Draft Manuscript for Review. Reviewers should submit their review online at
http://mc.manuscriptcentral.com/oup/her

Reporting child abuse and neglect

1

Teachers' reporting of suspected child abuse and neglect:

behaviour and determinants

Abstract **(194 words)**

By reporting suspected child abuse and neglect, teachers can make an important contribution to the early detection and prevention of abuse. However, teachers are sometimes reluctant to report their suspicions. This study investigated the determinants of teachers' reporting behaviour using concepts from the Integrated Change Model. Self-report data were collected from 296 teachers employed in 15 Australian schools. Compared to their colleagues, teachers who had never suspected child abuse or neglect (non-detectors, N= 57, 19%) were more likely to have a lower confidence in their skills for recognising the signs of abuse, a higher degree of perceived social support regarding reporting, less years teaching experience and lower academic qualifications. Among those who had suspected cases of child abuse or neglect (N=239, 81%), teachers who always reported their suspicions (consistent reporters, 82%) were more likely to have firm action plans about reporting and detecting signs of CAN than teachers who did not always report their suspicions (inconsistent reporters, 18%). While only a small proportion of the variance in detection and reporting status was explained, the results illustrate the utility of health promotion theory and methods for improving our understanding of these behaviours.

Introduction

Child abuse and neglect (CAN) is an international problem [1, 2], with worldwide annual

deaths from homicide estimated at 57,000 in children under 15 years [1]. International data

are not available for non-fatal CAN, but rates are believed to be considerably higher, since

deaths are but the tiny, tragic tip of a very large iceberg of abuse [2]. In Australia, data on

CAN are collated by statutory agencies in each state and territory. The most common form is

emotional abuse (41.6%), followed by neglect (30.2%), physical (21.9%) and sexual abuse

(6.3%) [3]. In the state of Queensland 25,687 cases of suspected CAN were reported for the

year 2005 – 2006. Of these, 10,177 cases were substantiated, representing a prevalence of

10.4 cases per 1,000 children under the age of 18 years [4]. However, official statistics

underestimate the real prevalence of CAN. An unknown number of cases are never officially

reported and some are only disclosed months or years later leaving CAN unrecognized at the

time it is occurring [5-7].

The serious short- and long-term consequences for victims of CAN have been well

documented [8-13]. Adverse outcomes can be especially severe when maltreatment takes

place over a prolonged period of time, making early detection and the prevention of

reoccurrence essential. Teachers are in a unique position to detect possible cases of CAN due

to their daily contact with children, their capacity to observe changes in children's behaviour

and appearance over time, and their proximity to children who may make direct disclosures

[14, 15]. In Queensland, 15% of substantiated cases of CAN are reported by teachers [3].

Three-quarters of Australian primary school teachers indicate that they have

suspected a case of CAN at some stage in their careers [16]. However, teachers often fail to

report CAN to statutory authorities [17-20]. In a recent Australian survey only 49% of

teachers who had detected a likely case of CAN indicated that they had ever reported their

suspicions [16], and in the USA an estimated 84% of cases of CAN detected in schools are

not reported [18]. Under-reporting occurs despite teachers' commitment to the prevention of

CAN [21], and irrespective of whether teachers are legally mandated to report their
suspicions or not [22].

To facilitate teachers' reporting of CAN, most Australian states and territories have
legal reporting obligations for teachers [23] and provide training about CAN [24]. For
example, schools in Queensland are required to conduct Child Protection workshops to train
staff in recognising the signs of CAN and the processes for reporting suspicions [25]. Despite
this training, a recent study showed that when Queensland teachers were asked how they
would respond to case vignettes, under-reporting was still likely [16].

Previous research suggests that reporting behaviour may influenced by teachers'
attitudes, detection skills, knowledge and training, social influences, teachers' personal
characteristics and features of the abuse. Attitudes that may promote reporting include beliefs
that reporting is part of the teacher's professional responsibility and that it will prevent future
harm [26, 27]. Attitudes that act as barriers include concerns that reporting will damage
teacher-child or teacher-family relationships, fear of making an inaccurate report, fear that
reporting may escalate the abuse, and beliefs that inadequacies in the child protection system
may harm the family or fail to help the child [19, 28-30]. A supportive social environment
may also be influential. Open discussion of CAN suspicions within the school has been
associated with greater reporting intentions [16], while reporting was less likely if teachers felt
unsupported in this [16, 28-31]. Internationally, studies have found that teachers lack skills
and confidence to accurately detect CAN [16, 32, 33]. While this may hamper reporting,
research findings are not entirely clear in this respect. Teachers have indicated lack of
knowledge about child protection processes a s a barrier to reporting [28], but greater
knowledge has been found to be positively [32], negatively [33], or not related to reporting
[34]. Similarly, level of training in child protection has been found to be both positively [24],
and negatively [33] associated with increased confidence and reporting.

