

# Detection of child maltreatment, the role of dental health personnel

– A national cross-sectional study among public dental health personnel in Norway

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Ingfrid Vaksdal Brattabø

Thesis for the Degree of Philosophiae Doctor (PhD)  
University of Bergen, Norway  
2018

UNIVERSITY OF BERGEN



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health personnel in Norway

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## Scientific environment

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- Public Dental Health Service in Norway, in cooperation with the Norwegian Centre for Research Data (NSD)

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- PhD program UIB: Graduate School of Human Interaction and Growth (GIGH)
- Research group UIB: Child welfare, equality and inclusion (BLI)
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## Foreword

The idea for this research study evolved while I was working in the Public Dental Health Service (PDHS) in Hordaland, Norway, as a public health counsellor. One of my tasks as a counsellor was to initiate a closer cooperation between the PDHS and the Child Welfare Service (CWS). To address this task, more knowledge was needed. Together with my colleagues from the PDHS in Hordaland, Rogaland and Sogn og Fjordane, we initiated a cooperation with the Resource Centre on Violence and Traumatic Stress in western Norway, the Children's Advocacy Centre in Bergen and Stavanger and the Institute of Clinical Odontology, Faculty of Odontology, University of Bergen. Working in an interdisciplinary manner together with these skilled people so willingly sharing their knowledge regarding the most vulnerable among us, maltreated children, was an eye opener and the start of an inspiring, profound and challenging journey. Along with the work, it became evident that there were many unanswered questions regarding the role of dental personnel in child maltreatment issues among the dental clinicians, the CWS and in the research. As a consequence of the need for more knowledge and the hope to gain increased understanding regarding child maltreatment, dental health and the role of the dental health service, the idea for the present study evolved. Luckily, the PDHS in Hordaland and the Oral Health Competence Centre in Hordaland, Norway, acknowledged the need for more knowledge and encouraged the study. As a consequence, the cooperation between the Oral Health Competence Centre in Hordaland and the Department of Health Promotion and Development (The Hemil Centre), University of Bergen, was initiated.

The study has increased my understanding of how important, complex and challenging it is to detect child maltreatment and of how important it is to work in an interdisciplinary, systematic and research-based manner to detect and prevent child maltreatment. To see the whole picture and attain the necessary position to help children at risk, there is a need for collective investment.

## List of abbreviations

CFI: Comparative Fit Index (CFI)

CI: Confidence Interval

CWS: Child Welfare Service

FA: Factor Analysis

GEE: Generalized Estimating Equations

IRR: Incidence Rate Ratio

MLR: Maximum Likelihood Estimator with Robust Standard Errors

NSD: Norwegian Centre for Research Data

OR: Odds Ratio

PDHP: Public Dental Health Personnel

PDHS: Public Dental Health Service

RAA: Reasoned Action Approach

RMSEA: Root Mean Square Error of Approximation

SEM: Structural Equation Models

SiC: Significant Caries Index

SPSS: Statistical Package for Social Sciences

SRMR: Standardized Root Mean Squared Residual

TPB: Theory of Planned Behaviour

TRA: Theory of Reasoned Action

## Abstract

**Introduction:** Research has revealed that child maltreatment is an extensive and global problem. It is argued that the known victims of child maltreatment represent only the tip of the iceberg. Child maltreatment has far-reaching consequences for the victims, their families and the society. To hinder or reduce the consequences of child maltreatment, it is important to detect children at risk and those already being victimized as early as possible. In Norway, the PDHP are in a special position to prevent and detect child maltreatment, as all children up to the age of 19 receive free dental health care on a regular basis at the PDHS. International research has revealed that dental personnel are in an excellent position to suspect and report child maltreatment. However, a gap between suspicion of child maltreatment and reporting to CWS or other statutory agencies has also been found, indicating that underreporting of child maltreatment is a challenge in the dental health service.

**Aim:** The overall aim of the present study was to gain more knowledge regarding the role and potential of dental health personnel in the preventive and detective work of child maltreatment. This knowledge was gained by assessing the following: 1) PDHPs' frequency of reporting and failing to report suspected child maltreatment to the CWS, 2) PDHPs' reasons for sending a report of concern to CWS, 3) how CWS responded to the reports from PDHP, and 4) whether the different reasons for sending a report of concern were associated with a given response from CWS. Finally, 5) an empirical test of the reasoned action approach (RAA) in predicting PDHPs' intention to report suspicion of child maltreatment was provided.

**Method:** The present thesis and papers are built upon a national descriptive cross-sectional study including a census of dentists and dental hygienists working in the PDHS in Norway in autumn 2014. A total of 1542 dentists and dental hygienists received the survey, of which 1200 (78%) responded.

**Results:** A total of 60.0% of the respondents reported to have sent reports of concern to the CWS during their dental career, while 32.6% had suspected child maltreatment but failed to report it to CWS in the same period. A total of 42.5% had sent reports of

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concern to CWS during the period from 2012 to 2014. The majority of the reports from PDHP were sent to CWS for multiple reasons. The most frequently reported reasons for concern were “did not attend dental appointment”, grave caries, lack of hygiene and suspicion of neglect. Suspicion of physical abuse, sexual abuse and/or psychological abuse were reported more rarely. In total, 24.5% of the reports from PDHP resulted in measures being taken by CWS, 20.7% were dropped either directly or after investigation, while 29.4% lacked information from CWS on the outcome. For the remaining 25.5% of reports, the dental personnel did not know or remember the outcome. Reports of concern due to suspicion of sexual abuse, grave caries and suspicion of neglect had higher likelihood of being opened and substantiated by the CWS compared with reports of concern without any of those reasons. In contrast, reports of concern due to missed appointments were less likely to be opened and substantiated by CWS. The present study provided support for the utility of the RAA across males and females in predicting dental health personnel’s intention to report suspicion of child maltreatment to the CWS. The model revealed that instrumental attitude and perceived behaviour control (capacity and autonomy merged) were the strongest predictors of intended reporting behaviour, followed by descriptive norm, injunctive norm and experiential attitude, explaining 63.6% of variance in PDHPs reporting intention.

Conclusion: The findings from this study imply that PDHPs in Norway suspect and report most forms of child maltreatment and play an important role in the preventive and detective work of child maltreatment. However, the failures to report among PDHP, the relatively low number of measures being taken by CWS and the number of reports that lack a response to reporters from the CWS suggest that there is a potential and need for improvement to fulfil the Health Personnel Act and the CWS Act. The findings reveal a need for closer cooperation between the services, as this would be in the best interest of the child and benefit the services. Moreover, this study offers a thorough understanding of the socio-cognitive factors underlying PDHPs’ intention to report suspected child-maltreatment to the CWS. Focusing on these factors in future training and education might strengthen the reporting intention among dental personnel and bring us one step further in the preventive work of child

maltreatment. In closing, to succeed in the important, complex and challenging work of child maltreatment prevention and detection, a collective and research-based approach is needed. The present study represents only a small fraction of the whole picture.

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## List of publications

- Brattabø, I. V., Iversen, A. C., Åstrøm, A. N., & Bjørknes, R. (2016). Experience with suspecting child maltreatment in the Norwegian public dental health services, a national survey. *Acta Odontologica Scandinavica*, 74(8), 626-632.(1)  
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## **Detection of child maltreatment, the role of dental personnel.**

- A national cross-sectional study among public dental health personnel in Norway

# 1 Background



## 1.1 Child maltreatment

The overall aim of the present study was to gain more knowledge regarding the role and potential of dental health personnel in the preventive and detective work of child maltreatment. Child maltreatment is a global challenge, occurring in all countries, across religions and societies, and affecting the lives of millions of children (2-4). With the exception of child sexual abuse, prevalence rates for the different forms of child maltreatment seem to be comparable across continents (4, 5). Child maltreatment has serious and longstanding consequences and can lead to child morbidity and mortality. Moreover, child maltreatment is among the foremost causes of health inequality (3, 6). To fight this global challenge and fulfil the United Nations (UN) Convention on the Rights of the Child, Article 19 (7), there is a continuing need to increase knowledge about the different forms of child maltreatment, how to prevent it, how to detect it, what consequences it might bring and how to follow up with victimized children. A society-based approach is necessary, including structured inter- and multidisciplinary collaboration among the professions working with children and parents (3). Moreover, there is a need to investigate and utilize each profession's potential for prevention and detection of child maltreatment. For each step in this challenging long-term work, research is crucial to test for effectiveness, establish best practices and increase and share knowledge between professions, authorities, policymakers and countries.

Against this backdrop, to enhance and develop knowledge and facilitate best practices, the present thesis explores whether and to what extent the public dental health service (PDHS) in Norway utilize their potential for prevention and detection of child maltreatment and work in a multi-disciplinary fashion.

## 1.2 Definition

The definition of child maltreatment and its different forms may vary slightly between countries and societies. In the present thesis, the definition used for child maltreatment is based on the definition used by the World Health Organization (WHO) (8, 9):

‘Child abuse or maltreatment constitutes all forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child’s health, survival, development or dignity in the context of a relationship of responsibility, trust or power.’ (8) p 15.

The definitions of the different forms of child maltreatment are derived from the Lancet series on child maltreatment by Gilbert et al. (6).

Table 1. Definitions of the different forms of child maltreatment

<b>Types of child maltreatment</b>	<b>Definition</b>
Physical abuse	Intentional use of physical force or implements against a child that results in, or has the potential to result in, physical injury.
Sexual abuse	Any completed or attempted sexual act, sexual contact, or non-contact sexual interaction with a child by a caregiver or substitute caregivers in a temporary custodial role (relatives, coaches, teachers).
Psychological or emotional abuse	Intentional behaviour that conveys to a child that he/she is worthless, flawed, unloved, unwanted, endangered, or valued only in meeting another’s needs.

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Neglect	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.
Witness to intimate partner violence	Any incident of threatening behaviour, violence, or abuse between adults who are, or have been, intimate partners or family members, irrespective of sex or sexuality.

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Definitions are derived from the Lancet series on child maltreatment by Gilbert et al. (6), p 6, with some modifications.

While physical abuse, sexual abuse, psychological abuse and neglect have been previously regarded as the major types of child maltreatment, witness to intimate partner violence has been included as an additional form of maltreatment in recent years.

### 1.3 Extent of child maltreatment

The nature of child maltreatment, involving children of all ages, taking different forms and being defined in different ways makes it difficult to measure its exact prevalence. In addition, victims of child maltreatment have increased chances of being exposed to different forms of maltreatment and of being repeatedly exposed (4, 6). A significant number delay their disclosure or avoid disclosing their experiences of child maltreatment (10-12). The inhibiting factors for disclosure are multiple and individual. The victims might be threatened to maintain silence, feel shame, feel guilt and responsibility, deny or recant victimization, fear being disbelieved, or fear negative emotional and physical consequences for self, family and in some cases the perpetrator. Moreover, the likelihood of disclosure is influenced by the perpetrator's relationship with the victim, the abuse frequency, the victim's age and the emotional impact (10-14). These disclosure barriers, together with methodological aspects of study design, instrument validity and participants' characteristics, make prevalence estimation of child maltreatment challenging (4, 5).

The child maltreatment prevalence rates do vary between different studies. Stoltenborgh et al. (4) studied the global prevalence of child maltreatment and

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estimated prevalence rates across the globe for maltreatment during childhood to be 22.6% for physical abuse, 36.3% for emotional abuse, 16.3% for physical neglect, 18.4% for emotional neglect and 12.7% for sexual abuse (18.0% among girls and 7.6% among boys) (4). A review conducted in the Nordic countries in 2015 regarding intrafamilial child maltreatment estimated the prevalence of maltreatment conducted by parents to be between 0.2-1.2% for sexual abuse, 3-9% for severe physical abuse and 7-12.5% for witnessing domestic violence. The prevalence of psychological abuse and neglect were not included in the Nordic review due to the lack of studies including these types of child maltreatment (15).

A recent review of a series of meta-analyses by Prevo et al. (5) argues that the range of prevalence rates of the different forms of child maltreatment can be, to some extent, an effect of methodological study characteristics. This relates to 1) study participants in the form of economic development, age of respondents and type of sample; 2) sampling in terms of sampling procedure, sample size, and response rate; and 3) measurement, as validation of instrument, definitions of child maltreatment, type of measuring instrument and number of questions (5). As an example, self-report studies of child maltreatment result in higher prevalence outcomes compared to informant studies, studies of adults give higher prevalence than studies of children, while random samples from the general population result in higher prevalence of child maltreatment than college samples (4, 5). Most prevalence studies are based upon self-report studies (4). At present, there is a shortage of child maltreatment studies focusing on neglect and a lack of studies including all forms of child maltreatment and its comorbidities (5, 15, 16). Due to the methodological challenges and the nature of child maltreatment, true estimates of child maltreatment prevalence are hard to measure. However, there is reason to assume that the known cases of child maltreatment represent only the tip of the iceberg.

## 1.4 Consequences of child maltreatment

Children are very vulnerable, as their bodies and brains are undergoing continuous and rapid development. To attain positive and healthy psychological and

physiological development, children are dependent upon their caregivers and surroundings (17, 18). Hence, experience of child maltreatment impacts children's development and is associated with several undesirable and severe outcomes hampering the children's psychological, physiological and social functioning (17, 19).

Several studies have been conducted to determine the consequences of child maltreatment, (20, 21). Due to the nature of child maltreatment, and victims often having experienced more than one form of maltreatment, defining its consequences is not straightforward. Together with children's age, different factors in relation to severity, period and type of maltreatment seem to influence the scope of consequences (6). However, the impact of child maltreatment is often lifelong and severe, and for some children it is fatal (22). Adverse childhood experiences increase the risk of developing depression and mental illness, as well as lifestyle-related diseases such as liver, heart and lung diseases, risky sexual behaviour, suicide attempts, drug and alcohol abuse (6, 20, 23-26). Moreover, persistent child maltreatment and maltreatment in adolescence is also associated with violence, criminality and delinquency (6, 27). In addition, victims of child maltreatment are at higher risk of maltreating their own children (23, 26). Longitudinal studies indicate that when resilience is defined as successful functioning across various domains, less than 25% of child maltreatment victims are to be considered adult resilient survivors (28-30).

## 1.5 Child maltreatment and oral health

A large number of studies have indicated that victims of different forms of child maltreatment have increased risk of experiencing poor oral health compared to non-victims (31-36). It has been argued that children's oral health and history of attendance at dental services can function as indicators of dental neglect and other forms of child maltreatment, under the prerequisite that other reasons for poor oral health have been excluded (31, 37-40).

Previously, child neglect was regarded as the least severe form of maltreatment, and was frequently excluded in child maltreatment studies (15, 16). In recent years, however, it has been acknowledged that the consequences of child neglect are just as serious as those of other forms of child maltreatment and that detection of child neglect is very important (4, 5, 16). Child neglect is a highly prevalent form of child maltreatment that can take different forms as it relates to a child's emotional, physical, educational, medical and or dental needs. Despite its different forms, the overall result of neglect is that one or several of a child's basic needs are not met. While child neglect can be hard to detect due to its multitude of forms, research has indicated that a child's oral health might function as one of its indicators (31-36).

Dental neglect is one of the forms that relates to child neglect. The American Academy of Pediatric Dentistry (AAPD) has defined dental neglect as:

‘the willful failure of parent or guardian to seek and follow through with treatment necessary to ensure a level of oral health for adequate function and freedom from pain and infection’ (41).

It is a well-known fact that to maintain good oral health, free from pain and infection, young children are completely dependent upon their caregivers and surroundings, as oral health relates to a combination of healthy diet, oral hygiene and access to dental treatment if needed (37, 42-44). Children experiencing that their oral health is neglected do often develop infections and oral diseases, including dental caries (43, 45). Untreated caries in deciduous teeth (children 1-14 years old) are estimated to affect 621 million children, being the 10th most prevalent health condition globally, while untreated caries in permanent teeth (5 years or older) are the most prevalent health condition (46). Untreated caries can result in pain, problems with food consumption, reduced body weight, and sleep deprivation, and they can also negatively affect school performance and reduce children's quality of life overall. In addition, untreated caries can affect the development of children's permanent teeth and the prevalence of caries in permanent teeth (47-51). Dental personnel should be



alarmed if parents fail to seek treatment when their children have extensive dental treatment needs due to severe caries or dental trauma. Dental personnel should also be alarmed if parents fail to follow planned oral treatment and allow the deterioration of their children's oral health continue (37, 52-54). Despite the consequences of untreated caries or trauma, defining when severe caries should be considered as dental neglect is not straightforward (40, 55). Before any conclusion can be drawn, one needs to be sure that the caregivers have the knowledge to maintain the child's oral health and that the oral condition is not a result of development deficiencies or medical conditions (43). Although there is not necessarily a link between having untreated caries and suffering from dental neglect or other forms of child maltreatment, severe caries and high caries prevalence are reason for concern (38, 43).

In regard to physical abuse, several studies have indicated that child maltreatment often causes wounds or injuries in the head, face and neck region, with frequencies varying from 23% for neglect to 75% for physical abuse cases (56-59). The most frequent oral injuries reported in a systematic review by Maguire et al. (60) were related to lips, mandibles, oral mucosa, teeth, gingiva, and tongue. The injuries included bruising, lacerations, intrusion, fractures and extraction of the dentition in addition to bites (60). It has been argued that since the oral region is essential for nutrition and communication, physical abuse is postponed in this region (61, 62). Regarding wounds and injuries, unintentional trauma and accidents to the face and oral region are quite common among children. Hence, it is often challenging to decide whether child's trauma or injury is a result of an accident or not. In cases where one suspects that a child might be a victim of physical abuse, the child's age, developmental stage and history of injury should always be taken into consideration together with the injury and its severity.

Although children's oral cavity is postponed for sexual abuse, oral injuries and infections are rarely detected. Indications of sexual abuse can include unexplained

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petechiae or other injury of the palate, especially at the junction of the soft and hard palate or on the floor of the child's mouth (63). Further, oral and perioral sexually transmitted infections, such as gonorrhoea, chlamydia, syphilis and HIV, are rarely detected, while human papillomavirus in the oral cavity is more common (63-65). Although some infections, such as gonorrhoea and syphilis, strongly suggest sexual abuse, infections like human papillomavirus do not necessarily suggest sexual abuse, as HPV can be transmitted non-sexually (64-66).

Having experienced trauma like neglect, physical or sexual abuse increases the risk of evolving dental fear or severe dental anxiety (54, 67-70). For victims of child maltreatment, and especially those being sexually abused, the dental setting and oral treatment might include different triggers that could give victims associations to previous experiences (67, 68, 70). Research has indicated that the strongest predictor of dental fear was related to experience of child sexual abuse involving the oral cavity. In a Norwegian study, 95.5% of those having experienced forced oral sex reported challenges in relation to dental treatment, while 84% of those having experienced any form of sexual abuse reported challenges with dental treatment (68). Fear of choking, gagging, or being trapped in the dental chair, as well as feelings of claustrophobia and feelings of helplessness, are reported as reasons for children's dental concerns (69, 70). Although sexual abuse and other forms of child maltreatment can result in dental fear or anxiety, a child's or an adolescent's reluctance to receive dental treatment might also evolve for many other reasons. Hence, dental anxiety is not necessarily an indication of child maltreatment.

It has been argued that children who are victims of neglect have higher risk of having untreated dental caries, increased risk of not showing up for health and dental appointments and higher reluctance to seek dental treatment when needed (31, 37, 43, 52, 71). Hence, severe untreated caries, lack of oral hygiene and a history of failure to appear for dental appointments might function as tools in the early identification of struggling children and families (33, 36, 37, 53, 54, 72, 73). Due to these factors, and the fact that all Norwegian children and adolescents have access to free treatment from the PDHS, it is reason to start questioning when children are not brought or

continue not to show up for their dental appointments. As a response to this, several of the PDHSs in Norway have evolved clear routines to ensure that children show up for their dental appointments and receive their right to dental treatment. In cases where a child continues to not show up to the PDHS on several occasions, despite being contacted by the PDHS, a report of concern might be sent to the CWS.

Altogether, dental personnel are in a position to detect different forms of child maltreatment (34, 63, 64). However, for dental personnel to decide whether or not a child is a victim of child maltreatment is challenging, as the indications of child maltreatment are often unclear and ambiguous. Despite the challenges, it is evident that a child's oral health, dental history, attendance history, and response to dental treatment, in addition to cooperation between parents and child, can function as indicators of child maltreatment, together with intra- and extra-oral wounds, bruises or injuries.

## 1.6 Dental personnel and detection of child maltreatment - a literature review

Although Henry Kempe and colleagues brought child maltreatment into the awareness of professionals and the public by publishing *The Battered-Child Syndrome* in 1962 (74), the knowledge and awareness regarding child maltreatment, oral health and the role of dental personnel is relatively novel.

Since child maltreatment is most often hard to detect, dental personnel's role and potential to detect vulnerable children is important. Even though, studies worldwide have revealed low reporting frequency and identified gaps between dental personnel's suspicions of child maltreatment and reporting frequency (75-78) and Table 2.

Although some studies indicate that awareness and reporting frequency among dental personnel is slightly increasing (79, 80), several of the most recent studies conducted reveal low reporting frequency, confirming that there is still a need for more research and knowledge in this regard (Table 2).

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A literature search relevant to the topic of dental personnel's reporting behaviour was performed at the University of Bergen library in October 2017. The following databases were searched: Medline, Embase, Psycinfo, Web of Science and Svemed+. The search strings were built upon keywords with relevant synonyms and spellings, making use of truncations. Keywords, title and abstracts were searched. The search keywords included: 1) dental personnel, 2) child welfare, 3) child maltreatment, and 4) reporting. Searches for each keyword were built and combined by Boolean operators. An overview of the keywords and related synonyms can be found, together with the search string used for Medline, in appendix 1 and 2. Since this field of research is relatively novel, and to gain an overview of the literature, no time restrictions were set for the search. In addition to the literature search, the reference lists in important articles were examined.

An overview of the literature published on the reporting of child maltreatment by the dental health service in the period from 2010-2017 is provided in Table 2. Neither studies that assessed how the CWS responds to the reports from the PDHP nor studies that employed socio-cognitive framework models to assess dental health personnel's reporting behaviour were found. In the Swemed+ search, a few papers from the Nordic countries, written in Swedish, Danish and Norwegian, were found, with the majority being related to child maltreatment and the role of dentistry, reporting procedures and legal aspects (81-86).

Table 2 provides an overview of the literature published on reporting of child maltreatment by the dental health service in the period from 2010-2017.

Author	Year	Country, n	Practitioners	Study design	Response frequency /Sample (n)	Suspected CM %	Reported CM %
Malpani et al.(87)	2017	India	Dentists	Q	68.9%, n = 762	7.2%	-
Uldum et al.(79)	2017	Denmark	Dentists and dental hygienists	PQ	67.0%, n = 964	During career 40.8%	During career 50% of 40.8%
Brattabo et al.(1)	2016	Norway	Dentists and dental hygienists	EQ	77.8%, n = 1200	Failed to report during career 32.6%	During career 60% During three last years 42.5%
Mogaddam et al.(88)	2016	Saudi Arabia	Dentists	Q	77%, n = 208	During career 11%	During career 3%
Al-Amad et al.(89)	2016	United Arab Emirates (UAE)	Dentists	Q	55%, n = 193	During career 25%	During career 32% of 25%
van Dam et al.(90)	2015	Netherlands	Dentists	EQ	25%, n = 264	Last 12 months 24%	Last 12 months 18% of 24%
Flander et al.(91)	2015	Croatia	Dental practitioners	PQ	16.4%, n = 82	During career 30.48% rarely 6.09% sometimes	During career 1.21% of 36.57%
Cukovic-Bagic et al.(92)	2015	Croatia	Dentists	Q	93.75%, n = 510	During career 26.27% Last 6 months 4.11%	Last 6 months 42.9% of 4.11%
Dalldone et al.(93)	2015	Brazil	Dentists and oral health technicians (OHT)	PQ	38.12%, n = 146 Dentists 40% n = 77 OHTs	During career 52.73% Dentists 46.75% OHTs	During career 35.67% of suspected cases Dentists 22.08% of the suspected cases OHT
Tilwala et al.(94)	2014	New Zealand	Dental therapists	PQ	49.8%, n = 320	Past year 18.1% physical abuse 30.9% neglect 53.1% dental neglect*	About 50% of suspected cases were never reported
da Silva et al.(95)	2014	Brazil	Dentists	Q	Approximately 60%, n = 300	Past 5 years 31.3%	Past 5 years 84% of 31.3%
Al-Dabaan et al.(96)	2014	Saudi Arabia	Dentists	EQ	1.7 % n = 122	Past 5 years 59%	Past 5 years 10% of 59%
Laud et al.(97)	2013	Greece	Dentists	I	83%, n = 368	During career abuse 13% neglect 35% During career 37%	During career 1.6%
Harris et al.(80)	2013	Scotland	Dental practitioners	PQ	52% n = 628	During career 37%	During career 11%
Sonbol et al.(98)	2012	Jordan	Dentists	Q	64% n = 256	Last 5 years 50%	Last 5 years 12%
Azevedo et al. (99)	2012	Brazil	Dentists	Q	68.0% n = 187	During career 14.3%	During career 24.0% of 14.3%
Newcity et al.(100)	2011	USA	Dentists	EQ	19.6% n = 678	Last year 93 cases suspicious of child abuse 35 cases definitive child abuse	Last year 22% of the suspicious cases were reported 43% of the definitive cases were reported
Newcity et al.(101)	2011	USA	Dentists	EQ	19.6% n = 678	Last year 239 cases of child neglect	Last year 20% of cases reported
Uldum et al. (102)	2010	Denmark	Dentists and dental hygienists	PQ	76.3%, n = 1145	During career 38.3%	During career 33.9% of 38.3%

Q = questionnaire, EQ = electronic questionnaire, PQ = postal questionnaire, I = interview

Different reasons for these gaps between suspicion and reporting have been addressed, of which uncertainty of observation and own suspicion, lack of knowledge regarding child maltreatment and reporting routines, fear that the child will stop coming to the dental clinic and anxiety for the consequences to the child, family and self are among the reasons most commonly reported (75, 76, 79, 80, 88-90, 92, 94, 96-98, 102, 103). In regard to dental personnel's reasons for reporting, most studies have assessed if dental personnel has reported child abuse or neglect in general (75, 76, 79, 80, 88, 89, 92, 98, 102), while a more limited number of studies have been conducted to assess detailed information concerning reasons for sending a report of concern (73, 90, 94-97). Findings from a Swedish study showed that severe caries, suspicion of neglect, and continuing failure to attend appointments were the main reasons for reporting (73). Moreover, findings from Brazil and Greece revealed that dentists suspected psychological abuse, physical abuse, sexual abuse and neglect (95, 97), while findings from New Zealand showed that dental therapists suspected and reported neglect, dental neglect and physical abuse (94).

## 1.7 Norwegian setting

The first Official Norwegian Report regarding child abuse and neglect (104) was published twenty years after Henry Kempe and colleagues published *The Battered-Child Syndrome* in 1962 (74). Further, in 1989, the Norwegian Dental Association published a 20-page offprint in their journal *Norske Tannlegeforenings Tidende*, focusing on child maltreatment and the role of dental personnel (105). In 1992, as a consequence of the Child Welfare Act (106), dentists became mandated to report suspicion of child maltreatment to CWS through the Dentists Act, Chapter 3, Section 32 b (107). Further, in 1999, the Health Personnel Act (108) became law, and reporting to CWS became mandatory for all health personnel. Despite these advances, it is only throughout the last decade that dental personnel's potential to prevent, suspect and detect child maltreatment has received proper attention in Norway.

As the knowledge and awareness regarding dental personnel's role in the detection of child maltreatment has increased, child maltreatment has gradually been included as part of the curriculum in dental educational institutions in Norway. In line with this, the Norwegian PDHS has become more aware of their potential and responsibility, with the result that reporting routines and training have been implemented in most counties. Moreover, there is also an increased awareness regarding the role of dental personnel among the authorities. As a consequence, in 2011, the PDHS began to annually report the number of reports sent to CWS to the Norwegian Directorate of Health (109). At present (2017), the Norwegian Directorate of Health is working on new official guidelines for the dental health service, including guidelines regarding routines for prevention and detection of child maltreatment.

### **1.7.1 Regulating laws**

As stated by Kurt Lewin in 1976:

‘General laws and individual differences are merely two aspects of one problem; they are mutually dependent on each other and the study of the one cannot proceed without the study of the other.’ (110) p 794.

To study PDHPs' reporting of child maltreatment, the laws that regulate the actions of PDHP and CWS must be addressed. In Norway, all health personnel are mandated to report suspicion of child maltreatment to the CWS, while the CWS is mandated to give a response to the reporters. In the following, sections from the laws that have the greatest influence on present study will be briefly described.

#### **The Norwegian Dental Health Service Act**

Chapter 1, Section 1-3, Scope of the Public Dental Health Service:

‘The public dental health service shall organize preventive dental measures for the entire population. It shall offer and provide dental services on regular basis to: A) Children from birth up to and including the year they reach the age of 18. (..)’ (111)

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Since all children in Norway are given regular and free appointments to the PDHS throughout their childhood (111), and the youngest children are dependent upon having someone to bring them to the dental clinic, the PDHPs are in an exceptional position to get to know the parents or caregivers and follow the children and their development until they reach 19 years of age. In cases where they suspect that a child is a victim of maltreatment, PDHPs are mandated to report to the CWS.

### **The Norwegian Health Personnel Act**

Chapter 1, Section 33, Information to the Children's Welfare Service:

'The health care provider shall in his work pay attention to matters, which could lead to measures from the children's welfare service.

Notwithstanding the duty of confidentiality pursuant to section 21, the health personnel shall of their own accord provide the children's welfare service with information when there is reason to believe that a child is being maltreated in the home or is being subjected to other forms of serious neglect, cf. the Act relating to Children's Welfare Services section 4-10, section 4-11 and section 4-12. The same applies to cases where a child has demonstrated prolonged and severe behavioural problems cf. the aforementioned Act, section 4-24.

Upon order from the agencies responsible for the implementation of the Act relating to Children's Welfare Services, the health personnel shall also provide such information.' (108).

If health personnel send a report of concern to the CWS, they should receive a response from the CWS, according to the Norwegian Child Welfare Act.

### **The Norwegian Child Welfare Act**

Chapter 6, Section 6-7a, Response to Reporters:

'The child welfare service shall give a response to any person who has sent a report to the child welfare service, cf. section 4-2. The response shall be sent



within three weeks of receipt of the report. A response may be omitted in cases where the report is obviously unfounded, or where other special considerations argue against responding. The response shall confirm receipt of the report. If the report comes from a reporter falling within the scope of section 6-4, second and third paragraphs, the response shall also state whether an investigation has been opened pursuant to section 4-3.

If an investigation has been opened, the child welfare service shall give a reporter falling within the scope of section 6-4, second and third paragraphs, a new response to the effect that the investigation has been completed (...)’ (106).

In addition to regulating the response to reporters, the Child Welfare Act regulates the child welfare decisions in regard to investigation and potential measures taken for incoming reports of concern. In this regard, the act has several key pillars. First, all decisions should be made in the best interest of the child. Second, one should strive to achieve safety and stability for the child. Third, although heavily debated (112, 113), the biological principle is strong, and hence, one should strive to maintain the families as long as it is regarded to be in the best interest of the child. Fourth, interventions should be as small as possible (114, 115).

### **1.7.2 Public dental health services and oral health**

The PDHS in Norway is administered on a county level, with a total of 19 PDHS throughout the country. In regard to planned man-years, the Norwegian PDHS numbered 1354 dentists, 527 dental hygienists and 1501 dental secretaries in 2016 (116). The service offers free, regular dental screening and treatment to all children and adolescents from the age of 3-19 years. Children with special oral needs due to development deficiencies, heart diseases or other health-related reasons, are referred to the PDHS before the age of 3, as are children detected with early childhood caries. Children under the age of 3 with special needs are usually referred to the public dental health services by health stations, health nurses or hospitals.

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Official numbers from Statistics Norway for 2016 reveals that there were 1,016,283 children aged 1-18 years in Norway. While 99.7% of the children (1-18 years) were under public supervision (3037 caregivers/children had declined the offer from the PDHS), 70% of the children (3-18 years) were seen/treated by the PDHS in 2016. Hence, 30% of the children were not seen by a dentist or dental hygienist due to recall intervals and no-shows. A total of 245,778 children did not have appointments set, while 22,795 children did not show up/were not brought to their appointments (116). Although there is no public water fluoridation in Norway, numbers from Statistics Norway 2016 regarding the oral health of children reveal that oral health in general is good. A total of 80.2% of the 5-year-olds, 59.2% of the 12-year-olds and 23.6% of the 18-year-olds had no caries experience (117).

### **1.7.3 Child welfare service**

While the PDHS is organised on a county level, the Norwegian CWS is organised at both the state and the municipality level. On the state level, the overall responsibility is divided between the Ministry of Children and Equality, the Norwegian Directorate for Children, Youth and Family Affairs and the county governor. On the municipality level, the CWS have frontline staff, with the majority being educated as child welfare officers and social workers, in addition to social educators and others (115, 116). Being regulated by the Child Welfare Act, the frontline staff work broadly and preventively, providing different forms of support, guidance and help to struggling children, adolescents and families. Incoming reports of concern from professionals, organizations, individuals or others are assessed by the CWS in the municipalities (118, 119).

According to Statistics Norway, the number of employees in CWS 2016 amounted to 5787 man-years, with a ratio of 5.1 CWS workers per 1000 children (0-17 years) (116). Since more than 50% of the municipalities have fewer than 5000 inhabitants, the municipal CWS often consists of small teams with fewer than four workers (115). During 2016, CWS received 58,254 notifications/concerns. A total of 47,865 investigations were started, and 46,626 investigations were closed, of which, 19,057

reports resulted in measures from the CWS in addition to 480 measures taken related to urgent decisions, as requested from the county council. Meanwhile, 21,253 concerns were dropped by CWS, and 5836 were dropped on request from the involved or due to relocation. The CWS saw a more than 7% increase in the number of incoming reports from 2015 to 2016, while at the same time, the number of reports being dropped without investigation was reduced (116).

Although the PDHS has been aware of their role in child protection for nearly 30 years (105), it is only during the last decade that the Norwegian PDHSs and CWSs across the country have begun to increase their cooperation. In many counties, the cooperation between CWS and PDHS has been formalised through a written agreement, with the aim of increasing cooperation between the services. Despite the increasing cooperation, to our knowledge, no studies have assessed what reasons Norwegian PDHP have for sending a report of concern. Further, as far as we know, no Norwegian or international studies have assessed how the CWS responds to the reports of concern coming from the dental service.

## 1.8 Theoretical frameworks

### 1.8.1 Social cognition models

Throughout time, philosophers, psychologists, researchers and others have tried to understand, predict and explain human behaviour. One of the innovators in social psychology, Kurt Lewin, stated that:

‘only by the concrete whole which comprises the object and the situation are the vectors which determine the dynamics of the event defined’ (120) p. 165.

Lewin argued that behaviour (B) is a function (f) of a person’s (P) dynamic social information processing system and the situation/environment (E) involved,  $B = f(P,E)$  (121) p 119.

In the wake of Lewin and his social psychology colleagues, several social cognition models have been presented and developed over time, aiming to understand a

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multitude of human behaviours. All cognitive theories includes mental processes, such as reasoning, thinking, expecting and hypothesizing (122). Still, the most used social cognition models argue that a person's perceptions of the situation or environment is essential in regard to understanding human behaviour (123). Social cognition models focus on individuals' cognitions or thoughts as processes that intervene between observable stimuli and responses. The assumption is that social behavior is best understood as a function of people's perception of reality rather than as a function of an objective description of this reality. Social cognition models like the protection motivation theory and the health belief model are often used in predicting health behaviour (124). The first describes the response to a health threat, in regard to a person's intention to perform adaptive or maladaptive behaviour, as a consequence of coping and threat appraisals. The health belief model, being among the oldest and most widely used models, focuses on threat perception and behavioural evaluation in relation to a person's health behaviour (122). In recent years, however, stage models such as the transtheoretical model have been applied, aiming to describe and understand behaviour change and its related processes (124, 125). The transtheoretical model argues that change is a result of a process through six stages, which happen over time (125). Further, the social cognitive theory, the theory of planned behaviour (TPB) and its extended version, the reasoned action approach (RAA), have been frequently applied to predict and explain a multitude of different human behaviours (124, 126-128).

