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Research article

In-house consultation to support professionals' responses to child abuse and neglect: Determinants of professionals' use and the association with guideline adherence

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ABSTRACT

This study examined the presence and strengths of determinants associated with consultation of an in-house expert on child abuse and neglect (CAN) by preventive child health care professionals who suspect CAN. This study also assessed the relationship between in-house CAN expert consultation and professionals' performance of six recommended activities described in a national guideline on preventing CAN for preventive child health care professionals. A total of 154 professionals met the study's inclusion criteria. They filled in a questionnaire that measured in-house consultation practices and twelve determinants associated with the professional, the in-house expert, and the organizational context. Bivariate and multivariate regression analyses were performed. Almost half of the participants (46.8%) reported to consult the in-house expert in (almost) all of their suspected CAN cases. Professionals who reported better recollection of consulting the in-house expert (i.e. not forgetting to consult the expert) ($p = .001$), who were more familiar with consultation ($p = .002$), who had more positive attitudes and beliefs about consultation ($p = .011$) and who reported being more susceptible to the behavior ($p = .001$) and expectations/opinions ($p = .025$) of colleagues regarding in-house expert consultation were more likely to consult the in-house expert. Furthermore, in-house expert consultation was positively associated with two of six key guideline activities: consulting the regional child protection service and monitoring whether support was provided to families. The implications of these results for improving professionals' responses to CAN are discussed.

1. Introduction

Child Abuse and Neglect (CAN) can have a considerable impact on the physical and mental health of a child (Committee on Child Maltreatment Research, 2014) and should therefore be prevented. It has been recognized that early response to (risks for) CAN results in better outcomes for children and their families (Mejdoubi et al., 2015). One way to facilitate prevention and ending of ongoing

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CAN is by supporting professionals who work with families to detect and manage suspicions of CAN. In many countries, there is widespread recognition of the importance of health care professionals' role in preventing the occurrence and reoccurrence of CAN (Dubowitz & Bennett, 2007). For example, governments and professional associations in multiple countries have introduced legislation and clinical guidelines on early recognition, management, and reporting of CAN (e.g. Dutch Ministry of Health Welfare and Sport, 2013; Paavilainen & Flinck, 2013; Saperia et al., 2009).

The existence of legislation and guidelines does not guarantee desired work practices. For example, three studies that investigated adherence to an evidence-based guideline on CAN prevention in The Netherlands (further referred to as the CAN guideline), found that Dutch preventive child health care professionals with suspicions of CAN had not fully adhered to this guideline (Fleuren, Van Dommelen, & Dunnink, 2015; Konijnendijk, Boere-Boonekamp, Fleuren, Haasnoot, & Need, 2016; Konijnendijk, Boere-Boonekamp, Haasnoot-Smallegange, & Need, 2014). Many reasons have been reported in literature that can explain why professionals do not recognize CAN or respond adequately to CAN concerns, including poor knowledge of CAN symptoms (Adams, 2005), uncertainty whether there is enough reasonable cause to suspect CAN (Fingarson, Flaherty, & Sege, 2011; Talsma, Boström, & Östberg, 2015), fear of making mistakes (Rowse, 2009), poor perceived abilities to respond (Konijnendijk et al., 2014; Lane & Dubowitz, 2009; Pons et al., 2015), fear to lose the relationship of trust with the family (Pons et al., 2015), adverse experiences with reporting a case to child protective services (Flaherty et al., 2008; Goad, 2008; Gunn et al., 2005; Herendeen, Blevins, Anson, & Smith, 2014; Talsma et al., 2015), not integrating use of guidelines into work routines (Konijnendijk et al., 2016) and lack of time (Feng, Chen, Fetzer, Feng, & Lin, 2012; Flaherty, Jones, & Sege, 2004; Pons et al., 2015).

