all children are enrolled in the PDHS. No other health professionals screen children as frequently as dental professionals, which generates a professional responsibility to act upon suspicion of child maltreatment, also highlighted by the Norwegian government.[36] Recently, a study among adolescents (13-19 years) in the municipality of Oslo, the capital and largest city in Norway, demonstrated an increase in injuries and threats of violence. Oslo has a more complex and socially segregated population than other Norwegian cities, and more of the youth report health problems, use of cannabis, bullying, and behavioural problems.[37] This finding makes Oslo important when evaluating the role of dentists and dental hygienists (abbreviated to General Dental Professionals; GDPs) when facing suspected child maltreatment.

The aims of this study were to (a) explore whether general dental professionals have mutual collaborations and communication with Child Welfare Services and (b) to explore potential barriers influencing general dental professionals' decisions to report suspicion of child maltreatment.

Why this paper is important to paediatric dentists

- Dental professionals screen children frequently, giving them a unique opportunity to act upon suspicion of child maltreatment.
- Uncertainty is a common reason for not reporting suspicion of child maltreatment, thus highlighting the importance of guidelines.
- Dental professionals should always have the best interest of the child in mind, and in many cases, this demands a multiprofessional collaboration also including child welfare services.

2 | MATERIAL AND METHODS

2.1 | Participants

The participants in this study were general dental professionals (GDPs) in the Public Dental Health Service (PDHS) in the municipality of Oslo. All GDPs (n = 131) received an electronically administered questionnaire (QuestBack Norway) in August 2017. The questionnaire was pre-coded, and two reminders were sent to non-responders 2 weeks apart. The responses were kept anonymous.

The Chief Dental Officers in the PDHS of Oslo provided all the email addresses for all employed dentists and dental hygienists. The Norwegian Centre for Research Data approved the study.

2.2 | The questionnaire

In this study, most questions were previously used by Van Haeringen et al, Borres et al, and Talsma et al.[38-40] All questions from the Swedish questionnaire, originally made for general practitioners (GPs) and used by Talsma et al, were translated and adapted to Norwegian conditions (adapted to Norwegian governmental organization) and terminology (GDPs instead of GPs). The question about receiving an inquiry from CWS regarding a child's chart was added to our questionnaire. The questionnaire was back-translated into Swedish by a bilingual dentist, and the translation was judged to be good (Table 1).

The data on per cent working time with children were dichotomized to working 75% or less and more than 75%.

Regarding reported child maltreatment during the entire career and last year, the variables were dichotomized into never reported and having reported once or more.

TABLE 1 The survey comprised questions on the GDPs' educational and professional background as well as questions regarding reports and collaboration with CWS

Dental education:	Norway vs Norden, other EU, other country
Work experience in years:	0-2, 3-5, 6-10, 11-20, 21-30, >30 y
Per cent working time with children:	0%-25%, 26%-50%, 51%-75%, 76%-100%
Undergraduate education regarding child maltreatment:	Yes or No
Undertaken continuing education within the last 5 y:	Several lectures and courses, longer courses ≥2 d vs no continuing education. Optional text comments allowed
Availability of guidelines:	Yes or No Optional comments to specify
The possibility of discussing with colleagues:	Yes vs No, I don't have time; No, I don't need to; No, my colleagues don't have time; I don't know
The possibility of advisory support:	Yes vs No, I don't know. Optional comments allowed
The number of cases reported from GDPs to CWS during their career:	0, 1-2, 3-5, 6-10, 11-20, 21-30, >30 In bi- and multivariate analyses dichotomized to never reported vs reported one time or more (Table 5)
The number of cases reported from GDPs to CWS during the last year:	0, 1, 2-3, 4-5, >5 In bi- and multivariate analyses dichotomized to never reported vs reported once or more (Table 5)
Factors affecting whether to report	(Yes/No) by the items listed in Table 3
Have you ever failed to report despite suspicion?	Yes or No
Receiving feedback from CWS:	Never sent reports/Yes, CWS gave feedback/Yes, I was in contact with CWS and received feedback/No, I was in contact but did not receive feedback/Neither CWS nor I took contact
During the last 5 y, how many times have you received an inquiry from CWS regarding information about a child's chart?	0, 1, 2-3, 4-5, >5

Note: GPs' attitudes towards reporting to CWS are listed in Table 4.