5

More experienced teachers appear to be more likely to report CAN suspicions than less experienced teachers [16, 19, 20] and while two studies found female teachers were more likely to report CAN than male teachers [33;34], gender differences were not found in another study [26]. Finally, reporting appears to be influenced by case characteristics. Reporting is more likely to occur when CAN is severe, involves sexual or physical abuse, and when the child has disclosed the abuse [14, 27].

Research into the factors that influence teachers' reporting of CAN has been limited by methodological and conceptual weaknesses. Methodologically, the study of reporting behaviour is challenging. Approximately 50% of Australian teachers will encounter a case of CAN in a 12 month period [16], making it difficult to observe reporting behaviours as they occur. Consequently, researchers have tended to use two types of designs that have inherent limitations: case vignettes, where teachers are presented with hypothetical cases and indicate whether or not they would report each case [16,19,21, 25, 27, 30, 35]; or retrospective recall of past reporting behaviours [16, 21, 31, 36].

Research has been further limited by inconsistency in the potential determinants of reporting behaviour that have been examined. There has been a lack of a theoretical framework that would facilitate the systematic study of determinants and their relationships. Most studies have used small samples, precluding the ability to examine multiple determinants simultaneously. This may lead to erroneous conclusions arising from a failure to control for confounding between variables. Generalisability has also been limited by non-representative samples, and response rates (when reported) have typically been poor, ranging from 24% – 44% [16, 28, 29].

The field of health promotion has a long tradition of examining the factors that influence behaviours, which may be informative to studying teachers' reporting behaviour. Several models of health behaviour have recently been drawn together in an overarching framework, known as the Integrated Change Model [36]. The I-change model integrates

6

concepts from the Theory of Planned Behaviour [37], Social Cognitive Theory [38], the

Transtheoretical Model [39], the Health Belief Model [40] and Implementation and Goal

Setting Theories [41, 42]. The model and its predecessors, have been used to examine the

determinants of addictive and habitual health risk behaviours (e.g. smoking and food patterns)

[43, 44] as well as a wide range of volitional behaviours (e.g. voluntary blood donations,

maternal breastfeeding, patient education behaviour of professionals, and children's moral

behaviours) [45-50]. Components of the I-Change Model correspond well to the constructs

examined in previous studies regarding teachers' reporting of CAN. Hence, the I-Change

Model appears to be a potentially useful conceptual framework for examining teachers'

reporting behaviour.

According to the I-Change Model (see Figure 1), behaviour is a function of a person's

abilities and intentions [36]. Abilities, such as being able to plan specific actions to reach the

desired behaviour (action plans) and actual skills (performance skills), increase the chance of

turning an intention into action. Personal and institutional barriers can lower these chances.

An individual's intention is influenced by three types of motivational factors: attitudes, social

influences and self-efficacy beliefs. Attitudes refer to the perceived advantages and

disadvantages of the behaviour. Social influences consist of the support an individual

encounters in carrying out the behaviour (social support), perceived norms of other people

with respect to the behaviour (social norms), and perceptions of others carrying out the

behaviour (social modelling). The I-Change Model assumes that these motivational factors

are determined by various distal factors, including awareness (e.g. knowledge, risk

perceptions and cues to action), information (e.g. the quality of the messages, channels and

sources used) and predisposing factors (i.e. behavioural, psychological, biological, and socio-

cultural factors) [36].

<Insert Figure I here>

This study aimed to examine the extent to which teachers' reporting behaviour was associated with variables from the I-Change Model, including intentions, motivational factors, performance skills and action plans. Reporting was considered to be a two-stage process consisting of a detection stage (i.e. forming a suspicion that CAN may have occurred) and a reporting stage (i.e. acting on that suspicion by reporting it to the appropriate authorities). Based on these stages and teachers' self-indicated reporting behaviour, we distinguished three groups of respondents: teachers who had never suspected CAN (non-detectors); teachers who had suspected cases of CAN but had not always reported them (inconsistent reporters); and teachers who had always reported suspected cases (consistent reporters).

Method

Participants were primary school teachers employed in the Queensland State education system and recruited through schools. Study information was mailed to the principals of all state primary schools (N=94) with an enrolment of at least 500 students and located within a 150 km radius of Brisbane. The first 15 schools expressing a willingness to participate were surveyed. Data were collected by questionnaires distributed to all teaching staff (N=636) in June – August 2005. Completed returns were received from 302 teachers with full data on detection and reporting behaviours available for 296 teachers (46.5%).

Measures

The questionnaire consisted of items derived from a previous Australian survey [16] and items developed using the format and structure adopted in previous studies based on the I-Change Model [36, 47, 49]. The draft questionnaire was reviewed by two Queensland primary school teachers and four researchers knowledgeable about questionnaire design and health

promotion, and was formally piloted with 15 Bachelor of Education students (i.e. prospective teachers) to check face validity, comprehensibility and ease of use.