Despite some differences, the social cognition models have several features in common. They all assume that behaviour is a result of a person's subjective expectation that a particular action will achieve an outcome and the person's subjective valuing of that outcome (122). By measuring people's subjective perceptions, the social cognition models aim at predicting different forms of human behaviour (124). Jointly, although it may have both strengths and weaknesses, a well established theory can function as a framework in research, helping to build bridges from one study to another, thereby making it possible to compare findings across studies (129). Further, the socio-cognitive framework can help to target factors that are important in the development, performance and evaluation of interventions.

## 1.8.2 Theory of planned behaviour

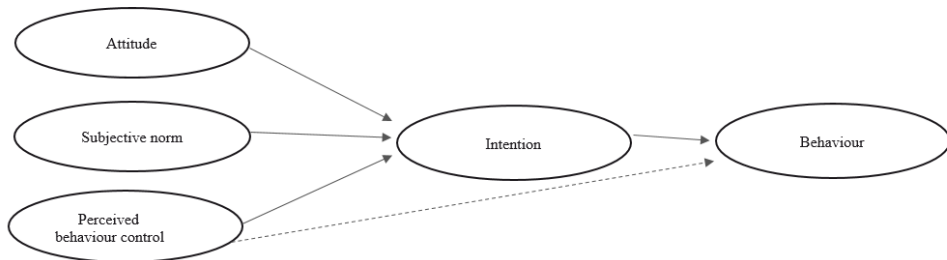


Figure 1 Theory of planned behaviour (Ajzen, 1991)

The theory of planned behaviour (TPB) is a socio-cognitive model aiming to predict human social intention and subsequent behaviour over different domains. The theory is regarded as a successor of the theory of reasoned action (TRA), developed by Fishbein and Ajzen (130). One of the criticisms of the TRA was that it only predicted behaviours under volitional control. With the aim of expanding its predictive ability to include behaviours not under complete volitional control, Ajzen extended the TRA model by adding a measure of perceived behaviour control (PBC) and developed the TPB (131, 132).

As shown in Figure 1, TPB consists of three latent factors, attitude, subjective norms and PCB, which predicts behavioural intention, while both intention and PCB predict behaviour. Attitude measures whether the respondents believe that engaging in the behaviour is considered to be negative or positive. Subjective norms measure the respondents' perceptions of whether or not another believes that one should perform the behaviour. PBC measures whether the respondents have control of performing the behaviour. Attitude, subjective norms and PBC are considered direct predictors of intention. However, the TPB holds that each of the direct predictors reflects different beliefs, weighted by evaluation of the outcome and motivation to comply, and which are referred to as indirect predictors. Further, intention is regarded as the motivational component that inspires the respondent to perform the behaviour. Intention is the predictor of behaviour, together with PBC (133).

Although the TPB has provided strong predictions of intention and behaviour, its extensive and frequent use over different domains has also addressed some shortcomings, some of which have resulted in modifications and gained empirical support (134-136).

### 1.8.3 Reasoned action approach

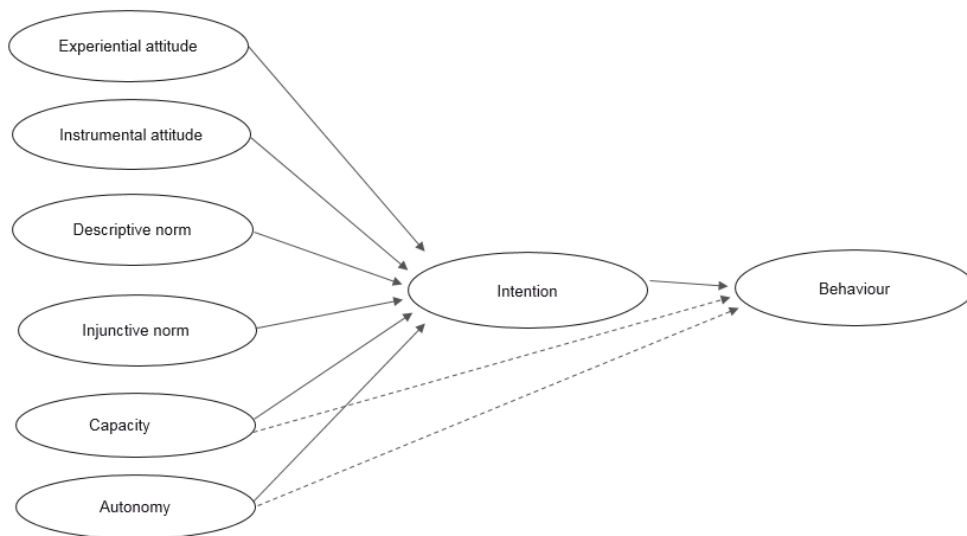


Figure 2 The reasoned action approach.

In light of the modifications and conceptual development of TPB, it has been argued that the elements of attitude, subjective norms and PBC in TPB do consist of separate binary sub-components and that the inclusion of these subcomponents improves the predictive power of the TPB (128). The modified two-component model has been given different names, of which the reasoned action approach (RAA) is most frequently used (126). Two meta-analyses, including studies of different health-related behaviours, revealed that while the explained variance of intention and behaviour in the TPB were 44.3% and 19.3%, the corresponding numbers for the RAA were 58.7% and 32.3%, respectively (127, 128). These findings indicate that the RAA model has the potential to bring our understanding of intention and behaviour one step further from the traditional TPB. However, direct comparison of

explained variance of intention and behaviour between TPB and RAA should be interpreted with caution, due to the different number of predictors in the two models.

While traditional TPB poses that intention is predicted by the three components of attitude, subjective norms and PBC, the RAA poses that each of these components consists of two separate constructs, which all predict intention (see Figure 2).

Attitudes consist of experiential and instrumental attitudes. The experiential attitude aims to measure the respondents' perceptions of how they will experience/be affected by the intended behaviour, while instrumental attitude measure the cognitive aspect of the behaviour. The RAA poses further that subjective norms consist of injunctive and descriptive norms. Injunctive norms aim to measure social approval, how the respondent thinks that significant others (would appreciate or) expect that he/she should perform the intended behaviour. Descriptive norms measure the perceptions of what others do, whether or not the respondent believes that significant others perform the intended behaviour. In the RAA, PBC consists of capacity (i.e., the ease or difficulty of performing a behaviour) and autonomy (the perception of control over behaviour). Capacity aims to tap the respondents' ease/difficulty of and confidence in performing the intended behaviour if desired, while autonomy regards the respondents' perception of having control over the intended behaviour and whether performing the intended behaviour or not is up to them. Finally, intention aims to tap future intention to perform the intended behaviour, while actual behaviour is measured in accordance with the timeframe posed for the behaviour being predicted. Empirical evidence suggests that each attitudinal, normative and PBC subcomponent predicts intention directly and that intention is the immediate predictor of behaviour. In addition, capacity and autonomy predict behaviour directly if the behaviour is not under the individual's volitional control (128, 137). Thus, the RAA, conceptualized as a first-order differentiated component model, provides a unique opportunity to identify the relative importance of each specific subcomponent as predictors of intention and behaviour. RAA allows specification of targets for intentional and behavioural change (128).

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In general, the stronger or more positive each of the six components—experiential and instrumental attitude, descriptive and injunctive norm, perceived capacity and autonomy—the stronger behavioural intention will become. Further, as intention is the predictor of behaviour (together with capacity and autonomy), the stronger the intention, the greater the probability that the behaviour under study will be performed. The variety of behaviours and populations gives reason to believe that each of the components' relative predictive weight, together with the predictive power of the RAA model, will differ across populations and behaviours (126). The different health-related behaviours are often categorized into protection, risk or detection behaviours (138).

The theoretical framework of RAA considers that people sometimes might be irrational or illogical. Hence, the RAA includes both spontaneous and calculated decision making, in addition to behaviour being both under volitional and non-volitional control. Due to this complexity, for the theory of RAA to be used and to be able to predict and change the behaviour under study, the behaviour needs to be clearly identified and operationalized.

Reporting suspicion of child maltreatment can be considered as a detection behaviour. To predict PDHPs' intention to send a report of concern upon suspicion of child maltreatment, the RAA framework was used. The overall aim was to highlight the socio-cognitive predictors that might be targeted in interventions to improve the accuracy of dental health personnel's reporting behaviour. The behaviour was identified by considering the elements of action (send report of concern to CWS), target (reporting suspicion of child maltreatment), context (at the PDHS) and time (during the next 12 months) in accordance with the recommendations that each predictor should be self-referential and measured at the same specificity as the target behaviour (126). To our knowledge, no previous studies have made use of socio-cognitive models to predict reporting intention among dental personnel.



## 1.9 Justifications for the thesis

Overall, relatively few studies have been conducted in regard to dental personnel and their role in child maltreatment issues, either internationally or specifically in Norway. Although the previous studies have contributed to enhance knowledge and awareness, they do indicate that there still is a lack of knowledge and competence among dental personnel regarding the prevention and detection of child maltreatment and reporting procedures. While there is a lack of knowledge regarding the reporting situation in Norway, international research has revealed underreporting among dental personnel world-wide (75, 76, 79, 80, 88, 90, 94, 102, 103). This underreporting might have serious consequences for the children at risk, their families and the society at large. Due to underreporting, and to exploit dental personnel's full potential to prevent and detect child maltreatment, there is a need to understand which factors inhibit and promote dental personnel's reporting when they suspect child maltreatment.

As seen from the literature review, several studies have aimed at identifying dental personnel's reporting frequency and barriers to reporting (75, 76, 79, 80, 88, 90, 94, 102, 103). However, to our knowledge, a more limited number of studies have assessed dental personnel's reason for reporting (73, 90, 94-97), while no studies have made use of theoretical frameworks and socio-cognitive models to investigate which factors contribute to enhance dental personnel's reporting intention. Further, no studies have investigated how CWS responds to the reports from the dental service. Hence, there is a lack of knowledge in regard to how the CWS follows up the reports from dental service, how many and which reports result in measures being taken and how many and which reports are being dropped.

## 1.10 Aims of the thesis

The overall aim of this thesis was to gain more knowledge regarding the role and potential of dental health personnel in the preventive and detective work of child maltreatment. Specifically, this thesis aimed to assess the current reporting situation

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among PDHPs in Norway, investigate how CWS responds to the reports of concern coming from PDHP and identify factors that promote reporting intention among PDHPs. The specific aims were:

Paper 1:

- To assess Norwegian PDHPs' frequency of reporting and failing to report suspected child maltreatment to CWS.
- To identify the personal, organizational and external predictors of reporting and failing to report suspected child maltreatment, using the theoretical framework of decision-making ecology.

Paper 2:

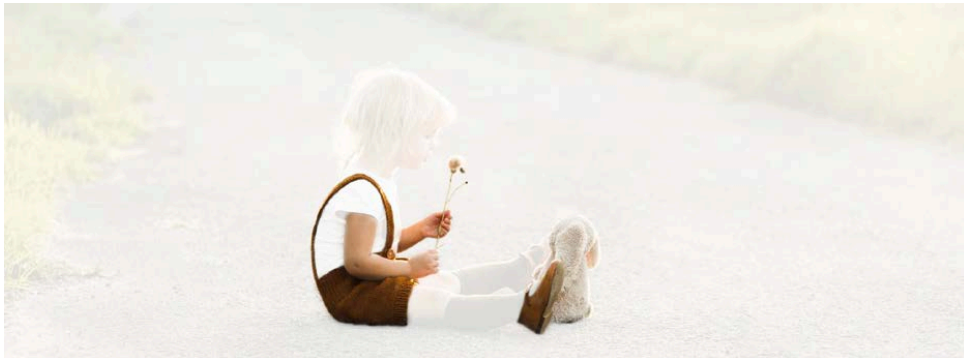
- To assess the reasons reported by PDHPs for having sent a report of concern to CWS during the three-year period from 2012-2014.
- To examine how CWS responded to these reports.
- To assess whether the different reasons for sending a report of concern were associated with a given response from CWS.

Paper 3:

- To provide an empirical test of the reasoned action approach (RAA) in predicting intention to report suspicion of child maltreatment among PDHPs.
- To estimate the relative effect of RAA's theoretical constructs on behavioural intention.
- To explore whether the RAA operates equivalently (i.e., is invariant) across males and females.

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## 2 Materials and methods



### 2.1 Study design

This thesis is based upon an descriptive cross-sectional study (139). All papers are based upon data collected from an electronic questionnaire distributed to a census of public dentists and dental hygienists in Norway during autumn 2014. This thesis is a part of a larger study entitled “Tannhelse og barnevern, samhandling til beste for barnet.”

### 2.2 Study population

In 2014, the census of PDHPs totalled 1794 dentists and dental hygienists, of which 1281 (71.4%) were dentists and 513 (28.6%) were dental hygienists. Further, 1411 (78.6%) were female and 383 (21.4%) were male (116). In regard to occupation, the distribution of females and males for the whole study population was 70.6% vs 29.4% for dentists and 98.8% vs 1.2% for dental hygienists. The inclusion criteria were set to be dentists and dental hygienists with experience of treatment of children, 0-18 years. The exclusion criteria were dentists and dental hygienists with no experience of treating children, as well as dental personnel on leave during the period of data collection.

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## 2.3 Recruitment, survey implementation and data collection

Since the Norwegian PDHS is organized on a county level, the PDHS leaders in all counties were asked if their PDHS would participate in the study. All the leaders in the 19 counties accepted the invitation.

### 2.3.1 Pilot study

Initially, a pilot study was performed to test 1) the questionnaire and its content, 2) the technical issues in regard to distribution and functioning of the questionnaire and 3) the implementation process of the survey. The pilot study was conducted in one county, having both urban and rural areas, with municipalities varying between 5000- >80,000 inhabitants. To test for organisational differences, a total of 10 respondents from three different counties were also asked to participate in the pilot survey. Prior to the distribution of the pilot survey, an informational meeting was held with the PDHS leaders in the pilot county. Subsequently, the employees were informed about the study by their leaders, and information was distributed on the intranet pages together with an information letter produced by the researchers. All employees were given permission to respond to the survey during working hours, and they were informed that a winner of an iPad would be drawn among those who answered the survey. Names and e-mail addresses were collected from the chief of the PDHS.

In June 2014, a link to the survey containing an informed consent was distributed to the respondents by e-mail, together with a cover letter. A total of 176 dentists and dental hygienists received the questionnaire. A reminder was sent out to non-responders after one and two weeks. The questionnaire included mostly closed-ended questions but also encouraged the respondents to comment on the survey.

Of the 176 dentists and dental hygienists included in the pilot study, 114 (64.8%) responded. Among the 114 respondents, the distribution of dentists and dental hygienists was 60.5% and 39.5%, respectively. In regard to gender, 13.1% were males and 86.9% were females.

### **2.3.2 Main study**

Since one county was used for the pilot study, the remaining 18 counties participated in the main study. As for the pilot study, names and e-mail addresses were collected from the chiefs of the PDHS, who also gave the employees permission to answer the questionnaire during their working hours. Due to the experiences from the pilot study and a desire for a higher response rate, extra efforts were made to reduce survey error in terms of sampling, non-response and measurement. In line with many of the recommendations by Dillman, Smyth and Christian (140), several efforts were made to tailor, inform and implement the study among the PDHPs in the months prior to the data collection. Information about the study was given at two national conferences, one for dental hygienists and one for the PDHS. All the leader groups in each county were offered to receive oral information about the study at one of their meetings. Most counties welcomed this, while five counties either wanted to give the information themselves or were unable to receive this oral information due to other reasons. In one county, the information was given to all employees. Four weeks prior to the survey distribution, flyers and standardized information letters were sent out to the leaders in all counties, with the encouragement that the flyers should be distributed to the dental clinics, while the information letter should be distributed on the PDHS's intranet in addition to e-mail. One week prior to the distribution of the survey, a reminder was sent to all the PDHS leaders to encourage them to remind their employees that they would receive the survey in one week.

Together with the media department at the University of Bergen, a media plan was developed, with the aim of having newspapers from the different parts of the country writing about the study. A few days after the survey was distributed, newspapers all over the country published articles regarding the study. In addition, an article regarding the study appeared in the Norwegian dentists' journal, *Tannlege tidende*.

In November 2014, a link to the survey containing an informed consent was distributed to the dentists and dental hygienists by e-mail, together with a cover letter.

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A reminder was sent out to non-responders after two, four and seven weeks. During this period, leaders of each county were given information regarding their response rate, twice. Prior to the second reminder, all in the study group received a Christmas card via e-mail informing them that a winner of an iPad would be drawn from among the respondents of the survey.

## 2.4 Questionnaire and variables

The questionnaires were electronic, with incorporated automatic jumps according to the respondents' answers and an estimated completion time of 30-40 minutes. The questions regarded PDHPs' experience with suspecting and reporting child maltreatment, their experience with the CWS, promotional and inhibitory factors for reporting and/or not reporting, and organizational questions about the PDHS, in addition to demographic characteristics of the respondents. Moreover, a portion of the questions were conducted in line with the RAA model and the recommendations by Fisher and Ajzen (126). Further, several questions were derived from the Australian survey, 'Reporting child abuse and neglect questionnaire: the experience of teachers in Queensland', with permission from Goebbels (141, 142). Necessary adjustments were made to tailor the questions to the Norwegian dental context. The questions from the Australian questionnaire were translated into Norwegian and then back-translated into English to evaluate the semantic and content equivalence. The draft questionnaire was reviewed by three researchers involved in the study and by two external researchers with experience in survey and quantitative analysis, both with a background as public dentists.

In the present thesis, including Paper 1, 2, and 3, certain parts of the questionnaire have been used. More detailed information regarding these questions is presented below:

Paper 1. PDHPs' experience with reporting and failure to report to CWS, as well as PDHPs' personal and organisational background characteristics, were assessed in Paper 1. With some adjustments to fit the Norwegian PDHS setting, these questions

were conducted with inspiration from many of the previous studies assessing reporting experience, including Goebbels et al. (76, 102, 141). The present study assessed reporting frequency through the career and through the last three years. See appendix 3 and questions marked with an \*.

Paper 2. Due to the lack of studies assessing dental personnel's reasons for reporting and associated responses from the CWS, finding questionnaires that fitted the aims were difficult. Therefore, we had to produce the question battery that regarded PDHPs' reasons for reporting and the associated responses ourselves. We deliberately did not define child maltreatment, as we wanted to assess all reasons for sending report of concern. Hence, it was of great importance that the response options covered all aspects of dental personnel's reasons for concern. To ensure this, two open options were included in the battery, one called "other oral findings, please note", and one at the end called "other, please note", where the respondents could write a comment. The results from the pilot survey revealed that more alternatives for reason for concern were needed. Due to this, some alternatives were changed and some additional ones were added to the main survey. In the pilot, one option was "other forms of maltreatment", which was replaced with "suspicion of neglect". Several oral alternatives were also added, including: "gingivitis", "lack of hygiene", "wounds and lesions", "trauma", "treatment refusal", "in normal behaviour with the child" and "cooperation with parents". In regard to the questions concerning response from the CWS, it was of great importance that the alternatives were in accordance with the law regulating the CWS obligation to respond to reporters (106). See appendix 3 and questions marked with \*\*.

Paper 3. The RAA items used to predict PDHPs' reporting intention in Paper 3 were constructed to fit the Norwegian PDHS setting, in accordance with the recommendations for the reasoned action model by Ajzen and Fishbein (126, 134). The behaviour was identified by considering the elements of target (reporting suspicion of child maltreatment), action (sending report of concern to CWS), context (at the PDHS) and time (during the next 12 months), in accordance with the recommendations that each predictor should be self-referent and measured at the

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same specificity as the target behaviour (126). The questions incorporated each theoretical construct of the RAA model. Experiential and instrumental attitudes, capacity, autonomy and intention were each measured by four items, while descriptive and injunctive norms were measured by five items each. Responses were provided on five-point Likert scales, ranging from 1 to 5. See appendix 3 and questions marked with \*\*\*.

## 2.5 Ethics

Initially, an application for approval of the study was sent to the Regional Committees for Medical and Health Research Ethics (REK). The REK replied that while their approval was not required, the study should be registered and approved by the Norwegian Centre for Research Data (NSD). Hence, both the pilot and main study were registered and approved by the Ombudsman of the NSD. See appendix 4. NSD has high ethical standards to safeguard and protect the participants and to ensure safe data collection and storage.

The electronic questionnaire was prepared by the researcher, and NSD's Websurvey software was used for the construction. NSD were responsible for the survey distribution, the data collection and storage. To assure anonymity, NSD assigned a unique ID number to all dentists and dental hygienists included in the study group. Hence, the respondents' anonymity was preserved, as the researchers were only provided with a data file with the respondents' ID numbers and no link key.

A link to the questionnaire was distributed by e-mail to the study group, together with a cover letter and an informed consent. The cover letter explained the purpose of the study, informed recipients that participation was voluntary, that the respondents were guaranteed anonymity and that they could withdraw from the survey whenever wished and without consequences. See appendix 5.

In addition to the formal requirements regarding the ethical issues in research, and particularly survey research, there are other ethical aspects that should be taken into consideration. In general, all research should aim to secure freedom of research and



society, respect for individuals, and regard for groups and institutions. It is a researcher's responsibility to strive for the study participants, groups or society involved in the research to see some advantage from the research and to ensure that the research will not cause any harm (143). Results from the pilot study showed that 94% of the respondents wanted more knowledge in regard to child maltreatment and mandatory reporting. Hence, there was reason to believe that the results from the study were needed and desired and would be beneficial for the respondents, even though the study relates to a sensitive issue and a very vulnerable group, children suspected of being maltreated. Due to this sensitivity, and the fact that dental personnel signed a confidentiality agreement, it was of great importance to secure that the questions were constructed in a manner that provided the needed information without making the dental personnel break their confidentiality agreement and that maintained the anonymity of the children. In addition, several of the items in the questionnaire regarded moral aspects in relation to dental personnel's mandatory reporting. Due to previous research (102, 103), there was reason to assume that respondents might have had dilemmas and challenging experiences of suspecting child abuse or neglect during their career. Further, according to the frequency of child maltreatment, there was a relatively high chance that there are several victims of child maltreatment among the respondents. Hence, receiving and answering the survey might be challenging for several of the respondents. It was therefore of great value to conduct the study in a manner that limited the burden of the dental practitioners and their patients. It was thus important that the study was well implemented among the dental personnel, and in a way that made them find the research important and valuable. The benefit of participating needed to be clear for the participators, and, at the same time, they needed to feel safe enough to answer honestly on sensitive questions. Hence, the importance of participating must prevail over the risks.

Moreover, there is also an ethical obligation in regard to analysing the data and conveying and disseminating the research results, which should be done in a neutral and scientific way. There is, furthermore, an obligation to make the scientific findings public and available to those involved. Hence, for the present study, the goal is to

return the scientific findings to the dental services and the child welfare services, aiming to improve knowledge regarding child maltreatment and the role of dental personnel.

## 2.6 Statistical programs

Statistical programs used in the present thesis:

- Papers 1-3: IBM Statistical Package for Social Sciences, version 22 (SPSS Inc., Chicago, IL, USA)
- Paper 3: Mplus version 7.4 (Muthen & Muthen 1998-2015).

## 2.7 Handling of missing data

In Papers 1 and 2, missing data on respondents was handled by the exclude cases pairwise function in SPSS. In Paper 3, missing data was handled by the MLR estimator, including full information maximum likelihood (FIML) in Mplus (144). This method of handling missing data in Mplus 7.4 is generally superior to standard ad hoc missing data routines such as replace with mean, exclude cases pairwise and exclude cases listwise (145).

## 2.8 Statistical analyses applied in the present thesis

Table 3 Overview of statistical tests in the three papers

Statistical tests and methods	Paper 1	Paper 2	Paper 3
Descriptive statistics; N, frequency %, mean, standard deviation, distributions	x	x	x
Mann-Whitney	x		
Kruskal-Wallis	x		
Negative binomial regression analysis (unadjusted and adjusted)	x		
Cross tables		x	
Binomial generalized estimating equation GEE (unadjusted and adjusted)		x	
Multiple responses		x	
Cronbach's coefficient alpha			x
Factor analysis FA (exploratory and confirmatory)			x
Structural equation modelling SEM			x
Multiple group analysis (testing for invariance)			x
Incidence rate ratio (IRR)	x		
Odds ratio (OR)		x	
Confidence interval (CI)	x	x	
Chi-square test $\chi^2$			x
Standardized root mean squared residual (SRMR)			x
Root mean square error of approximation (RMSEA)			x
Comparative fit index (CFI)			x

### 2.8.1 Paper 1

Due to the positively skewed dependent variables with variances larger than the mean, nonparametric tests, i.e., Mann-Whitney and Kruskal-Wallis, were used for the unadjusted bivariate analyses. Finally, both unadjusted and adjusted custom negative

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binomial regression analyses were performed to estimate the effects of all independent variables on each dependent variable (see Table 3).

### **2.8.2 Paper 2**

Due to the layout of the questionnaire and because each respondent could have sent up to ten reports of concern, variables were restructured from multiple variables to groups of related cases. To account for clustering in repeated data, the binomial generalized estimating equation (GEE) was used (146). As both the unadjusted and the adjusted analyses revealed no significant effect of gender, the age of the child, the number of patients treated, the size of the municipality or the geographical region, those variables were excluded from the final GEE model to strengthen the analysis. The final GEE model included occupation as the only background variable, in addition to the range of reasons for concern, as mutually adjusted (see Table 3).

### **2.8.3 Paper 3**

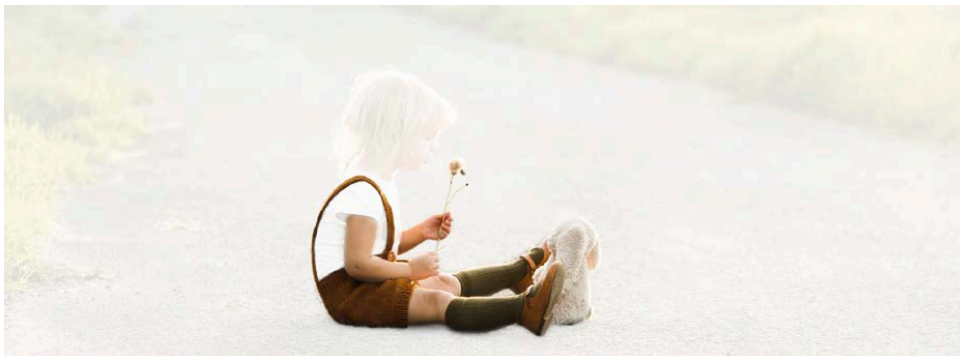
Mplus was used to examine the structural equation models (SEM). The hypothesized RAA model was tested using a two-step modelling approach (147). The maximum likelihood estimator with robust standard errors (MLR) was used to take into account the non-normally distributed data. To measure how well the model fit the sample data, the overall goodness of fit was assessed by the Chi-square test ( $\chi^2$ ), the standardized root mean squared residual (SRMR), the root mean square error of approximation (RMSEA) and the Comparative Fit Index (CFI). A good fit between the measurement model and the data is indicated by Chi-square, with a statistically insignificant result at the  $p < 0.05$  threshold. An acceptable and good fit is indicated by  $SRMR < 0.08$  and  $< 0.05$ ,  $RMSEA < 0.08$  and  $< 0.06$  and  $CFI > 0.90$  and  $> 0.95$ , respectively (148, 149).

In the first step, the hypothesized RAA model was re-specified as a correlated factor model to test the adequacy of the measurement model. Modification indices were used to test for sources of misfit. The measurement model was re-estimated and adjusted according to modification indices until an adequate model fit was achieved.

In the second step, a full structural regression model was conducted to test the plausibility of the postulated RAA model (including potential modifications based on the findings in step 1). Multiple group analyses were used in both steps to test for invariance across gender (see table 3).

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## 3 Results



This section presents the main results of the three papers included in the present thesis. For a full overview of results, related tables and figures, please see the original papers.

All papers are based on the same dataset. Hence, since the response rate and the respondents' profiles are similar across Papers 1-3, this information is provided in the first results section.

### 3.1 Study group, response rate and profile

Of a total of 1542 questionnaire recipients in the PDHS, 1200 (77.8%) responded to the survey. Of the total of 1200 respondents, 1113 (93%) completed the entire survey, while 87 (7%) responses had missing some items.

A total of 68.9% were dentists and 31.1% were dental hygienists, while 80.3% and 19.7% of the respondents, respectively, were females and males (for further information, see Table 4). The reported working experience in the PDHS ranged from 0 to 42 years, with a mean of 11.9 years ( $SD = 11.2$ ). A total of 82.9% reported to have examined more than 250 children under the age of 18 years in the last 12 months, while 59.8% had examined more than 500 children.

Table 4 Frequency distribution % (n) of the PDHP by sociodemographic factors

<b>Categories</b>	<b>Dental hygienists % (n)</b>	<b>Dentists % (n)</b>	<b>Total % (n)</b>
<b>Gender</b>			
Female	98.6 (341)	72.1 (554)	80.3 (895)
Male	1.4 (5)	27.9 (214)	19.7 (219)
<b>Age</b>			
20-39 years	41.6 (144)	57.3 (440)	52.4 (584)
40+ years	58.4 (202)	42.7 (328)	47.6 (530)
<b>Working experience</b>			
1-10 years	45.4 (157)	66.0 (507)	59.6 (664)
11+ years	54.6 (189)	34.0 (261)	40.4 (450)
<b>Number of patients, last 12 months</b>			
0-500	24.1 (83)	47.4 (364)	40.2 (447)
501+	75.9 (262)	52.6 (404)	59.8 (666)
<b>Size of municipality</b>			
0-10.000	33.9 (117)	33.2 (255)	33.4 (372)
10.001- 40.000	36.8 (127)	33.2 (255)	34.3 (382)
40.001+	29.3 (101)	33.6 (258)	32.3 (359)
<b>Region</b>			
North	18.8 (65)	16.0 (123)	16.9 (188)
Central	17.1 (59)	15.2 (117)	15.8 (176)
West	24.9 (86)	26.8 (206)	26.2 (292)
South	19.1 (66)	20.8 (160)	20.3 (226)
East	20.2 (70)	21.1 (162)	20.8 (232)

### 3.2 Paper 1

A total of 60.0% of the respondents reported to have sent reports of concern to the CWS during their dental career, with a mean number of 3.6 (SD = 3.4) reports. One third, 32.6%, had suspected child maltreatment but failed to report it to CWS in their career, with a mean number of 2.3 (SD = 1.8) failures. A total of 42.5% had sent reports of concern to CWS during the recent period from 2012 to 2014, with a mean number of 2.7 (SD = 2.0) reports of concern.

According to the final multivariate negative binomial regression model, reports of concern sent to CWS throughout workers' careers were independently and significantly related to personal and socio-demographic characteristics. Women and PDHP who had 10 or fewer years of working experience were less likely than their

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counterparts to send reports of concern to CWS throughout their career. The corresponding IRRs (95% CI) were 0.79 (0.63-0.99) and 0.64 (0.50-0.81), respectively. Participants working in the smallest municipalities and in the central or western regions were less likely to send reports throughout their career, compared with their counterparts in larger municipalities and in the eastern region, respectively. Failure to send a report of concern throughout one's career was only significantly related to working experience; participants who had worked 10 years or fewer were less likely to report failing to send reports of concern to CWS, with an IRR (95% CI) of 0.43 (0.28-0.64), than their more experienced colleagues. Reports of concern sent from 2012-2014 were associated with personal and socio-demographic characteristics, as participants under the age of 40 were more likely to send a report of concern, while those who had fewer than 500 patients were less likely than their counterparts to send a report, with corresponding IRRs (95% CI) of 1.60 (1.20-2.13) and 0.76 (0.61-0.96), respectively. Furthermore, participants working in the smallest municipalities or in the central and western regions were less likely to send a report of concern from 2012-2014 than were their counterparts in the other groups.

### 3.3 Paper 2

From 2012-2014, 42.5% of the respondents sent 1214 reports of concern to CWS, with a mean number of 2.7 (SD = 2.0) reports per respondent. The majority of the reports from PDHP were sent to CWS for multiple reasons, with a mean of 2.7 (SD = 1.8) reasons for concern per report. The most frequently reported reason for concern was 'did not attend dental appointment', which was cited in 67.4% of the reports. Grave caries were reported in nearly half of the reports of concern (49.2%), and lack of hygiene and suspicion of neglect were reported in 36.7% and 25.9% of the cases, respectively. Suspicion of physical abuse, sexual abuse and/or psychological abuse was reported in 4.9%, 4.7% and 4.4% of the cases, respectively.

In total, 24.5% of the reports from PDHS resulted in measures being taken by CWS, 20.7% were dropped either directly or after investigation, and 29.4% lacked information from CWS on the outcome. For the remaining 25.5% of reports, the



dental personnel did not know or remember the outcome of their report of concern. Hence, the response estimates should be considered as minimum rates of occurrence.

To assess whether the different reasons for sending a report of concern were associated with a given response from CWS, the responses from CWS were regressed upon PDHPs' reasons of concerns across the number of reports. In the adjusted GEE analyses, each reason for concern was mutually adjusted for all other reasons for concern and for the PDHP's specific occupation. The GEE analysis revealed that reports due to suspicion of sexual abuse (OR 1.979, 95% CI (1.047-3.742),  $P = 0.036$ ), grave caries (OR 1.628, 95% CI (1.148-2.309),  $P = 0.006$ ), and suspicion of neglect (OR 1.649, 95% CI (1.190-2.285),  $P = 0.003$ ) had higher likelihood of being opened and substantiated compared with reports of concern without any of those reasons. Furthermore, reports of concern due to missed appointments were less likely to be opened and substantiated by CWS than reports without this reason for concern (OR 0.667, 95% CI (0.469-0.949),  $P = 0.024$ ). In addition, reports of concern sent by dentists had a lower likelihood of being opened and substantiated compared with reports sent by dental hygienists (OR 0.623, 95% CI (0.425-0.916),  $P = 0.016$ ).

### 3.4 Paper 3

The hypothesized RAA model (see Figure 2, chapter 1.8.3) was tested using a two-step modelling approach (147). In the first step, the hypothesized RAA model was re-specified as a correlated factor model to test the adequacy of the measurement model. In the second step, a full structural regression model was conducted to test the plausibility of the postulated RAA model (including potential modifications based on the findings in Step 1). Modification indices were used to test for sources of misfit.

Step 1: The initially proposed correlated seven-factor model (Model 1) lacked an adequate fit to the data on most fit indices employed ( $\chi^2 = 1875.570$ , d.f. = 384,  $P < 0.001$ , RMSEA 0.057, 90% CI for RMSEA 0.055 - 0.060, CFI = 0.884, SRMR = 0.053). The measurement model was re-estimated and adjusted according to modification indices until an adequate model fit was achieved (Models 2-4). The final

measurement model (Model 4) included four correlated error terms and one cross-loading, and capacity and autonomy were merged into perceived behaviour control. In addition, one item had been dropped from the merged perceived behaviour control factor due to low factor loading (0.100). The final modified measurement model (Model 4) achieved an adequate fit ( $\chi^2 = 1071.041$ , d.f. = 357,  $P < 0.001$ , RMSEA 0.041, 90% CI for RMSEA 0.038 - 0.044, CFI = 0.943, SRMR = 0.046). All items loaded significantly ( $p < .001$ ) and in the expected direction on their respective latent variables. Configural invariance across gender was supported, as Model 4 had an adequate fit for both female and male participants.