2.3 | Statistical analysis

Data were analysed using SPSS version 25 (Statistical Package for the Social Sciences; SPSS Inc). The sample and questionnaire data were described by descriptive statistics.

Chi-squared test was used for analysing associations between mutual contact with CWS and the GDPs regarding country of education, under- and postgraduate education about child maltreatment. Chi-squared test and multivariate logistic regression were used to analyse the associations between three dependent dichotomized variables and six independent variables.

Dependent variables were as follows: (a) failed to report child maltreatment despite suspicion, (b) during the entire career, ever reported child maltreatment to CWS, and (c) reported suspicion during last year. The independent variables mirrored professional characteristics (work experience, country of education, guidelines, undergraduate education, continuing education within last 5 years, and working experience and per cent working time with children). Risk estimates (OR) with 95% confidence interval were calculated. The questionnaire allowed for free-text comments, and some of the statements were translated and referred in the text. The level of statistical significance was set to 5%.

3 | RESULTS

Of the 131 GDPs who received the questionnaire, 15 were excluded due to retirement and no longer having access to job mail. Of the 116 remaining GDPs, 87 (75%) responded, and 93% were female.

Table 2 describes the GDP's personal, educational, and professionals' characteristics.

Three-quarters of all the GDPs (75%) reported having undertaken undergraduate training regarding child maltreatment. There were significantly more GDPs educated in Norway who reported undergraduate education regarding child maltreatment (83% vs 44%, $P = 0.003$). Eighty-eight per cent had received continuing education in the subject during the last 5 years.

Nearly, all the GDPs (90%) had received at least one request from the CWS to provide a copy of the child's charts.

TABLE 2 GDP characteristics

	n	%
General dental professionals	87	
Undergraduate education (GDPs)	85[a]	
Norway	69	81
EU including Nordic countries	12	14
Other	4	5
Working years since graduation	86[a]	
≤10 y	46	53
11-20 y	26	30
21-30 y	10	12
>30 y	4	5
Per cent working time with children 0-18 y	83[a]	
≤75%	41	49
75%>	42	51

[a]Reduced number because of internal dropout.

Approximately half (51%) had received more than five such requests.

Of the GDPs, 55% had received such feedback. Of those who did not receive any response, 20% had made a request, but the CWS responded only in 9% of these cases. The analyses did not support that country of education and/or under- or postgraduate education about child maltreatment of GDPs affected the mutual contact between CWS and GDPs.

During their whole career, 29% of the GDPs had never reported any cases of suspicion of child maltreatment to CWS, and 33% answered they had failed to report concern despite suspicion. Within the last year, 38% did not report any suspicion of maltreatment, and Figure 1 illustrates the relationship between years of work experience and reporting/not reporting to CWS at all during the last year.

The reasons for not reporting suspicion are listed in Table 3. There were only three comments in optional text: (a) 'Never failed to report when suspicious', (b) 'I had too little knowledge of what to do to help the child', and (c) 'The family moved before I could take action'.

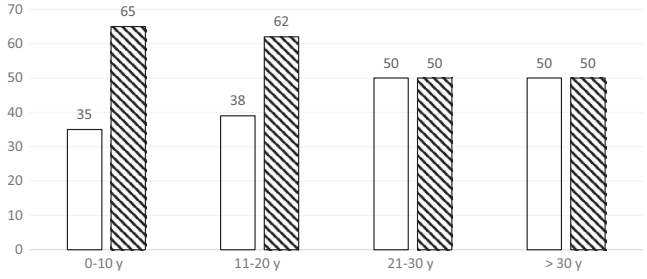

FIGURE 1 The percentage of GDPs who did (hatched columns) or did not (open columns) report suspicion of child maltreatment last year related to work experience

TABLE 3 Reasons for not reporting suspicion (n = 52); Several answers were possible. Reduced number because of internal dropout

	Number of participants	
Stated reasons for not reporting	**N**	**%**
Uncertainty of suspicion	35	67
Planned short-term follow-up of the child to assess the case better	24	46
CWS was already in contact with the family	15	29
Lack of knowledge on child maltreatment	8	15
Fear of losing the family´s trust and contact	7	14
Lack of time	3	6
Helped the child and the family on my own	3	6
Afraid of personal threat	3	6
Not expecting positive outcome for child when reporting	2	4
My leader discouraged me to report	1	2
Referral to other healthcare provider	1	2
My colleagues discouraged me to report	0	0

Seventy per cent of the respondents reported the use of a guideline. There were no reports of a specific uniform guideline. Almost all (92%) answered that they believed to receive support from their leader in the process of reporting suspected child maltreatment, and 99% reported that they had the opportunity to discuss with a colleague when suspicion occurred.