Teacher's reporting behaviour in relation to CAN, was the key outcome variable. Teachers indicated how frequently they had reported neglect, emotional, physical or sexual abuse during their teaching career; how many cases of CAN they had suspected in the last twelve months; if they had ever chosen not to report a suspected case; and if so, how many times this had occurred. Based on these responses, teachers were categorised as non-detectors, inconsistent reporters or consistent reporters.

Attitudes towards reporting were examined with two subscales, where teachers indicated their level of agreement with a series of statements (rated from strongly disagree (1) to strongly agree (5)). Advantages (9 items) assessed potential perceived positive consequences of reporting for the child, the child's family, and the teacher including avoiding potential future regret (e.g. "If I reported a suspected case … I would feel that this would protect the child from further harm"), while disadvantages (10 items) assessed potential perceived negative consequences of reporting (e.g. "If I reported a suspected case … I would feel doubtful of the ability of statutory agencies to respond appropriately to my report").

Social influences were measured by two 5-item scales (rated strongly disagree to strongly agree) assessing whether teachers perceived that school colleagues, the school principal, the state education department, the broader school community and friends/family outside school believed that they should report their suspicions of CAN (social norms), and whether these individuals supported them in reporting (social support).

Self-efficacy regarding reporting (7 items) assessed self-efficacy in different situations (e.g. "How easy or difficult would it be for you to report a suspected case of child abuse or neglect… when your suspicion is based on little evidence?"); social contexts (e.g. "How easy or difficult would it be for you to report a suspected case … when you know the child's parents outside of school?") and under stress (e.g. How easy or difficult would it be for you to

report a suspected case … when there are a lot of other demands on your time?"). Responses were rated from very difficult (1) to very easy (5).

Reporting intention was measured by one item assessing how strongly teachers agreed with the statement that they intended to report their suspicions of CAN in the future (rated strongly disagree to strongly agree).

Action plans regarding prospective reporting and detecting signs of CAN were assessed by 8 items, rated strongly disagree to strongly agree. (e.g. "If I come across a case of possible CAN in the future, I plan to … seek information about correct reporting procedures from my school colleagues).

Performance skills to accurately detect indicators and warning signs of CAN were not directly measurable. Therefore teachers'confidence to detect indicators and warning signs of different types of abuse (i.e. neglect, emotional abuse, physical abuse and sexual abuse) and under different circumstances was used as a proxy measure. This was assessed by 8 items, rated from not at all confident (1) to very confident (5) (e.g. How confident do you feel about your ability to adequately detect indicators and warning signs of CAN … if you have several students in your class who need special attention?").

For each multi-item construct, internal consistency was examined using Cronbach's alpha, which was found to be good to excellent for all scales (range from 0.79 to 0.89), with the exception of perceived advantages ($\alpha = 0.66$). The overall score for each construct was computed as a mean of the item scores.

Data analysis

Univariate and multivariable logistic regressions were conducted using Stata release 10.0 [51] to assess associations between I-Change variables, teacher demographic characteristics and the odds of not detecting CAN (non-detectors vs. detectors) and the odds of consistently reporting suspected CAN (consistent vs. inconsistent reporters). As teachers' age and years of

teaching experience were strongly correlated (r = 0.76) indicating multicollinearity, age was

excluded from these analyses. P-values and 95% CIs were obtained using Wald tests. A

clustered sandwich estimator was utilised to adjust the standard errors for the clustering of

teachers within schools, to provide more accurate estimates of the precision of the odds ratios

[52].

Results

Participating teachers were predominantly female (87.6%) and relatively evenly spread across

age groups (25.7% were 21-30 years; 23.0% 31-40 years, 29.1% 41-50 years and 22.3 % over

50 years). The majority had a three- or four-year degree (86.7%). Average teaching

experience was 13.7 years (SD=10.4), ranging from less than 1 year to 46 years.

The majority of respondents had experience with reporting suspected CAN: 80.7%

(N=239) had reported CAN at some point during their careers; and 39.5% (N=117) had

reported CAN in the past 12 months. Neglect was reported most frequently, followed by

physical abuse, emotional abuse and sexual abuse. One fifth indicated that they had never

suspected CAN (non-detectors; 19.3%; N=57). Among teachers who had suspected CAN,

82.0% were consistent (N=196) and 18.0% were inconsistent reporters (N=43). Of the

inconsistent reporters, 30.0% indicated that they had failed to report one case of CAN, 32.5%

failed to report two cases, and 37.5% failed to report three or more cases. Teachers who had

suspected CAN but never reported their suspicions were rare (N=3), and were included in the

inconsistent reporters' category for the analyses.