We can thus conclude that efforts are needed to support professionals in handling CAN concerns in accordance with legislation and guidelines. One strategy for this is to provide professionals the opportunity to consult a CAN expert within their organization. Although, to our knowledge, no studies exist that report on the direct effects of in-house CAN consultation on (the quality of) decision making, there are indications that this type of support is advantageous. A CAN expert may help health care professionals to make sense of difficult situations (Rowse, 2009), acquire new means to address work dilemma's (Knotek, 2003), preserve the relationship with families (Lane & Dubowitz, 2009), strengthen their confidence in responding to their CAN concerns, and motivate them to respond and to act quickly (Konijnendijk et al., 2014). The need for this type of support has been expressed in multiple articles (e.g. Brandon, Dodsworth, & Rumball, 2005; Lane & Dubowitz, 2009; Rowse, 2009; Søftestad & Toverud, 2013; Talsma et al., 2015; Tiyyagura, Gawel, Koziel, Asnes, & Bechtel, 2015).

In-house expert consultation is one of the seven recommended key guideline activities (see Box 1) promoted in the CAN guideline for Dutch preventive child health care professionals (Wagenaar-Fischer, Heerdink-Obenhuijsen, Kamphuis, & de Wilde, 2010). The CAN guideline was implemented nationwide in 2010 (Fleuren et al., 2015). Internationally, similar clinical practice guidelines on preventing CAN have become increasingly available (e.g. Paavilainen & Flinck, 2013; Prevent Child Abuse Utah, 2006; Saperia et al., 2009). In-house CAN consultation aims to promote professionals' implementation of the CAN guideline in practice and, as such, improve the quality of care to vulnerable children and their families. Since 2013, Dutch government has been promoting the appointment of in-house experts in child-serving organizations, by stating that a specialist can play a key role in helping the organization's staff and management tackle CAN (Ministery of Health Welfare and Sport, 2013, p 8.)

Preventive child healthcare organizations are responsible for disseminating the CAN guideline in their organization, To enable in-house consultation, these organizations must appoint in-house CAN consultants and communicate their names and contact details to physicians and nurses. The tasks of the CAN expert as described in the CAN guideline include: providing advice and being an interlocutor for colleagues who suspect CAN; promoting performance of guideline activities, mediating when problems or barriers arise; monitoring relevant developments with regard to CAN; monitoring the internal procedures in the organization; and providing policy advice to organizational leaders (Wagenaar-Fischer et al., 2010). In-house CAN experts are in general preventive child health care physicians with several years of work experience. Although these physicians are not obliged to follow a training to become an in-house CAN expert, multiple agencies in the Netherlands offer training and refresher courses on in-house CAN consultation.

Thus far, little is known about professionals' consultation practices and their reasons for (not) seeking support from an in-house CAN expert. The scarce literature on this topic, mainly exploratory in nature, shows that health care professionals' decisions to consult a CAN expert depend mainly on professional characteristics, including the willingness to entertain the possibility of CAN, confidence in one's assessment and accessibility to consultation (Lane & Dubowitz, 2009), and the need for support (Konijnendijk et al., 2014; Rowse, 2009). Our earlier explorative study on determinants of adherence to key guideline activities performed in a

Box 1

Key activities described in the CAN guideline (Wagenaar-Fischer et al., 2010).

- Risk assessment based on protective and risk factors;
- Discussing suspicions with caregiver(s) and/or child;
- Consulting an in-house expert on child abuse and neglect;
- Consulting the regional child protection service: the Advice and Reporting Center;
- Requesting information from professionals outside the child health care organization who are also involved with the family;
- Acting: providing support, referring the family to other organizations for support or reporting suspicions to the Advice and Reporting Center;
- Monitoring the support that is provided to the family and taking action again if the support is inadequate.

Dutch preventive child health care organization found that poor availability and accessibility of CAN experts, negative attitudes and beliefs towards expert consultation, and forgetting to consult the in-house expert can hinder consultation of the in-house expert (Konijnendijk et al., 2014). Furthermore, time available to respond to CAN concerns has been identified as an obstacle for responding to CAN concerns in general (Flaherty et al., 2004; Pons et al., 2015) and may also apply to in-house expert consultation.

Also, it is not clear to what extent professionals' use of in-house CAN consultation is associated with professionals' performance of other CAN guideline activities. Rowse (2009) observed in a study that nurses expressed the need for support in putting child protection procedures into practice, suggesting that in-house expert consultation will result in better adherence to these procedures.