When asked whether they wanted the opportunity to undertake external advisory consult and support when suspicion occurred, 62% answered yes. There were 11 comments; that is, 'it would have been good to have a professional to consult' and 'desirable to have a person to contact in CWS'.

Only one GDP had ever reported suspicion of child maltreatment to the police.

The GDPs' attitudes towards reporting suspected child maltreatment to CWS are listed in Table 4. The majority of the GDPs disagreed that referrals to CWS should only be carried out in cases of repetitive child maltreatment and believed that only strong suspicion or lack of a better chance for resolving the problems by themselves justified referrals.

Cross-tabulations revealed statistically significant differences regarding country of undergraduate education, per cent working time with children, and use of guidelines.

More GDPs with education from abroad had failed to report suspicion during their career compared with their Norwegian colleagues (56% vs 29%, $P = 0.038$). Nevertheless, GDPs with education from abroad had more

TABLE 4 GDPs' attitudes towards statements regarding reporting suspected child maltreatment

	n	Disagree n (%)	Neutral n (%)	Agree n (%)	Mean	SD
Referrals to CWS should only be made with repetitive child maltreatment	85[a]	75 (88)	6 (7)	4 (5)	1.2	0.5
Referrals to CWS should only be made with strong suspicion of maltreatment	86[a]	61 (71)	17 (20)	8 (9)	1.4	0.7
I have a better chance for resolving maltreatment problems on my own	84[a]	57 (68)	15 (18)	12 (14)	2.1	0.6
With lack of firm evidence, it may be reasonable to defer reporting, maintaining contact with the family and learning more	86[a]	42 (49)	27 (31)	17 (20)	1.7	0.8
CWS dismiss cases on suspicion of child maltreatment in a proper manner	84[a]	14 (17)	51 (61)	19 (22)	1.5	0.7
Talking to families about child maltreatment may cause risk for losing contact with the family	86[a]	14 (16)	39 (45)	33 (38)	2.2	0.7
It is easy to contact child welfare services	86[a]	13 (15)	24 (28)	49 (57)	2.4	0.6
I trust child welfare services investigations in cases of suspected child maltreatment	87	10 (12)	29 (33)	48 (55)	2.4	0.7
I trust child welfare services interventions in cases of child maltreatment	85[a]	9 (11)	28 (33)	48 (56)	2.5	0.7

Note: Answers to the statements had options 1-5: 'Disagree' = options 1-2, 'Neutral' = option 3, and 'Agree' = options 4-5.
[a]Reduced number because of internal dropout.

frequently reported child maltreatment last year vs those with Norwegian education (94% vs 54%, $P = 0.003$). General dental professionals with 75% or less working time with children had reported child maltreatment more frequently during their career than GDPs working more than 75% with children (85% vs 60%, $P = 0.014$). General dental professionals who stated support from a guideline reported suspicion last year more often than those with no support from guidelines (71% vs 44%, $P = 0.027$).

Multivariate logistic regression analysis (Table 5), including all variables from the bivariate analyses as independent variables, shows that GDPs working 75% or less with children were more likely to report child maltreatment during their whole career (OR 4.9) than those who worked more

TABLE 5 Multivariate logistic regression with the same variables as used in the bivariate analyses

		Failing to report suspicion Yes	Reported child maltreatment during whole career	Reported child maltreatment last year
		OR (95% CI)	OR (95% CI)	OR (95% CI)
Work experience	≤10 y	1.0	1.0	1.0
	>10 y	0.5 (0.1-1.8)	1.1 (0.3-4.4)	2.3 (0.6-8.6)
Country of dental education	Norway	1.0	1.0	1.0
	Abroad	0.3 (0.1-1.2)	1.8 (0.4-8.6)	13.5 (1.5-124.9)[a]
Undergraduate education	Yes	1.0	1.0	1.0
	No	0.5 (0.1-2.2)	1.0 (0.2-5.0)	1.8 (0.3-9.2)
Continuing education	No	1.0	1.0	1.0
	Yes	0.3 (0.03-1.7)	0.5 (0.1-2.8)	1.8 (0.3-9.9)
Guidelines	No	1.0	1.0	1.0
	Yes	0.9 (0.3-2.8)	2.1 (0.7-6.8)	3.6 (1.1-11.4)[a]
Per cent working time with children	>75%	1.0	1.0	1.0
	≤75%	0.5 (0.2-1.5)	4.9 (1.5-16.3)[a]	1.9 (0.6-5.8)