Table I presents mean scores or proportions on I-Change variables and demographic

measures according to respondents' reporting behaviour. Univariate logistic regression

analyses comparing non-detectors with detectors (i.e. consistent and inconsistent reporters)

indicated that the odds of non-detection were associated with four I-Change and two

demographic variables (see Table II). Higher perceived disadvantages of reporting were associated with an increased odds of teachers indicating that they had never detected a case of CAN, whereas higher self-efficacy, performance skills, and intentions to report were associated with a decreased odds of non-detection. Increasing levels of academic qualifications and longer time employed as a teacher were also associated with reduced odds of non-detection.

The multivariable logistic regression revealed that after controlling for the associations between variables, three of these I-Change variables (disadvantages, self-efficacy, intentions) failed to make significant independent contributions to detection status. Performance skills remained statistically significant in the adjusted model (OR = .384), indicating that a unit increase on the mean performance skills rating was associated with a 62% reduction in the odds of a teacher being in the non-detector category. Social support, which was not statistically significant in the univariate analyses, was found to be associated with risk of non-detection after adjustment for the other variables. A unit increase in the mean social support rating was associated with a 3-fold increased risk of being a non-detector (OR = 2.728).

In terms of demographic characteristics, higher levels of qualifications and more years teaching remained significant. Compared to those with less than a 3 year degree, a 3 or 4 year degree was associated with a 97% reduction in the odds of being a non-detector (OR = .034), while each additional year of teaching experience was associated with a 9% reduction (OR = .908). The test of the full model with all 12 predictors (qualifications entered as two levels) against the constant only model was statistically significant (Wald χ^2=331.14, df=12, p=0.000) indicating that the predictors reliably distinguished between non-detectors and detectors. The model predicted 19.9% of the variance in teachers' detecting of CAN.

<Insert Tables I and II here>

Table III presents the results of the logistic regression analyses comparing consistent with inconsistent reporters. Comparisons at the univariate level indicated that the odds of consistent reporting were associated with six I-Change variables and one demographic variable. Higher perceived advantages, lower perceived disadvantages, and higher self-efficacy, intentions, performance skills and action plans were each associated with a 2 – 3-fold increased odds of being a consistent reporter. Higher educational qualifications were associated with a greatly increased odds of consistent reporting (OR = 4.447 and 8.667 for 3-4 degree and Masters degree respectively, relative to less than 3 years).

<Insert Table III here>

The multivariable logistic regression revealed that after controlling for the associations between variables, only one I-Change variable (action plans) and no demographic variables remained statistically significant. In the adjusted model, a unit increase on the mean action plans rating was associated with a 72% increase in the odds of a teacher being in the consistent reporter category. The test of the full model with all 12 predictors against the constant only model was statistically significant (Wald χ^2=426.07, df=12, p=0.000), and predicted 12.2% of the variance in teachers' consistency.

Discussion

This study examined the independent contributions of a set of I-Change Model variables on teachers' self-indicated detection and reporting of suspected cases of CAN. Strengths of the study were the relatively large sample compared to previous research in the field [14, 19, 29], the use of multivariable methods of data analysis, and the innovative application of the I-Change Model. A weakness of the study was the potential for response bias. Teachers were sampled from the first 15 schools that volunteered for participation. Hence, it is possible that child protection issues were of greater salience in these schools. Consistent with this, our

sample was somewhat more likely to have encountered CAN when compared to the sample of a previous Australian study [16] involving 254 teachers from 30 Queensland schools (detection rates of 80% and 75% respectively). The participation rate in this study, while modest, was similar or better than those obtained in previous studies [16, 28, 29]. Moreover, in terms of teacher characteristics, our sample was consistent with the demographic characteristics of Education Queensland primary school teachers [25] and comparable with sample data reported in previous research [14, 16], suggesting that our sample may be reasonably representative of the broader population of Queensland primary school teachers.

The data collected in this study indicate that under-reporting of suspected CAN remains a considerable problem with 14.5% of teachers indicating that they had ever failed to report suspected cases CAN and two-thirds of these teachers indicating that they had failed to report in more than one case. While this proportion of under-reporting is rather high when compared to similar studies [13, 17, 20], it may still under-estimate the true levels of under-reporting. The current study relied on teachers' retrospective recall of their reporting behaviour. Reporting a case of CAN is an event that teachers are arguably unlikely to forget. It is therefore likely that any recall biases would arise from social desirability rather than poor memory, potentially leading to an under-estimate of the 'undesirable' behaviour (in this case, the failure to act on suspicions).

Our analyses showed that, compared to their colleagues who had detected cases of CAN, non-detectors had fewer years teaching experience, lower educational qualifications and less confidence in their ability to detect signs of CAN. While these findings may indicate that less experienced teachers had less opportunity to encounter CAN, it is also possible teachers' confidence in detection increases with teaching experience. However, it is notable that not all non-detectors were novice teachers, with an average of more than 8 years employment. Non-detectors were also more likely to rate social support for reporting highly,

14

suggesting the possibility that experience with CAN leads to a more pessimistic view of the

extent to which reporting is supported in the school context.