Step 2: Based on the adequate fit of the six-factor model (Model 4), a full structural equation model was conducted to estimate the fit of the structural model and the relationships among the latent constructs (see Figure 3).

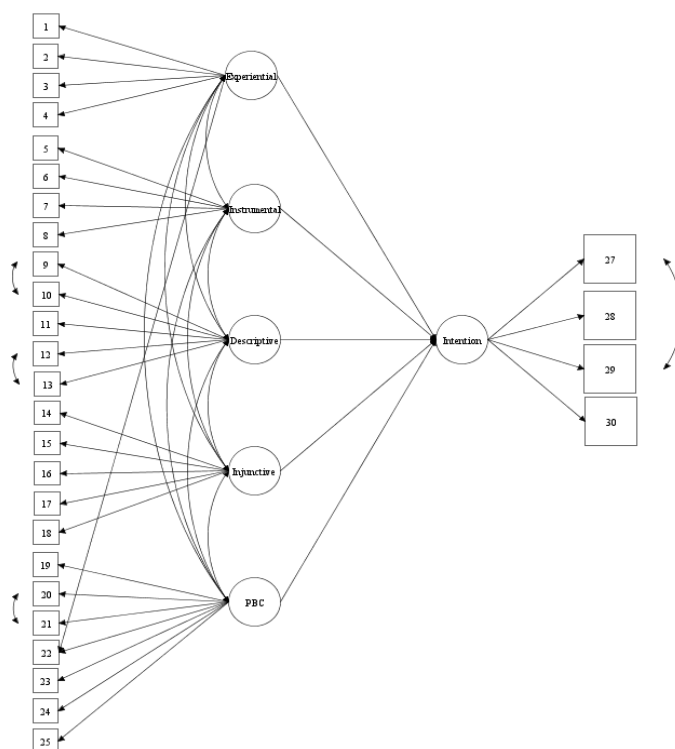


Figure 3 SEM Model 5

The full structural equation model (Model 5), with capacity and autonomy being merged, four correlated error terms and one cross-loading, achieved a good model fit ( $\chi^2 = 1071.041$ , d.f. = 357,  $P < 0.001$ , RMSEA 0.041, 90% CI for RMSEA 0.038 - 0.044, CFI = 0.943, SRMR = 0.046), see Figure 3. The analysis revealed that instrumental attitude (Standardized beta = 0.377, SE 0.047,  $P < 0.001$ ) and perceived behaviour control (Standardized beta = 0.364, SE 0.049,  $P < 0.001$ ) were the strongest predictors of intention, followed by descriptive norms (Standardized beta = 0.125, SE 0.043,  $P < 0.01$ ), injunctive norms (Standardized beta = 0.095, SE 0.040,  $P < 0.05$ ) and experiential attitude (Standardized beta = 0.084, SE 0.036,  $P < 0.05$ ), see Figure 4.

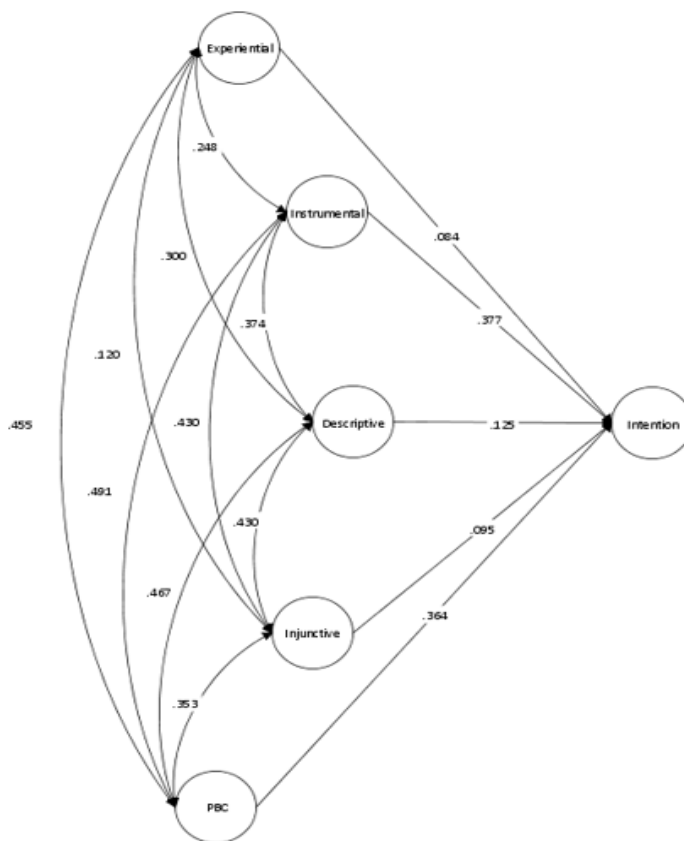


Figure 4 SEM Model 5 (standardized coefficients)

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The full structural equation model (Model 5) revealed that the modified RAA model explained 63.6% of the variance in behavioural intention ( $R^2 = 0.636$ , SE 0.050  $P < 0.001$ ). In addition, it provided support for the utility of the RAA across males and females in predicting dental health personnel's intention to report suspicion of child maltreatment to the CWS. This suggests that the RAA is a well-functioning theory to predict and explain dental health personnel's professional reporting behaviour.

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## 4 Discussion



The overall aim of this study was to gain more knowledge regarding the role and potential of dental health personnel in the preventive and detective work of child maltreatment and to assess the current situation in Norway. In the following, the findings and methodological aspects of the present study will be discussed.

### 4.1 Discussion of main findings

This thesis reveals that PDHPs in Norway both report and fail to report suspicion of child maltreatment at relatively high rates. It reveals further that PDHPs report suspicion of different forms of child maltreatment, including neglect and physical, psychological and sexual abuse, to the CWS. Did not attend dental appointment, grave caries and suspicion of neglect were reported most frequently. One-fourth of the reports from the Norwegian PDHS led to a measure being taken by the CWS. The PDHP lacked information regarding the outcome in close to one third of the reports, while one-fifth were dropped either directly or after investigation. Reports due to suspicion of sexual abuse, grave caries and suspicion of neglect were most strongly associated with a response from the CWS in terms of having an investigation opened and measures implemented. In accordance with the RAA, PDHPs' reporting intention was most strongly predicted by instrumental attitude and perceived behaviour control (capacity and autonomy merged), while descriptive norms, injunctive norms and experiential attitude were significant but weaker predictors.

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### 4.1.1 Reports of concern

According to the findings in Paper 1, 60% of the PDHPs were experienced reporters, having sent one or several reports during their career. Studies from neighbouring countries have shown that the frequency of dental personnel being experienced reporters varies, with a figure of 11% for Scotland (80), 29% for the UK as a whole (75), while the corresponding figure from a Danish study was 20% (79). There could be several reasons for the differences in reporting frequencies between Norway and other countries. First of all, it might relate to methodological issues such as the study population. Uldum et al. (79, 102) found that dental personnel working in the municipal dental service in Denmark reported their suspicions more frequently than those working in private dental practice. While the Norwegian study was conducted solely among PDHPs, the other studies were conducted among both private and public practitioners. Another explanation in regard to study population might relate to the dental personnel's experience with treating children. In Norway, dental treatment in the PDHS is free of charge for children up to 18 years. Because of this, close to all children attend the PDHS, and as shown in this study, PDHPs are highly experienced in treating children. Other reasons for the discrepancy in reporting experience might relate to definitions of child maltreatment, in addition to differences in reporting legislation and dental legislation. As all children have a right to dental treatment free of charge in Norway, continual no-shows at dental appointments, alone or in combination with other concerns, might lead to a report of concern (1). While this is in accordance with findings in Sweden (73), we have little knowledge if and to what extent no-shows at dental appointment lead to a report of concern in the UK, Scotland and other countries. Moreover, the increased focus on dental health personnel's mandatory obligation and their potential to detect child maltreatment by the authorities, educational institutions, dental services and the media might have enhanced the reporting frequency in Norway. Studies have revealed that dental personnel who have received training in child maltreatment suspect and report more cases than their counterparts without such training (75, 80, 88, 101). One might speculate if the findings in Paper 1, that young dental personnel have a higher IRR for reporting than their older colleagues, could be a result of increased focus upon child

maltreatment issues during their education. In order to address this topic, more research is needed. However, research from Denmark and Scotland has revealed an increase in reporting frequency in recent years (76, 79, 80, 102). This might indicate a trend of enhanced focus and knowledge among dental personnel in general.

While the reporting frequency in the present study (Paper 1) was high compared to findings in international studies, the frequency of failing to send reports (32.6%), shown in Paper 1, corresponds with findings from the UK (32%) and Greece (35%) (75, 97), while other studies report a lower frequency of failing to report to CWS (76, 77, 79, 80, 92, 102). The present findings, with a high frequency of both reporting and failing to report, imply that PDHPs in Norway do suspect child maltreatment at a relatively high rate compared to their colleagues in other countries. Making decisions regarding vulnerable children includes making decisions under conditions of uncertainty. The high number of failures to report is an important reminder of this, demonstrating that reporting is complex and challenging for many practitioners.

Paper 1 reveals further that the most experienced reporters have sent several reports of concern to the CWS. These findings might imply that once a report of concern is sent to CWS, PDHPs' threshold for sending reports of concern is reduced.

#### **4.1.2 Reasons for sending reports of concern**

The findings in Paper 2 show that the reports of concern from the PDHP were regarding suspicion of neglect and suspicion of physical, sexual and/or psychological abuse. Even though potential cases of physical, psychological and sexual abuse were rarely reported, the present study indicates competence and awareness among PDHPs in Norway regarding the different forms of child maltreatment. The present findings are partly in accordance with findings from Brazil and Greece, where dentists suspected several forms of child maltreatment (95, 97). Moreover, findings from New Zealand revealed that dental therapists suspected and reported neglect, dental neglect and physical abuse (94). Studies from Denmark, the UK and Scotland have shown that dental personnel report child abuse and neglect, although without specifying

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what kind of child abuse and neglect is being reported (75, 79, 80, 102). A Swedish study found that dental neglect, no-shows and caries were the dental personnel's reasons for concern (73), and these findings are in line with the most commonly reported reasons for concern in the present study, Paper 2. However, in contrast to that study, while reports due to physical, psychological or sexual abuse were found in this study (Paper 2), no reports of concern were sent for those reasons in the Swedish study (73). The discrepancy between studies could be due to methodological differences relating to reporting, registration, time frame and sample size. Small sample sizes reduce the chance of rare concerns being detected. The differences could also be caused by legal, organizational and socioeconomic differences between countries.

Previous studies have demonstrated associations of failure to attend a dental appointment, an absence of dental care routines, caries and poor dental health with families struggling with their everyday life and children having adverse childhood experiences (33, 36, 37, 53, 54, 72, 73). These studies support the findings in Paper 2, which show that repeated failure to attend dental appointments, grave caries, lack of hygiene and suspicion of neglect are sources of concern for dental personnel regarding their patients. While caries is one of the most prevalent disease among children and can lead to profound health implications (46, 47, 150), there is ample evidence suggesting that dental caries is a preventable childhood disease (150, 151). As seen, recent statistics in Norway reveal that 82% of 5-year-olds and 60% of 12-year-olds had no experience with caries (117). Although a conclusion cannot be drawn based on these data, one might speculate that the good oral health of the majority of Norwegian children increases PDHPs conspicuousness of the children with extensive oral health problems. At the very least, the present study indicates that PDHPs are concerned for their patients with oral health deficiencies and suspect that these children may be neglected.



### **4.1.3 CWS responses to reports from PDHPs**

As presented in Paper 2, at least half of the reports of concern sent to CWS resulted in an investigation, while close to one-fourth of the reports led to measures being taken by CWS, and one-fifth were dropped either directly or after investigation. These findings deviate from findings in a recent study from Sweden, where most reports of concern sent to CWS from the dental services regarded children already known to CWS (73). While several previous studies have found associations between oral health deficiencies and struggling children (33, 36, 37, 53, 54, 72, 73), to our knowledge, no other studies have investigated how the CWS responds to the reports coming from the dental service. Due to this research gap, at present one can only speculate on the findings in Paper 2 and the reasons for the discrepancy between the findings in Sweden and Norway. Possible explanations for the discrepancy could be the huge workload at the CWS, overreporting or insufficient reports of concern from the Norwegian PDHP (152, 153). To address these questions, more research is needed.

Further, the findings in Paper 2, that PDHPs lacked information from the CWS regarding the outcome in close to one-third of the reports, makes one curious how this lack of information from CWS influences the reporters. The findings in Paper 1 revealed that close to one-third of the reporters had failed to report on one or several occasions. This, together with the fact that previous studies have revealed that uncertainty and fear of having wrong are among dental personnel's main barriers for reporting (75, 76, 79, 80, 88, 90, 94, 102, 103), gives reason to assume that the lack of response from CWS might negatively influence dental personnel's future reporting intention. Another important aspect of the lack of response relates to the children involved and the follow up of their oral health. Due to the absence of response from CWS, the PDHP have no knowledge whether CWS has initiated measures, whether their patient receives any help from CWS and if there is a need for or a way to facilitate better dental services for the patient. Victims of child maltreatment, especially victims of sexual abuse, are often associated with oral health deficiencies and challenges in receiving oral treatment (54, 67-70). Hence, the lack of information

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sharing between CWS and the PDHS might have the result that victimized children with a need for facilitated oral treatment do not receive the most beneficial treatment and follow up. For some children, this result might have serious and longstanding consequences for their oral health and quality of life. The findings in Paper 2 indicate that CWS needs to improve their feedback frequency to fulfil their obligation regarding the Child Welfare Act, Chapter 6, Section 6-7 a (106). To address the reasons for the lack of response and its associated consequences for the children and the reporters, further research is needed.

The findings in Paper 2 showed that one-fourth of the reports from PDHPs resulted in measures from the CWS, which reveals that PDHPs are in a position to suspect and detect child maltreatment. The findings further show that CWS considers reports including suspicion of sexual abuse, suspicion of neglect and grave caries to be the most serious, having 98%, 65% and 63% higher odds, respectively, for measures being taken compared with reports not due to these suspicions. In contrast, non-attendance at dental appointments had 33% lower odds of cases being opened and measures being taken compared with reports due to other suspicions. Hence, it may be reasonable to assume that CWS considers non-attendance less serious and perhaps less of an indication of suspicion of child maltreatment. To address the questions raised and increase the understanding of reporting and the associated responses from CWS, future research focusing on both the CWS and the PDHS would be valuable.

#### **4.1.4 Prediction of intention to report child maltreatment using the RAA**

This study is the first to apply a socio-cognitive theory to predict and explain dental health personnel's intention to report their suspicions to CWS. The findings in Paper 3 reveal that combining the RAA and SEM offers a thorough understanding of the socio-cognitive factors underlying dental health personnel's intention to report suspected maltreatment to the CWS, across gender. With some modifications, the RAA turned out to explain 63.6%, of the variance in PDHP's intended reporting. Compared to findings in meta-analyses, the explained variance in the present study was substantial, as the explained variance of the RAA and the TPB in predicting

intentions across health-related and social behaviours was 59% and 44%, respectively (127, 128).

Specifically, the relative importance of the theoretical constructs of RAA suggests that educational messages aimed at strengthening dental health personnel's intention to report suspected child maltreatment, would benefit from having a main focus upon PDHP's instrumental attitude and PBC. These factors were the strongest predictors. In order to build up and strengthen dental personnel's instrumental attitude, attention should be drawn to cognitive issues of child maltreatment and mandatory reporting. Thus, attention should be given to PDHPs' responsibilities and the potential consequences that reporting and failure to report might have for the child, the child's family and the reporter. The findings in Paper 3 reveal that when dental personnel feel that sending a report is important, useful and right, their intentions to report are strengthened. These findings are important and should be considered in regard to the findings related to the CWS response to reporters found in Paper 2, especially the portion that lacked information on the outcome of their reports of concern. Further, in regard to educational messages, extra attention should also be given to enhancing dental personnel's PBC in regard to reporting, with attention to what to do, when to do it and how to do it. According to the findings in Paper 3, dental personnel who feel that they are able to and in control of sending a report of concern do have a stronger intention to report suspicion of child maltreatment than their counterparts. These findings seems to be supported by the findings in Paper 1, which showed that the majority of experienced reporters had sent several reports of concern, with a mean of 2.7 (SD = 2.9) in the period from 2012-2014. Having sent one report of concern might increase dental personnel's PBC.

The findings in Paper 3 further indicate that educational messages also would benefit from focusing and strengthening dental personnel's descriptive norms, injunctive norms and experiential attitude, as these factors were significant but weak predictors of reporting intention. Studies have shown that interventions that succeed in altering the cognitions of attitudes, norms and self-efficacy do have the power to change health-related intentions and behaviour (154). Thus, emphasizing these factors in the

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future training and education of dental personnel might contribute to strengthening the reporting intention of suspected child maltreatment and reducing the well-documented gap between suspicion and reporting (1, 75, 76, 79, 80, 88, 89, 97, 102). Considering that intention is the most immediate predictor of behaviour, the current findings are important. Altering behaviour is challenging. Knowing which factors contribute to enhancing dental personnel's intention to report to CWS might bring us one step further in the preventive work of child maltreatment. Moreover, the present finding gives implications for dentistry and educational institutions, providing guidance to the development of future interventions.

#### **4.1.5 Interdisciplinary cooperation**

The findings in this study, discussed in the previous sections, imply that PDHPs are important in detecting child maltreatment and that the cooperation between the CWS and the PDHS is functioning in many cases. However, the findings do also imply that there is a potential for improvement. The study indicates that stronger and more functional interdisciplinary cooperation is needed, as it would benefit children who are victims of child maltreatment. It would, additionally, benefit the CWS and the PDHP. The findings in Paper 1, that PDHPs fail to report suspicion of child maltreatment, and the number of reports that lack a response from the CWS in Paper 2 indicate that neither the PDHS nor the CWS fully fulfil their legal obligations. Creating a closer cooperation between the PDHS and the CWS, aiming at fulfilling the Health Personnel Act (108) and the Child Welfare Act (106), would enhance our knowledge regarding the needs of vulnerable children and would strengthen the wellbeing of these children.

## **4.2 Methodological considerations, strengths and limitations**

In order to monitor the situation in Norway, it was decided to perform a cross-sectional study. In addition to being considered as relatively inexpensive and less time consuming than many other study designs, implementing an electronically

questionnaire made it possible to address a large number of subjects regarding several issues and outcomes at once (155).

#### **4.2.1 Study population and study group**

As almost all children attend the PDHS in Norway (111), PDHS was the natural study group. There were several reasons for targeting a census of PDHPs. First, there was little knowledge regarding Norwegian PDHPs' reporting experience, causes for reporting, or the reporting distribution. By including all dentists and dental hygienists, we would increase the chance of having a representative group of respondents from the PDHS, including both experienced and unexperienced reporters, thereby reducing the chance of sampling error and increasing the precision of the estimates. Second, we wanted to assess whether there were demographical and geographical differences. Third, in regard to implementation and follow up of the survey, it was much more convenient when everyone in a county was included so that one could use different information channels, such as meetings, conferences, media and intranet in addition to e-mail, aimed at informing and increasing response frequencies.

Although performing cross-sectional studies with electronic questionnaires is most often regarded as a relatively inexpensive and fast method for gathering of data (139, 155), the present study did have a relatively high cost for the PDHS, as all PDHPs were given permission to answer the survey during their working hours. Answering the questionnaire was expected to take approximately the same amount of time as treating two to three patients. Another challenge was related to the fact that several of the PDHPs worked on provision, and thus, responding to the survey during their working hours might cause a minor reduction in income. Due to these challenges, extra effort was put into informing preparing and motivating the PDHS leaders and the study group about the survey, with the aim of reducing attrition. The results and experiences from the pilot study, in addition to comprehensive knowledge regarding the PDHS, was valuable in this regard. Altogether, and despite the costs for the PDHS, a census would be beneficial and increase the chances of strengthening the study and its validity.

### 4.2.2 Reliability

Reliability refers to the quality of the measures, as well as to what degree they are consistent, accurate and reproducible. All measuring instruments include a degree of error. An instrument that minimizes the error component and maximizes the true component is considered to be reliable.

Internal consistency reliability measures if a measure is consistent within itself (156) and concerns the correlation of items in a scale. The more homogeneous the items, the higher the Cronbach's alpha, indicating that all items reflect the same underlying concept. In the present study, the Cronbach's alpha was used to assess the items' internal consistency reliability for each of the seven construct scales in the RAA model used in Paper 3. The items were conducted in accordance with the recommendations for the RAA by Fishbein and Ajzen (126). The standards for an acceptable  $\alpha$  coefficient are arbitrary, but in general, an  $\alpha \geq 0.70$  is regarded as acceptable, while values between 0.80 - 0.95 are preferable (157). The Cronbach's coefficient alpha for six of the construct scales indicated acceptable to excellent internal consistency reliability ( $\alpha = .716 - .921$ ). The exception was the autonomy scale, which had poor internal consistency reliability ( $\alpha = .401$ ). However, preliminary analysis, where the capacity and autonomy items were merged into one factor, PBC, revealed  $\alpha = .744$ .

The stability aspect of reliability is assessed by comparing the same measures for the same subjects at two or more points in time, i.e., test-retest. According to Bland and Altman (158), consistency across time is neither present nor absent; it is instead a question of degree and should be quantified. Ideally, a test-retest of the questionnaire should be performed in the present study. Unfortunately, due to a combination of logistical reasons and lack of time, it was not possible to perform a test-retest in this situation. However, to ensure that the questions were clear and easy to understand and that the length of the questionnaire was in accordance with

the planned timeframe, the questionnaire was first tested by researchers. Second, a pilot study was performed to test the sampling procedure, secure data quality and ensure that the questions were straightforward and easy for the clinicians to understand.

Although a test-retest has not been performed, the testing and piloting of the questionnaire and the fact that 93% of the 1200 respondents completed the entire survey indicate that the questionnaire was regarded as important and understandable for the respondents. This, together with the good internal consistency for the RAA items, implies that the survey can be considered reliable.

### **4.2.3 Validity**

Validity is divided into external and internal validity. External validity refers to whether the findings from the study can be extrapolated to the whole study population, while internal validity refers to whether or not a true measure is obtained for the participants under study and the study measures what it is intended to measure (159, 160).

#### Internal validity

In regard to internal validity and self-reported data, information biases, in terms of recall and social desirability bias, pose a common challenge (161). This might also be the case in the present study. As reporting of child maltreatment is mandatory, PDHPs might feel an expectation that they should have reported to CWS if they have suspected child maltreatment. These expectations could be further strengthened by the information and focus regarding the study previous to its release. Due to this, there is a risk that the results in the present study might have been biased in terms of over-reporting the number of reports sent to CWS and underreporting of failures to report to CWS. To accommodate and reduce reporting bias due to social desirability, it was acknowledged that reporting can be challenging and difficult both in the e-mail the respondents received and in several of the question headings in the questionnaire.

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The relatively high number of failures to report might imply that biases due to social desirability have been reduced.

Recall bias is another information bias that poses a challenge in retrospective studies (140, 161). In the present study, the respondents were asked to recall their reporting behaviour throughout their career and during the three last years. In regard to the items related to reporting, the number of concerns reported as sent to CWS between 2012-2014 in the present study was 1214. Corresponding numbers from PDHS, registered by the Directorate for Health, for these 18 counties in the same period of time totalled 1556 reports (unofficial numbers from the PDHS). Because 78% of the public dentists and dental hygienists responded to the survey, these numbers seem valid and plausible, although there is always a chance of recall biases. As reporting to child welfare services is a relatively challenging and rare event, we believe that the respondents recall such behaviour. Nevertheless, in Paper 2, a relatively large number of respondents reported that they did not know or remember whether they had received an answer from the CWS to their reports of concern, which might relate to recall bias, but it could also be because they had not received any information from the CWS and were thus unsure about the response. Although many studies have measured dental personnel's reporting experience during their careers (79, 80, 92, 102), there is reason to believe that recall and reporting accuracy increases as the timeframe being measured is reduced (140). When deciding upon the timeframe being measured, one also needs to consider the fact that reporting to CWS is a relatively rare event, as well as the required sample size. The reason why this study measured the overall career reporting frequency, as well as during the last three years, was a result of weighing between recall biases and unknown reporting frequency in the study sample.

Construct validity is theory dependent and demonstrates if the model measures what it is supposed to measure, according to its theory. To achieve excellent construct validity, both convergent and discriminant validity are required. A construct has convergent validity if the measures that according to theory, are supposed to be related to each other turn out to be inter-related. On the contrary, a construct has



discriminant validity if measures that are supposed to be non-related turn out to be non-related (162). The empirical test of the RAA provided in Paper 3 tested the theoretical constructs in terms of convergent and discriminant validity in addition to testing the model itself (162). The findings in Paper 3, with a good model fit and high portion of explained variance, imply that the results had acceptable convergent and discriminant validity.

#### External validity

Some of the threats to external validity related to cross-sectional studies relying on self-reports include biases stemming from selection procedure and non-response (140). Selection bias, also referred to as coverage error, relates to methodological challenges, design and willingness to participate, which results in discrepancy in study characteristics between the study sample and the study population that it is supposed to represent. By including a census, the selection challenges are reduced, while the chance of having external validity is increased. To secure a census in the present study, the PDHS in all counties needed to welcome the survey. Hence, several efforts were undertaken, including informational meetings with the leaders in the PDHS on both the national and county levels, in addition to attendance at national conferences for dentists and dental hygienists, to provide information regarding the study.

Despite having a census, the external validity might still be threatened by non-respondents' bias. There is always a chance that the respondents might be those who have knowledge or interest in the topic being studied and that non-responses are not occurring randomly. This can result in self-selection attrition bias and pose a threat to external validity. In the present study, there was reason to assume that PDHPs with experience with suspicion or reporting of child maltreatment or related issues would be more interested in answering and completing the survey than their colleagues who lacked this experience. In addition, there was reason to assume that PDHPs who had failed to report suspicion of child maltreatment might be more reluctant to answer. In order to reduce or prevent non-response biases, the respondents were given clear information that, independent of having previous experiences with suspicion of child

maltreatment or not, all study participants were equally important. It was further stated that there were no right or wrong answers and that everyone was given permission to respond to the survey during their working hours. During pre-surveying, information about the survey was given in meetings, on intranet, in conferences and via media in order to motivate PDHPs to respond to the survey. During the sampling period, reminders and electronic post cards were sent out to increase the response rate and reduce self-selection attrition bias. The response rate of 78 % in the present study is good and rather uncommon (163, 164), as the response rate in electronic surveys is often relatively low (140). Despite the high response rate, the external validity might still be threatened by self-selection bias if the study population and the respondents differ (161). This seemed not to be the case in this study, as the study population and the respondents were relatively evenly distributed in regard to gender, occupation, age and geography. The distribution between the study population and the study group in regard to occupation and gender is provided in Table 5.

Table 5 Frequency distribution % between study population and study group.

	Study population			Study group		
	Dentists	Dental hygienists		Dentists	Dental hygienists	
Occupation	71.4	28.6	100%	68.9	31.1	100%
Female	70.6	98.8		72.1	98.6	
Male	29.4	1.2		27.9	1.4	
	100%	100%		100%	100%	

Another threat to external validity relates to missing or incomplete data, particularly if the missing data or participant drop-out rate is of considerable extent, has unique study related characteristics and is non-random, it can result in attrition bias. To reduce the attrition rate, effort was made to have clear questions and ensure that the respondents had sufficient time to answer the whole survey. Despite the length of the questionnaire in this study, of the 1200 respondents, only 87 were missing answers to

one or several questions, resulting in a total attrition rate of 7.25 %. This gives reason to assume that the likelihood of attrition bias in the present study is low. Relatively low missing rates across the questions support content validity, which reflects the clarity, comprehensiveness and relevance of the questions addressing the constructs measured.

Taken together, first, targeting a census and receiving a high response rate resulting in a large sample size and relatively low attrition, and second, having an even distribution between the study population and the study group, adds to the assumption of a representative sample as it reflects the current situation in the Norwegian PDHS. In light of the methodological pros and cons, it is reasonable to assume that the present thesis is conducted upon a relatively robust dataset, having high levels of internal and external validity and reliability.

### 4.3 Future directions

The present study reveals that a stronger and more functional interdisciplinary cooperation, fulfilling the Health Personnel Act (108), would benefit the children at risk, the PDHS and the CWS. A closer collaboration between the CWS and PDHS might provide better services for victimized children and children at risk. Moreover, it might contribute to making dental personnel feel more confident regarding child maltreatment issues and reduce the gap between suspicion and reporting of child maltreatment (1). To exploit the full potential and establish a knowledge-based best praxis, there is a need for future research focusing on the collaboration between the PDHS and CWS.

As seen, several oral health-related factors could be indicators of child maltreatment (33, 36, 37, 53, 54, 72, 73). Hence, in addition to being a detector and reporter, the PDHP can also function as an informant for the CWS in regard to children who are under investigation. The PDHP can detect different aspects regarding a child's oral health and general condition and might contribute new, valuable information for the CWS. However, for this to happen, the CWS needs to be aware of the PDHS and

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their potential to contribute such information. Moreover, in regard to being an informant for CWS, according to the Health Personnel Act (108), the PDHS is only allowed to provide information that has been requested by the CWS. Due to this limitation, to assess the correct and relevant type of information, it is of great importance that the CWS know what kind of information PDHS can provide and what type of questions should be asked. In regard to dental personnel's role as informants for the CWS, there is a huge lack of knowledge, and hence, more research is needed.

Another aspect of interdisciplinary collaboration relates to those children currently under investigation by CWS. A close collaboration between the services in regard to information sharing and follow up would benefit the children. With the right knowledge regarding a child's needs, PDHPs are positioned to facilitate oral treatment and conduct closer follow up of the child and, if needed, his or her caretakers. This also relates to children receiving help from the CWS in the form of out-of-home-placement (165). If the PDHS is informed about the address change, their dental colleagues at the child's new location can continue to follow up the child, help maintain his or her oral health and ensure that he or she receives the oral treatment and help to which he or she is legally entitled (111). To facilitate a close and comprehensive follow up of maltreated children or children at risk who may have special oral health needs, more research is necessary.

To change behaviour, there is a need to understand and identify targets for behaviour change. To our knowledge, the present study is the first to take advantage of socio-cognition models and advanced statistics aiming to understand reporting behaviour among dental personnel. However, more theory-driven studies are needed in order to predict, understand and change dental personnel's reporting intention. Further, theory-based research would also be beneficial, making it easier to compare findings between different studies. Theory-based research would also be valuable in understanding the variation in responses from CWS and the factors influencing the cooperation between PDHP and CWS.

To increase our understanding of the processes involved in the cooperation between CWS and PDHPs, there is an urgent need to provide research involving the personnel working in the CWS.

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## 5 Conclusion



The overall aim of this study was to gain more knowledge regarding the role and potential of dental health personnel in the prevention and identification of child maltreatment and to assess the current situation in Norway. Based on the findings, including the relatively high reporting frequency, it can be concluded that the majority of Norwegian PDHPs strive to fulfil their mandatory reporting obligation and take their professional obligation seriously. The study reveals that PDHPs do suspect and identify most forms of child maltreatment. While the majority of reports of concern are regarding the children's oral conditions, they also include suspicion of neglect, sexual, physical and psychological abuse. Hence, PDHPs do play an important role in child maltreatment detection. Despite this importance, the study also shows that there still is potential for improvement. The relatively high number of failures to report suspicion of child maltreatment, together with our knowledge about the potential consequences of child maltreatment, implies that there is a potential and an urgent need for improvement. In regard to cooperation between PDHPs and the CWS, the study reveals that there is a potential and necessity for a closer interdisciplinary cooperation, as this would benefit both the children at risk and the services. This potential relates to the relatively low number of measures being taken by CWS and the number of reports that lack a response to reporters. This study provides a thorough understanding of the socio-cognitive factors underlying PDHPs' intention to report suspected child maltreatment, and it thus offers implications for the development of future training and education aiming at strengthening the

reporting intention among dental personnel. While the present study has provided some answers, it has also addressed several new questions. In order to enhance our comprehension, it is important that the dental services, the CWS, educational institutions, the authorities and researchers cooperate and work continuously on child maltreatment related issues. By working collectively and in a research-based way, fraction by fraction, we might be able to see the whole picture and fulfil the United Nations Convention on the Rights of the Child.

## 5.1 Implications

In order to see the whole picture and fulfil the United Nations Convention on the Rights of the Child, we need to understand the different aspects of child maltreatment. As seen in this study, several questions still remain that must be addressed regarding the role of dental personnel in child maltreatment detection, although the present study has provided several findings that have implications for the dental service, the CWS, educational institutions and stakeholders.

Even though Norwegian PDHPs report suspected child maltreatment more than their colleagues abroad, the number of failures to report suspicion of child maltreatment among PDHPs in the present study reveal a potential for improvement in regard to fulfilling the PDHP mandatory reporting obligation. This notion is also supported by the findings that dental personnel >40 years or those working in small municipalities report less often than their counterparts. Although further research aiming to understand why age and geographical factors influence reporting frequency among PDHPs is necessary, these findings imply that there is a need for training and education related to reporting of child maltreatment in the PDHS.

By utilizing socio-cognitive theory, this study has identified several of the factors that account for the complexity of reporting intention. While several factors turned out to be predictors, instrumental attitude and perceived behaviour control turned out to be the strongest predictors of reporting intention among PDHPs. Being able to predict reporting intention brings our understanding of the reporting situation one step

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further. These findings offer implications for the targeting and development of future interventions and training programs in the dental service and educational institutions.

The aim of the Child Welfare Act, Section 6-7a, is to improve the conditions for children at risk and to improve knowledge and cooperation between the reporters and the CWS to serve the child's best interest (106). The number of reports of concern lacking a response from the CWS, in addition to the discrepancy in the number of failures to report among dental personnel, imply that there is a need for closer and enhanced cooperation between the CWS and the PDHS that would benefit both the children at risk and the services themselves.

According to the Public Dental Health Personnel Act, all children in Norway have a right to free and regular dental treatment (111). The number of reports of concern being sent from the PDHS that included that children did not attend their dental appointment indicates that there are many children who do not see this legal right fulfilled. This finding, together with the findings that the majority of reports of concern including did not attend were closed by CWS, implies that there is a need for a thorough debate among the stakeholders regarding dental neglect, its consequences and children's right to receive dental treatment.

The present findings show that PDHPs are in a position to suspect most forms of child maltreatment. The number of reports that lead to a measure by the CWS implies that PDHPs are important contributors in regard to the challenging and fragmented work of detecting of child maltreatment. However, the findings also imply that there is still potential for improvement in interdisciplinary, systematic and research-based work. Many questions are raised, and more research is needed. The present study represents only a small fraction of the whole picture.

‘Safety and security don’t just happen; they are the result of collective consensus and public investment. We owe our children, the most vulnerable citizens in our society, a life free of violence and fear’.

- Nelson Mandela



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## **7 Papers 1-3 and appendices 1-5**







## Experience with suspecting child maltreatment in the Norwegian public dental health services, a national survey

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### ABSTRACT

**Objective:** Detecting and responding to child-maltreatment is a serious challenge and public health concern. In Norway, public dental health personnel (PDHP) have a mandatory obligation to report to child welfare services (CWS) if they suspect child-maltreatment. This study aimed to assess PDHP's frequency of reporting and failing to report to CWS and whether the frequencies varied according to personal, organizational and external characteristics.

**Material and methods:** An electronic questionnaire was sent to 1542 public dental hygienists and dentists in Norway, 1200 of who responded (77.8%).

**Results:** The majority 60.0%, reported having sent reports of concern to CWS throughout their career, 32.6% had suspected child-maltreatment but failed to report it in their career and 42.5% had sent reports during the three-year period from 2012 to 2014. The reporting frequency to CWS was influenced by PDHP's personal, organizational and external characteristics, while failure to report was influenced by personal characteristics.