Note: Odds ratios (OR) and 95% confidence intervals (95% CI).
[a]$P < 0.05$ Reduced number because of internal dropout.

than 75% with children. Similarly, GDPs with undergraduate education from abroad had a higher probability of reporting child maltreatment last year than those with education from Norway (OR 13.5). General dental professionals stating the use of a guideline were also more likely to report suspicion last year than their colleagues who did not use a guideline (OR 3.6).

4 | DISCUSSION

Children exposed to neglect and abuse do not always have the ability to ask for help themselves. Thus, in the task of acting as a mandated advocate for children, it is important that the general dental professionals (GDPs) are prepared and educated for a holistic approach to the patient's care.[41] The authorities in Norway[36] have emphasized and encouraged all dental professionals to impose their duties to report suspicion and follow through with mandatory reporting to the Child Welfare Services (CWS).

This study shows that the Child Welfare Sercice (CWS) and general dental professionals (GDPs) have mutual collaboration and communication to some extent. Positively we found that 90% of GDPs had been requested by CWS to send copies of a child's dental charts as part of their work to unveil neglect and abuse, and half of the GDPs had received more than five such requests. In addition, most GDPs had reported child maltreatment (71%) to the CWS. It was, however, concerning that CWS, although mandatory, had given feedback to GDPs reporting suspicion in only about half of the cases, and that one of three GDPs had chosen not to send a report to CWS despite suspicion of child maltreatment. Lack of feedback from CWS is also reported in another Norwegian study, where only one-third of the public dental health personnel received information regarding outcome after reporting to the CWS.[42] Feedback is an important part of the communication and should be pursued. A two-way communication is beneficial when focusing on the best interest of the child.

To our knowledge, no other studies have reported numbers on the CWS's requests of dental records. When CWS investigates suspicion of child maltreatment, it is essential to make the situation as clear as possible and to collect as many pieces of the 'puzzle' from professions working with children. Kvist et al[23] highlighted that 86% of the children reported by dental care services were previously known within the CWS. In this context, it was positive that CWS seemed to communicate with GDPs and use dental records regularly.

Nearly all the GDPs noted they could discuss suspicions with a colleague with support from their leader. The GDPs in general had confidence in the CWS, but more than half of the respondents (62%) expressed a wish for external advisory support when suspicion arose. This finding corresponds with the Swedish study among GPs, where 44% indicated the need for advisory support.[40]

Several authors have highlighted the need for education regarding child maltreatment at both undergraduate and postgraduate levels.[5,24,25,31-33,43-45] This study reveals that there are differences in undergraduate education about child maltreatment. Whereas 83% of the GDPs educated in Norway had received such education, only 44% of those educated in other countries had received the same. Nevertheless, GDPs educated outside Norway reported suspicion to CWS more often during the last year than their Norwegian colleagues. This finding may seem contradictory, but could be due to a worry to fail after being introduced to Norwegian law, and hence a lower threshold for reporting than their Norwegian educated colleagues. However, 88% of the GDPs, however, had undertaken continuing education during the last 5 years.

GDPs working 75% or less with children also had a higher probability of reporting their suspicion to the CWS. This result may also be explained in similar terms, a lack of undergraduate education in child maltreatment, and also that less experience may cause them to report more often, in order to not miss any cases (false reports).

A total of 33% of all the GDPs had chosen not to send a report to CWS, despite their suspicion of child maltreatment. Uncertainty was the most common barrier for reporting suspicion. Lack of certainty has been identified as an important contributory factor towards the failure of fulfilling this professional duty.[46] This is in accordance with similar studies from Europe.[18,24,25,32,34,40,46]

Suspected child abuse implies difficult assessments. Several authors have pinpointed the importance of support and the opportunity to seek advice, both among GDPs and general practitioners (GPs).[25,40,45]