Regarding the consistency with which teachers reported suspected cases of CAN, only

one I-Change variable made a significant independent contribution to the prediction of

consistent reporting. Teachers who had more well-formulated action plans regarding detection

and reporting CAN in the future were nearly twice as likely to be consistent reporters.

Caution is warranted when interpreting the current findings. The I-Change model

assumes that factors such as performance skills, social support and action plans are

determinants of the behaviours of interest (detection and reporting). However, with cross-

sectional data, it is not possible to exclude the alternative interpretation that detection and

reporting influences teachers' ratings of their skills, perceptions of support and the

development of clear action plans. Therefore this field of research would benefit from

longitudinal studies which track detection and reporting over time to enable identification of

the factors that precede these behaviours. However, as noted earlier, such research is

challenging given the relative infrequency with which individual teachers encounter CAN.

This study has illustrated the value of multivariable analyses for avoiding misleading

conclusions. For example, attitudes regarding advantages and disadvantages of reporting were

significant in the univariate, but not the multivariable analyses. Reliance on univariate

approaches could lead to recommendations that detection and reporting may be improved by

providing teachers with a better appreciation of the benefits that may result from notifications

and demonstrating how failures to intervene may increase the child's risks for future harm.

Other researchers have argued that professionals' decisions not to report are typically rational,

good faith attempts to protect children from further harm that may arise in the context of an

over-loaded child protection system [53]. However, our findings indicate that these types of

attitudes do not make significant independent contributions to detection and reporting.

A further notable finding from the current study is the failure of hours of child protection training to make a significant independent contribution to the models. This suggests that current child protection training methods are not effective in increasing teachers' detection of CAN or the consistency with which they report suspected cases, and parallels the conclusions from previous research with Queensland primary school teachers [16].

Collectively, the models examined here accounted for 20% of the variance in teachers' detection and 12% of the variance in reporting behaviours. In part, this may reflect measurement and design issues. For example, the large confidence intervals around the odds ratios suggest an imprecision in the estimates, and our measure of positive attitudes had poor internal consistency. Alternatively, several variables in the I-Change Model were not examined here. It is possible that distal factors related to teachers' awareness of CAN may also make a contribution. Similarly, the lack of contribution by hours of child protection training, suggests that further investigation of information factors (e.g. the quality of the messages, channels and sources used) appears warranted. There is now a considerable body of research that has examined the role of these factors in facilitating or impeding the implementation of recommended practices within health care, educational and community contexts [54]. Finally, case characteristics have been shown to influence reporting decisions, [14,27]. These factors were not assessed here, as our focus was on potentially modifiable factors that could be addressed in interventions designed to promote consistent reporting.

Despite its limitations, this study has illustrated the utility of health promotion theory and methods for improving our understanding of teachers' reporting of CAN. In particular, the study focussed on factors that are potentially modifiable, and system-wide changes to factors that have only a small predictive value can still make a substantial contribution to altering behaviour at a population level. Longitudinal studies, employing large, representative samples, assessing the additional I-Change variables will further contribute to this field of research.

16

Acknowledgements

References

1. Runyan D, Wattam C, Ikeda R *et al.* Child abuse and neglect by parents and other caregivers. In: Krug EG, Dahlberg LL, Mercy JA et al. (eds.). *World Report on Violence and Health*. Geneva: World Health Organization, 2002.

2. UNICEF. A league table of child maltreatment deaths in rich nations. *Innocenti Report Card No.5*. Florence: Innocenti Research Centre, 2003.

3. Australian Institute of Health and Welfare. *Child Protection Australia 2005–2006.* Canberra: Australian Institute of Health and Welfare, 2007.

4. Commission for Children and Young People and Child Guardian. *Snapshot 2007: Children and young people in Queensland.* Brisbane: Commission for Children and Young People and Child Guardian, 2007.

5. Dunne MP, Purdie DM, Cook MD et al. Is child sexual abuse declining? Evidence from a population-based survey of men and women in Australia. *Child Abuse Negl* 2003; **27**:141-152.

6. May-Chahal C, Cawson P. Measuring child maltreatment in the United Kingdom: A study of the prevalence of child abuse and neglect. *Child Abuse Negl* 2005; **29**: 969-984.

7. Sedlak A, Broadhurst D. *The third national incidence study of child abuse and neglect.* Washington, DC: US Government Printing Office, 1996

8. Meyerson LA, Long PJ, Miranda RJ *et al*. The influence of childhood sexual abuse, physical abuse, family environment, and gender on the psychological adjustment of adolescents. *Child Abuse Negl* 2002; **26**: 387-405.

9. Bolger KE, Patterson CJ. Developmental Pathways from Child Maltreatment to Peer Rejection. *Child Dev* 2001; **72**: 549-568.

