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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 % (*n*)	Dentists % (*n*)	Total % (*n*)
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)[a]	0.89 (1.60)[a]
	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)[a]	0.90 (1.72)[b]
	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)[b]	0.90 (1.69)[b]	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)[a]	0.70 (1.45)	1.21 (1.86)b
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)[a]	0.66 (1.35)	1.14 (1.85)[a]
	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)
	East	2.26 (3.38)[b]	0.67 (1.54)	1.22 (2.03)[b]

[a] $p < .05$.
[b] $p < .001$.
CWS: child welfare services.

Table 3. Negative binominal 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.

		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)	
Characteristics	Categories	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted
Personal	Gender						
	Female	0.88 (0.71–1.10)	0.79 (0.63–0.99)[a]	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)[a]	1.60 (1.20–2.13)a
	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)[b]	0.64 (0.50–0.81)[b]	0.56 (0.43–0.74)[b]	0.43 (0.28–0.64)[b]	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)[a]	0.86 (0.71–1.04)	0.86 (0.66–1.14)	0.87 (0.65–1.18)	0.68 (0.55–0.84)[b]	0.76 (0.61–0.96)[a]
	501− +	1	1	1	1	1	1
External	Size of municipality						
	0–10,000	0.78 (0.63–0.96)[a]	0.77 (0.62–0.96)[a]	1.06 (0.76–1.47)	1.05 (0.74–1.49)	0.69 (0.54–0.90)[a]	0.76 (0.58–0.99)a
	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)[a]	0.73(0.55–0.97)[a]	1.22 (0.79–1.89)	1.23 (0.80–1.90)	0.56 (0.39–0.79)[a]	0.63 (0.44–0.89)[a]
	West	0.61 (0.47–0.78)[b]	0.58(0.45–0.75)[b]	0.98 (0.66–1.45)	0.94 (0.64–1.39)	0.63 (0.46–0.84)[a]	0.62 (0.46–0.84)[a]
	South	1.32 (1.02–1.71)[a]	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

[a] $p < .05$.
[b] $p < .001$.
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 postgraduate 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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