**Conclusions:** Compared to international studies, PDHP in Norway sends reports of concern and fails to report to CWS at relatively high rates. PDHP's likelihood of reporting was influenced by age, working experience, number of patients treated, size of the municipality and geographical region, while failure to report to CWS was influenced by working experience.

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### Introduction

The prevention of child maltreatment has become an international priority, as child maltreatment is a complex and severe concern for public health. Evidence suggests that children who are victims of maltreatment often experience major and lifelong challenges. Being maltreated during childhood increases the risk of developing mental disorders, behavioural problems, substance abuse, risky sexual behaviour, committing suicide attempts and being involved in criminal behaviour. In addition, for some, the maltreatment can be fatal.[1–3] According to previous studies, the prevalence of children who experience one or several forms of maltreatment, defined as physical, sexual, and emotional abuse and emotional and physical neglect, is between 10 and 36%.[1,3–6] Child maltreatment often causes injuries to the head, face, mouth and neck with different frequencies, ranging from 23% for neglect to 75% for physical abuse cases.[7–10] Child maltreatment is associated with poor self-perceived oral health, and maltreated children have a higher incidence of untreated tooth decay, poorer oral hygiene, worse oral health and more missed health care appointments than the general population.[11–17] Further, failure to meet

the basic dental needs of a child can result in ache, inhibit normal development and reduce the child's quality of life, and is considered as dental neglect.[1,18] To prevent child maltreatment and limit its consequences, it is crucial to identify maltreated children as early as possible.[1] As in most European countries, Norwegian health personnel are obliged by law to report suspicion of serious child maltreatment to child welfare services (CWS).

In Norway, children have a statutory right to free dental care on a regular basis at public dental health services (PDHS) until the age of 18 years.[19] Numbers from Statistics Norway show that 97.9% of all children aged 1–18 years were under the supervision of the PDHS in 2014.[20] Thus, public dental health personnel (PDHP) are in a position to detect child maltreatment as they can follow patients' development throughout childhood and adolescence.[21] International studies have shown that dental health personnel do suspect child maltreatment among their patients.[22–30] However, detecting child maltreatment can be difficult, and in relation to oral health, it is hard to determine common features that characterize dental neglect.[18] Dental health personnel find their duty to report challenging and do often fail to report their suspicions to CWS. A Danish

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study by Uldum et al. [23] found that 38.3% of the dentists and dental hygienists had suspected child maltreatment, while of those having suspicion only 33.9% had sent a report to CWS. This disparity is in accordance with other studies.[22–31]

The challenges dental health personnel experience when suspecting child maltreatment and deciding whether to report to CWS may be related to difficulties making decisions under uncertainty.[32] More specifically, signs of child maltreatment are often unclear and ambiguous and the consequences of reporting to CWS are often unclear. According to Baumann et al.,[33] decisions made under uncertainty in CWS are best understood within a decision-making ecology model. According to this model, decisions are based not only on the characteristics of the case (signs the dental personal observe) but also on the professional, organizational and external factors. The model developed for CWS may also apply to other professionals who make decisions regarding possible child maltreatment. By using knowledge from the decision sciences and systemizing the influencing factors in accordance with the model of Baumann et al.,[33–35] one might contribute to increase the understanding of the different factors influencing PDHP's suspicions of child maltreatment and related decisions made under uncertainty.

In Norway, the PDHS is organized at the county level, while CWS are organized at the municipal level; hence, there may be differences between counties and municipalities in the knowledge, routines and practices regarding child maltreatment. Furthermore, in recent years, Norwegian authorities and the PDHS have had a special focus on PDHP's legal obligation to report to CWS. Despite this emphasis, we have no national data available regarding the extent to which Norwegian PDHP do suspect child maltreatment and report their suspicions to CWS and whether there are factors influencing PDHP's reporting behaviour.

Focusing on a census of dentists and dental hygienists in the PDHS in Norway, the aim of this study was twofold: First, to assess the frequency of reporting and failing to report suspected child maltreatment to CWS. Second, to identify the personal, organizational and external predictors of reporting and failing to report suspected child maltreatment, using the theoretical framework of the decision-making ecology by Bauman et al. [33]

## Material and methods

In this study on experiences with suspecting child maltreatment in the Norwegian PDHS, an electronic questionnaire was distributed to all public dentists and dental hygienists (1542) in 18 out of 19 counties in Norway, the exception was the county of Akershus, which was used in the pilot study.

Names and e-mail addresses were collected from the chief of the PDHS, who also gave the employees permission to answer the questionnaire during their working hours. The study was registered and approved by Ombudsman, Norwegian Social Science Data Services (NSD). NSD was responsible for distributing the survey and for the collection of data. A link to the questionnaire containing an informed consent was distributed to the respondents by e-mail

together with a cover letter in November 2014. A reminder was sent out to non-responders after two, four and seven weeks.

## Dependent variables and their measurement

PDHP's experiences with reporting suspected child maltreatment was assessed by the following variables. (A) 'During your time as dental personnel, have you filed a report of concern due to suspicion of child abuse or neglect?' The options were yes or no. If yes, 'how many times have you filed a report of concern?' was asked. (B) 'During your time as dental personnel, have you ever failed to send a report of concern due to suspicion of child abuse or neglect?' The response options were yes or no. If yes, 'how many times have you failed to file a report of concern?' was asked. (C) 'Have any of the reports of concern been sent in the time period from 2012 to this day?' The response options were yes or no. If yes, 'how many concerns have you filed since 2012?' was asked. The response options were from one to ten or more concerns.

## Independent variables and their measurement

The selection of the independent variables was based on the decision-making ecology model of Bauman et al. [33–35] Decision makers' (dental personnel) personal characteristics were measured in terms of gender, age, occupation and number of years working in the PDHS. Organizational characteristics were assessed in terms of the number of patients treated in the last 12 months. External characteristics were measured in terms of the size of the municipality and geographical region where the dental clinic was located. To ease the readability, five of the independent variables were recoded. Age was recoded from six categories (20–29, 30–39, 40–49, 50–59, 60–69 and 70+ years) to two categories (20–39 and 40+ years). Working experience was recoded from being numerical into two categories 1–10 and 11+ years. The number of patients treated in the last 12 months was recoded from seven (0–250, 251–500, 501–750, 751–1000, 1001–1250, 1251–1500, 1501+ patients) to two categories (0–500 and 501+ patients). The size of the municipalities was recoded from seven categories (0–5000, 5001–10,000, 10,001–15,000, 15,001–20,000, 20,001–40,000, 40,001–80,000 and 80,001+ inhabitants) to three categories (0–10,000, 10,001–40,000 and 40,001+ inhabitants). The 18 counties were recoded into five geographical regions. North: Finnmark, Troms and Nordland; Central: Nord Trøndelag, Sør Trøndelag and Møre og Romsdal; West: Sogn og Fjordane, Hordaland and Rogaland; South: Vest Agder, Aust Agder, Telemark, Vestfold and Buskerud; and East: Oppland, Hedmark, Østfold and Oslo.

## Statistical analysis

IBM Statistical Package for Social Sciences version 22 (SPSS Inc., Chicago, IL) was used for the data analyses. As some respondents had missing values for some variables, the numbers presented in the tables may vary slightly.

Descriptive statistics in terms of frequency % (*n*) and mean (SD) distributions were calculated for the independent and dependent variables. Due to the positively skewed dependent variables with variances larger than the mean, nonparametric tests, i.e. Mann–Whitney and Kruskal–Wallis were used for the unadjusted bivariate analyses. Finally, both unadjusted and adjusted custom negative binomial regression analysis with incidence rate ratio (IRR), 95% confidence interval (CI), estimated value and log link function were performed to estimate the effects of all independent variables on each dependent variable. The significance level was set to  $p < .05$ .

## Results

### Profile of the study group

The response rate was 77.8% (1200/1542). A total of 80.3% of the respondents were women, and 68.9% were dentists. This distribution reflects the predominance of women and dentists in the PDHS in Norway. The reported working experience in the PDHS ranged from 0 to 42 years, with a mean of 11.9 years (SD =11.2). A total of 82.9% reported to have examined more than 250 children under the age of 18 years in the last 12 months. The distributions % (*n*) of the dependent variables by professional status are depicted in Table 1.

### Prevalence of filed and failed reports of concerns

The majority of the respondents, 60.0%, reported to have sent reports of concern to the CWS during their dental career, with a mean number of 3.6 (SD =3.4) reports. A third, 32.6%, of the respondents had failed to send a report of concern to CWS during their career, with a mean number of 2.3

(SD =1.8) failures. A total of 42.5% had sent reports of concern to CWS during the recent period from 2012 to 2014, with a mean number of 2.7 (SD =2.0) reports of concern.

Table 2 depicts the mean distributions of the three outcome variables according to Baumann's classification of decision maker's characteristics. The mean number of sent reports of concern throughout the workers' careers varied systematically with years of working experience, number of patients treated during the last 12 months, size of municipality and geographical region. The reports of concern sent throughout their careers was on average 1.76 among health care workers with a shorter work experience and 2.44 among those with a longer working experience ( $p < .001$ ). The mean number of failures to send reports of concern throughout workers' career varied systematically with gender, age and years of working experience. The mean numbers were 0.69 and 0.54 ( $p < .05$ ) in females and males, respectively. Regarding the more recent reports of concern sent in the period from 2012 to 2014, the mean number varied by gender, age, number of patients treated in the last 12 months, size of municipality and geographical region.

Table 3 depicts the unadjusted and adjusted IRRs (95% CI) of the sent and non-sent reports of concern throughout the participants' career and of the sent reports of concern during the period from 2012 to 2014, regressed on personal, organizational and external decision-maker characteristics.

**Table 1.** Frequency distribution % (*n*) of public dental health personnel, by personal, organizational and external characteristics.

Characteristics	Categories	Dental hygienists % ( <i>n</i> )	Dentists % ( <i>n</i> )	Total % ( <i>n</i> )
Personal	Gender			
	Female	98.6 (341)	72.1 (554)	80.3 (895)
	Male	1.4 (5)	27.9 (214)	19.7 (219)
Age	20–39 years	41.6 (144)	57.3 (440)	52.4 (584)
	40+ years	58.4 (202)	42.7 (328)	47.6 (530)
	Working experience			
1–10 years	45.4 (157)	66.0 (507)	59.6 (664)	
11+ years	54.6 (189)	34.0 (261)	40.4 (450)	
Organizational	Number of patients last 12 months			
	0–500	24.1 (83)	47.4 (364)	40.2 (447)
	501+	75.9 (262)	52.6 (404)	59.8 (666)
External	Size of municipality			
	0–10,000	33.9 (117)	33.2 (255)	33.4 (372)
	10,001–40,000	36.8 (127)	33.2 (255)	34.3 (382)
	40,001+	29.3 (101)	33.6 (258)	32.3 (359)
	Region			
North	18.8 (65)	16.0 (123)	16.9 (188)	
Central	17.1 (59)	15.2 (117)	15.8 (176)	
West	24.9 (86)	26.8 (206)	26.2 (292)	
South	19.1 (66)	20.8 (160)	20.3 (226)	
East	20.2 (70)	21.1 (162)	20.8 (232)	

**Table 2.** Distribution of mean (SD) number of reported child maltreatment outcome variables among public dental health personnel by personal, organizational and external characteristics.

Characteristics	Categories	Sent reports of concern to CWS throughout career Mean (SD)	Failed to send reports of concern throughout career Mean (SD)	Sent reports of concern to CWS 2012–2014 Mean (SD)
Personal	Gender			
	Female	1.98 (2.91)	0.69 (1.42)	1.10 (1.77)
	Male	2.24 (3.50)	0.54 (1.43) <sup>a</sup>	0.89 (1.60) <sup>a</sup>
	Age			
	20–39 years	1.88 (2.83)	0.58 (1.32)	1.19 (1.74)
	40+ years	2.21 (3.24)	0.75 (1.52) <sup>a</sup>	0.90 (1.72) <sup>b</sup>
	Education			
	Dental hygienist	2.17 (3.12)	0.73 (1.43)	1.21 (1.95)
	Dentist	1.97 (2.99)	0.64 (1.42)	0.99 (1.63)
	Working experience			
1–10 years	1.76 (2.83)	0.51 (1.19)	1.07 (1.67)	
11+ years	2.44 (3.28) <sup>b</sup>	0.90 (1.69) <sup>b</sup>	1.03 (1.84)	
Organizational	Number of patients last 12 months			
	0–500	1.80 (2.89)	0.61 (1.37)	0.82 (1.52)
	501+	2.19 (3.12) <sup>a</sup>	0.70 (1.45)	1.21 (1.86) <sup>b</sup>
External	Size of municipality			
	0–10,000	1.67 (2.65)	0.69 (1.55)	0.79 (1.43)
	10,001–40,000	2.28 (2.93)	0.64 (1.34)	1.24 (1.87)
	40,001+	2.15 (3.46) <sup>a</sup>	0.66 (1.35)	1.14 (1.85) <sup>b</sup>
	Region			
North	2.09 (3.08)	0.53 (1.13)	1.08 (1.65)	
Central	1.58 (2.25)	0.82 (1.60)	0.68 (1.21)	
West	1.36 (2.33)	0.66 (1.50)	0.76 (1.38)	
South	2.98 (3.65)	0.64 (1.24)	1.55 (2.09) <sup>b</sup>	
East	2.26 (3.38) <sup>b</sup>	0.67 (1.54)	1.22 (2.03) <sup>b</sup>	

<sup>a</sup> $p < .05$ .

<sup>b</sup> $p < .001$ .

CWS: child welfare services.



**Table 3.** Negative binomial regression analysis. IRR (95% CI) of public dental health personnel sending reports of concern to CWS and failing to report to CWS throughout their career and sending reports of concern to CWS in the three-year period from 2012 to 2014 by personal, organizational and external characteristics.

Characteristics	Categories	Sent reports of concern to CWS throughout career. IRR (95% CI)		Failed to send reports of concern throughout career. IRR (95% CI)		Sent reports of concern to CWS 2012–2014. IRR (95% CI)	
		Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted
Personal	Gender						
	Female	0.88 (0.71–1.10)	0.79 (0.63–0.99) <sup>a</sup>	1.28 (0.91–1.80)	1.27 (0.88–1.85)	1.23 (0.95–1.60)	0.94 (0.71–1.25)
	Male	1	1	1	1	1	1
	Age						
	20–39 years	0.85 (0.71–1.01)	1.15 (0.90–1.47)	0.77 (0.59–1.01)	1.44 (0.95–2.19)	1.32 (1.08–1.62) <sup>a</sup>	1.60 (1.20–2.13) <sup>a</sup>
	40+ years	1	1	1	1	1	1
	Education						
	Dental hygienist	1.11 (0.92–1.33)	1.05 (0.86–1.29)	1.14 (0.86–1.53)	0.98 (0.72–1.34)	1.22 (0.98–1.53)	1.14 (0.90–1.44)
	Dentist	1	1	1	1	1	1
	Working experience						
1–10 years	0.72 (0.61–0.86) <sup>b</sup>	0.64 (0.50–0.81) <sup>b</sup>	0.56 (0.43–0.74) <sup>b</sup>	0.43 (0.28–0.64) <sup>b</sup>	1.04 (0.84–1.28)	0.77 (0.57–1.03)	
11+ years	1	1	1	1	1	1	
Organizational	Number of patients last 12 months						
	0–500	0.82 (0.69–0.98) <sup>a</sup>	0.86 (0.71–1.04)	0.86 (0.66–1.14)	0.87 (0.65–1.18)	0.68 (0.55–0.84) <sup>b</sup>	0.76 (0.61–0.96) <sup>a</sup>
501+	1	1	1	1	1	1	
External	Size of municipality						
	0–10,000	0.78 (0.63–0.96) <sup>a</sup>	0.77 (0.62–0.96) <sup>a</sup>	1.06 (0.76–1.47)	1.05 (0.74–1.49)	0.69 (0.54–0.90) <sup>a</sup>	0.76 (0.58–0.99) <sup>a</sup>
	10,001–40,000	1.06 (0.86–1.31)	0.98 (0.80–1.21)	0.97 (0.70–1.36)	0.90 (0.65–1.25)	1.09 (0.85–1.40)	1.05 (0.82–1.33)
	40,001+	1	1	1	1	1	1
	Region						
	North	0.92 (0.70–1.21)	1.00(0.76–1.33)	0.79 (0.50–1.23)	0.84 (0.54–1.32)	0.89 (0.64–1.23)	1.05 (0.75–1.45)
	Central	0.70 (0.53–0.93) <sup>a</sup>	0.73(0.55–0.97) <sup>a</sup>	1.22 (0.79–1.89)	1.23 (0.80–1.90)	0.56 (0.39–0.79) <sup>a</sup>	0.63 (0.44–0.89) <sup>a</sup>
	West	0.61 (0.47–0.78) <sup>b</sup>	0.58(0.45–0.75) <sup>b</sup>	0.98 (0.66–1.45)	0.94 (0.64–1.39)	0.63 (0.46–0.84) <sup>a</sup>	0.62 (0.46–0.84) <sup>a</sup>
	South	1.32 (1.02–1.71) <sup>a</sup>	1.27(0.98–1.63)	0.95 (0.63–1.45)	1.02 (0.67–1.55)	1.27 (0.94–1.72)	1.32 (0.98–1.78)
	East	1	1	1	1	1	1

<sup>a</sup>*p* < .05.<sup>b</sup>*p* < .001.

CWS: child welfare services.

According to the final multivariate negative binomial regression model, reports of concern sent to CWS throughout workers' careers were independently and significantly related to personal and external characteristics, as women and participants who had 10 or less years of working experience were less likely than their counterparts to send reports of concern to CWS throughout their career. The corresponding IRRs (95% CI) were 0.79 (0.63–0.99) and 0.64 (0.50–0.81), respectively. Participants working in the smallest municipalities and in the central or west region were less likely to send reports throughout their career, compared with their counterparts in larger municipalities and in the east region, respectively. In contrast, failure to send a report of concern throughout one's career was only significantly related to personal characteristics, i.e. working experience; participants who had worked 10 years or less were less likely to report failing to send reports of concern to CWS, with an IRR (95% CI) of 0.43 (0.28–0.64), compared with their more experienced colleagues. Sent reports of concern from 2012 to 2014 were predicted by personal, organizational and external characteristics, as participants under the age of 40 were more likely to send a report of concern, while those who had less than 500 patients were less likely than their counterparts to send a report, with corresponding IRRs (95% CI) of 1.60 (1.20–2.13) and 0.76 (0.61–0.96), respectively. Furthermore, participants working in the smallest municipalities or in the central and west regions were less likely to send a report of concern from 2012 to 2014 than their counterparts in the other groups.

## Discussion

The purpose of this study was to assess Norwegian PDHP's experiences with suspecting child maltreatment. The findings reveal that sending reports of concern to CWS occurs at a relatively high rate among PDHP in Norway, as 60.0% of the respondents reported having sent one or several reports of concern to the CWS in their career. The corresponding figures obtained in studies from Scotland,[26] the UK [27] and Denmark [23] are 11, 29 and 13%, respectively. The findings of a mean of 3.6 (SD=3.4) reports of concern per experienced reporter from the PDHS strengthens the assumption of having a relatively high-reporting rate among PDHP in Norway and it might imply that most PDHP in Norway fulfil their mandatory obligation of reporting. The discrepancy in reporting frequencies between Norway and these countries might be due to several reasons. In Norway, all children up to 18 years have a statutory right to free dental care on a regular basis at the PDHS. Only dental personnel from the PDHS were included in the study, hence the majority of the respondents' experiences were in treating children. Uldum et al. [23] found that dental personnel working in the municipal dental service in Denmark reported their suspicions more frequently than those working in private dental practice. Additionally, continual no-shows at dental appointments, alone or in combination with other concerns, might lead to a report of concern in Norway; this is in accordance with findings from Sweden.[36] Moreover, the increased focus in recent years

from the Norwegian authorities, dental educational institutions, the PDHS and the media on dental health personnel's mandatory obligation to report suspicions of child maltreatment to CWS might have contributed to the increased reporting frequency.

The relatively high frequency of 32.6% of failing to send reports that was observed in our study corresponds with findings from Greece, at 35%, and the UK, at 32%.[22,27] while most studies report a lower frequency of both suspicion of child maltreatment and failing to report to CWS.[23,26,28,31,37] Our findings imply that the PDHP in Norway are in a position to suspect child maltreatment, while deciding how to react to a suspected maltreatment case is challenging. A total of 42.5% of the PDHP reported having sent a report of concern to the CWS during the recent period from 2012 to 2014, with a mean number of 2.7 (SD =2.0). The findings could indicate that PDHPs' threshold for sending reports to CWS is lowered after a report of concern is first submitted.

This study supports the decision-making ecology model of Baumann et al.[33] as the decision of whether to report a suspicion of child maltreatment seems to be influenced by the personal, organizational and external characteristics of the PDHP. For personal characteristics, PDHP under the age of 40 were more likely to send a report of concern to the CWS from 2012 to 2014 than their older colleagues. Previous studies have noted the need for more under- and post-graduate training to increase the knowledge of child maltreatment and reporting among dental health personnel.[22,23,28,31] Norwegian dental educational institutions have included child maltreatment and mandatory reporting in their syllabi within the last decade. Perhaps, this has contributed to the youngest dental personnel having more knowledge, being more aware and suspecting more child maltreatment. Regarding organizational characteristics, the likelihood of sending a report to CWS from 2012 to 2014 was significantly higher for PDHP who had more than 500 patients, compared to those who had less; this is what one could expect, as the likelihood of having a patient who has experienced child maltreatment will increase with the number of patients. For external characteristics, PDHP working in municipalities with 10,000 or less inhabitants were less likely to send a report of concern to CWS, both throughout their career and in 2012–2014, compared with their colleagues working in larger municipalities. No significant differences regarding failure to report to CWS were found between the municipalities of different sizes. One might speculate that the likelihood of dental personnel being familiar with their patients and their families is greater in small municipalities than in larger municipalities and that the threshold for suspecting child maltreatment would be raised once PDHP are familiar with the families. Studies have revealed that knowing the family, fearing the loss of a relationship with the child and feeling loyalty to the family are some of the barriers to reporting to CWS among health professionals.[38–40]

The likelihood of sending a report of concern to CWS varied between geographical regions, with the central and west regions having the lowest IRRs for sending a report of concern and the south having the highest IRR of sending reports. Interestingly, numbers from Statistics

Norway [20] for (2013–2014) including the total number of reports of concern received by CWS per 1000 children, from all types of reporters, reveal much of the same reporting tendency between regions, with west and central regions having the least reports and the south having the most. Furthermore, in our study, there were no significant differences in failure to report between regions; this finding, in combination with the low IRRs of reporting in the central and west regions, indicate that the PDHP in these regions suspect less child maltreatment than the rest of the regions. These regional differences in reporting frequency are interesting and probably a result of several different factors, which at present are unknown. Further research should be carried out aiming to identify these influencing factors, most likely being essential in order to help us increase knowledge regarding reporting.

Our findings indicate that in addition to and independent of the characteristics of the case, it seems that there are personal, organizational and external factors influencing PDHP's decision-making process when suspecting child maltreatment. At present, one can only speculate on the reasons for this. To understand the mechanisms involved when dental health personnel suspect child maltreatment and decide whether to report to CWS, more research is needed. Hence, using decision sciences might contribute to enhancing the comprehension of both the context and the process of making decisions under uncertainty.

### Limitations

Recall bias might have occurred in the reported figures, as the respondents were asked about past events. However, deciding whether to send a report of concern to CWS is a rare and challenging event; hence, it is easier for the respondents to recall their actions. PDHP are required to report suspicions of child maltreatment, and this could increase the chance of a response bias due to social desirability.

### Conclusion

The results of this study have external validity and are representative of PDHP in Norway. Compared to previous international studies, Norwegian PDHP suspect, report and fail to report child maltreatment to the CWS at a relatively high rate. The main influencing factors in regard to reports of concern sent to CWS were the age of the PDHP, working experience, number of patients treated, size of the municipality and region, while years of working experience were found to influence failure to report to CWS. The findings in this study could have implications for the future practice and policy of the PDHS, bringing new knowledge regarding the factors influencing mandatory reporting. The relatively high rate of failure to report in all regions implies that there is a potential for improving the reporting frequency among PDHP in Norway. In closing, this study confirms that although PDHP are important contributors in detecting child maltreatment, mandatory reporting is challenging and complex. Hence, in

order to enhance the comprehension, it is important to cooperate and work continuously on this topic, both in the dental services, educational institutions, the CWS, the authorities and in the field of research.

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## Disclosure statement

None to declare.

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RESEARCH ARTICLE

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# Reasons for reported suspicion of child maltreatment and responses from the child welfare - a cross-sectional study of Norwegian public dental health personnel

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## Abstract

**Background:** To prevent child maltreatment, the identification of vulnerable children is essential. In Norway, public dental health personnel (PDHP) report suspicion of child maltreatment to child welfare services (CWS) at a relatively high rate. However, their reasons for reporting and the response from CWS have not been investigated. The objectives of this study were to (1) explore the reasons that PDHP send reports of concern, (2) examine how CWS responds to PDHP reports, and (3) assess whether different reasons for concern are associated with a given response from CWS.

**Methods:** A national cross-sectional study was conducted by an electronic survey distributed to public dental hygienists and dentists in Norway. Descriptive statistics were calculated in terms of mean (SD) distributions and frequency, expressed as % (n). To account for clustering of responses among respondents, binomial generalized estimating equation analysis was used to estimate odds ratios (ORs) and confidence intervals (CIs) of CWS responses across number of reports with different reasons for concern.

**Results:** Of a total of 1542 questionnaire recipients, 1200 (77.8%) responded to the survey. From 2012 to 2014, 42.5% of the respondents sent 1214 reports to CWS, with a mean number of 2.7 (SD = 2.0) reports per respondent. The PDHP sent the reports due to suspicion of neglect or physical, sexual and/or psychological abuse. Non-attendance at dental appointments and grave caries were reported most frequently. Among the reports, 24.5% resulted in measures being taken by CWS, 20.7% were dropped, and 29.4% lacked information from CWS on the outcome. Reports due to suspicion of sexual abuse, (OR 1.979, 95% CI (1.047–3.742),  $P = 0.036$ ), grave caries (OR 1.628, 95% CI (1.148–2.309),  $P = 0.006$ ), and suspicion of neglect (OR 1.649, 95% CI (1.190–2.285),  $P = 0.003$ ) had the highest association with the implementation of measures.

**Conclusions:** PDHP report on several forms of child maltreatment and contributes in detection of victimized children. However, the relatively low number of measures being taken by CWS and the number of reports that lack a response to reporters reveal a need for a closer cooperation between the services, as this would benefit both the children at risk and the services.

**Keywords:** Child maltreatment, Child abuse, Dental neglect, Sexual abuse, Oral health, Caries, Mandatory reporting, Child welfare services, Dental health services, Dentist

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## Background

### Child maltreatment

Being a victim of serious child maltreatment increases the risk of having developmental disturbances and reduces the possibility of having a normal and wholesome childhood. In fact, for many children, child maltreatment results in severe and lifelong challenges [1–3]. Child maltreatment is a widespread phenomenon worldwide [4]. There is a compelling body of research indicating that the maltreated children known to child welfare services (CWS) only represent the tip of the iceberg relative to the actual number of children being maltreated [4–7]. To prevent child maltreatment and its consequences, it is important to identify children at risk as well as children who are already victims. Such efforts require an interdisciplinary collaboration between the services working with children, and CWS is essential in this context.

### Mandatory reporting, the role of dental services and child welfare services

Several countries have enacted legislation mandating reporting of maltreatment, with the goal of increasing the reporting frequency among designated personnel working with children [8–10]. Research has indeed shown an increase in reporting frequency as reporting becomes mandatory [11, 12].

All health personnel in Norway are mandated by the Norwegian Health Personnel Act, section 6 § 33, to report suspicion of severe child maltreatment to CWS [13]. The Norwegian public dental health service (PDHS) is mandated by the Dental Health Service Act to prioritize the prevention of dental disease and offer all children under the age of 19 free and regular dental treatments [14]. As a result, close to 100% of all children in Norway are regularly covered by the PDHS. This situation gives the PDHS an important and unique opportunity to detect and report suspicion of child maltreatment to CWS. Public dental health personnel (PDHP) in Norway are experienced reporters of child maltreatment, with a total of 60% having reported suspicion of child maltreatment to CWS during their career [15].

The assignment of the Norwegian CWS reflects the general reporting legislation and the fact that Norway is a social-democratic welfare state [16]. The CWS is mandated by the Child Welfare Act, section 6 § 6-7a, to provide a response to reporters within three weeks, although a response is not mandatory if the concern is clearly unsubstantiated. In cases for which an investigation has been opened, CWS provides the reporter with information on whether the case has been dropped or measures have been taken [17].

### Previous research

Over the last decade, a number of studies have investigated the role of dental personnel in child maltreatment

issues [15, 18–29]. High-quality research has focused on dental personnel, the frequency of reporting, failure to report, knowledge regarding child maltreatment and barriers to reporting [15, 18–20, 22, 24, 25, 28, 29]. However, little research has been focused on the reasons why dental personnel report to CWS [26, 30] and the associated responses from CWS. Additionally, to the best of our knowledge, no previous studies have explored how CWS responds to reports of concern from dental services and to what degree the Norwegian CWS fulfills the mandated response to designated reporters in this regard [17].

Although dental personnel's barriers to and limited knowledge regarding reporting have been recognized and targeted in recent decades, the gap between suspecting child maltreatment and reporting seems to persist, implying that researchers have not succeeded in exploring all of the problems related to mandatory reporting [31]. To enhance our understanding and knowledge of the mechanisms involved in mandatory reporting in dental services, it is important to examine dental personnel's reasons for sending a more thorough report of concern. Additionally, knowledge of how CWS responds to the different reports of concern sent by the PDHS should be obtained.

### Aims

Focusing on a census of public dentists and dental hygienists in Norway, the objectives of this study were threefold. First, we assessed the reasons reported by PDHP for having sent a report of concern to CWS during the three-year period from 2012 to 2014. Second, we examined how CWS responded to these reports. Third, we assessed whether the different reasons for sending a report of concern were associated with a given response from CWS.

## Methods

### Study design and data collection

This national cross-sectional study was conducted by an electronic survey in a census of dental health personnel employed by the PDHS in Norway. Specifically, an email explaining the purpose of the study and providing a link to the electronic questionnaire, also containing an informed consent form, were distributed to all dental hygienists and dentists. The chiefs of the PDHS provided the names and e-mail addresses of their employees and gave their employees permission to answer the survey questions during their working hours. The estimated time required to complete the questionnaire was 30–40 min.

The survey contained questions regarding experience with suspecting and reporting child maltreatment, reasons for reporting and/or not reporting, experience with CWS, organizational questions regarding PDHS and the demographic characteristics of the respondents. A portion of the questions was derived from an Australian

survey [32, 33], with certain necessary adjustments to tailor the questions to dental personnel in a Norwegian context. In particular, the questions from the Australian questionnaire were translated into Norwegian and then back translated into English to evaluate the semantic and content equivalence. The questionnaire was reviewed by PDHP with experience in survey research and clinical work at the PDHS before it was piloted among PDHP in one county. After certain small adjustments, the questionnaire was distributed to the 18 remaining counties in Norway. The Ombudsman, Norwegian Social Science Data Services (NSD), approved and registered the survey and was responsible for distributing the questionnaire and collecting the data. The main survey was distributed in November 2014, and follow-ups with reminders were sent to non-responders after two, four and seven weeks. The questionnaire is available in Norwegian, as an additional file (see Additional file 1).

#### Variables and their measurement

Experience with sending a report of concern to CWS was measured via the following question: 'During your time as dental personnel, have you filed a report of concern due to suspicion of child abuse or neglect?' The options were yes or no. Those answering yes were asked 'Were any of the reports of concern sent in the time period from 2012 to this day?' The response options were yes or no. If the respondent answered yes, they were asked 'How many concerns have you filed since 2012?' The response options ranged from one to ten or more concerns.

The respondents who had filed one or several reports of concern in the previous three years, from 2012 to 2014, were asked to provide the following information for each of the concerns that they reported having sent to CWS during this period: 'The following questions regard the first report of concern that you sent in 2012–2014. What was the gender of the child in the first report of concern that you sent?' The response options were boy or girl. 'What was the age of the child in the first report of concern that you sent?' The response options were 0–3, 4–7, 8–11, 12–15, and over 16 years. 'What was the reason for the first report of concern that you sent? Multiple categories can be chosen.' The response options were suspicion of physical abuse, suspicion of sexual abuse, suspicion of psychological abuse, suspicion of neglect, recurring missed appointment, grave caries, gingivitis, lack of hygiene, wounds and lesions in the oral cavity, trauma, other oral findings (please note), treatment refusal, cooperation with guardians, abnormal behavior, and other (please note). Wounds and lesions in the oral cavity and other oral findings were merged into one variable due to the low response frequency.

The background characteristics of the PDHP respondents that were assessed were gender, age (20–39 or 40+ years), occupation (dental hygienist or dentist), the number of patients treated in the last 12 months (0–500 or 501+ patients), the size of the municipality (0–10,000, 10,001–40,000, or 40,001+ inhabitants) and the geographical region where the dental clinic was located (north, central, west, south or east). More detailed information on the background characteristics can be found in a study by Brattabø et al., 2016 [15].

Regarding the responses from CWS, the PDHP were asked the following: 'What response have you received from CWS regarding the first report of concern that you sent?' The response options were as follows: 'CWS has opened an investigation and taken measures,' 'CWS has opened an investigation but dropped the case,' 'CWS has opened an investigation but has not given me any feedback on whether measures have been taken or the case has been dropped,' 'CWS has not opened an investigation, so the case has been dropped,' 'CWS has not given any feedback,' 'Other (please note),' and 'Do not know'.

The question battery described above regarding the reports of concern and corresponding responses from CWS was administered to each respondent repeatedly, the same number of times (1–10) that they had reported having sent a report of concern during the 2012–2014 period. Only the number of the report of concern mentioned in the questions was changed: 'The following questions regard your [second, third, fourth, etc.] report of concern'.

#### Statistical analysis

Data were analyzed using the Statistical Package for Social Sciences version 22 (SPSS Inc., Chicago, IL, USA). Descriptive statistics, in terms of frequency % (n) and mean (SD) distributions, were calculated. The frequency of the independent variables relative to the dependent variables was calculated using multiple responses, frequencies and cross tables. Due to the layout of the questionnaire and because each respondent could have sent up to ten reports of concern, variables were restructured from multiple variables to groups of related cases. Repeated data had a multilevel structure, with observations nested within individuals or clusters. To account for clustering in repeated data, responses from CWS were regressed on reasons for concern across the numbers of reports (first report of concern, second report of concern and so on) using the binomial generalized estimating equation (GEE) [34]. After restructuring the original data file from wide (number as a variable) to long (number as a case) configuration, the binomial logit function and exchangeable working correlation matrix were employed. CWS responses by reasons for concerns across number of reports were estimated using odds

ratios (ORs) and 95% confidence intervals (CIs). Both unadjusted and adjusted GEE analyses were performed, and the significance level was set to  $P < 0.05$ .

For model building, a series of unadjusted and adjusted GEE models were fitted. Initial models were built by adding children's age and gender and the PDHP's specific occupation, number of patients treated, municipality size and geographical region in addition to the range of reasons for concern. As both the unadjusted and the adjusted analyses revealed no significant effect of gender, the age of the child, the number of patients treated, the size of the municipality or the geographical region, those variables were excluded from the final GEE model to strengthen the analysis. The final GEE model included occupation as the only background variable in addition to the range of reasons for concern, as mutually adjusted.