10. Kurtz PD, Gaudin JM, Wodarski JS *et al*. Maltreatment and the school-aged child: school performance consequences. *Child Abuse Negl* 1993; **17**: 581-589.

11. Hildyard KL, Wolfe DA. Child neglect: developmental issues and outcomes. *Child Abuse Negl* 2002; **26**: 679-695.

12. Kendall-Tackett K. The health effects of childhood abuse: four pathways by which abuse can influence health. *Child Abuse Negl* 2002; **26**: 715-729.

13. Daro D, Donelly, AC. Charting the waves of prevention: two steps forward, one step back. *Child Abuse Negl* 2002; **26**: 731-742.

14. O'Toole R, Webster SW, O'Toole AW *et al*. Teachers' recognition and reporting of child abuse: a factorial survey. *Child Abuse Negl* 1999; **23**(11), 1083-1101.

15. Briggs F. The importance of Schools and Early Childhood Centres in Child Protection. *J Child Centred Practice* 1997; **4**: 11-23.

16. Walsh K, Farrell A, Schweitzer R *et al*. *Critical factors in teachers' detecting and reporting child abuse and neglect: Implications for practice*. Brisbane: Queensland University of Technology,2005.

17. Alvarez KM, Kenny MC, Donohue B *et al*. Why are professionals failing to initiate mandated reports of child maltreatment, and are there any empirically based training programs to assist professionals in this process? *Agress Violent Beh* 2004; **9**: 563-578.

18. Kesner JE, Robinson M. Teachers as mandated reporters of child maltreatment: Comparison with Legal, Medical and Social Services Reporters. *Children & Schools* 2002; **24**: 222-231.

19. Kenny MC. Child Abuse reporting: teachers' perceived deterrents. *Child Abuse Negl* 2001; **25**: 81-92.

20. McCallum F. *Training Pre-service teachers to be more resilient about child protection.* Paper presented at the Australian Association for Research in Education, Fremantle, 2001.

21. Campbell H, Wigglesworth A. Child Protection in Schools: A Survey of the Training Needs of Fife Schoolteachers. *Public Health* 1993; **107**: 413-419.

22. Matthews B, Walsh K. At The Cutting Edge: Issues in Mandatory Reporting of Child Sexual Abuse by Australian Teachers. *ANZ J Law & Educat* 2004; **9**: 3-17.

23. Matthews B, Walsh K. Queensland Teachers' New Legal Obligation to Report Child Sexual Abuse. *Australia & New Zealand Journal of Law & Education* 2004; **9**: 25-40.

24. Hawkins R, McCallum F. Effects of Mandatory Notification Training on the Tendency to Report Hypothetical Cases of Child Abuse and Neglect. *Child Abuse Review* 2001; **10**: 301-322.

25. Education Queensland. *Student Protection Training*. Brisbane: The State of Queensland (Department of Education), 2003.

26. Crenshaw WB, Crenshaw LM, Lichtenberg JW. When educators confront child abuse: an analysis of the decision to report. *Child Abuse Negl* 1995*;* **19**: 1095-1113.

27. Zellman GL. Child Abuse Reporting and Failure to Report Among Mandated Reporters: Prevalence, Incidence and Reasons. *J Interpers Violence* 1990; **5**: 3-22.

28. Abrahams N, Casey K, Daro D. Teachers' knowledge, attitudes, and beliefs about child abuse and its prevention. *Child Abuse Negl* 1992*;* **16**: 229-238.

29. Goldman JDG, Padayachi UK. Factors influencing school counsellors' decision not to report suspected child abuse. *Children Australia* 2002*;* **27**: 28-37.

30. Tite R. Detecting the Symptoms of Child Abuse: Classroom Complications. *Canadian Journal of Education* 1994; **19**:1-10.

31. Hinson J, Fossey R. Child Abuse: What Teachers in the '90s Know, Think and Do. *J Educ for Students Placed at Risk* 2000; **5**: 251-66.

32. Foreman T, Bernet W. A Misunderstanding Regarding the Duty to Report Suspected Abuse. *Child Maltreat* 2000, **5**: 190-96.

33. Kenny MC. Teachers' attitudes toward and knowledge of child maltreatment. *Child Abuse Negl 2004;* **28**: 1311-1319.

34. Crenshaw WB, Lichtenberg JW, Bartell, PA. Mental Health Providers and Child Sexual Abuse: A Multivariate Analysis of the Decision to Report. *J Child Sexual Abuse* 1993; **2**: 19-42.

35. Tite R. Muddling Trough: The Procedural Marginalization of Child Abuse. *Interchange* 1994; **25**: 87-108.

36. De Vries H, Mesters I, Van de Steeg H *et al*. The general public's information needs and perceptions regarding heredity cancer: An application of the Integrated Change Model. *Patient Educ Couns* 2005*;* **56:** 154-65.