Seventy per cent of the GDPs reported the use of a guideline. The PDHS in Oslo has developed their own local guideline. General dental professionals who used a guideline had a higher probability for reporting suspicion last year. This finding underlines the benefit of guidelines to reduce uncertainty and strengthen their decision on whether to report in their everyday work. Easy access to guidelines is supported by many authors. Guidelines regarding child maltreatment may also be useful for communication across professions to promote children's health and to clarify that the threshold for referring a child to CWS is 'having concern' and 'not being sure'.[23,31,33,41]

4.1 | Limitations

The response rate in our study (75%) is comparable with that of similar studies[24,25,32-34] and must be considered good, especially in light of the rapid rise of web-based surveys and fatigue of participants. It must also be taken into account that those who have chosen not to report child maltreatment may

have refrained from participating. The same applies to GDPs with foreign education who may have refused to respond because of uncertainty in relation to questions in Norwegian as well as different cultural and religious backgrounds. This possibility may have affected their perception of child maltreatment.[40] A high number of the respondents were women (93%). This finding reflects the gender distribution of GDPs in Oslo, where 94.6% are women and also the predominance of women in the Public Dental Health Service in Norway.

To further explore the topic, future studies with a qualitative research method, that is, focus group interviews, including participants from both CWS and dental services, should be considered. Such studies may provide more nuanced and profound information.

5 | CONCLUSIONS

Mutual collaboration and communication between child welfare services and general dental professionals need to be highlighted and further improved.

Lack of collaboration together with the GDPs uncertainty may act as barriers for reporting. The use of guidelines may reduce uncertainty and increase the likelihood of reporting to the CWS. This underlines the importance of developing national guidelines.

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CONFLICT OF INTEREST

There are no conflict of interest among the authors.

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EDITOR'S CHOICE

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Barriers and factors influencing communication between dental professionals and Child Welfare Services in their everyday work

A. Rønneberg | H. Nordgarden | A.B. Skaare | T. Willumsen

Reporting child abuse and neglect is mandatory for dental professionals in Norway since 1999. It is very common to observe head and neck injuries among maltreated children, and the dentist can be the first to observe signs and to report it before other health professionals. In this way, the authors wanted to know which factors could influence the communication between general dentists and child welfare services, and also the barriers they face in their daily practice. Questionnaires were sent to general dentists from Oslo with a 75% response rate. They could conclude that collaboration and communication between child welfare services and general dental professionals need to be improved and highlighted the importance of using guidelines for reporting child maltreatment. This shows the importance of developing guidelines to improve communication and make difference for children.

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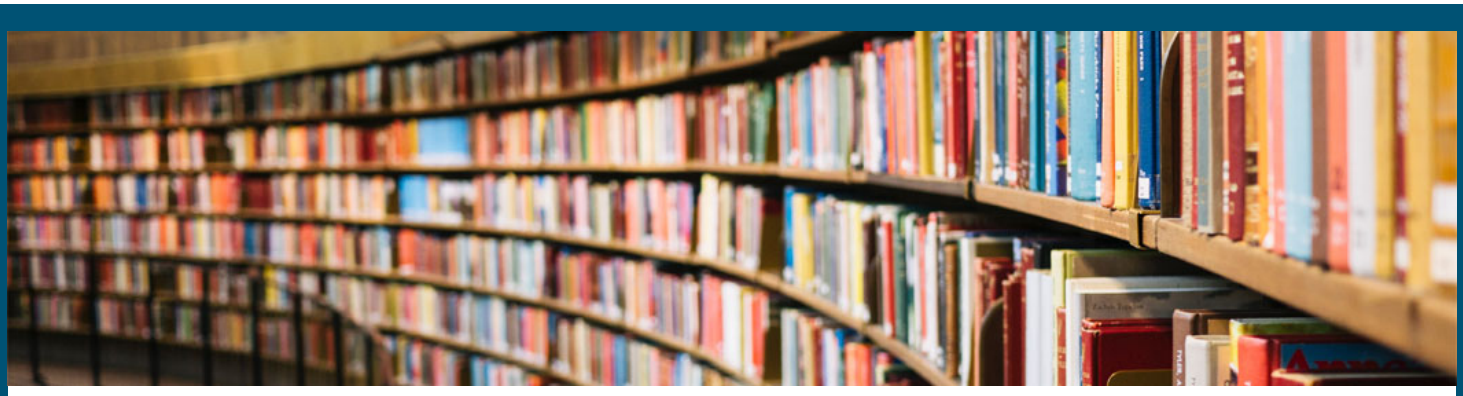

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