## Results

### Characteristics of the respondents

Of a total of 1542 questionnaire recipients, 1200 (77.8%) dentists and dental hygienists responded to the survey. As previously described [15], most of the 1200 respondents were women (80.3%) and dentists (68.9%), reflecting the present situation of the PDHS labor market in Norway [35]. The respondents had a mean of 11.9 (SD = 11.2) years of working experience, and 82.9% had examined more than 250 children under the age of 18 years during the previous 12 months. A total of 720 (60%) respondents had filed a report of concern during their career, with a mean of 3.6 (SD = 3.4) reports per experienced reporter, and 42.5% had filed a report during the three-year period from 2012 to 2014, with a mean number of 2.7 reports (SD = 2.0) per experienced reporter.

In the 2012–2014 period, the respondents reported having sent 1214 reports of concern to CWS, with 55.9% of the reports of concern regarding boys. The children had the following age distribution: 6.8% of the children were under the age of four, 35.6% were between 4 and 7 years, 31.6% were between 8 and 11 years, 20.5% were between 12 and 15 years, and 5.6% were between 16 and 17 years. Therefore, 74% of the children were under the age of 12 years.

### Reasons for concern

As shown in Table 1, the majority of the 2012–2014 reports of concern from PDHP were sent to CWS for multiple reasons, with a mean of 2.7 (SD = 1.8) reasons for concern per report. The most frequently reported reason for concern was 'did not attend dental appointment', which was cited in 67.4% of the reports. Grave caries was reported in nearly half of the reports of concern (49.2%), and lack of hygiene and suspicion of neglect were reported in 36.7% and 25.9% of the cases, respectively. Suspicion of physical abuse, sexual abuse

**Table 1** Reasons for sending reports of concern to CWS among PDHP in Norway, 1214 reports of concern, 3222 reasons for concern

Reason for sending a report of concern	<i>n</i>	% of reports
Did not attend/was not brought	818	67.4
Grave caries	597	49.2
Lack of hygiene	445	36.7
Suspicion of neglect	315	25.9
Interaction with parents/guardians	232	19.1
Abnormal behavior in the child	220	18.1
Treatment refusal	205	16.9
Gingivitis	119	9.8
Suspicion of physical abuse	59	4.9
Suspicion of sexual abuse	57	4.7
Suspicion of psychological abuse	53	4.4
Trauma	20	1.6
Wounds, lesions or other oral findings	14	1.2
Other	68	5.6

The frequencies do not sum to 100% due to multiple reasons for concern

and/or psychological abuse was cited in 4.9%, 4.7% and 4.4% of the reports, respectively.

### Frequency distribution of responses given by CWS to PDHP's reports of concern

Different responses were provided by CWS to the reports of concern sent by the PDHP during the period from 2012 to 2014. Summing the first three columns depicted in Table 2, related to the cases in which CWS had opened an investigation and had taken measures, dropped the case or had not given any further information, revealed that 51.1% of the reports sent to CWS resulted in an investigation. Meanwhile, 4.6% of the reports were dropped without any investigation, and no feedback or information has been provided to the PDHP by CWS for 18.9% of the reports. Regarding the overall outcome from the PDHP reports of concern, 24.5% of reports of concern led to measures being taken by CWS, 20.7% of reports were dropped either after investigation or immediately, and CWS did not provide information on the outcome of the investigation or at all in 29.4% of

**Table 2** Frequency distribution of responses of CWS to reports of concern (1214) sent by PDHP in 2012–2014

Response from CWS	<i>n</i>	%
CWS has opened an investigation and taken measures	297	24.5
CWS has opened an investigation and dropped the case	195	16.1
CWS has opened an investigation, but no further information has been given	127	10.5
CWS has not opened an investigation, case dropped	56	4.6
CWS has not given any feedback at all	229	18.9
Do not know	310	25.5

reports. For the remaining 25.5% of reports, the dental personnel did not know or remember the outcome of their report of concern. Hence, the response estimates in Table 2 should be considered as minimum rates of occurrence.

#### Reasons for sending report of concern and associated responses from CWS

Table 3 provides an overview of the numbers of times different reasons for concern were reported across various responses from CWS. The different reasons for concern led to initiatives by CWS with frequencies ranging from 19.1–40.4%. The reasons for concern that most frequently led CWS to open an investigation and take measures regarded suspicion of sexual abuse, trauma, suspicion of neglect and suspicion of physical abuse, with initiatives in response to 40.4%, 40.0%, 35.6% and 35.6% of the reports, respectively, in which reasons for concern were included. Furthermore, among a total of 818 reports of concern including the reason ‘did not attend’, only 21.4% resulted in initiatives by CWS; this reason for concern, together with wounds, lesions and other oral findings, led to the fewest initiatives by CWS. Reports of concern that included trauma or ‘did not attend’ were thus investigated and then dropped most frequently (accounting for 20.0% and 17.2% of cases, respectively).

#### Responses from CWS according to PDHP’s reasons for sending report of concern

Table 4 depicts the results from adjusted GEE analyses, with each response from CWS regressed upon PDHP’s reasons of concerns across the number of reports. Each reason for concern was mutually adjusted for all other reasons for concern and for the PDHP’s specific occupation (a background factor). As shown, dental personnel sending reports of concern due to missed appointments were less likely to have their reports opened and substantiated by CWS than their counterparts sending reports without this reason (OR 0.667, 95% CI (0.469–0.949),  $P = 0.024$ ). Dental personnel sending reports of concern that included suspicion of sexual abuse (OR 1.979, 95% CI (1.047–3.742),  $P = 0.036$ ), grave caries (OR 1.628, 95% CI (1.148–2.309),  $P = 0.006$ ), or suspicion of neglect (OR 1.649, 95% CI (1.190–2.285),  $P = 0.003$ ) had a higher likelihood of having their reports opened and substantiated compared with dental personnel sending reports of concern without any of those reasons. Finally, reports of concern sent by dentists had a lower likelihood of being opened and substantiated compared with reports sent by dental hygienists (OR 0.623, 95% CI (0.425–0.916),  $P = 0.016$ ).

Dental personnel sending reports of concern due to the abnormal behavior of the child were less likely to have their reports opened and then dropped (OR 0.498,

95% CI (0.284–0.847),  $P = 0.015$ ), and more likely to have their reports opened without being given any further information by CWS (OR 1.779, 95% CI (1.025–3.088),  $P = 0.041$ ) compared with their counterparts sending reports of concern without this reason.

#### Discussion

The objectives of the present study were to explore PDHP’s reasons for sending a report of concern in the three-year period from 2012 to 2014, to assess how CWS responded to the reports of concern and to examine whether the different reasons for concern were associated with a given response from CWS. This study showed that Norwegian PDHP report on several types of suspected child maltreatment, including neglect and physical, psychological and sexual abuse. Thus, the majority of reports were sent due to multiple reasons for concern. Only one-fourth of the reports from the Norwegian PDHS led to a measure being taken and the PDHP lacked information regarding the outcome in approximately one third of the reports, while one-fifth were dropped either directly or after investigation. Reports due to suspicion of sexual abuse, grave caries and suspicion of neglect were most strongly associated with a response from the CWS in terms of having opened an investigation and implemented measures.

The most frequently reported reasons for concern were repeated failure to attend dental appointments, grave caries, a lack of hygiene and suspicion of neglect which is in accordance with findings in a Swedish study [30]. Repeated failure to dental attendance, could be attributed to forgetting, an address change, a lack of time, illness or dental anxiety [36–38]. This finding indicates also that PDHP and the PDHS are alerted when children continuously forfeit their legal right to free dental care according to the Public Dental Health Service Act [14]. In addition, when children repeatedly fail to attend their dental appointments, PDHP are placed in a position in which they are unable to fulfill their obligation to determine whether there is a need for dental treatment or oral health guidance. Previous studies have demonstrated associations of failure to attend a dental appointment, an absence of dental care routines, caries and poor dental health with families struggling with their everyday life and children having adverse childhood experiences [30, 36, 39–43]. This implies that that continuously missed dental appointments and dental neglect could be indicators of child maltreatment and could be used as a tool for the early identification of struggling children and families.

In the present study, children of all ages were reported to CWS, with close to three-quarters being under the age of 12 years. These findings indicate that dental personnel are in a position to detect children at risk

**Table 3** PDHP's reason or multiple reasons for sending a report of concern with associated responses from CWS, 1214 reports 3222 reasons

PDHP's reasons for sending a report	Response from CWS		CWS has opened an investigation and taken measures		CWS has opened an investigation and dropped the case		CWS has opened an investigation, but no further information has been given		CWS has not opened an investigation, case dropped		CWS has not given any feedback at all		Do not know		Total		
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n total
Did not attend/was not brought	175	21.4	141	17.2	95	11.6	41	5.0	154	18.8	212	25.9	818				
Grave caries	182	30.5	88	14.7	72	12.1	19	3.2	123	20.6	113	18.9	597				
Lack of hygiene	136	30.6	64	14.4	55	12.4	16	3.6	95	21.3	79	17.8	445				
Suspicion of neglect	112	35.6	45	14.3	39	12.4	9	2.9	65	20.6	45	14.3	315				
Interaction with parents/guardians	69	29.7	34	14.7	33	14.2	8	3.4	48	20.7	40	17.2	232				
Abnormal behavior in the child	69	31.4	23	10.5	36	16.4	8	3.6	45	20.5	39	17.7	220				
Treatment refusal	56	27.3	34	16.6	27	13.2	7	3.4	42	20.5	39	19.0	205				
Gingivitis	41	34.5	17	14.3	18	15.1	4	3.4	22	18.5	17	14.3	119				
Suspicion of physical abuse	21	35.6	8	13.6	5	8.5	3	5.1	14	23.7	8	13.6	59				
Suspicion of sexual abuse	23	40.4	9	15.8	6	10.5	0	0.0	9	15.8	10	17.5	57				
Suspicion of psychological abuse	16	30.2	6	11.3	7	13.2	4	7.5	13	24.5	7	13.2	53				
Trauma	8	40.0	4	20.0	4	20.0	0	0	3	15.0	1	5.0	20				
Wounds, lesions or other oral findings	3	21.4	0	0	2	14.3	0	0	3	21.4	6	42.9	14				
Other	13	19.1	7	10.3	7	10.3	0	0	16	23.5	25	36.8	68				

**Table 4** Generalized estimating equation analysis, with responses from CWS regressed upon PDHP's reasons for reporting, adjusted analysis\*

PDHP's reason for reporting to CWS	CWS has opened an investigation and taken measures		CWS has opened an investigation and dropped the case		CWS has opened an investigation, but no further information has been given		CWS has not opened an investigation, case dropped		CWS has not given any feedback at all	
	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
Did not attend/was not brought	0.667 (0.469–0.949)	.024	1.282 (0.829–1.980)	.264	1.522 (0.948–2.444)	.082	1.603 (0.822–3.125)	.166	1.323 (0.875–2.001)	.184
Grave caries	1.628 (1.148–2.309)	.006	0.904 (0.607–1.346)	.620	1.076 (0.675–1.713)	.759	0.684 (0.399–1.172)	.167	1.192 (0.838–1.697)	.329
Lack of hygiene	1.069 (0.755–1.514)	.707	0.834 (0.506–1.374)	.475	1.105 (0.643–1.899)	.717	0.702 (0.310–1.587)	.395	1.201 (0.812–1.775)	.359
Suspicion of neglect	1.649 (1.190–2.285)	.003	0.793 (0.499–1.259)	.326	0.967 (0.570–1.639)	.900	0.557 (0.259–1.197)	.134	1.249 (0.871–1.791)	.226
Interaction with parents/guardians	0.944 (0.648–1.377)	.767	1.092 (0.619–1.927)	.761	1.156 (0.674–1.985)	.598	1.079 (0.486–2.394)	.852	1.030 (0.687–1.545)	.885
Abnormal behavior in the child	1.392 (0.938–2.068)	.101	0.498 (0.284–0.847)	.015	1.779 (1.025–3.088)	.041	0.788 (0.220–2.819)	.714	0.838 (0.543–1.291)	.422
Treatment refusal	0.875 (0.587–1.305)	.513	1.270 (0.742–2.172)	.384	0.820 (0.507–1.327)	.420	1.134 (0.462–2.781)	.784	1.113 (0.746–1.661)	.599
Gingivitis	1.411 (0.908–2.192)	.126	0.955 (0.506–1.804)	.888	0.948 (0.430–2.091)	.895	0.780 (0.105–5.776)	.808	0.935 (0.569–1.537)	.792
Suspicion of physical abuse	1.352 (0.693–2.638)	.376	0.984 (0.403–2.402)	.972	0.687 (0.295–1.599)	.384	0.952 (0.278–3.264)	.938	1.601 (0.778–3.297)	.202
Suspicion of sexual abuse	1.979 (1.047–3.742)	.036	0.878 (0.327–2.359)	.797	0.755 (0.280–2.035)	.579	No numbers		0.870 (0.431–1.756)	.698
Suspicion of psychological abuse	0.783 (0.343–1.788)	.562	0.996 (0.384–2.580)	.993	1.188 (0.525–2.685)	.679	2.286 (0.777–6.730)	.133	1.211 (0.684–2.144)	.512
Trauma	1.613 (0.645–4.035)	.307	1.353 (0.347–5.271)	.663	2.358 (0.859–6.474)	.096	No numbers		0.507 (0.139–1.846)	.303
Wounds, lesions or other oral finds	0.831 (0.241–2.867)	.770	No numbers		1.659 (0.453–6.079)	.445	No numbers		1.669 (0.752–3.703)	.208
Dentist (dental hygienist is reference)	0.623 (0.425–0.916)	.016	0.866 (0.564–1.331)	.511	1.414 (0.807–2.476)	.226	0.870 (0.402–1.884)	.724	1.337 (0.855–2.092)	.203
Other	0.821 (0.388–1.739)	.606	0.975 (0.458–2.074)	.948	1.568 (0.683–3.854)	.327	No numbers		1.362 (0.603–3.074)	.458

\* Mutually adjusted estimates; adjustments were made for PDHP's reasons for reporting and PDHP's specific occupation

especially those at a younger age. Concerning early detection of vulnerable children, this finding is of particular importance.

Regarding the reports of concern due to grave caries, it is important to be aware that recent statistics in Norway reveal that 82% of 5-year-olds and 60% of 12-year-olds had no experience with caries [35]. The good oral health of the majority of Norwegian children increases the conspicuousness of the children with extensive oral health problems. The present study suggests that PDHP are concerned for their patients with oral health deficiencies and suspect that these children may be neglected.

The results of the present study indicate competence and awareness among PDHP in Norway regarding the different forms of child maltreatment, even though potential cases of physical, psychological and sexual abuse were rarely reported. Increased focus during the recent years on child maltreatment-related issues in the PDHS, educational institutions, the media and among the authorities may be contributing factors in this regard. Present findings differ somewhat from findings in Sweden, where all the reports from dental service regarded concerns due to parental deficiencies (failure to attend appointments) and neglect (dental neglect), while concerns due to suspicion of psychological, sexual and/or physical abuse were absent [30]. However, the present findings are partly in accordance with findings from Greece, where dentists suspected several forms of child maltreatment, although they had very low reporting frequency [26]. In addition, studies from Denmark, the UK and Scotland have also shown that dental personnel reports child abuse and neglect, although without specifying what kind of child abuse and neglect is being reported [19, 20, 22]. The discrepancy with previous studies could be due to differences in sample size and study design. Small sample sizes reduces the chance of rare concerns being detected. Further, due to recall biases, social desirability, differences in definitions, reporting and registration there might be discrepancy between studies based upon self-reports and case-reports.

Only one-fourth of the reports from the Norwegian PDHS led to a measure being taken. Moreover, the PDHP lacked information regarding the outcome in approximately one third of the reports while one-fifth were dropped either directly or after investigation. This might be attributed to large workload of CWS as the numbers from Statistics Norway reveal a general increase in reports to CWS over the last few years [44]. Other plausible explanations might be overreporting or insufficient reports of concern from PDHP [45, 46]. One might further wonder if the frequency of measures being taken and the lack of information to PDHP is a result of unclear response procedures within CWS or lack of knowledge within CWS regarding dental neglect and its

consequences. Specifically, in light of the good oral health in Norwegian children, it might be difficult for a CWS worker to fully understand the consequences that a lack of oral hygiene and treatment could have for a child. At present, however, this is only speculation, so additional research is needed.

According to the present findings, the odds of an investigation being opened and measures taken was 98% higher for reports of concern due to suspicion of sexual abuse compared with reports not due to this suspicion. Furthermore, suspicion of neglect and grave caries also showed increased odds of 65% and 63%, respectively for cases being opened and measures taken. The present findings suggest that CWS consider these concerns the most serious. In contrast, non-attendance at dental appointments seemed to be recognized as less serious reasons, with 33% lower odds of cases being opened and measures being taken compared with reports due to other suspicions. Hence, it may be reasonable to assume that CWS considers non-attendance more of an indication than a serious suspicion of child maltreatment. Meanwhile, reports including concern about abnormal behavior in the child had 50% lower odds of being dropped when first opened compared with reports without behavioral concerns, implying that CWS takes the behavior of children seriously. This study further show that, with the exception of abnormal behavior, no reason for concern was significantly associated with a case being dropped immediately or after investigation, which might indicate that CWS considers all types of reports from the PDHP.

The current findings might indicate that PDHP need to improve their reports of concern and clarify the severity of the consequences that a lack of oral hygiene and continuous missed appointments might have for a child. Furthermore, the present findings, with close to one third of the reports lacking information from CWS on the outcome, indicate that CWS should improve its feedback frequency to fulfill its obligation stemming from the Child Welfare Act. Overall, improvement of the cooperation and information flow between services will increase the knowledge of PDHP and CWS regarding the circumstances and needs of vulnerable children and will strengthen the wellbeing of these children.

For future research, there is a need to pinpoint whether continuously missed dental appointments and dental neglect are indicators of child maltreatment, serving as a tool for the early identification of struggling children and families. Furthermore, there is a need for research focusing on CWS and its experience with reports from and cooperation with PDHP. The present findings thus have implications for CWS, dental services, the authorities and future research.

Certain limitations of the present study should be noted. First, the findings mainly rely on self-reports of PDHP, which may undermine the study of the responses. Data were not collected from CWS, and hence, the perspective and experiences of CWS regarding reports of concern coming from PDHP and the response of CWS to reporters are not reflected. Second, the present study builds upon the experiences and recollections of PDHP regarding their contact with CWS during the three previous years. Therefore, there is a possibility of recall bias. In contrast, reporting to CWS is a challenging and rare event for most PDHP, likely increasing the likelihood of recall.

## Conclusion

This study shows that PDHP in Norway send reports to CWS regarding suspicion of the following different forms of child maltreatment: neglect and physical, sexual and/or psychological abuse. In general, PDHP reported that one-fourth of their reports of concern resulted in a measure being taken by CWS. Reports of concern regarding suspicion of sexual abuse, suspicion of neglect and/or grave caries had the highest likelihood of being opened and measures being taken, whereas non-attendance at dental appointments had the lowest likelihood.

The present findings indicate that dental personnel are in position to detect several forms of child maltreatment. However, the relatively low number of measures being taken by CWS and the number of reports that lack a response to reporters imply that closer and enhanced cooperation between CWS and PDHS is needed. This would benefit both the children at risk, the PDHS and the CWS in Norway.

## Additional file

**Additional file 1:** Tannhelse og barnevern - samhandling til beste for barnet. Questionnaire regarding dental personnel's suspicion of child maltreatment and reporting to child welfare services. The questionnaire was sent to dental hygienists and dentists in the public dental health service in Norway 2014. (PDF 254 kb)

## Abbreviations

CWS: Child Welfare Service; GEE: Generalized Estimating Equations; NSD: Norwegian Social Science Data Services; PDHP: Public Dental Health Personnel; PDHS: Public Dental Health Service

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## Availability of data and materials

The dataset will not be made available, as more articles are to be published based on this dataset.

## Authors' contributions

IVB: Contributed to the study design, was the main contributor to the data collection, carried out the statistical analysis and was the main contributor to writing the manuscript. RB: Contributed to the study design, data collection and writing of the manuscript. ANÅ: Contributed to the study design, statistical analysis and writing of the manuscript. All authors read and approved the final manuscript.

## Ethics approval and consent to participate

The Regional ethics committee concluded that this study did not need an approval from the REK. The Ombudsman, Norwegian Social Science Data Services (NSD), approved and registered the survey. NSD was responsible for the questionnaire distribution and the data collection.

All participants received an email explaining the purpose of the study and informing them that all participation in this study was voluntary. The email included a link to the electronic questionnaire, which contained an informed consent form.

## Consent for publication

Not applicable.

## Competing interests

The authors declare that they have no competing interests.

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RESEARCH ARTICLE

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# Explaining the intention of dental health personnel to report suspected child maltreatment using a reasoned action approach

Ingfrid Vaksdal Brattabø<sup>1,2\*</sup>, Ragnhild Bjørknes<sup>2</sup>, Kyrre Breivik<sup>4</sup> and Anne Nordrehaug Åstrøm<sup>1,3</sup>

## Abstract

**Background:** This study provides an empirical test of the reasoned action approach (RAA) socio-cognitive theory with the aim of 1) predicting the intention of public dental health personnel (PDHP) to report suspected child-maltreatment to child welfare services (CWS); 2) estimating the effects of the theoretical constructs of RAA, including experiential and instrumental attitudes, injunctive and descriptive norms, and perceived capacity and autonomy regarding PDHP's behavioural intentions; and 3) exploring whether the RAA operates equivalently (i.e., is invariant) in male and female providers.

**Methods:** This national cross-sectional study was conducted in Norway. An electronic survey was distributed to 1542 dentists and dental hygienists working in the public dental health service. The survey included RAA items constructed in accordance with the recommendations for the RAA model. Structural equation modelling (SEM) was used to identify factors derived from the theory of RAA to predict PDHP reporting intentions.

**Results:** A total of 77.8% (1200) of those surveyed responded to the survey. The present study provided support for the utility of the RAA across both male and female providers in predicting their intention to report suspected child-maltreatment to the CWS. The final modified SEM model revealed that instrumental attitudes and perceived behavioural control (based on merged capacity and autonomy parameters) were the strongest predictors of intention to report, followed by the reporting of descriptive norms, injunctive norms and experiential attitudes. These factors explained 63.6% of the observed variance in the reporting intention.

**Conclusions:** The large amount of explained variance suggests that RAA is a well-functioning theory that predicts PDHP's reporting intentions to CWS across gender, and gives an understanding of the socio-cognitive factors involved. To strengthen reporting intention among dental personnel, this study suggests educators should focus on the value and positive consequences of reporting, the resources available and how to overcome obstacles; attention to normative expectations and individuals' feelings about reporting may also be helpful.

**Keywords:** Child maltreatment, Child abuse, Child welfare services, Dental auxiliaries, Mandatory reporting, Oral health, Reasoned action approach, Structural equation modelling

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## Background

Victims of child maltreatment have an augmented risk for major psychiatric and medical disorders [1–5]. The scope and severity of these disorders are likely to increase with the duration and severity of maltreatment. For this reason, the early detection of victimized children is an important objective worldwide [6–9]. In Norway, public dental health personnel (PDHP) are mandated through the Norwegian Health Personnel Act, § 33, to report to the child welfare service (CWS) when there is reason to believe that a child is or will be abused, subjected to serious deficiencies in daily care or other serious neglect.

This obligation goes above and beyond health personnel's duty of confidentiality §21. [10]. Failure to fulfil the Norwegian Health Personnel Act, § 33, can result in administrative reactions from the Norwegian Board of Health Supervision. As in the other Nordic countries, Norwegian children are offered free dental service at public dental health service (PDHS) locations throughout their childhood and adolescence (0–18 years) [11]. With a dental attendance rate close to 100%, the Norwegian PDHP meets most children and adolescents on a regular basis, making the PDHS an important arena for the detection of child maltreatment. Statistics Norway reports that the CWS in Norway received 58 580 reports of concern in 2017, of which 768 came from the PDHS [12]. According to a Norwegian national study, 60% of PDHP reported to have sent at least one report of concern to the CWS during their career [13]. In regard to PDHP's reporting frequency throughout career, adjusted analysis revealed no significant differences in incidence rate ratio between dentists and dental hygienists or across age groups, while females were less likely to report to CWS than males. Further, PDHP working in municipalities with 10,000 or less inhabitants were less likely to report than their colleagues working in larger municipalities. [13]. While most reports of concern to CWS from PDHS relate to oral conditions, failure to attend and not being brought to dental appointments, reports of concern are also sent due to suspicion of neglect, physical, psychological and sexual abuse [14]. Dental personnel suspect and identify a variety of child maltreatments [14]. The awareness and knowledge regarding detection of child maltreatment and the role of dental personnel has increased in recent years. As a consequence a new paragraph §1-3c was added to the Norwegian Dental Health Service Act in 2018, stating that the PDHS should be able to prevent, detect and avert violence and sexual abuse [11].

Yet, underreporting of suspected child maltreatment is a challenge among dental health personnel world-wide [13, 15–20]. The national study among PDHP in Norway revealed that 32% of the dental health personnel

investigated failed to report suspected child maltreatment to the CWS one or several times during their career [13]. Such findings are consistent with those from other countries and imply that steps should be taken to strengthen the reporting accuracy of suspected child maltreatment [15, 16, 19–22]. Underreporting of child maltreatment can have major consequences for the child, its family and the society at large. The gap between suspicion of child maltreatment and reporting to CWS needs to be closed. Hence, there is a need to understand which factors that inhibit and promote dental personnel's reporting. The effective promotion of mandatory reporting obligations in the PDHS may require a thorough understanding of the socio-cognitive factors underlying the decision of dental health personnel to report suspected maltreatment to the CWS. Previous studies have identified reporting barriers among dental health personnel, such as uncertainty regarding their observations and signs of child maltreatment, lack of knowledge regarding reporting procedures, and fear of consequences to child and dental personnel [15, 19–21]. However, in spite of their importance, socio-cognitive factors have not been sufficiently investigated. While conceptual frameworks have been used to examine reporting of child maltreatment among teachers and nurses [23–25], to our knowledge, no theory driven studies have been conducted for dental health personnel. A socio-cognitive model that adequately explains variance in intended reporting of suspected child maltreatment to the CWS could be an important tool in order to develop an effective behaviour change program for dental health personnel. Although such a socio-cognitive model has yet to be validated among dental health personnel.

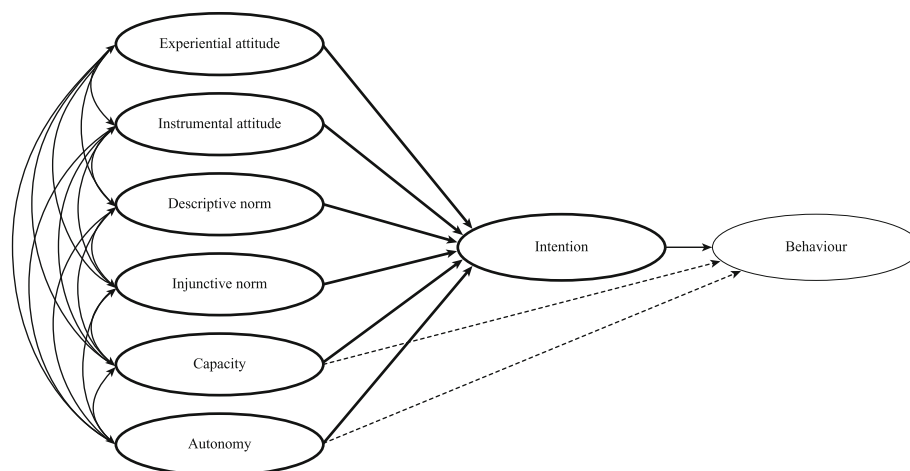
A socio cognitive model of the attitude – behaviour relationship, the theory of planned behaviour (TPB) [26] has been applied across various study populations, and behavioural domains to predict intention and subsequent behaviour [27–30]. According to the TPB, behavioural intention is the immediate predictor of actual behaviour [31, 32]. Intention, in turn, is predicted by attitudes, subjective norms and perceived behavioural control (PBC). Attitudes reflect a favourable or unfavourable evaluation of a particular behaviour. Subjective norms refer to perceived social pressures to perform a given behaviour, and perceived behavioural control reflect the perceived ease or difficulty associated with performing a particular behaviour. Finally, attitudes, subjective norms and perceived behavioural control are underpinned by behavioural, normative and control beliefs, respectively [26]. The TPB hypothesizes that attitudes, subjective norms and perceived behavioural control influence the behaviour indirectly through behavioural intentions and that perceived behavioural control influences behaviour directly whenever the behaviour is not under complete

volitional control [33]. There is considerable empirical support for the TPB across various health related behaviours, including health screening behaviours [26, 27]. Two meta-analyses have revealed that, overall, the TPB explains between 39 and 44.3% and 19.3–27% of the variance in intention and subsequent behaviour, respectively [27, 34].

Many studies have argued that attitudes, subjective norms and perceived behavioural control reflect separate binary subcomponents, as shown in Fig. 1 [35–37]. This conceptual development of the TPB is variously referred to as an augmented TPB model, a two-factor model, and the reasoned action approach (RAA) [35, 38–41]. The RAA suggests that: Attitude consist of the subcomponents experiential (i.e., affective component of attitude) and instrumental (i.e., cognitive component of attitude) attitudes. Perceived norm consists of the subcomponents injunctive (i.e., the perceived social approval of others) and descriptive norms (i.e., perceptions of what others do). Perceived behavioural control consists of the subcomponents capacity to perform the behaviour (based on the ease or difficulty of the behaviour) and autonomy (their perception of their control over the behaviour). According to the RAA, intention is the immediate predictor of behaviour, whereas each attitudinal, normative and control sub-component predicts intention directly. In addition, capacity and autonomy predicts behaviour directly when the behaviour is not under volitional control [41, 42]. Moreover, the RAA predicts that the relative importance of the theoretical constructs on behavioural intention may vary across various behaviours and groups of participants. See Fig. 1 for details of the original RAA model. Thus, the RAA provides a unique opportunity to identify the relative importance of each specific subcomponent (i.e. experiential and instrumental attitude, injunctive and descriptive norm, capacity

and autonomy) as predictors of intention and behaviour. The RAA has received empirical support across risk and protective health related behaviours. A meta-analysis covering risk behaviours like smoking and taking illegal drugs, protective behaviours like physical activity and dieting, and a range of different health related behaviours like health screening and blood donating revealed that the RAA explained 58.7 and 32.3% of the variance in intention and behaviour, respectively [41]. Moreover, experiential and instrumental attitudes and capacities were found to be the strongest predictors of intention, while injunctive and descriptive norms were more modest predictors [41]. Few studies have focused on health and dental health personnel's professional behaviour using a socio-cognitive approach [43–47]. It seems worthwhile to investigate whether the predictive utility of the RAA can be generalized to dental health personnel's intention to report child maltreatment in the primary dental health care setting. Further, Brattabø et al. [13], found no significant differences between males and females, in regard to dental personnel's incidence rate ratio for reporting to CWS in recent years (2012–2014), while the incidence rate ratio for reporting throughout career was significant lower for females compared to men [13]. Due to this it is also important to assess whether the RAA operates equivalently (i.e., is invariant) across males and females.

This study provides an empirical test of the RAA with the aim of 1) predicting the intention of PDHP to report suspected child maltreatment to CWS; 2) estimating the effects of the theoretical constructs of RAA, including experiential and instrumental attitudes, injunctive and descriptive norms, and perceived capacity and autonomy regarding PDHP's reporting intentions; and 3) exploring whether the RAA operates equivalently (i.e., is invariant) in male and female providers.



**Fig. 1** Original RAA model. The bold parts show the hypothesized model measured in this study

Consistent with the conceptualization of the RAA [38], we hypothesized that a model with the following characteristics would fit the variables measuring experiential (i.e., affective component of attitude) and instrumental (i.e., cognitive component of attitude) attitudes, injunctive (i.e., the perceived social approval of others) and descriptive (i.e., perceptions of what others do) norms, capacity (i.e. the ease or difficulty to perform the behaviour) and autonomy (i.e., their perception of their control over the behaviour) and intention (i.e., to report suspected child maltreatment); the model would include seven factors corresponding to the measuring items used in scoring each theoretical construct.

## Methods

A census of all the registered public dentists and dental hygienists employed in the PDHS in 18 of the 19 counties in Norway were asked to take part in a national cross-sectional study. The last county was not included, as it was used in the pilot study. The names and contact information of the dental professionals were collected from the chiefs of the Norwegian PDHS's, who also allowed the survey to be administered during business hours. The study's objectives and a link to an electronic questionnaire, containing an informed consent page, were sent by electronic mail to all the registered public dentists and dental hygienists a total of 1542 dentists and dental hygienists. The estimated completion time of the survey was 30–40 min (The questionnaire is available as Additional file 1). The survey was approved and registered by the Ombudsman of the Norwegian Social Science Data Services (NSD) (Reference number: 40581/4/LH/LR) who administered the questionnaire distribution and data collection, in November 2014. Non-responders were given reminders after two, four and seven weeks.

The questionnaire was developed in three stages to ensure that the instrument was well suited to the Norwegian public dental health context. First, the semantics and content of the questions were assessed, and the questions were translated and back translated from Norwegian to English. Second, PDHP with experience in survey research and clinical work reviewed the questionnaire. Third, a pilot study in one county ( $n = 176$ ) was conducted.

The questionnaire incorporated each theoretical construct of the RAA model in terms of the experiential and instrumental attitudes, injunctive and descriptive norms, and the capacity and autonomy and intention assessed in relation to the likelihood of reporting suspected child abuse or neglect in the following 12-month period. The questions related to each theoretical construct of the RAA were constructed in accordance with the principle of compatibility and based on recommendations for the reasoned action approach model

proposed by Ajzen and Fishbein in 2010 [38]. In line with the recommendations that each predictor should be self-referent and measured at the same specificity as the target behaviour, the elements of the target (reporting suspected child maltreatment), the action (sending a report of concern to CWS), the context (the public dental health service) and the time (during the next 12 months) were considered [38]. Experiential attitude (i.e., tapping affective aspects of behavioural beliefs) and instrumental attitude (i.e., tapping cognitive aspects of behavioural beliefs), capacity (i.e., based on the ease or difficulty to report suspected child maltreatment) and autonomy (i.e., their perception of their control in regard to report suspected child maltreatment) and intention to report suspected child maltreatment were each measured by four items. Injunctive norm (i.e., the perceived social approval of others in regard to report suspected child maltreatment) and descriptive norm (i.e., perceptions of what others do when they suspect child maltreatment), were measured by five items each, giving a total of 30 items, see Table 2. Responses were provided on five point Likert scales (with possible responses ranging from 1 to 5), with varying response options (i.e., quite unlikely/quite likely, very difficult/very easy, totally disagree/ totally agree). Respondents' previous experience with suspecting and reporting child maltreatment was assessed along with their demographical characteristics, including gender, age, occupation, years of working experience in the PDHS, number of patients treated last 12 months, county and size of municipality where dental clinic was located. Additional information regarding the DPHP reporting experience can be found in Brattabø et al. 2016 [13].

## Statistics

The Statistical Package for Social Sciences version 22 (SPSS Inc., Chicago, IL, USA) was used for descriptive statistics in terms of frequency % ( $n$ ) and mean (SD) distributions. Mplus version 7.4 (Muthen & Muthen 1998–2015) was used to test the structural equation models (SEM).

The original hypothesized RAA model (See Fig. 1, in bold) was tested using a two-step modelling approach (Kline, 2011). In the first step, the hypothesized RAA model was re-specified as a correlated factor model to test the adequacy of the measurement model. In the second step, a full structural regression model was conducted to test the plausibility of the postulated RAA model (including potential modifications based on the findings detailed in step 1). Modification indices were used to test for sources of misfit. Multiple group analyses were used in both steps to test for invariance across gender. A prerequisite for exploring whether the predictive paths are gender invariant (step 2) is that the



measurement model (step 1) is both configural (equal form) and metric invariant (equal factor loadings) across men and women [48]. Configural invariance was examined by testing the fit of the measurement model separately for women and men. When testing for metric invariance, the fit of the models for which the loadings on each specific factor were held equal between genders was compared to a baseline 2-group configural model in which the same parameters (except for the identification items) were free to vary. The model was assumed to be non-invariant if the change in the chi-square was significant (as tested by changes in Satorra-Bentler scaled  $\chi^2$  [49]) and the decrease in CFI was larger than 0.002 [50] compared to the baseline model.