37. Ajzen I. The theory of planned behaviour. *Organ Behav Hum Decis Processes* 1991; **50**:1-33.

38. Bandura A. Social foundations of thought and action: a social cognitive theory. New York: Prentice-Hall, 1986.

39. Prochaska J, DiClemente C. Stages and processes of self-change of smoking: toward an integrative model of change. *J Consult Clin Psychol* 1983; **51**:390-5.

40. Janz NK, Becker MH. The Health Belief Model: a decade later. *Health Educ Q* 1984; **11**:1-47.

41. Locke EA, Lathan JP. A theory of goal setting and task performance. Englewood Cliffs: Prentice-Hall, 1990.

42. Gollwitzer PM, Schaal B. metacognition in action: the importance of implementation intentions. *Pers Soc Psychol Rev* 1998; **2**:124-36.

43. De Vries H, Backbier E. Self-Efficacy as an Important Determinant of Quitting among Pregnant Women Who Smoke: The Ø-Pattern. *Prev Med* 1994; **23**:167-74.

44. Brug J, Lechner L, De Vries H. Psychosocial Determinants of Fruit and Vegetable Consumption. *Appetite* 1995; **25:** 285-96.

45. Bolman C, De Vries H, Mesters I. Factors determining cardiac nurses' intentions to continue using a smoking cessation protocol. *Heart Lung* 2002; **31**:15-24.

46. Giles M, McClenahan C, Cairns E, Mallet J. An application of the Theory of Planned Behavior to blood donation: the importance of self-efficacy. *Health Educ Res* 2004; **19**: 380-91.

20

47. Kools EJ, Thijs C, De Vries H. The behavioural determinants of breast-feeding in The Netherlands: Predictors for the initiation of breast-feeding. *Health Educ Behav* 2005; **32**: 809-24.

48. Paulussen T, Kok G, Schaalma H, Parcel GS. Diffusion of AIDS curricula among Dutch secondary school teachers. *Health Educ Q* 1995; **22:** 227-43.

49. Segaar D, Willemsen MC, Bolman C et al. Nurse Adherence to a Minimal-contact Smoking Cessation Intervention on Cardiac Wards. Res Nurs Health 2007; **30**: 429-444.

50. Tsorbatzoudis H, Emmanouilidou M. Predicting Moral Behavior in Physical Education Classes: An application of the theory of planned behaviour. *Percept Mot Skills* 2005; **100**: 1055-65.

51. StataCorp. Stata Statistical Software: Release 10. In. College Station, TX: StataCorp LP, 2007.

52. Korn EL, Graubard BI. Simultaneous Testing of Regression-Coefficients with Complex Survey Data - Use of Bonferroni T Statistics. American Statistician 1990; **44**:270-276.

53. Finkelhor, D., & Zellman, G.L. Flexible reporting options for skilled child abuse professional. *Child Abuse Negl* 1991; **15:** 335-41.

54. Oldenburg, B. Diffusion of innovations. In K. Glanz, F. M. Lewis & B. K. Rimer (Eds.), *Health Behavior and Health Education : Theory, Research, and Practice*. San Francisco: Jossey Bass, in press.
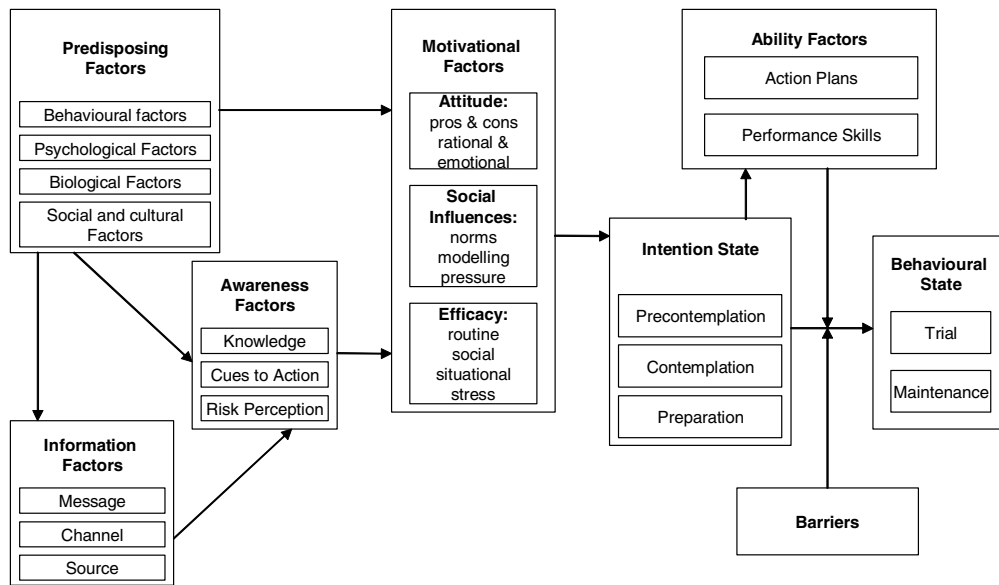
(derived from: De Vries et al., 2005; p. 40)

Figure 1

The Integrated Change Model

Table I   Mean scores on I-change variables and demographic characteristics

		Non-detectors (N=57)	Inconsistent reporters (N=43)	Consistent reporters (N=196)
		M(SD)	M (SD)	M(SD)
Advantages		4.17 (0.29)	4.01 (0.41)	4.18 (0.40)
Disadvantages		3.34 (0.51)	3.38 (0.67)	3.16 (0.60)
Social norms		4.23 (0.64)	4.12 (0.68)	4.3 (0.63)
Social support		4.18 (0.49)	4.01 (0.58)	4.16 (0.57)
Self-efficacy		2.77 (0.55)	2.78 (0.73)	3.08 (0.74)
Intention		4.33 (0.51)	4.21 (0.83)	4.59 (0.53)
Performance skills		2.68 (0.60)	2.87 (0.67)	3.14 (0.73)
Action plans		4.03 (0.43)	3.93 (0.73)	4.2 (0.66)
Years teaching		8.38 (10.56)	15.51 (10.30)	14.66 (9.87)
Annual hours of CAN training		1.71 (1.58)	2.07 (1.67)	2.26 (2.45)
		N (%)[a]	N (%)[a]	N (%)[a]
Gender	female	50 (87.7)	37 (88.1)	170 (87.2)
Age group	21-30 years	22 (40.0)	10 (24.4)	42 (21.5)
	31-40 years	18 (32.7)	5 (12.2)	45 (23.1)
	41-50 years	6 (10.9)	15 (36.6)	64 (32.8)
	51 + years	9 (16.3)	11 (26.8)	43 (22.6)
Qualifications	< 3 year degree	3 (5.3)	1 (2.4)	1 (0.5)
	3 or 4 year degree	50 (87.7)	38 (90.5)	169 (86.2)
	Masters degree +	4 (7.0)	3 (7.1)	26 (13.3)

[a] Ns may not sum to column total due to item-level missing data

Table II Unadjusted and adjusted Odds Ratio of being a non-detector

Variable	Unadjusted	Adjusted			95% CI	
	OR[a]	OR[a]	SE	p		
Advantages	1.124	1.175	0.252	0.452	0.772	1.788
Disadvantages	1.852*	1.382	0.650	0.491	0.550	3.476
Social norms	0.919	0.909	0.304	0.776	0.472	1.753
Social support	1.174	2.728	1.361	0.044	1.026	7.254
Self-efficacy	0.592*	0.927	0.293	0.811	0.499	1.723
Intention	0.608*	0.659	0.181	0.129	0.384	1.129
Performance skills	0.430*	0.384	0.120	0.002	0.208	0.707
Action plans	0.802	0.638	0.237	0.227	0.307	1.323
Years teaching	0.982*	0.908	0.029	0.002	0.853	0.966
Annual hours of CAN training	0.870	0.894	0.092	0.280	0.730	1.095
3-4 year degree[b]	0.161*	0.034	0.038	0.002	0.004	0.301
Masters degree +[b]	0.092*	0.043	0.049	0.006	0.005	0.398

[a] Unadjusted and adjusted odds ratios represent estimated relative increase in odds of the teacher being in the category of non-detectors according to status on predictor variable. [b] Relative to those with less than a 3 year degree. *Indicate statistical significance for the unadjusted estimates.

Table III Unadjusted and adjusted Odds Ratio of being a consistent reporter

Variable	Unadjusted OR[a]	Adjusted OR[a]	SE	p	95% CI	
Advantages	2.894*	1.694	1.018	0.381	0.521	5.502
Disadvantages	0.513*	0.476	0.224	0.114	0.189	1.196
Social norms	1.514	1.192	0.526	0.690	0.502	2.833
Social support	1.546	0.511	0.343	0.317	0.137	1.906
Self-efficacy	1.751*	1.502	0.657	0.353	0.637	3.541
Intention	2.513*	1.505	0.449	0.171	0.838	2.702
Performance skills	1.702*	1.412	0.425	0.252	0.783	2.546
Action plans	1.940*	1.721	0.456	0.040	1.024	2.893
Years teaching	0.991	0.974	0.017	0.139	0.940	1.009
Annual hours of CAN training	1.039	0.996	0.064	0.955	0.878	1.130
3-4 year degree[b]	4.447*	2.540	4.727	0.616	0.066	97.494
Masters degree +[b]	8.667*	4.323	9.706	0.514	0.053	352.190

[a] Unadjusted and adjusted odds ratios represent estimated relative increase in odds of the teacher being in the category of consistent reporters according to status on predictor variable. [b] Relative to those with less than a 3 year degree. *Indicate statistical significance for the unadjusted estimates.