The maximum likelihood estimator with robust standard errors (MLR) was used to take into account the non-normally distributed data. To measure how well the model fit the sample data, the overall goodness of fit was assessed by the Chi-square test ( $\chi^2$ ), the standardized root mean squared residual (SRMR), the root mean square error of approximation (RMSEA) and the comparative fit index (CFI). A good fit between the measurement model and the data is indicated by a Chi square test with a statistically insignificant result at the  $p < 0.05$  threshold. However, as the Chi-square test is highly dependent on the sample size, it is possible to detect trivial problems in large samples. We therefore put more emphasis on the alternative fit indices when judging the model fit. An acceptable and good fit is indicated by an SRMR  $< 0.08$  and  $< 0.05$ , an RMSEA  $< 0.08$  and  $< 0.06$  and a CFI  $> 0.90$  and  $> 0.95$  [51, 52].

Regarding missing data, 17 of the 1200 cases had missing on all included variables and were therefore excluded. The sample size varied between 1183 and 1113 (see Tables 1 and 2). The MLR estimators, including full

information maximum likelihood (FIMLs), were used to handle the remaining missing data [53]. This is the default method for handling missing when using the maximum likelihood estimator in Mplus 7.4 and is generally superior to standard ad hoc missing data routines such as the mean replacement, pairwise deletion and listwise deletion [54].

## Results

A total of 1200 of the eligible 1542 (RR 77.8%) dentists and dental hygienists responded to our survey. In accordance with gender and professional distribution in the Norwegian PDHS, 19.7 and 80.3% of the respondents were men and women, respectively, while 31.1% were dental hygienists and 68.9% were dentists. Among the respondents, 82.9% had examined more than 250 children and adolescents  $< 19$  years of age during the previous 12 months. The mean working experience of the respondents was 11.9 (SD = 11.2) years (Table 1).

Throughout their career, 32.6% of the respondents had failed to report suspected child abuse or neglect, with a mean of 2.3 (SD = 1.8) failures. In contrast, 60% of the respondents were experienced reporters, having sent at least one reports of concern, with a mean of 3.6 (SD = 3.4) reports [13].

Table 2 shows the descriptive statistics for each of the 30 items measuring the RAA constructs in terms of mean, standard deviation and skewness. The range for the items was between 1 and 5, with low values indicating negative or weak cognitions and high values indicating positive or strong cognitions. As shown in Table 2, while items 1–4 (experiential attitude) had mean values  $< 2.8$ , item 5–30 (instrumental attitudes, descriptive and injunctive norm and capacity and autonomy) all had mean values  $> 3.5$ .

**Table 1** Frequency distribution % (n) characteristics of the studied public dental health personnel

Characteristics	Categories	Dentists % (n)	Dental hygienists % (n)	Total % (n)
Gender	Female	72.1 (554)	98.6 (341)	80.3 (895)
	Male	27.9 (214)	1.4 (5)	19.7 (219)
Age	20–39 years	57.3 (440)	41.6 (144)	52.4 (584)
	40+ years	42.7 (328)	58.4 (202)	47.6 (530)
Working experience at PDHS	1–10 years	66.0 (507)	45.4 (157)	59.6 (664)
	11+ years	34.0 (261)	54.6 (189)	40.4 (450)
Number of patients $< 19$ years.*	0–500	47.4 (364)	24.1 (83)	40.2 (447)
	501 – +	52.6 (404)	75.9 (262)	59.8 (666)

\* last 12 months

### Step 1. Measurement model

The initially proposed correlated seven-factor model (Model 1) (experiential and instrumental attitude, injunctive and descriptive norm, capacity and autonomy and intention) lacked an adequate fit to the data on most fit indices employed, see Table 3. The analysis further revealed that the capacity and autonomy factors were very highly correlated (standardized correlation coefficient = 0.839, SE = 0.051,  $P < 0.001$ ), at above 0.800 and close to the cut off measure of 0.850, indicating poor discriminant validity between the two latent variables [55]. In addition, preliminary analysis showed that multicollinearity would lead to inflated standard errors in the paths in the full structural equation model [56]. The capacity and autonomy factors were therefore merged into one latent factor, labelled perceived behavioural control, including 8 indicators (item 19–26), reducing the number of latent factors in the measurement model from seven to six. Merging these two

**Table 2** Descriptive statistics for RAA measurement model

Latent factor	Item	N	Question	Answers	Cronb. alpha	Mean		Skewness		Kurtosis	
						Statistic	Std. dev	Statistic	Std.error	Statistic	Std.error
Experiential attitude	1	1183	To send a report of concern on suspicion of child abuse or neglect the following 12 months is	very difficult, difficult, neither/nor, easy, very easy	.814	2.64	.884	.538	.071	.180	.142
	2	1181	To send a report of concern on suspicion of child abuse or neglect the following 12 months is	very onerous, onerous, neither/nor, simple, very simple		2.72	.770	.504	.071	.324	.142
	3	1183	To send a report of concern on suspicion of child abuse or neglect the following 12 months is	very unpleasant, unpleasant, neither/nor, pleasant, very pleasant		2.33	.649	.309	.071	.657	.142
	4	1183	To send a report of concern on suspicion of child abuse or neglect the following 12 months is	very demanding, demanding, neither/nor, no problem, absolutely no problem		2.52	.749	.556	.071	.506	.142
Instrumental attitude	5	1183	To send a report of concern on suspicion of child abuse or neglect the following 12 months is	totally unimportant, unimportant, neither/nor, important, very important	.825	4.72	.495	-1.851	.071	5.586	.142
	6	1183	To send a report of concern on suspicion of child abuse or neglect the following 12 months is	completely useless, useless, neither/nor, useful, very useful		4.44	.585	-.547	.071	-.346	.142
	7	1183	To send a report of concern on suspicion of child abuse or neglect the following 12 months is	totally wrong, wrong, neither/nor, right, completely right		4.66	.506	-1.050	.071	.147	.142
	8	1181	To send a report of concern on suspicion of child abuse or neglect the following 12 months is	very unwise, unwise, neither/nor, wise, very wise		4.40	.634	-.670	.071	.072	.142
Descriptive norm			The following persons do always send a report of concern on suspicion of child abuse or neglect								
	9	1166	my colleagues at the dental clinic	totally disagree, disagree, neither/nor, agree, totally agree	.903	3.66	.894	-.411	.072	.038	.143
	10	1165	my boss at the dental clinic	totally disagree, disagree, neither/nor, agree, totally agree		3.71	.906	-.432	.072	.130	.143
	11	1165	most persons in my situation	totally disagree, disagree, neither/nor, agree, totally agree		3.62	.799	-.219	.072	.031	.143

**Table 2** Descriptive statistics for RAA measurement model (Continued)

Latent factor	Item	N	Question	Answers	Cronb. alpha	Mean		Skewness		Kurtosis	
						Statistic	Std. dev	Statistic	Std.error	Statistic	Std.error
	12	1165	most people who are important to me	totally disagree, disagree, neither/nor, agree, totally agree		3.57	.801	-.061	.072	.040	.143
	13	1165	most persons like me	totally disagree, disagree, neither/nor, agree, totally agree		3.67	.789	-.143	.072	.028	.143
Injunctive norm			If I during the coming 12 months suspects child abuse or neglect								
	14	1168	do my colleagues at the dental clinic think that I should send a report of concern	totally disagree, disagree, neither/nor, agree, totally agree	.921	4.32	.765	-1.438	.072	3.327	.143
	15	1167	does my boss at the dental clinic think that I should send a report of concern	totally disagree, disagree, neither/nor, agree, totally agree		4.38	.742	-1.418	.072	3.126	.143
	16	1167	does the public dental leader group at the county level think that I should send a report of concern	totally disagree, disagree, neither/nor, agree, totally agree		4.36	.784	-1.489	.072	3.163	.143
	17	1167	most persons important to me think that I should send a report of concern	totally disagree, disagree, neither/nor, agree, totally agree		4.30	.773	-1.265	.072	2.456	.143
	18	1168	is it expected of me that I should send a report of concern	totally disagree, disagree, neither/nor, agree, totally agree		4.45	.673	-1.326	.072	2.985	.143
Capacity	PBC		If I, during the coming 12 months, suspects child abuse or neglect								
	19 <sup>b</sup>	1167	I am very unsure if I am able to send a report of concern	totally disagree, disagree, neither/nor, agree, totally agree	.744	4.01	.946	-1.097	.072	1.092	.143
	20	1168	I am absolutely confident I can send a report of concern	totally disagree, disagree, neither/nor, agree, totally agree.		4.00	.885	-1.036	.072	1.296	.143
	21	1167	I have full opportunity to send a report of concern	totally disagree, disagree, neither/nor, agree, totally agree.		4.38	.699	-1.589	.072	4.904	.143
	22 <sup>b</sup>	1167	it would be difficult to send a report of concern	totally disagree, disagree, neither/nor, agree, totally agree		3.60	1.057	-.458	.072	-.571	.143
Autonomy			If I, during the coming 12 months, suspects child abuse or neglect								
	23	1167	there are few outside events that can prevent me from sending a report of concern	totally disagree, disagree, neither/nor, agree, totally agree		3.66	1.026	-.693	.072	.071	.143
	24	1168	I have complete control over sending a report of concern	totally disagree, disagree, neither/nor, agree, totally agree		3.63	.942	-.451	.072	-.282	.143

**Table 2** Descriptive statistics for RAA measurement model (Continued)

Latent factor	Item	N	Question	Answers	Cronb. alpha	Mean		Skewness		Kurtosis	
						Statistic	Std. dev	Statistic	Std.error	Statistic	Std.error
	25 <sup>b</sup>	1167	sending a report of concern is beyond my control	totally disagree, disagree, neither/nor, agree, totally agree		4.21	.749	-1.034	.072	1.849	.143
	26 <sup>a</sup>	1166	It is entirely up to me whether I will send a report of concern or not	totally disagree, disagree, neither/nor, agree, totally agree.		3.64	1.154	-.705	.072	-.373	.143
Intention	27	1155	In the next 12 months I intend to send a report of concern to the CWS if I suspect child abuse or neglect	totally disagree, disagree, neither/nor, agree, totally agree	.759	4.38	.859	-2.099	.072	5.592	.144
	28	1155	If I in the coming 12 months suspect child abuse or neglect, I will send a report of concern	completely unsure, unsure, neither/nor, sure, completely sure		4.23	.790	-1.086	.072	1.636	.144
	29	1155	If I during the next 12 months gets suspicious of child abuse or neglect I want to send a report of concern	totally disagree, disagree, neither/nor, agree, totally agree		4.47	.685	-1.568	.072	4.150	.144
	30	1149	if you during the next 12 months is concerned for a child (regarding child abuse or neglect) how unlikely or likely is it that you will send a report of concern?	quite unlikely, unlikely, neither/nor, likely, quite likely		4.12	.622	-.304	.072	.534	.144

<sup>a</sup>Item 26 was deleted

<sup>b</sup>Items 19, 22 and 25 were negatively loaded, and their values were reversed

factors was supported by explorative factor/component analyses. Horn's Parallel analysis suggested six factors and an explorative factor analysis (geomin (oblique) rotation) gave generally good support for the modified six-factor solution. Increasing the number of factors to seven did furthermore not lead to separate capacity and autonomy factors as hypothesized by the original model. The re-estimation of the correlated six-factor model (Model 2) also lacked an adequate fit to the data however, see Table 3.

Modification indices suggested some misfit in the model and that the model fit could be improved by allowing for correlated residuals between the items in

the descriptive norm factor (item 9 with item 10, item 12 with item 13), the perceived behavioural control factor (item 20 with item 21) and the intention factor (item 27 with item 29). In addition, item 22 was cross-loaded on the experiential attitude factor in addition to the perceived behavioural control factor. Re-estimation of the modified six factor model (Model 3) provided an adequate fit, see Table 3. The standardized factor loadings for the correlated six factor model (Model 3) revealed that all items, except one, loaded significantly  $P < 0.001$  on their respective latent variables, all with factor loadings  $> 0.300$ . The exception was the autonomy item 26)

**Table 3** Overall goodness of fit indices for the RAA measurement model (model 1–4) and full structural model (model 5)

Fit indices	Model 1	Model 2	Model 3	Model 4	Model 5
$\chi^2$	1875.570	1902.915	1136.095	1071.041	1071.041
DF	384, $P < 0.001$	390, $P < 0.001$	385, $P < 0.001$	357, $P < 0.001$	357, $P < 0.001$
RMSEA	0.057	0.057	0.041	0.041	0.041
90% CI for RMSEA	0.055–0.060	0.055–0.060	0.038–0.043	0.038–0.044	0.038–0.044
CFI	0.884	0.882	0.941	0.943	0.943
SRMR	0.053	0.054	0.046	0.046	0.046

“If I, during the coming twelve months, suspects child abuse or neglect, it is entirely up to me whether I will send a report of concern or not.”). This item was loaded 0.100 on the merged perceived behavioural control factor. Due to the low factor loading, the autonomy item 26 was dropped, and the model was re-estimated.

The final modified measurement model (Model 4) achieved an adequate fit, see Table 3. As shown in Table 4, all items loaded significantly ( $p < .001$ ) and in the expected direction on their respective latent variables. The statistically significant standardized loadings ranged from 0.332 to 0.894. All inter-factor correlations were below the cut-off point of 0.850 for the standardized correlation coefficient. The standardized correlation coefficient ranged from 0.120, SE 0.035  $P = 0.001$  for injunctive norms and experiential attitudes to 0.679, SE 0.037  $P < 0.001$  for intention and perceived behavioural control, indicating discriminant validity between the latent variables [55].

Configural invariance across the genders was supported, as Model 4 had an adequate fit for both females ( $X^2 = 909.080$ , d.f. = 357,  $P < 0.001$ , RMSEA 0.042, 90% CI for RMSEA 0.038–0.045, CFI = 0.944, SRMR = 0.049) and males ( $X^2 = 597.199$ , d.f. = 357,  $P < 0.001$ , RMSEA 0.055, 90% CI for RMSEA 0.048–0.063, CFI = 0.908, SRMR = 0.061). Metric invariance (equal factor loading) was also obtained for each factor (results not shown), thus demonstrating that the size of the predictive paths could be compared between men and women in step 2.

**Step 2. The full structural equation model**

Based on the adequate fit of the six-factor model (Model 4), a full structural equation model was conducted to estimate the fit of the structural model and the relationships among the latent constructs, see Fig. 2. The full structural equation model (Model 5) achieved a good model fit, see Table 3. The analysis revealed that having an instrumental attitude (standardized beta = 0.377, SE 0.047,  $P < 0.001$ ) and perceived behavioural control (Standardized beta = 0.364, SE 0.049,  $P < 0.001$ ) were the strongest predictors of intention, followed by descriptive norms (standardized beta = 0.125, SE 0.043,  $P < 0.01$ ), injunctive norms (standardized beta = 0.095, SE 0.040,  $P < 0.05$ ) and experiential attitudes (standardized beta = 0.084, SE 0.036,  $P < 0.05$ ). The full structural equation model (Model 5) revealed that the modified RAA model (capacity and autonomy merged) could explain 63.6% of the variance in the behavioural intention ( $R^2 = 0.636$ , SE 0.050  $P < 0.001$ ).

Multi-group analyses of the full structural equation model did support the invariant regression paths across gender, as the fit of the model did not significantly worsen when each of the predictive paths were constrained to be equal compared to when they were free to vary across the genders, see Table 5.

**Table 4** Standardized factor loadings for the RAA measurement model 4

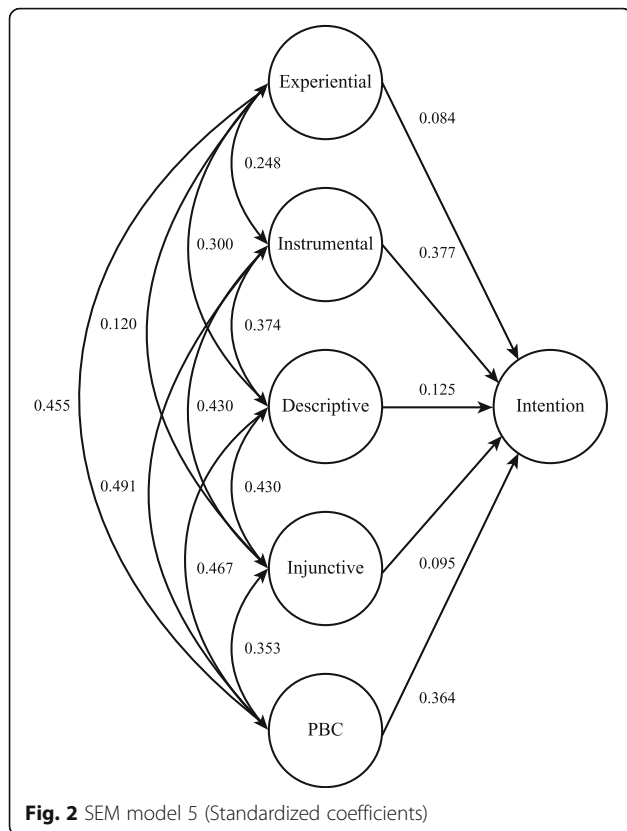
Latent factor	Item	Stand. factor loadings	Std. error	
Experiential attitude	1	0.817	0.017	
	2	0.802	0.017	
	3	0.657	0.025	
	4	0.627	0.025	
	22	0.369	0.033	
Instrumental attitude	5	0.695	0.036	
	6	0.718	0.020	
	7	0.802	0.019	
	8	0.753	0.020	
Descriptive norm	9	0.762	0.019	
	10	0.732	0.021	
	11	0.866	0.015	
	12	0.810	0.020	
	13	0.763	0.023	
Injunctive norm	14	0.856	0.018	
	15	0.894	0.014	
	16	0.825	0.020	
	17	0.841	0.018	
	18	0.767	0.026	
Capacity	PBC	19 <sup>b</sup>	0.637	0.037
		20	0.696	0.036
		21	0.466	0.049
		22 <sup>b</sup>	0.413	0.038
		25 <sup>b</sup>	0.459	0.035
Autonomy	23	0.332	0.038	
	24	0.629	0.024	
Intention	a	27	0.516	0.041
		28	0.785	0.027
		29	0.683	0.034
		30	0.636	0.030

<sup>a</sup>Item 26 was deleted

<sup>b</sup>Items 19, 22 and 25 were negatively loaded, and their values were reversed  
All loadings were significant at  $P < 0.001$

**Discussion**

To our knowledge, the present study is the first to explain the intentions of dental health personnel regarding



**Fig. 2** SEM model 5 (Standardized coefficients)

reporting suspected child maltreatment using a socio-cognitive theoretical framework (RAA).

The findings of the present study provided support for the utility of the RAA across males and females in predicting dental health personnel’s intention to report suspicion of child maltreatment to the CWS. The modified RAA model, demonstrated a good fit to the data, and explained 63.6% of the variance in the behavioural intentions. This suggests that the RAA is a well-functioning theory in order to predict and explain dental health personnel’s professional reporting behaviour. In accordance with the RAA, we found that the instrumental attitude (i.e., cognitive aspects of behavioural beliefs), perceived behavioural control (i.e., perception of control and capacity to report suspicion of child maltreatment), descriptive norm (i.e., perceptions of what others do), injunctive norm (i.e., the perceived social approval of others) and

experiential attitude (i.e., affective aspects of behavioural beliefs) were, in descending order of importance, significant predictors of intended reporting behaviour. The present findings were consistent with a previous review using the RAA to predict risk- and protective health-related behaviours, implying that the RAA also can be used to predict reporting behaviour [41]. Although the RAA and the original TPB differ in terms of the number of predictors of behavioural intention, the explained variance in behavioural intention obtained in this study (63.6%) compared well with the those reported in studies using the TPB to predict health care personnel’s professional behaviour [44, 57, 58]. In meta-analyses, the RAA and the TPB accounted for 59 and 44% of the variance in the behavioural intentions, respectively [34, 41]. Altogether, the findings and explained variance indicate that the RAA functions well in order to assess and predict reporting intention among dental health personnel.

In the present study, the instrumental attitude (i.e., cognitive aspects of behavioural beliefs) emerged as the strongest determinant of intended reporting behaviour. This implies that the decision to report was strongly based on the anticipated benefits of performing that behaviour, for the child and society. This is consistent with previous TPB-based studies focusing dental personnel’s professional behaviour, which found that attitudes are a strong predictor of intentions related to fissure sealing and oral radiographs [44, 45, 47]. A recent TPB study predicting dentists’ intended delivery of a variety of prevention activities in regard to diet, alcohol and smoking, revealed that attitudes were an important predictor of their intentions to perform preventive behaviours [46]. Experiential attitudes (i.e., affective aspects of behavioural beliefs) turned out to be the weakest predictor of reporting intention. This suggests that even though reporting could be demanding or challenging, it has only a minor influence on dental health personnel’s reporting intention. This finding was at odds with previous studies using RAA, for which experiential attitudes have been found to be one of the main predictors of health-related intention and behaviour [41, 59–61]. Nevertheless, the relative effect of the theoretical constructs is expected to vary according to the type of behaviour and the participants under study [62]. The professional behaviour

**Table 5** Test for invariance of the predictive paths across gender

Equality constraint	Δ Satorra-Bentler Scaled Chi Square	Δdf	Probability	ΔCFI
Instrumental attitude → Intention	0.73+	1	0.39	< 0.01
Experiential attitude → Intention	1.79	1	0.18	< 0.01
Injunctive norm → Intention	0.16	1	0.69	< 0.01
Descriptive norm → Intention	0.36	1	0.55	< 0.01
Perceived behavioural control → Intention	0.34	1	0.56	< 0.01

+ Worsening of the fit when the path was constrained to be equal compared to when it was free to vary across gender

investigated in this study might be categorized as a detection behaviour which is suggested to differ from risk- and protective health behaviours [59]. Consistent with this reasoning, Conner et al. (2015) provided empirical support for the predictive effect of affective or experiential attitudes on risk- and protective health-related behaviours, whereas no such effects on the category of detection behaviour were seen.

In accordance with a meta analytical review of studies using the RAA [41], PDHP's perception of control and capacity (PBC) turned out to be a strong predictor of the intended reporting behaviour. This suggests that not only beliefs about the positive consequences of reporting behaviour but also beliefs about difficulties and facilitating aspects associated with reporting should be targeted in educational messages that aim to enhance the intended reporting behaviour. The strong effect of perceived behavioural control is consistent with the results of previous studies that have identified actual barriers towards reporting suspected child maltreatment among professionals required to report suspected abuse, emphasizing a lack of knowledge about the signs of abuse and referral procedures in addition to the negative consequences for the patient, as important barriers [15, 19, 63].

Both descriptive (i.e., perceptions of what others do) and injunctive (i.e., the perceived social approval of others) norms turned out to be independent, albeit rather weak predictors of dental health personnel's intended reporting behaviour. This suggests that dentists and dental hygienists are guided not only by normative expectations from others but also by what significant others actually do regarding reporting behaviour. As mandated through the Norwegian Health Personnel Act, normative beliefs may have connotations to dental health personnel's moral obligations, responsibilities or personal standards in relation to reporting child maltreatment. Meta analytical reviews have also shown that descriptive norms add to the prediction of health related behaviours independent of the attitudes, subjective norms and perceived behavioural controls [64]. Consistent with the results of the present study, Godin et al. (1999) found normative beliefs to be a predictor of dentists' intention to provide dental care to HIV+/AIDS infected patients [58]. Furthermore, in studies using RAA and TPB, descriptive and injunctive norms are often observed as weak or non-significant predictors of intention. Importantly, injunctive norms have traditionally turned out to be weaker predictors of behavioural intention than attitudes and perceived behavioural controls [27].

The present findings should be interpreted in the context of the strengths and limitations of this study. Being cross-sectional and relying on self-reports, conclusions about cause-and-effect relationships are difficult to draw, and there is a risk of reporting bias as respondents

might be those who are interested in the topic. It is also important to be aware that some behaviors might be driven differently between cultures. Thus, one should be careful to extrapolate the findings to other cultures and populations. Another limitation is related to intentions being the final dependent variable and not actual reporting behaviour, as hypothesized by the RAA. Future studies should therefore have a longitudinal design and investigate both intended and actual reporting behaviour. However, the present study was national and included a census of public dentists and dental hygienists in Norway. Moreover, the high 78% response rate [13] reduces the possibility that missing responses have seriously biased the collected data on the intended reporting behaviour [65, 66], although social desirability might have biased the answers. In addition, the present study utilizes a powerful multivariable statistical technique testing the RAA model overall rather than the coefficients individually [67]. In contrast to traditional multivariate methods, SEM is well fit to address complex behaviours, as it allows for the simultaneous analysis of both the observed and latent variables, their relationships and the model fit. Furthermore, SEM also accounts for measurement errors by providing estimates of error variance parameters while simultaneously estimating the modelled path coefficients [68]. The application of SEM improves the conceptual understanding of the RAA as a structural and measurement model.

Although information about the performance of the RAA across age groups and other socio-demographic characteristics of the study population would have been of interest, the present multi-group analysis by gender strengthened our findings to some extent. The present findings have implications for dentistry and educational institutions, providing guidance for the development of future interventions.

The study suggests relatively strongly that educational messages intending to strengthen dental health personnel's intention to report suspected maltreatment would benefit from an emphasis on the benefits of such reports for the child, its family and the society at large. There should also be an emphasis on the specifics about how to make such a report and that dental health personnel are capable and permitted to do this. Moreover, the reporting intention might be further strengthened by educational messages focusing on the normative aspects regarding reporting of child maltreatment, in terms of clarifying that reporting is socially accepted, expected and the right thing to do. In addition one should acknowledge that reporting often is hard and demanding but useful.

## Conclusions

This study provided support for the utility of a modified RAA model across gender in predicting dental health

personnel's intention to report suspected child maltreatment to the CWS. Norwegian PDHP's intention to report suspected child maltreatment was mostly based on considerations of likely positive cognitive consequences of performance, required resources and potential obstacles, as well as normative expectations and affective attitude, in that order. To strengthen reporting intention among dental personnel, this study suggests educators should focus on the value and positive consequences of reporting, the resources available and how to overcome obstacles; attention to normative expectations and individuals' feelings about reporting may also be helpful.

Emphasizing these factors in the future training and education of dental health personnel might strengthen the reporting intention of suspected child maltreatment and contribute to reduce the gap between suspicion and reporting. Future studies should incorporate a measure of observed behaviour. A detailed analysis of the belief structure underlying attitudes, norms and perceived behavioural control may extend the applicability of the RAA model.

## Additional file

**Additional file 1:** Tannhelse og barnevern – samhandling til beste for barnet. Questionnaire regarding dental personnel's suspicion of child maltreatment and reporting to child welfare services. The questionnaire was sent to dental hygienists and dentists in the public dental health service in Norway 2014. The questionnaire is previously published in Brattabø et al. 2018 [14]. (PDF 254 kb)

## Abbreviations

CFI: Comparative Fit Index; CWS: Child Welfare Service; GEE: Generalized Estimating Equations; MLR: Maximum Likelihood Estimator with Robust Standard Errors; NSD: Norwegian Social Science Data Services; PBC: Perceived Behavioural Control; PDHP: Public Dental Health Personnel; PDHS: Public Dental Health Service; RAA: Reasoned Action Approach; RMSEA: Root Mean Square Error of Approximation; SEM: Structural equation modelling; SRMR: Standardized Root Mean Squared Residual; TPB: Theory of Planned Behaviour

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## Authors' contributions

IVB: Contributed to the study design, was the main contributor to the data collection, carried out the statistical analysis and was the main contributor to writing the manuscript. RB: Contributed to the study design, data collection and writing of the manuscript. KB: Contributed to the study design, statistical analysis and writing of the manuscript. ANÅ: Contributed to the study design, statistical analysis and writing of the manuscript. All authors read and approved the final manuscript.

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## Availability of data and materials

The dataset will not be made available, as more articles are to be published based on this dataset.

## Ethics approval and consent to participate

The Ombudsman, Norwegian Social Science Data Services (NSD), approved and registered the survey (Reference number: 40581/4/LH/LR). NSD was responsible for the questionnaire distribution and the data collection. All participants received an email explaining the purpose of the study and informing them that all participation in this study was voluntary. The email included a link to the electronic questionnaire, which contained an informed consent form.

The Regional Ethics Committee (REK nord) ruled that no formal ethics approval was required in this particular case (Reference number: 2013/2131/REK nord).

## Consent for publication

Not applicable.

## Competing interests

The authors declare that they have no competing interests.

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## Appendix 1





Search string

Database Ovid MEDLINE 18.okt. 2017

Search Strategy:

- 
- 1 exp dental staff/ or exp dentists/ (19903)
  - 2 exp Dental Auxiliaries/ (12908)
  - 3 exp Dentistry/ (382962)
  - 4 Oral Health/ (13601)
  - 5 Dental Clinics/ (2641)
  - 6 dental care/ or dental care for children/ or dental care for chronically ill/ or dental care for disabled/ (29670)
  - 7 exp Public Health Dentistry/ (34777)
  - 8 (dental or dentist\*).ti,ab,kw. (238443)
  - 9 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 (506579)
  
  - 10 exp Child Abuse/ (28964)
  - 11 Physical Abuse/ (234)
  - 12 limit 11 to "all child (0 to 18 years)" (130)
  - 13 (child\* adj3 (abuse\* or neglect\* or maltreat\* or vulnerable or "witness to violence")).ti,ab,kw. (24022)
  - 14 (child\* adj5 ("no show" or "failure to attend" or "did not attend" or "was not brought")).ti,ab,kw. (116)
  - 15 ("child\* at risk" or "victim#ed child\*").ti,ab,kw. (3946)
  - 16 10 or 12 or 13 or 14 or 15 (41526)
  
  - 17 9 and 16 (722)
  
  - 18 exp Child Welfare/ (30768)
  - 19 Child Protective Services/ (193)
  - 20 (child\* adj1 (welfare or service or protect\*)).ti,ab,kw. (6963)
  - 21 18 or 19 or 20 (35037)
  
  - 22 17 and 21 (113)
  
  - 23 Mandatory Reporting/ (3107)
  - 24 (report of concern or mandat\* report\*).ti,ab,kw. (1183)
  - 25 23 or 24 (3929)
  
  - 26 9 and 16 and 21 and 25 (27)
  - 27 21 or 25 (38636)
  - 28 17 and 27 (197)
  - 29 28 not 26 (170)



## Appendix 2







Categories	Dental personnel	Child welfare	Child maltreatment	Reporting
Synonyms	Dentist Dental hygienist Dentistry Dental personnel Dental clinic Dental service Dental health service Public dental health service Public dental service Dental health care workers Dental health care Dental auxiliaries	Child welfare services Child welfare Child services Child welfare agenesis Child welfare agency Child protective agenesis Child protective services Child protection Child protection service	Child abuse Child neglect Child maltreatment Child sexual abuse Psychological abuse Child physical abuse Medical neglect Dental neglect Oral neglect Abused children Maltreated children Neglected children Vulnerable children Children at risk Did not attend Now show Dental appointment	Reporting Report of concern Notification Mandated reporting Mandatory reporting Duty of notification Referral



## Appendix 3





## **Velkommen til spørreundersøkelsen: Tannhelse og barnevern -samhandling til beste for barnet**

*Hjertelig takk for at du vil delta i studien.*

*Dine erfaringer som tannhelsepersonell er et viktig bidrag for at vi sammen kan generere forskningsbasert kunnskap som kommer tannhelsetjenesten og utsatte barn til gode.*

*Spørreundersøkelsen er begrenset til å ta ca. 30 til 40 minutter. Noen spørsmål kan oppleves like, men de fanger opp ulike aspekter og alle svar er viktige.*

*Vi setter stor pris på at du deltar i denne studien, sammen kan vi øke kunnskapen!*

*Hjertelig takk!*



UNIVERSITETET I BERGEN  
HEMIL-senteret  
Senter for forskning om helsefremmende  
arbeid, miljø og livsstil



Tannhelsetjenestens  
**kompetansesenter**  
Vest / Hordaland

- \* Questions used in paper 1
- \*\* Questions used in paper 2
- \*\*\* Questions used in paper 3

**De første spørsmålene er knyttet opp mot dine holdninger til å sende bekymringsmelding til barnevernet ved mistanke om barnemishandling eller omsorgssvikt.**

	helt uenig	uenig	verken enig eller uenig	enig	helt enig
Som tannhelsepersonell føler jeg et profesjonelt ansvar for å sende bekymringsmelding ved mistanke om barnemishandling eller omsorgssvikt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Personlig føler jeg et etisk ansvar for å sende bekymringsmelding ved mistanke om barnemishandling eller omsorgssvikt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg føler et yrkesansvar for å sende en bekymringsmelding ved mistanke om barnemishandling eller omsorgssvikt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Dersom jeg i løpet av de neste 12 måneder, sendte bekymringsmelding ved mistanke om barnemishandling eller omsorgssvikt, ville jeg ...**

	helt uenig	uenig	verken enig eller uenig	enig	helt enig
følt at bekymringsmeldingen ville beskytte barnet mot videre skade	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vært bekymret for den umiddelbare sikkerheten til barnet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vært bekymret for den negative påvirkningen dette ville få for mitt forhold til barnet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vært veldig stresset for å ha sendt en bekymringsmelding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vært bekymret for hvor mye av min arbeidstid dette ville ta	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
følt at jeg hadde handlet riktig overfor barnet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vært i tvil om barnevernstjenesten er i stand til å respondere passende på min bekymringsmelding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vært bekymret for at min bekymringsmelding ikke er godt nok begrunnet i henhold til bevis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
følt at jeg bidrog til å redusere omfanget av barnemishandling og omsorgssvikt i vårt lokalsamfunn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
følt at dette ville gjøre situasjonen verre for barnet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
følt at jeg gjorde min plikt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
følt at jeg har tatt barnet på alvor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Dersom jeg i løpet av de neste 12 måneder, sendte en bekymringsmelding ved mistanke om barnemishandling eller omsorgssvikt, og bekymringen viste seg å være grunnløs...**

	helt uenig	uenig	verken enig eller uenig	enig	helt enig
ville jeg bekymret meg for de negative konsekvensene dette kunne få for meg	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ville jeg bekymret meg for de negative konsekvensene dette kunne få for tannklinikken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ville jeg bekymret meg for de negative konsekvensene dette kunne få for barnets familie	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Dersom jeg i løpet av de neste 12 måneder, sendte en bekymringsmelding ved mistanke om at noen i barnets familie utøvde barnemishandling eller omsorgssvikt, ville jeg...**

	helt uenig	uenig	verken enig eller uenig	enig	helt enig
vært bekymret for hvilken innvirkning dette ville få for mitt forhold til barnets foreldre	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
tenkt at jeg handlet riktig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vært bekymret for hvilke konsekvenser dette ville få for barnets foreldre og andre familiemedlemmer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
tenkt at dette, på lang sikt, ville bidra til å forbedre situasjonen for barnets familie	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Dersom jeg i løpet av de neste 12 måneder unnlot å sende en bekymringsmelding ved mistanke om barnemishandling eller omsorgssvikt..**

	helt uenig	uenig	verken enig eller uenig	enig	helt enig
ville jeg blitt så bekymret for barnet at jeg ville hatt problemer med å få sove om natten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ville jeg bekymret meg for hvilke juridiske konsekvenser dette kunne få for meg	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
og barnet fortsatte å bli mishandlet eller utsatt for omsorgssvikt, ville jeg ha angret på at jeg ikke hadde meldt inn min mistanke	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**De påfølgende spørsmål omhandler hva du tenker rundt det å sende en bekymringsmelding ved mistanke om at en av dine pasienter er utsatt for barnemishandling eller omsorgssvikt de neste 12 måneder.**

**Å sende bekymringsmelding ved mistanke om barnemishandling eller omsorgssvikt de neste 12 mnd. er...**

\*\*\*

- helt uviktig
- uviktig
- verken uviktig eller viktig
- viktig
- veldig viktig



**Å sende bekymringsmelding ved mistanke om barnemishandling eller omsorgssvikt de neste 12 mnd er...**

\*\*\*

- helt unyttig
  - unyttig
  - verken nyttig eller unyttig
  - nyttig
  - veldig nyttig
- 

**Å sende bekymringsmelding ved mistanke om barnemishandling eller omsorgssvikt de neste 12 mnd. er...**

\*\*\*

- helt feil
  - feil
  - verken feil eller rett
  - riktig
  - helt riktig
- 

**Å sende bekymringsmelding ved mistanke om barnemishandling eller omsorgssvikt den neste 12 mnd. er...**

\*\*\*

- veldig uklokt
  - uklokt
  - verken uklokt eller klokt
  - klokt
  - veldig klokt
- 

**Å sende bekymringsmelding ved mistanke om barnemishandling eller omsorgssvikt de neste 12 mnd. er...**

\*\*\*

- veldig vanskelig
  - vanskelig
  - verken lett eller vanskelig
  - lett
  - veldig lett
- 

**Å sende bekymringsmelding ved mistanke om barnemishandling eller omsorgssvikt de neste 12 mnd. er...**

\*\*\*

- veldig belastende
  - belastende
  - verken belastende eller enkelt
  - enkelt
  - veldig enkelt
- 

**Å sende bekymringsmelding ved mistanke om barnemishandling eller omsorgssvikt de neste 12 mnd. er...**

\*\*\*

- veldig ubehagelig
  - ubehagelig
  - verken ubehagelig eller behagelig
  - behagelig
  - veldig behagelig
-

## Å sende bekymringsmelding ved mistanke om barnemishandling eller omsorgssvikt de neste 12 mnd. er...

\*\*\*

- veldig krevende
- krevende
- verken krevende eller en smal sak
- en smal sak
- en veldig smal sak

**De neste spørsmål omhandler din oppfatning av hva hva personer i ditt sosiale miljø og arbeidsmiljø mener når det gjelder å sende bekymringsmelding.**

## Dersom jeg i løpet av de neste 12 måneder mistenker barnemishandling eller omsorgssvikt...

\*\*\*

	helt uenig	uenig	verken enig eller uenig	enig	helt enig
mener mine kollegaer på tannklinikken at jeg skal sende bekymringsmelding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
synes min klinikkssjef at jeg skal sende bekymringsmelding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
mener ledergruppen i tannhelsetjenesten (fylkestannlege/direktør/overtannleger etc.) at jeg skal sende bekymringsmelding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
mener de fleste personer som er viktige for meg at jeg skal sende bekymringsmelding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
er det forventet av meg å sende bekymringsmelding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Dersom jeg i løpet av de neste 12 måneder sendte en bekymringsmelding ved mistanke om barnemishandling eller omsorgssvikt, ville jeg fått støtte fra...

	helt uenig	uenig	verken enig eller uenig	enig	helt enig
mine kollegaer på tannklinikken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
min klinikkssjef (evt annen nærmeste leder)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ledergruppen i tannhelsetjenesten (fylkestannlege/direktør/overtannleger etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
de fleste personer som er viktige for meg	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
personer som er lik meg	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**De påfølgende spørsmål omhandler hvordan du opplever det å sende en bekymringsmelding ved mistanke om at en av dine pasienter er utsatt for barnemishandling eller omsorgssvikt de neste 12 måneder.**

**Dersom jeg i løpet av de neste 12 måneder får mistanke om barnemishandling eller omsorgssvikt... \*\*\***

	helt uenig	uenig	verken uenig eller enig	enig	helt enig
er jeg svært usikker på om jeg er i stand til å sende en bekymringsmelding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
er jeg helt trygg på at jeg kan sende en bekymringsmelding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
har jeg full mulighet til å sende en bekymringsmelding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vil det være veldig vanskelig å sende en bekymringsmelding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Dersom jeg i løpet av de neste 12 måneder, får mistanke om barnemishandling eller omsorgssvikt... \*\*\***

	helt uenig	uenig	verken enig eller uenig	enig	helt enig
er det få utenforliggende faktorene som kan forhindre meg i å sende en bekymringsmelding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
har jeg full kontroll på det å sende en bekymringsmelding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ligger avgjørelsen om å sende en bekymringsmelding utenfor min kontroll	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
er det helt opp til meg om jeg vil sende en bekymringsmelding eller ikke	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**De påfølgende spørsmål omhandler din oppfatning av i hvilken grad viktige personer sender en bekymringsmelding ved mistanke om at en av deres pasienter er utsatt for barnemishandling eller omsorgssvikt de neste 12 måneder.**

**Følgene personer sender alltid bekymringsmelding ved mistanke om barnemishandling eller omsorgssvikt. \*\*\***

	helt uenig	uenig	verken enig eller uenig	enig	helt enig
mine kollegaer på tannklinikken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
min klinikkssjef	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
de fleste personer i min situasjon	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
de fleste personer som er viktige for meg	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
de fleste personer lik meg	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Tannhelsepersonell opplever ofte at det kan være vanskelig å sende en bekymringsmelding når man mistenker barnemishandling eller omsorgssvikt. De neste spørsmål omhandler hvordan du opplever det å sende en bekymringsmelding i ulike situasjoner.**

**Vennligst kryss av hvor vanskelig eller enkelt det vil være for deg å sende en bekymringsmelding, i løpet av de neste 12 måneder, ved mistanke om barnemishandling eller omsorgssvikt i påfølgende situasjoner.**

	veldig vanskelig	vanskelig	verken enkelt eller vanskelig	enkelt	veldig enkelt
når din mistanke er basert på opplysninger fra et barn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
når din mistanke er basert på mange bevis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
når din mistanke er basert på lite bevis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
når det er mange andre oppgaver som krever din tid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
når du føler at din klinikkssjef (evt annen nærmeste overordnede) ikke støtter deg i å sende en bekymringsmelding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
når du føler at dine kollegaer ikke støtter deg i å sende bekymringsmelding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
når du kjenner barnets foreldre utenom tannklinikken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Av ulike grunner er det ofte svært vanskelig å avgjøre om en skal sende bekymringsmelding eller ikke. De neste spørsmål omhandler din intensjon og spesifikke fremtidsplaner når det gjelder å sende bekymringsmelding ved mistanke om barnemishandling og omsorgssvikt.**

**I de neste 12 måneder har jeg til hensikt å sende bekymringsmelding til barnevernet, dersom jeg får mistanke om barnemishandling eller omsorgssvikt. \*\*\***

- helt uenig
- uenig
- verken enig eller uenig
- enig
- helt enig

**Dersom jeg i de neste 12 måneder får mistanke om barnemishandling eller omsorgssvikt, vil jeg sende bekymringsmelding. \*\*\***

- helt usikker
- usikker
- verken sikker eller usikker
- sikker
- helt sikker

**Dersom jeg i løpet av de neste 12 måneder får mistanke om barnemishandling eller omsorgssvikt, ønsker jeg å sende en bekymringsmelding.**

\*\*\*

- helt uenig
- uenig
- verken uenig eller enig
- enig
- helt enig

**De neste spørsmål omhandler din mulighet for å kunne oppdage tegn og varselsignal på barnemishandling og omsorgssvikt.**

**I de neste 12 måneder, hvor usikker eller sikker føler du deg på å kunne oppfatte tegn på...**

	veldig usikker	usikker	verken sikker eller usikker	sikker	veldig sikker
fysisk mishandling?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
seksuelt misbruk?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
psykisk mishandling?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vanskjøtsel?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**I de neste 12 måneder, hvor usikker eller sikker føler du deg på å kunne oppfatte tegn på barnemishandling og omsorgssvikt dersom...**

	veldig usikker	usikker	verken sikker eller usikker	sikker	veldig sikker
du har mange pasienter som trenger ekstra oppfølging?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
du ikke har kollegaer tilgjengelig som kan assistere deg?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
du er overarbeidet?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
du har det veldig travelt?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**De neste spørsmål omhandler dine fremtidige planer, ved mistanke om at en av dine pasienter er utsatt for barnemishandling eller omsorgssvikt.**

**Dersom du i løpet av de neste 12 måneder er bekymret for et barn, hvor usannsynlig eller sannsynlig er det at du kommer til å...**

	helt usannsynlig	usannsynlig	verken sannsynlig eller usannsynlig	sannsynlig	helt sannsynlig	
diskutere din bekymring med din klinikkssjef (nærmeste leder)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
diskutere din bekymring med dine kollegaer?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
diskutere din bekymring med andre aktører (helsestasjon, lege, skole, barnehage)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
diskutere din bekymring med barnevernet?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
søke informasjon om hvordan gjenkjenne indikasjoner på barnemishandling og omsorgssvikt gjennom faglitteratur, internett, etc.?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
sende bekymringsmelding?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	***

**De neste spørsmål omhandler dine tidligere erfaringer med å rapportere mistanke om barnemishandling og omsorgssvikt. Her menes de tilfeller du har blitt bekymret og det er blitt sendt en bekymringsmelding på bakgrunn av din bekymring (innbefatter også dersom klinikkssjef/sekretær/ressursperson evt. andre har sendt på vegne av deg).**

**I løpet av den tiden du har arbeidet som tannhelsepersonell, har du sendt bekymringsmelding ved mistanke om barnemishandling eller omsorgssvikt?** \*

*Her menes de tilfeller der det er blitt sendt en bekymringsmelding på bakgrunn av din bekymring (innbefatter også dersom klinikkssjef/sekretær/ evt. andre har sendt på vegne av deg).*

ja

Hvor mange ganger har du sendt  bekymringsmelding? Skriv inn

siffer

nei

**Ble noen av disse bekymringsmedlingene sendt i tidsrommet fra og med 2012 og frem til i dag?** \*

ja

nei

**Hvor mange bekymringsmeldinger har du sendt i tidsrommet fra og med 2012 og frem til i dag? \* , \*\***

*Her menes de tilfeller der det er blitt sendt en bekymringsmelding på bakgrunn av din bekymring (innbefatter også dersom klinikkssjef/sekretær evt. andre har sendt på vegne av deg).*

- en bekymringsmelding
- to bekymringsmeldinger
- tre bekymringsmeldinger
- fire bekymringsmeldinger
- fem bekymringsmeldinger
- seks bekymringsmeldinger
- syv bekymringsmeldinger
- åtte bekymringsmeldinger
- ni bekymringsmeldinger
- ti bekymringsmeldinger eller flere

**De neste spørsmålene omhandler den første bekymringsmeldingen du sendte fra og med 2012.**

#

**Hvilket kjønn hadde barnet på den første bekymringsmeldingen du sendte? \*\***

- gutt
- jente

**Hvilken alder hadde barnet på den første bekymringsmeldingen du sendte? \*\***

- 0 - 3 år
- 4 - 7 år
- 8 - 11 år
- 12 - 15 år
- 16 -

**Hadde den ene eller begge foreldrene til barnet du sendte første bekymringsmelding på utenlandsk opprinnelse?**

- ja
- nei
- vet ikke

## Hva var årsaken til den første bekymringsmeldingen du sendte?

Flere kategorier kan velges.

\*\*

- mistanke om fysisk mishandling
- mistanke om seksuelt misbruk
- mistanke om psykisk mishandling
- mistanke om vanskjøtsel
- gjentakende ikke møtt til time
- grav karies
- gingivitt
- mangelfull hygiene
- sår og lesjoner i munnhulen
- traume
- andre orale funn

vennligst noter

- behandlingsvegring
- samspill med foresatte
- unormal oppførsel hos barnet
- annet

vennligst noter

---

## Hvilken tilbakemelding har du fått fra barnevernet på den første bekymringsmeldingen du sendte?

\*\*

- barnevernet har åpnet undersøkelse, og iverksett tiltak
- barnevernet har åpnet undersøkelse, men henlagt senere
- barnevernet har åpnet undersøkelse, men ikke gitt tilbakemelding om det er iverksatt tiltak eller om saken er henlagt
- barnevernet har ikke åpnet undersøkelse. Saken henlagt
- barnevernet har ikke gitt noen tilbakemelding
- annet

vennligst noter

- vet ikke



De neste spørsmålene omhandler den andre  
bekymringsmeldingen du sendte fra og med 2012.

#

Hvilket kjønn hadde barnet på den andre  
bekymringsmeldingen du sendte?

\*\*

- jente  
 gutt
- 

Hvilken alder hadde barnet på den andre  
bekymringsmeldingen du sendte?

\*\*

- 0 - 3 år  
 4 - 7 år  
 8 - 11 år  
 12 - 15 år  
 16 -
- 

Hadde den ene eller begge foreldrene til barnet du sendte  
andre bekymringsmelding på utenlandsk opprinnelse?

- ja  
 nei  
 vet ikke
-

## Hva var årsaken til den andre bekymringsmeldingen du sendte?

Flere kategorier kan velges.

\*\*

- mistanke om fysisk mishandling
- mistanke om seksuelt misbruk
- mistanke om psykisk mishandling
- mistanke om vanskjøtsel
- gjentakende ikke møtt til time
- grav karies
- gingivitt
- mangelfull hygiene
- sår og lesjoner i munnhulen
- traume
- andre orale funn

vennligst noter

- behandlingsvegring
- samspill med foresatte
- unormal oppførsel hos barnet
- annet

vennligst noter

---

## Hvilken tilbakemelding har du fått fra barnevernet på den andre bekymringsmeldingen du sendte?

\*\*

- barnevernet har åpnet undersøkelse, og iverksett tiltak
- barnevernet har åpnet undersøkelse, men henlagt senere
- barnevernet har åpnet undersøkelse, men ikke gitt tilbakemelding om det er iverksatt tiltak eller om saken er henlagt
- barnevernet har ikke åpnet undersøkelse. Saken henlagt
- barnevernet har ikke gitt noen tilbakemelding
- annet

vennligst noter

- vet ikke

---

**# Spørsmålene overfor som omhandler bekymringmelding 1,2,3,4 osv. ble stilt likt antall ganger som respondentene hadde oppgitt antall meldinger i perioden fra 2012.**

**# The questions above regarding reports of concern number 1,2,3,4 and so on were given to the respondents in the same number of times as they had reported to have sent reports of concern since 2012.**

## Har du noe du ønsker å kommentere når det gjelder bekymringsmeldinger?

Vennligst utdyp

## I løpet av den tiden du har arbeidet som tannhelsepersonell, har du noen gang unnlatt å sende bekymringsmelding selv om du har hatt mistanke om barnemishandling eller omsorgssvikt?

\*

ja

Omtrent hvor mange ganger har   
du unnlatt å sende  
bekymringsmelding? Skriv inn  
siffer.

nei

## Hva var grunnene til at du unnlott å sende bekymringsmelding til barnevernet i de tilfellene du hadde mistanke om barnemishandling eller omsorgssvikt?

	Stemmer helt	Stemmer litt	Stemmer ikke	Vet ikke
var usikker på egne vurderinger	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
hadde ingen å diskutere bekymringen med	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
hindret av taushetsplikt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
hadde ikke nok kunnskap om barnemishandling og omsorgssvikt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
var usikker på hvordan en sender bekymringsmelding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
var usikker på hvor bekymringsmeldingen skulle sendes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
var usikker på hvordan en skulle dokumentere funnene/ mistanken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
var redd for hva som ville skje med barnet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
var redd for hva som ville skje med foreldrene	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
var redd for hvilke konsekvenser det ville få for familien	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
var redd for foreldrenes reaksjon	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
var redd for å få trusler	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
var redd for hvordan barnevernet ville håndtere bekymringsmeldingen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ubehagelig å melde siden en ikke kan være anonym	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
var redd for at barnet ville slutte å gå til tannklinikken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
var redd for tannklinikken sitt rykte i lokalsamfunnet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
manglet støtte fra kliniksjeff (evt nærmeste leder)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
hadde ikke rutiner for å sende bekymringsmeldinger	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
annet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Hvilke andre grunner hadde du for å unnlate å melde?

Vennligst kommenter.

**De neste spørsmål omhandler dine erfaringer med opplæring innen tematikken barnemishandling og omsorgssvikt.**

### Fikk du opplæring i tematikken barnemishandling, omsorgssvikt og meldeplikt til barnevernet under din utdanning?

- ja
- nei
- vet ikke

### Fra og med 2012, hvilke år har du jobbet som tannhelsepersonell i den offentlige tannhelsetjenesten?

*Kryss av for årene du har jobbet som tannhelsepersonell i den offentlige tannhelsetjenesten.*

- 2012
- 2013
- 2014

### Fra og med 2012 og frem til i dag, har du i forbindelse med ditt arbeid som tannhelsepersonell deltatt på opplæring/kurs/samarbeidsmøter relatert til tematikken barnemishandling, omsorgssvikt og barnevern?

*Dersom ja, omtrent hvor mange dager?*

- ja, 1 dag eller mindre
- ja, 2 - 4 dager
- ja, 5 dager eller mer
- nei
- vet ikke

### Hvor dårlig eller god var kvaliteten på opplæringen du har fått fra og med 2012 og frem til i dag?

- veldig dårlig
- dårlig
- litt dårlig
- verken dårlig eller god
- litt god
- god
- veldig god

### Har du behov for mer opplæring på rutiner for å sende bekymringsmeldinger til barnevernet?

- nei, ikke behov for mer opplæring
  - usikker
  - ja, har behov for litt mer opplæring
  - ja, har behov for mer opplæring
  - ja har behov for mye mer opplæring
- 

### Har du behov for mer opplæring innen temaet barnemishandling og omsorgssvikt?

- nei, ikke behov for mer opplæring
  - usikker
  - ja, har behov for litt mer opplæring
  - ja, har behov for mer opplæring
  - ja har behov for mye mer opplæring
- 

### Har du kjennskap til hvem som arbeider i det kommunale barnevernet i kommunen der tannklinikken er lokalisert ?

- ja
  - nei
  - vet ikke
- 

### Har du fått kjennskapen om hvem som jobber i barnevernet gjennom din jobb som tannhelsepersonell?

- ja
  - nei
  - vet ikke
- 

### Vennligst kryss av for de følgende spørsmål om rutiner og samarbeid med barnevernet.

	ja	nei	vet ikke
Har din tannklinikk skriftlig samarbeidsavtale med det lokale barnevernet?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Har du i forbindelse med ditt arbeid deltatt på møte med barnevernet?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Har din tannklinikk skriftlige rutiner for hvordan en skal sende bekymringsmeldinger?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Har din tannklinikk brevmal for sending av bekymringsmelding til barnevernet?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Har tannhelseetjenesten i ditt fylke etablert egen ressursperson/ressursteam knyttet opp til tematikken barnemishandling, omsorgssvikt og bekymringsmelding?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Hvordan er rutinene for sending av bekymringsmelding på din klinikk, hvem har ansvar for å sende bekymringsmeldingen?

- hver enkelt har ansvar for å sende sin bekymringsmelding
- klinikkssjef sender alle bekymringsmeldingene
- sekretær sender alle bekymringsmeldingene
- annet

vennligst kommenter

## Du har vært i kontakt med barnevernet i forbindelse med bekymringsmelding. Sett under ett, hvor dårlig eller god opplevde du...

	veldig dårlig	dårlig	verken dårlig eller god	god	veldig god
barnevernets veiledning underveis i meldeprosessen?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
barnevernets forståelse av tannklinikken bekymring?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
barnevernets tilbakemelding til tannklinikken om utfallet av meldingene?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Fra og med 2012 og frem til i dag, har du mottatt forespørsler fra barnevernet på pasienter som er under utredning hos barnevernet?

- ja

vennligst før opp hvor mange forespørsler du har mottatt fra barnevernet? Skriv inn siffer

- nei

**De neste spørsmål omhandler din generelle oppfatning av barnevernet.**

## Hvor uviktig eller viktig samarbeidspart mener du at barnevernet er for tannhelsetjenesten?

*Som samarbeidspart er barnevernet...*

- veldig uviktig
- uviktig
- verken viktig eller uviktig
- litt viktig
- veldig viktig

## Hvilken mistillit eller tillit har du til barnevernet?

*Til barnevernet har jeg...*

- fullstendig mistillit
  - mistillit
  - verken tilitt eller mistillit
  - tilitt
  - fullstendig tillit
- 

## Hvor lukket eller åpent opplever du som tannhelsepersonell barnevernet?

*Jeg opplever barnevernet som...*

- helt lukket
  - lukket
  - verken åpent eller lukket
  - åpent
  - helt åpent
- 

## Hvilken mangel på respekt eller respekt har du når det gjelder barnevernet?

*Når det gjelder barnevernet har jeg...*

- stor mangel på respekt
  - mangel på respekt
  - verken respekt eller mangel på respekt
  - respekt
  - stor respekt
- 

## Sett under ett hvor misfornøyd eller fornøyd er du med barnevernet?

*Med barnevernet er jeg...*

- veldig misfornøyd
  - misfornøyd
  - verken fornøyd eller misfornøyd
  - fornøyd
  - veldig fornøyd
- 

## Dersom du har noen utfyllende kommentarer på samarbeidet med barnevernet vennligst kommenter.

Kommentar

---

**Din tannklinikk har samarbeidsavtale med barnevernet. De neste spørsmål omhandler samarbeidsavtalen.**

**Har samarbeidsavtalen bidratt til å gjøre det vanskeligere eller enklere for deg å kontakte barnevernet?**

*Samarbeidsavtalen har gjort det å kontakte barnevernet...*

- mye vanskeligere
- vanskeligere
- verken enklere eller vanskeligere
- enklere
- mye enklere

**Har samarbeidsavtalen bidratt til å etablere mistillit eller tillit til barnevernet?**

*For meg har samarbeidsavtalen har bidratt til å etablere...*

- fullstendig mistillit
- mistillit
- verken tillit eller mistillit
- tillit
- fullstendig tillit

**Opplever du at samarbeidsavtalen har redusert eller økt den gjensidige forståelsen for hvordan barnevernet og tannhelsetjenesten arbeider?**

*Samarbeidsavtalen har ført til...*

- stor reduksjon i forståelsen
- reduksjon i forståelsen
- verken økt eller redusert forståelse
- økning i forståelsen
- stor økning i forståelsen

**Tannklinikken kan få forespørsler fra barnevernet på barn som er under utredning. Opplever du at samarbeidsavtalen har bidratt til en reduksjon eller økning i antall forespørsler fra barnevernet?**

*Jeg opplever at samarbeidsavtalen har bidratt til...*

- stor reduksjon i antall forespørsler
- reduksjon i antall forespørsler
- verken økt eller redusert antall forespørsler
- økning i antall forespørsler
- stor økning i antall forespørsler

**Hvor misfornøyd eller fornøyd er du med samarbeidsavtalen?**

*Med samarbeidsavtalen er jeg...*

- veldig misfornøyd
- misfornøyd
- verken fornøyd eller misfornøyd
- fornøyd
- veldig fornøyd



## Hvor dårlig eller godt kjenner du til innholdet i samarbeidsavtalen med barnevernet?

*Jeg kjenner innholdet i samarbeidsavtalen...*

- veldig dårlig
  - dårlig
  - verken godt eller dårlig
  - godt
  - veldig godt
- 

### De neste spørsmål omhandler tannklinikkenes skriftlige rutiner for sending av bekymringsmelding

## Din tannklinikk har skriftlige rutiner for når og hvordan en sender bekymringsmelding til barnevernet. Har rutinene gjort deg mer usikker eller tryggere på å sende bekymringsmelding?

*Rutinene har gjort meg...*

- mye mer usikker
  - usikker
  - verken sikker eller usikker
  - sikrere
  - mye sikrere
- 

## Din tannklinikk har skriftlige rutiner for å sende bekymringsmelding. Har rutinene gjort det vanskeligere eller enklere å sende en bekymringsmelding?

*Jeg opplever at rutinene har gjort det...*

- mye vanskeligere
  - vanskeligere
  - verken enklere eller vanskeligere
  - enklere
  - mye enklere
- 

## Din tannklinikk har skriftlige rutiner for sending av bekymringsmelding. Har rutinene ført til økt eller redusert belastning for tannhelsepersonell?

*Jeg opplever at rutinene har ført til...*

- veldig økt belastning
  - økt belastning
  - verken økt eller reduser belastning
  - redusert belastning
  - veldig redusert belastning
-

**Din tannklinikk har skriftlige rutiner for sending av bekymringsmelding. Har rutinene bidratt til å svekke eller øke din bevissthet i forhold til helsepersonell sin meldeplikt til barnevernet?**

*Rutinene har bidratt til å...*

- svekke min bevissthet mye
  - svekke min bevissthet
  - verken økt eller svekket min bevissthet
  - økt min bevissthet
  - økt min bevissthet mye
- 

**Hvor misfornøyd eller fornøyd er du med de skriftlige rutiner for sending av bekymringsmelding?**

*Med rutinene er jeg...*

- veldig misfornøyd
  - misfornøyd
  - verken fornøyd eller misfornøyd
  - fornøyd
  - veldig fornøyd
- 

**Hvor dårlig eller godt kjenner du rutinene for sending av bekymringsmelding?**

*Jeg kjenner rutinene...*

- veldig dårlig
  - dårlig
  - verken godt eller dårlig
  - godt
  - veldig godt
- 

**Tannhelsetjenesten i ditt fylke har etablert egen ressursperson/ressursteam som er knyttet opp til tematikken barnemishandling, omsorgssvikt og barnevernet.**

**Opplever du det å kunne diskutere faglige funn og opplevelser med en ressursperson/ressursteam i egen organisasjon som unyttig eller nyttig?**

*Jeg opplever det å ha egen ressursperson/ressursteam som ...*

- veldig unyttig
  - unyttig
  - verken nyttig eller unyttig
  - nyttig
  - veldig nyttig
-

## De neste spørsmål omhandler helsepersonell sin taushetsplikt og meldeplikt.

### Hvor usikker eller sikker er du ...

	veldig usikker	usikker	verken usikker eller sikker	sikker	veldig sikker
når det gjelder taushetsplikten og hvilke opplysninger du kan oppgi til barnevernet dersom du sender en bekymringsmelding?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
når det gjelder taushetsplikten og hvilke opplysninger du kan utgi dersom barnevernet henvender seg til deg angående en av dine pasienter?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
på taushetsplikten i mellom ulike tjenester (eks. tannklinikk, helsestasjon, barnehage, skole, barnevern)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i forhold til i hvilke tilfeller foresatte skal informeres om at du sender en bekymringsmelding?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Hvor usikker eller sikker føler du deg...

	veldig usikker	usikker	verken usikker eller sikker	sikker	veldig sikker
på når en skal sende en bekymringsmelding?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
på hvordan en skal sende en bekymringsmelding?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
på innholdet i helsepersonell loven §33	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## De neste spørsmål omhandler din bakgrunn.

### I hvilket fylke er du ansatt?

- Aust Agder
- Buskerud
- Finnmark
- Hedmark
- Hordaland
- Møre og Romsdal
- Nordland
- Nord-Trøndelag
- Oppland
- Oslo
- Rogaland
- Sogn og Fjordane
- Sør-Trøndelag
- Telemark
- Troms
- Vest Agder
- Vestfold
- Østfold

## Hva er din nåværende stilling i tannhelsetjenesten?

- tannpleier
- tannpleier med ledelsesoppgaver (klinikkleder, distriktsleder, direktør)
- tannlege
- spesialisttannlege
- tannlege med ledelsesoppgaver (klinikkleder, distriktsleder, overtannlege, direktør, fylkestannlege)
- annet

vennligst spesifiser

---

## Hvor mange år har du vært tilsatt i den offentlige tannhelsetjenesten?

Vennligst oppgi hele år. Dersom det er mindre enn ett år, skriv inn 0

År tilsatt i tannhelsetjenesten.

Skriv inn siffer

---

## Hvilket kjønn er du?

- kvinne
- mann

---

## Hvilken alderskategori tilhører du?

- 20 - 29 år
- 30 - 39 år
- 40 - 49 år
- 50 - 59 år
- 60 - 69 år
- 70 -

---

## Totalt hvor mange tilsette (tannhelsesekretærer, tannpleiere og tannleger) er det på din tannklinikk?

Dersom du jobber på flere steder, oppgi antall på den klinikken du jobber mest.

- 1-3
  - 4-6
  - 7-9
  - 10-14
  - 15-19
  - 20-24
  - 25-29
  - 30+
-

## Hvor mange innbyggere er det i kommunen tannklinikken er lokalisert?

Dersom du jobber ved flere tannklinikker vennligst oppgi for den klinikken du jobber mest.

- 0 - 5000
- 5001 - 10.000
- 10.001 - 15.000
- 15.001 - 20.000
- 20.001 - 40.000
- 40.001 - 80.000
- 80.001+

---

## Omtrent hvor mange pasienter under 18 år har du undersøkt eller behandlet siste 12 måneder?

- 0 - 250
- 251 - 500
- 501 - 750
- 751 - 1000
- 1001 - 1250
- 1251 - 1500
- 1501 +

---

## Har du andre kommentarer relatert til tema "tannhelse og barnevern" kan du gjerne utdype dette her:

Kommentar

---

## Hjertelig takk for din deltakelse.

Spørreundersøkelsen er nå fullført.

Takk!



Tannhelsetjenestens  
kompetansesenter  
Vest / Hordaland

## Appendix 4





Ragnhild Bjørknes  
HEMIL-senteret Universitetet i Bergen  
Christiesgt. 13  
5015 BERGEN

Vår dato: 17.11.2014

Vår ref: 40581 / 3 / MSS

Deres dato:

Deres ref:

## TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 03.11.2014. Meldingen gjelder prosjektet:

40581 *Tannhelsepersonell og barnevern, samhandling til beste for barnet.  
Hovedundersøkelsen*  
*Behandlingsansvarlig* *Universitetet i Bergen, ved institusjonens øverste leder*  
*Daglig ansvarlig* *Ragnhild Bjørknes*

Personvernombudet har vurdert prosjektet og finner at behandlingen av personopplysninger er meldepliktig i henhold til personopplysningsloven § 31. Behandlingen tilfredsstillende kravene i personopplysningsloven.

Personvernombudets vurdering forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, ombudets kommentarer samt personopplysningsloven og helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, <http://www.nsd.uib.no/personvern/meldeplikt/skjema.html>. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, <http://pvo.nsd.no/prosjekt>.

Personvernombudet vil ved prosjektets avslutning, 17.11.2020, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

Katrine Utaaker Segadal

Marie Strand Schildmann

Kontaktperson: Marie Strand Schildmann tlf: 55 58 31 52

Vedlegg: Prosjektvurdering

*Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.*

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Vår dato: 18.02.2014

Vår ref: 36075 / 3 / KH

Deres dato:

Deres ref:

## TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 28.10.2013. All nødvendig informasjon om prosjektet forelå i sin helhet 17.02.2014. Meldingen gjelder prosjektet:

36075 *Tannhelsepersonell og barnevern, samhandling til beste for barnet*  
*Behandlingsansvarlig* *Universitetet i Bergen, ved institusjonens øverste leder*  
*Daglig ansvarlig* *Ragnhild Bjørknes*

Personvernombudet har vurdert prosjektet, og finner at behandlingen av personopplysninger vil være regulert av § 7-27 i personopplysningsforskriften. Personvernombudet tilrår at prosjektet gjennomføres.

Personvernombudets tilråding forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, ombudets kommentarer samt personopplysningsloven og helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, <http://www.nsd.uib.no/personvern/meldeplikt/skjema.html>. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, <http://pvo.nsd.no/prosjekt>.

Personvernombudet vil ved prosjektets avslutning, 01.01.2015, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

Katrine Utaaker Segadal

Kjersti Haugstvedt

Kontaktperson: Kjersti Haugstvedt tlf: 55 58 29 53

Vedlegg: Prosjektvurdering

*Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.*

Avdelingskontorer / District Offices

OSLO: NSD, Universitetet i Oslo, Postboks 1055 Blindern, 0316 Oslo. Tel: +47-22 85 52 11. nsd@uio.no

TRONDHEIM: NSD, Norges teknisk-naturvitenskapelige universitet, 7491 Trondheim. Tel: +47-73 59 19 07. kyrre.svarva@svt.ntnu.no

TROMSØ: NSD, SVF, Universitetet i Tromsø, 9037 Tromsø. Tel: +47-77 64 43 36. nsdmaa@sv.uit.no

## Appendix 5







**Forespørsel om deltakelse i forskningsprosjektet:**  
***Tannhelsepersonell og barnevern, samhandling til beste for barnet***  
Hovedundersøkelsen

**Bakgrunn og hensikt**

Dette er et spørsmål til deg om å delta i en forskningsstudie for å fremskaffe kunnskap om Den offentlige tannhelsetjenesten og de opplevelser og utfordringer som ofte er knyttet til helsepersonell sin meldeplikt til barnevernet.

Studien er et samarbeidsprosjekt mellom Universitetet i Bergen, Tannhelsetjenestens kompetansesenter Vest og den offentlige tannhelsetjenesten. Studien inkluderer alle tannleger og tannpleiere fra den offentlige tannhelsetjenesten i Norge.

**Hva innebærer studien?**

Studien innebærer deltagelse i en elektronisk spørreundersøkelse. Forespørsel om deltakelse og link til den elektroniske spørreundersøkelsen sendes ut på e-post. Alle landets fylkestannleger/direktører ser verdien i studien og har samtykket til at undersøkelsen kan gjennomføres i arbeidstiden. Spørreundersøkelsen er begrenset til ca. 30 til 40 minutter og består av avkryssningsspørsmål.

**Hva skjer med informasjonen om deg?**

Informasjonen som registreres om deg skal kun brukes slik som beskrevet i hensikten med studien. Vi benytter en fremgangsmåte som sikrer personvern. Alle opplysningene vil bli behandlet uten navn og kontaktinformasjon eller andre direkte gjenkjenkende opplysninger. En kode knytter deg til dine opplysninger gjennom en navneliste. Det er kun autorisert personell knyttet til prosjektet ved Universitetet i Bergen og NSD Websurvey som har adgang til navnelisten og som kan finne tilbake til deg. Navnelisten og tilhørende kode vil bli forskriftsmessig oppbevart i den tidsperioden forskningsstudien pågår. Identifiserende opplysninger og kobling til epost-adresse slettes både hos forskergruppen og hos databehandler (Websurvey, NSD) innen prosjektslutt den 17.11.2020. All rapportering fra forskergruppen tilbake til arbeidsplass vil være generell, og kan ikke på noen måte knyttes til enkeltpersoner som har besvart undersøkelsen. Det vil ikke være mulig å identifisere deg i resultatene av studien når disse publiseres.

Studien er meldt til Personvernombudet for forskning, Norsk samfunnsvitenskapelig datatjeneste AS.

**Frivillig deltakelse**

Det er frivillig å delta i studien. Du kan når som helst og uten å oppgi noen grunn trekke ditt samtykke til å delta i studien. Dette vil ikke få konsekvenser for deg. Om du nå sier ja til å delta, kan du senere trekke tilbake ditt samtykke uten at det påvirker deg. Dersom du senere ønsker å trekke deg eller har spørsmål til studien, kan du kontakte prosjektleder Førstemanuensis Ragnhild Bjørknes, HEMIL-senteret, Universitetet i Bergen, telefon: 55 58 32 28.

**Dersom du ønsker å delta, trykker du på vedlagt link til spørreundersøkelsen.**

**Med vennlig hilsen**

Ragnhild Bjørknes og Ingfrid Vaksdal Brattabø

Bergen, november 2014

**Doctoral Theses at The Faculty of Psychology,**  
**University of Bergen**

- |             |                              |  |
|-------------|------------------------------|--|
| <b>1980</b> | Allen, H.M., Dr. philos.     | Parent-offspring interactions in willow grouse ( <i>Lagopus L. Lagopus</i> ).  |
| <b>1981</b> | Myhrer, T., Dr. philos.      | Behavioral Studies after selective disruption of hippocampal inputs in albino rats.  |
| <b>1982</b> | Svebak, S., Dr. philos.      | The significance of motivation for task-induced tonic physiological changes.   |
| <b>1983</b> | Myhre, G., Dr. philos.       | The Biopsychology of behavior in captive Willow ptarmigan.   |
|             | Eide, R., Dr. philos.        | PSYCHOSOCIAL FACTORS AND INDICES OF HEALTH RISKS. The relationship of psychosocial conditions to subjective complaints, arterial blood pressure, serum cholesterol, serum triglycerides and urinary catecholamines in middle aged populations in Western Norway. |
|             | Værnes, R.J., Dr. philos.    | Neuropsychological effects of diving.  |
| <b>1984</b> | Kolstad, A., Dr. philos.     | Til diskusjonen om sammenhengen mellom sosiale forhold og psykiske strukturer. En epidemiologisk undersøkelse blant barn og unge.  |
|             | Løberg, T., Dr. philos.      | Neuropsychological assessment in alcohol dependence.   |
| <b>1985</b> | Hellesnes, T., Dr. philos.   | Læring og problemløsning. En studie av den perseptuelle analysens betydning for verbal læring.   |
|             | Håland, W., Dr. philos.      | Psykoterapi: relasjon, utviklingsprosess og effekt.  |
| <b>1986</b> | Hagtvatn, K.A., Dr. philos.  | The construct of test anxiety: Conceptual and methodological issues.   |
|             | Jellestad, F.K., Dr. philos. | Effects of neuron specific amygdala lesions on fear-motivated behavior in rats.  |
| <b>1987</b> | Aarø, L.E., Dr. philos.      | Health behaviour and socioeconomic Status. A survey among the adult population in Norway.  |
|             | Underlid, K., Dr. philos.    | Arbeidsløse i psykososialt perspektiv.   |
|             | Laberg, J.C., Dr. philos.    | Expectancy and classical conditioning in alcoholics' craving.  |
|             | Vollmer, F.C., Dr. philos.   | Essays on explanation in psychology.   |
|             | Ellertsen, B., Dr. philos.   | Migraine and tension headache: Psychophysiology, personality and therapy.  |
| <b>1988</b> | Kaufmann, A., Dr. philos.    | Antisocial atferd hos ungdom. En studie av psykologiske determinanter.   |

	Mykletun, R.J., Dr. philos.	Teacher stress: personality, work-load and health.
	Havik, O.E., Dr. philos.	After the myocardial infarction: A medical and psychological study with special emphasis on perceived illness.
<b>1989</b>	Bråten, S., Dr. philos.	Menneskedyaden. En teoretisk tese om sinnets dialogiske natur med informasjons- og utviklingspsykologiske implikasjoner sammenholdt med utvalgte spedbarnsstudier.
	Wold, B., Dr. psychol.	Lifestyles and physical activity. A theoretical and empirical analysis of socialization among children and adolescents.
<b>1990</b>	Flaten, M.A., Dr. psychol.	The role of habituation and learning in reflex modification.
<b>1991</b>	Alsaker, F.D., Dr. philos.	Global negative self-evaluations in early adolescence.
	Kraft, P., Dr. philos.	AIDS prevention in Norway. Empirical studies on diffusion of knowledge, public opinion, and sexual behaviour.
	Endresen, I.M., Dr. philos.	Psychoimmunological stress markers in working life.
	Faleide, A.O., Dr. philos.	Asthma and allergy in childhood. Psychosocial and psychotherapeutic problems.
<b>1992</b>	Dalen, K., Dr. philos.	Hemispheric asymmetry and the Dual-Task Paradigm: An experimental approach.
	Bø, I.B., Dr. philos.	Ungdoms sosiale økologi. En undersøkelse av 14-16 åringers sosiale nettverk.
	Nivison, M.E., Dr. philos.	The relationship between noise as an experimental and environmental stressor, physiological changes and psychological factors.
	Torgersen, A.M., Dr. philos.	Genetic and environmental influence on temperamental behaviour. A longitudinal study of twins from infancy to adolescence.
<b>1993</b>	Larsen, S., Dr. philos.	Cultural background and problem drinking.
	Nordhus, I.H., Dr. philos.	Family caregiving. A community psychological study with special emphasis on clinical interventions.
	Thuen, F., Dr. psychol.	Accident-related behaviour among children and young adolescents: Prediction and prevention.
	Solheim, R., Dr. philos.	Spesifikke lærevansker. Diskrepanskriteriet anvendt i seleksjonsmetodikk.
	Johnsen, B.H., Dr. psychol.	Brain asymmetry and facial emotional expressions: Conditioning experiments.
<b>1994</b>	Tønnessen, F.E., Dr. philos.	The etiology of Dyslexia.
	Kvale, G., Dr. psychol.	Psychological factors in anticipatory nausea and vomiting in cancer chemotherapy.

	Asbjørnsen, A.E., Dr. psychol.	Structural and dynamic factors in dichotic listening: An interactional model.
	Bru, E., Dr. philos.	The role of psychological factors in neck, shoulder and low back pain among female hospitale staff.
	Braathen, E.T., Dr. psychol.	Prediction of excellence and discontinuation in different types of sport: The significance of motivation and EMG.
	Johannessen, B.F., Dr. philos.	Det flytende kjønnnet. Om lederskap, politikk og identitet.
<b>1995</b>	Sam, D.L., Dr. psychol.	Acculturation of young immigrants in Norway: A psychological and socio-cultural adaptation.
	Bjaalid, I.-K., Dr. philos	Component processes in word recognition.
	Martinsen, Ø., Dr. philos.	Cognitive style and insight.
	Nordby, H., Dr. philos.	Processing of auditory deviant events: Mismatch negativity of event-related brain potentials.
	Raaheim, A., Dr. philos.	Health perception and health behaviour, theoretical considerations, empirical studies, and practical implications.
	Seltzer, W.J., Dr.philos.	Studies of Psychocultural Approach to Families in Therapy.
	Brun, W., Dr.philos.	Subjective conceptions of uncertainty and risk.
	Aas, H.N., Dr. psychol.	Alcohol expectancies and socialization: Adolescents learning to drink.
	Bjerkly, S., Dr. psychol.	Diagnosis and prediction of intra-institutional aggressive behaviour in psychotic patients
<b>1996</b>	Anderssen, Norman, Dr. psychol.	Physical activity of young people in a health perspective: Stability, change and social influences.
	Sandal, Gro Mjeldheim, Dr. psychol.	Coping in extreme environments: The role of personality.
	Strumse, Einar, Dr. philos.	The psychology of aesthetics: explaining visual preferences for agrarian landscapes in Western Norway.
	Hestad, Knut, Dr. philos.	Neuropsychological deficits in HIV-1 infection.
	Lugoe, L.Wycliffe, Dr. philos.	Prediction of Tanzanian students' HIV risk and preventive behaviours
	Sandvik, B. Gunnhild, Dr. philos.	Fra distriktsjordmor til institusjonsjordmor. Fremveksten av en profesjon og en profesjonsutdanning
	Lie, Gro Therese, Dr. psychol.	The disease that dares not speak its name: Studies on factors of importance for coping with HIV/AIDS in Northern Tanzania
	Øygard, Lisbet, Dr. philos.	Health behaviors among young adults. A psychological and sociological approach
	Stormark, Kjell Morten, Dr. psychol.	Emotional modulation of selective attention: Experimental and clinical evidence.

	Einarsen, Ståle, Dr. psychol.	Bullying and harassment at work: epidemiological and psychosocial aspects.
<b>1997</b>	Knivsberg, Ann-Mari, Dr. philos.	Behavioural abnormalities and childhood psychopathology: Urinary peptide patterns as a potential tool in diagnosis and remediation.
	Eide, Arne H., Dr. philos.	Adolescent drug use in Zimbabwe. Cultural orientation in a global-local perspective and use of psychoactive substances among secondary school students.
	Sørensen, Marit, Dr. philos.	The psychology of initiating and maintaining exercise and diet behaviour.
	Skjæveland, Oddvar, Dr. psychol.	Relationships between spatial-physical neighborhood attributes and social relations among neighbors.
	Zewdie, Teka, Dr. philos.	Mother-child relational patterns in Ethiopia. Issues of developmental theories and intervention programs.
	Wilhelmsen, Britt Unni, Dr. philos.	Development and evaluation of two educational programmes designed to prevent alcohol use among adolescents.
	Manger, Terje, Dr. philos.	Gender differences in mathematical achievement among Norwegian elementary school students.
<b>1998</b>	Lindstrøm, Torill Christine, Dr. philos.	«Good Grief»: Adapting to Bereavement.
<b>V</b>	Skogstad, Anders, Dr. philos.	Effects of leadership behaviour on job satisfaction, health and efficiency.
	Haldorsen, Ellen M. Håland, Dr. psychol.	Return to work in low back pain patients.
	Besemer, Susan P., Dr. philos.	Creative Product Analysis: The Search for a Valid Model for Understanding Creativity in Products.
<b>H</b>	Winje, Dagfinn, Dr. psychol.	Psychological adjustment after severe trauma. A longitudinal study of adults' and children's posttraumatic reactions and coping after the bus accident in Måbødalen, Norway 1988.
	Vosburg, Suzanne K., Dr. philos.	The effects of mood on creative problem solving.
	Eriksen, Hege R., Dr. philos.	Stress and coping: Does it really matter for subjective health complaints?
	Jakobsen, Reidar, Dr. psychol.	Empiriske studier av kunnskap og holdninger om hiv/aids og den normative seksuelle utvikling i ungdomsårene.
<b>1999</b>	Mikkelsen, Aslaug, Dr. philos.	Effects of learning opportunities and learning climate on occupational health.
<b>V</b>	Samdal, Oddrun, Dr. philos.	The school environment as a risk or resource for students' health-related behaviours and subjective well-being.
	Friestad, Christine, Dr. philos.	Social psychological approaches to smoking.
	Ekeland, Tor-Johan, Dr. philos.	Meining som medisin. Ein analyse av placebofenomenet og implikasjonar for terapi og terapeutiske teoriar.



<b>H</b>	Saban, Sara, Dr. psychol.	Brain Asymmetry and Attention: Classical Conditioning Experiments.
	Carlsten, Carl Thomas, Dr. philos.	God lesing – God læring. En aksjonsrettet studie av undervisning i fagtekstlesing.
	Dundas, Ingrid, Dr. psychol.	Functional and dysfunctional closeness. Family interaction and children's adjustment.
	Engen, Liv, Dr. philos.	Kartlegging av leseferdighet på småskoletrinnet og vurdering av faktorer som kan være av betydning for optimal leseutvikling.
<b>2000 V</b>	Hovland, Ole Johan, Dr. philos.	Transforming a self-preserving "alarm" reaction into a self-defeating emotional response: Toward an integrative approach to anxiety as a human phenomenon.
	Lillejord, Sølvi, Dr. philos.	Handlingsrasjonalitet og spesialundervisning. En analyse av aktørperspektiver.
	Sandell, Ove, Dr. philos.	Den varme kunnskapen.
	Oftedal, Marit Petersen, Dr. philos.	Diagnostisering av ordavkodingsvansker: En prosessanalytisk tilnæringsmåte.
<b>H</b>	Sandbak, Tone, Dr. psychol.	Alcohol consumption and preference in the rat: The significance of individual differences and relationships to stress pathology
	Eid, Jarle, Dr. psychol.	Early predictors of PTSD symptom reporting; The significance of contextual and individual factors.
<b>2001 V</b>	Skinstad, Anne Helene, Dr. philos.	Substance dependence and borderline personality disorders.
	Binder, Per-Einar, Dr. psychol.	Individet og den meningsbærende andre. En teoretisk undersøkelse av de mellommenneskelige forutsetningene for psykisk liv og utvikling med utgangspunkt i Donald Winnicotts teori.
	Roald, Ingvild K., Dr. philos.	Building of concepts. A study of Physics concepts of Norwegian deaf students.
<b>H</b>	Fekadu, Zelalem W., Dr. philos.	Predicting contraceptive use and intention among a sample of adolescent girls. An application of the theory of planned behaviour in Ethiopian context.
	Melesse, Fantu, Dr. philos.	The more intelligent and sensitive child (MISC) mediational intervention in an Ethiopian context: An evaluation study.
	Råheim, Målfrid, Dr. philos.	Kvinneres kroppserfaring og livssammenheng. En fenomenologisk – hermeneutisk studie av friske kvinner og kvinner med kroniske muskelsmerter.
	Engelsen, Birthe Kari, Dr. psychol.	Measurement of the eating problem construct.
	Lau, Bjørn, Dr. philos.	Weight and eating concerns in adolescence.
<b>2002 V</b>	Ihlebak, Camilla, Dr. philos.	Epidemiological studies of subjective health complaints.

	Rosén, Gunnar O. R., Dr. philos.	The phantom limb experience. Models for understanding and treatment of pain with hypnosis.
	Høines, Marit Johnsen, Dr. philos.	Fleksible språkrrom. Matematikk læring som tekstutvikling.
	Anthun, Roald Andor, Dr. philos.	School psychology service quality. Consumer appraisal, quality dimensions, and collaborative improvement potential
	Pallesen, Ståle, Dr. psychol.	Insomnia in the elderly. Epidemiology, psychological characteristics and treatment.
	Midthassel, Unni Vere, Dr. philos.	Teacher involvement in school development activity. A study of teachers in Norwegian compulsory schools
	Kallestad, Jan Helge, Dr. philos.	Teachers, schools and implementation of the Olweus Bullying Prevention Program.
<b>H</b>	Ofte, Sonja Helgesen, Dr. psychol.	Right-left discrimination in adults and children.
	Netland, Marit, Dr. psychol.	Exposure to political violence. The need to estimate our estimations.
	Diseth, Åge, Dr. psychol.	Approaches to learning: Validity and prediction of academic performance.
	Bjulan, Raymond, Dr. philos.	Problem solving in geometry. Reasoning processes of student teachers working in small groups: A dialogical approach.
<b>2003</b> <b>V</b>	Arefjord, Kjersti, Dr. psychol.	After the myocardial infarction – the wives' view. Short- and long-term adjustment in wives of myocardial infarction patients.
	Ingjaldsson, Jón Þorvaldur, Dr. psychol.	Unconscious Processes and Vagal Activity in Alcohol Dependency.
	Holden, Børge, Dr. philos.	Følger av atferdsanalytiske forklaringer for atferdsanalysens tilnærming til utforming av behandling.
	Holsen, Ingrid, Dr. philos.	Depressed mood from adolescence to 'emerging adulthood'. Course and longitudinal influences of body image and parent-adolescent relationship.
	Hammar, Åsa Karin, Dr. psychol.	Major depression and cognitive dysfunction- An experimental study of the cognitive effort hypothesis.
	Sprugevica, Ieva, Dr. philos.	The impact of enabling skills on early reading acquisition.
	Gabrielsen, Egil, Dr. philos.	LESE FOR LIVET. Lesekompetansen i den norske voksenbefolkningen sett i lys av visjonen om en enhetsskole.
<b>H</b>	Hansen, Anita Lill, Dr. psychol.	The influence of heart rate variability in the regulation of attentional and memory processes.
	Dyregrov, Kari, Dr. philos.	The loss of child by suicide, SIDS, and accidents: Consequences, needs and provisions of help.
<b>2004</b> <b>V</b>	Torsheim, Torbjørn, Dr. psychol.	Student role strain and subjective health complaints: Individual, contextual, and longitudinal perspectives.

	Haugland, Bente Storm Mowatt Dr. psychol.	Parental alcohol abuse. Family functioning and child adjustment.
	Milde, Anne Marita, Dr. psychol.	Ulcerative colitis and the role of stress. Animal studies of psychobiological factors in relationship to experimentally induced colitis.
	Stornes, Tor, Dr. philos.	Socio-moral behaviour in sport. An investigation of perceptions of sportspersonship in handball related to important factors of socio-moral influence.
	Mæhle, Magne, Dr. philos.	Re-inventing the child in family therapy: An investigation of the relevance and applicability of theory and research in child development for family therapy involving children.
	Kobbeltvedt, Therese, Dr. psychol.	Risk and feelings: A field approach.
<b>2004</b>	Thomsen, Tormod, Dr. psychol.	Localization of attention in the brain.
<b>H</b>	Løberg, Else-Marie, Dr. psychol.	Functional laterality and attention modulation in schizophrenia: Effects of clinical variables.
	Kyrkjebø, Jane Mikkelsen, Dr. philos.	Learning to improve: Integrating continuous quality improvement learning into nursing education.
	Laumann, Karin, Dr. psychol.	Restorative and stress-reducing effects of natural environments: Experiential, behavioural and cardiovascular indices.
	Holgersen, Helge, PhD	Mellom oss - Essay i relasjonell psykoanalyse.
<b>2005</b>	Hetland, Hilde, Dr. psychol.	Leading to the extraordinary? Antecedents and outcomes of transformational leadership.
<b>V</b>	Iversen, Anette Christine, Dr. philos.	Social differences in health behaviour: the motivational role of perceived control and coping.
<b>2005</b>	Mathisen, Gro Ellen, PhD	Climates for creativity and innovation: Definitions, measurement, predictors and consequences.
<b>H</b>	Sævi, Tone, Dr. philos.	Seeing disability pedagogically – The lived experience of disability in the pedagogical encounter.
	Wiium, Nora, PhD	Intrapersonal factors, family and school norms: combined and interactive influence on adolescent smoking behaviour.
	Kanagaratnam, Pushpa, PhD	Subjective and objective correlates of Posttraumatic Stress in immigrants/refugees exposed to political violence.
	Larsen, Torill M. B. , PhD	Evaluating principals` and teachers` implementation of Second Step. A case study of four Norwegian primary schools.
	Bancila, Delia, PhD	Psychosocial stress and distress among Romanian adolescents and adults.
<b>2006</b>	Hillestad, Torgeir Martin, Dr. philos.	Normalitet og avvik. Forutsetninger for et objektivt psykopatologisk avviksbegrep. En psykologisk, sosial, erkjennelsesteoretisk og teorihistorisk framstilling.
<b>V</b>		

	Nordanger, Dag Øystein, Dr. psychol.	Psychosocial discourses and responses to political violence in post-war Tigray, Ethiopia.
	Rimol, Lars Morten, PhD	Behavioral and fMRI studies of auditory laterality and speech sound processing.
	Krumsvik, Rune Johan, Dr. philos.	ICT in the school. ICT-initiated school development in lower secondary school.
	Norman, Elisabeth, Dr. psychol.	Gut feelings and unconscious thought: An exploration of fringe consciousness in implicit cognition.
	Israel, K Pravin, Dr. psychol.	Parent involvement in the mental health care of children and adolescents. Empirical studies from clinical care setting.
	Glasø, Lars, PhD	Affects and emotional regulation in leader-subordinate relationships.
	Knutsen, Ketil, Dr. philos.	HISTORIER UNGDOM LEVER – En studie av hvordan ungdommer bruker historie for å gjøre livet meningsfullt.
	Matthiesen, Stig Berge, PhD	Bullying at work. Antecedents and outcomes.
<b>2006</b>	Gramstad, Arne, PhD	Neuropsychological assessment of cognitive and emotional functioning in patients with epilepsy.
<b>H</b>	Bendixen, Mons, PhD	Antisocial behaviour in early adolescence: Methodological and substantive issues.
	Mrumbi, Khalifa Maulid, PhD	Parental illness and loss to HIV/AIDS as experienced by AIDS orphans aged between 12-17 years from Temeke District, Dar es Salaam, Tanzania: A study of the children's psychosocial health and coping responses.
	Hetland, Jørn, Dr. psychol.	The nature of subjective health complaints in adolescence: Dimensionality, stability, and psychosocial predictors
	Kakoko, Deodatus Conatus Vitalis, PhD	Voluntary HIV counselling and testing service uptake among primary school teachers in Mwanza, Tanzania: assessment of socio-demographic, psychosocial and socio-cognitive aspects
	Mykletun, Arnstein, Dr. psychol.	Mortality and work-related disability as long-term consequences of anxiety and depression: Historical cohort designs based on the HUNT-2 study
	Sivertsen, Børge, PhD	Insomnia in older adults. Consequences, assessment and treatment.
<b>2007</b>	Singhammer, John, Dr. philos.	Social conditions from before birth to early adulthood – the influence on health and health behaviour
<b>V</b>	Janvin, Carmen Ani Cristea, PhD	Cognitive impairment in patients with Parkinson's disease: profiles and implications for prognosis
	Braarud, Hanne Cecilie, Dr. psychol.	Infant regulation of distress: A longitudinal study of transactions between mothers and infants
	Tveito, Torill Helene, PhD	Sick Leave and Subjective Health Complaints

	Magnussen, Liv Heide, PhD	Returning disability pensioners with back pain to work
	Thuen, Elin Marie, Dr.philos.	Learning environment, students' coping styles and emotional and behavioural problems. A study of Norwegian secondary school students.
	Solberg, Ole Asbjørn, PhD	Peacekeeping warriors – A longitudinal study of Norwegian peacekeepers in Kosovo
<b>2007</b>	Søreide, Gunn Elisabeth, Dr.philos.	Narrative construction of teacher identity
<b>H</b>	Svensen, Erling, PhD	WORK & HEALTH. Cognitive Activation Theory of Stress applied in an organisational setting.
	Øverland, Simon Nygaard, PhD	Mental health and impairment in disability benefits. Studies applying linkages between health surveys and administrative registries.
	Eichele, Tom, PhD	Electrophysiological and Hemodynamic Correlates of Expectancy in Target Processing
	Børhaug, Kjetil, Dr.philos.	Oppseding til demokrati. Ein studie av politisk oppseding i norsk skule.
	Eikeland, Thorleif, Dr.philos.	Om å vokse opp på barnehjem og på sykehus. En undersøkelse av barnehjemsbarns opplevelser på barnehjem sammenholdt med sanatoriebarns beskrivelse av langvarige sykehusopphold – og et forsøk på forklaring.
	Wadel, Carl Cato, Dr.philos.	Medarbeidersamhandling og medarbeiderledelse i en lagbasert organisasjon
	Vinje, Hege Forbech, PhD	Thriving despite adversity: Job engagement and self-care among community nurses
	Noort, Maurits van den, PhD	Working memory capacity and foreign language acquisition
<b>2008</b>	Breivik, Kyrre, Dr.psychol.	The Adjustment of Children and Adolescents in Different Post-Divorce Family Structures. A Norwegian Study of Risks and Mechanisms.
<b>V</b>	Johnsen, Grethe E., PhD	Memory impairment in patients with posttraumatic stress disorder
	Sætrevik, Bjørn, PhD	Cognitive Control in Auditory Processing
	Carvalho, Susana Fonseca, PhD	Prevention of bullying in schools: an ecological model
<b>2008</b>	Brønnick, Kolbjørn Selvåg	Attentional dysfunction in dementia associated with Parkinson's disease.
<b>H</b>	Posserud, Maj-Britt Rocio	Epidemiology of autism spectrum disorders
	Haug, Ellen	Multilevel correlates of physical activity in the school setting
	Skjerve, Arvid	Assessing mild dementia – a study of brief cognitive tests.

	Kjønniksen, Lise	The association between adolescent experiences in physical activity and leisure time physical activity in adulthood: a ten year longitudinal study
	Gundersen, Hilde	The effects of alcohol and expectancy on brain function
	Omvik, Siri	Insomnia – a night and day problem
<b>2009</b>	Molde, Helge	Pathological gambling: prevalence, mechanisms and treatment outcome.
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	Westrheim, Kariane	Education in a Political Context: A study of Knowledge Processes and Learning Sites in the PKK.
	Wehling, Eike	Cognitive and olfactory changes in aging
	Wangberg, Silje C.	Internet based interventions to support health behaviours: The role of self-efficacy.
	Nielsen, Morten B.	Methodological issues in research on workplace bullying. Operationalisations, measurements and samples.
	Sandu, Anca Larisa	MRI measures of brain volume and cortical complexity in clinical groups and during development.
	Guribye, Eugene	Refugees and mental health interventions
	Sørensen, Lin	Emotional problems in inattentive children – effects on cognitive control functions.
	Tjomsland, Hege E.	Health promotion with teachers. Evaluation of the Norwegian Network of Health Promoting Schools: Quantitative and qualitative analyses of predisposing, reinforcing and enabling conditions related to teacher participation and program sustainability.
	Helleve, Ingrid	Productive interactions in ICT supported communities of learners
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	Stang, Ingun	Being in the same boat: An empowerment intervention in breast cancer self-help groups
	Sequeira, Sarah Dorothee Dos Santos	The effects of background noise on asymmetrical speech perception
	Kleiven, Jo, dr.philos.	The Lillehammer scales: Measuring common motives for vacation and leisure behavior
	Jónsdóttir, Guðrún	Dubito ergo sum? Ni jenter møter naturfaglig kunnskap.
	Hove, Oddbjørn	Mental health disorders in adults with intellectual disabilities - Methods of assessment and prevalence of mental health disorders and problem behaviour
	Wageningen, Heidi Karin van	The role of glutamate on brain function

	Bjørkvik, Jofrid	God nok? Selvaktelse og interpersonlig fungering hos pasienter innen psykisk helsevern: Forholdet til diagnoser, symptomer og behandlingsutbytte
	Andersson, Martin	A study of attention control in children and elderly using a forced-attention dichotic listening paradigm
	Almås, Aslaug Grov	Teachers in the Digital Network Society: Visions and Realities. A study of teachers' experiences with the use of ICT in teaching and learning.
	Ulvik, Marit	Lærerutdanning som danning? Tre stemmer i diskusjonen
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	Bjørkelo, Brita	Whistleblowing at work: Antecedents and consequences
	Reme, Silje Endresen	Common Complaints – Common Cure? Psychiatric comorbidity and predictors of treatment outcome in low back pain and irritable bowel syndrome
	Helland, Wenche Andersen	Communication difficulties in children identified with psychiatric problems
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	Thygesen, Elin	Subjective health and coping in care-dependent old persons living at home
	Aanes, Mette Marthinussen	Poor social relationships as a threat to belongingness needs. Interpersonal stress and subjective health complaints: Mediating and moderating factors.
	Anker, Morten Gustav	Client directed outcome informed couple therapy

	Bull, Torill	Combining employment and child care: The subjective well-being of single women in Scandinavia and in Southern Europe
	Viig, Nina Grieg	Tilrettelegging for læreres deltakelse i helsefremmende arbeid. En kvalitativ og kvantitativ analyse av sammenhengen mellom organisatoriske forhold og læreres deltakelse i utvikling og implementering av Europeisk Nettverk av Helsefremmende Skoler i Norge
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	Ogden, Terje, dr.philos.	Familiebasert behandling av alvorlige atferdsproblemer blant barn og ungdom. Evaluering og implementering av evidensbaserte behandlingsprogrammer i Norge.
	Solberg, Mona Elin	Self-reported bullying and victimisation at school: Prevalence, overlap and psychosocial adjustment.
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	Myrseth, Helga	Pathological Gambling - Treatment and Personality Factors
	Schanche, Elisabeth	From self-criticism to self-compassion. An empirical investigation of hypothesized change processes in the Affect Phobia Treatment Model of short-term dynamic psychotherapy for patients with Cluster C personality disorders.
	Våpenstad, Eystein Victor, dr.philos.	Det tempererte nærvær. En teoretisk undersøkelse av psykoterapeutens subjektivitet i psykoanalyse og psykoanalytisk psykoterapi.
	Haukebø, Kristin	Cognitive, behavioral and neural correlates of dental and intra-oral injection phobia. Results from one treatment and one fMRI study of randomized, controlled design.
	Harris, Anette	Adaptation and health in extreme and isolated environments. From 78°N to 75°S.
	Bjørknes, Ragnhild	Parent Management Training-Oregon Model: intervention effects on maternal practice and child behavior in ethnic minority families
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	Vøllestad, Jon	Mindfulness-based treatment for anxiety disorders. A quantitative review of the evidence, results from a randomized controlled trial, and a qualitative exploration of patient experiences.
	Tolo, Astrid	Hvordan blir lærerkompetanse konstruert? En kvalitativ studie av PPU-studenters kunnskapsutvikling.
	Saus, Evelyn-Rose	Training effectiveness: Situation awareness training in simulators
	Nordgreen, Tine	Internet-based self-help for social anxiety disorder and panic disorder. Factors associated with effect and use of self-help.
	Munkvold, Linda Helen	Oppositional Defiant Disorder: Informant discrepancies, gender differences, co-occurring mental health problems and neurocognitive function.
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	Herheim, Rune	Pupils collaborating in pairs at a computer in mathematics learning: investigating verbal communication patterns and qualities
	Vie, Tina Løkke	Cognitive appraisal, emotions and subjective health complaints among victims of workplace bullying: A stress-theoretical approach
	Jones, Lise Øen	Effects of reading skills, spelling skills and accompanying efficacy beliefs on participation in education. A study in Norwegian prisons.

<b>2012</b> <b>H</b>	Danielsen, Yngvild Sørebo	Childhood obesity – characteristics and treatment. Psychological perspectives.
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	Jøsendal, Ola	Development and evaluation of BE smokeFREE, a school-based smoking prevention program
	Osnes, Berge	Temporal and Posterior Frontal Involvement in Auditory Speech Perception
	Drageset, Sigrunn	Psychological distress, coping and social support in the diagnostic and preoperative phase of breast cancer
	Aasland, Merethe Schanke	Destructive leadership: Conceptualization, measurement, prevalence and outcomes
	Bakibinga, Pauline	The experience of job engagement and self-care among Ugandan nurses and midwives
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	Strand, Mari	Emotional information processing in recurrent MDD
	Veseth, Marius	Recovery in bipolar disorder. A reflexive-collaborative exploration of the lived experiences of healing and growth when battling a severe mental illness
	Mæland, Silje	Sick leave for patients with severe subjective health complaints. Challenges in general practice.
	Mjaaland, Thera	At the frontiers of change? Women and girls' pursuit of education in north-western Tigray, Ethiopia
	Odéen, Magnus	Coping at work. The role of knowledge and coping expectancies in health and sick leave.
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	Flo, Elisabeth	Sleep and health in shift working nurses
	Aasen, Elin Margrethe	From paternalism to patient participation? The older patients undergoing hemodialysis, their next of kin and the nurses: a discursive perspective on perception of patient participation in dialysis units
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	Johansen, Rino Bandlitz	The impact of military identity on performance in the Norwegian armed forces
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	Urheim, Ragnar	Forståelse av pasientagresjon og forklaringer på nedgang i voldsrater ved Regional sikkerhetsavdeling, Sandviken sykehus
	Kinn, Liv Grethe	Round-Trips to Work. Qualitative studies of how persons with severe mental illness experience work integration.
	Rød, Anne Marie Kinn	Consequences of social defeat stress for behaviour and sleep. Short-term and long-term assessments in rats.
	Nygård, Merethe	Schizophrenia – Cognitive Function, Brain Abnormalities, and Cannabis Use
	Tjora, Tore	Smoking from adolescence through adulthood: the role of family, friends, depression and socioeconomic status. Predictors of smoking from age 13 to 30 in the "The Norwegian Longitudinal Health Behaviour Study" (NLHB)
	Vangsnes, Vigdis	The Dramaturgy and Didactics of Computer Gaming. A Study of a Medium in the Educational Context of Kindergartens.

	Nordahl, Kristin Berg	Early Father-Child Interaction in a Father-Friendly Context: Gender Differences, Child Outcomes, and Protective Factors related to Fathers' Parenting Behaviors with One-year-olds
<b>2014 H</b>	Sandvik, Asle Makoto	Psychopathy – the heterogeneity of the construct
	Skotheim, Siv	Maternal emotional distress and early mother-infant interaction: Psychological, social and nutritional contributions
	Halleland, Helene Barone	Executive Functioning in adult Attention Deficit Hyperactivity Disorder (ADHD). From basic mechanisms to functional outcome.
	Halvorsen, Kirsti Vindal	Partnerskap i lærerutdanning, sett fra et økologisk perspektiv
	Solbue, Vibeke	Dialogen som visker ut kategorier. En studie av hvilke erfaringer innvandrerdømmer og norskfødte med innvandrereforeldre har med videregående skole. Hva forteller ungdommenes erfaringer om videregående skoles håndtering av etniske ulikheter?
	Kvalevaag, Anne Lise	Fathers' mental health and child development. The predictive value of fathers' psychological distress during pregnancy for the social, emotional and behavioural development of their children
	Sandal, Ann Karin	Ungdom og utdanningsval. Om elever sine opplevingar av val og overgangsprosessar.
	Haug, Thomas	Predictors and moderators of treatment outcome from high- and low-intensity cognitive behavioral therapy for anxiety disorders. Association between patient and process factors, and the outcome from guided self-help, stepped care, and face-to-face cognitive behavioral therapy.
	Sjølie, Hege	Experiences of Members of a Crisis Resolution Home Treatment Team. Personal history, professional role and emotional support in a CRHT team.
	Falkenberg, Liv Eggset	Neuronal underpinnings of healthy and dysfunctional cognitive control
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	Ryland, Hilde Katrin	Social functioning and mental health in children: the influence of chronic illness and intellectual function
	Rønsen, Anne Kristin	Vurdering som profesjonskompetanse. Refleksjonsbasert utvikling av læreres kompetanse i formativ vurdering

	Hoff, Helge Andreas	Thinking about Symptoms of Psychopathy in Norway: Content Validation of the Comprehensive Assessment of Psychopathic Personality (CAPP) Model in a Norwegian Setting
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	Sand, Liv	Body Image Distortion and Eating Disturbances in Children and Adolescents
	Matanda, Dennis Juma	Child physical growth and care practices in Kenya: Evidence from Demographic and Health Surveys
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	Bless, Josef Johann	The smartphone as a research tool in psychology. Assessment of language lateralization and training of auditory attention.
	Løvvik, Camilla Margrethe Sigvaldsen	Common mental disorders and work participation – the role of return-to-work expectations
	Lehmann, Stine	Mental Disorders in Foster Children: A Study of Prevalence, Comorbidity, and Risk Factors
	Knapstad, Marit	Psychological factors in long-term sickness absence: the role of shame and social support. Epidemiological studies based on the Health Assets Project.
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	Thun, Eirunn	Shift work: negative consequences and protective factors

	Hilt, Line Torbjørnsen	The borderlands of educational inclusion. Analyses of inclusion and exclusion processes for minority language students
	Havnen, Audun	Treatment of obsessive-compulsive disorder and the importance of assessing clinical effectiveness
	Slåtten, Hilde	Gay-related name-calling among young adolescents. Exploring the importance of the context.
	Ree, Eline	Staying at work. The role of expectancies and beliefs in health and workplace interventions.
	Morken, Frøydis	Reading and writing processing in dyslexia
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	Henriksen, Roger Ekeberg	Social relationships, stress and infection risk in mother and child
	Johnsen, Iren	«Only a friend» - The bereavement process of young adults who have lost a friend to a traumatic death. A mixed methods study.
	Helle, Siri	Cannabis use in non-affective psychoses: Relationship to age at onset, cognitive functioning and social cognition
	Glambek, Mats	Workplace bullying and expulsion in working life. A representative study addressing prospective associations and explanatory conditions.
	Oanes, Camilla Jensen	Tilbakemelding i terapi. På hvilke måter opplever terapeuter at tilbakemeldingsprosedyrer kan virke inn på terapeutiske praksiser?
	Reknes, Iselin	Exposure to workplace bullying among nurses: Health outcomes and individual coping
	Chimhutu, Victor	Results-Based Financing (RBF) in the health sector of a low-income country. From agenda setting to implementation: The case of Tanzania
	Ness, Ingunn Johanne	The Room of Opportunity. Understanding how knowledge and ideas are constructed in multidisciplinary groups working with developing innovative ideas.
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	Senneseth, Mette	Improving social network support for partners facing spousal cancer while caring for minors. A randomized controlled trial.
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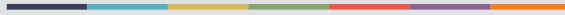
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