This study aims to fill the presented gaps in the literature by answering two research questions: a) What determinants facilitate and impede the extent to which Dutch preventive child health care professionals consult the in-house CAN expert? b) To what extent is the degree of consultation with the in-house CAN expert by preventive child health care professionals associated with the degree of performing the six other recommended activities described in the CAN guideline?

The current study follows-up on our recently published study on determinants to overall CAN guideline adherence (Konijnendijk et al., 2016). In that study, a poor habit of using the CAN guideline was identified as an important impeding factor to the degree of performing recommended guideline activities. In addition, it was found that 24% of the participants performed in-house CAN consultation in all their suspected cases over a one-year period. The current study also builds on the findings of our earlier explorative study (Konijnendijk et al. 2014).

In this study, we used a conceptual framework (Fleuren, Paulussen, Van Dommelen, & Van Buuren, 2014b; Fleuren, Wiefferink, & Paulussen, 2004) to guide the research. This innovation framework is based on several theories and models, including Rogers' theory on diffusion of innovations (Rogers, 1995), and empirical studies. The framework has been used in the Netherlands and other countries for almost twenty years to evaluate innovations in preventive child health care and education (Fleuren et al., 2014b; Fleuren et al., 2004). In-house CAN consultation can be considered as an innovation, as it concerns a working method that is new in preventive child health care. The framework distinguishes four categories of determinants, i.e. factors that facilitate or impede actual change: determinants associated with the innovation (i.e. the in-house CAN expert), the user (i.e. the preventive child health care professional), the organizational context (i.e. the preventive child health care organization), and the socio-political context.

This study's findings have both theoretical and practical value; the study makes a contribution to the scant empirical research available on intra-organizational consultation in the field of CAN prevention, the study tests theory on innovations in health care in a new field, and the results provide directions to health care organizations that aim to facilitate consultation of in-house CAN experts and responding to CAN concerns by professionals.

2. Methods

2.1. Study design

A cross-sectional study design was adopted. An online survey was performed between May and June 2013 among professionals working in preventive child health care organizations in the Netherlands. The questionnaire was used to collect data for both the previous study on determinants to overall CAN guideline adherence (Konijnendijk et al., 2016) and the current study that focusses on the key guideline activity consultation of an in-house expert on CAN.

2.2. Research setting

The subjects of this study are Dutch physicians and nurses, specialized in public preventive health care for children (0–19 years old). In the Dutch health care system, teams of physicians and nurses provide routine preventive services in well-baby clinics and schools. These physicians and nurses have a crucial and equal role in the identification and management of CAN. Both disciplines have frequent contact with families and their children, and have been extensively trained to develop skills in recognizing and managing health, psychosocial issues and parenting problems (Wieske, Nijnuis, Carmiggelt, Wagenaar-Fischer, & Boere-Boonekamp, 2012). More details on the research context, including background information on the CAN guideline, are described elsewhere (Konijnendijk et al., 2016).

Data provided by the Dutch Center for Child Health showed that 4695 professionals, 1611 physicians (including nurse practitioners) (34%) and 3084 nurses (66%), were working in 49 preventive child health care organizations in April 2013. Twenty of these organizations are well-baby clinics, eight organizations provide school health care and 21 organizations provide services to children of all ages.

2.3. Participants

A total of 1058 preventive child health care professionals, working in seventeen Dutch organizations, were invited to fill in the questionnaire. The invitation emphasized voluntary participation and included information on confidentiality. The seventeen organizations were representative of all Dutch preventive child health care organizations with regard to location (both urban and rural areas across the Netherlands) and services they provide. Staff members in these organizations confirmed that they formally appointed at least one in-house CAN expert in their organization.

From the 328 professionals (response rate 31.0%) who started filling in the questionnaire, 46 were excluded because they only answered questions related to background variables (n = 44) or did not represent the target group (n = 2). From the 282 residual

professionals, 54 did not meet the inclusion criteria: they did not have suspicions of CAN in the study period (n = 30), or were not aware of the possibility of consulting an expert in their organization (n = 20). Four professionals did not meet both criteria. Subsequently, 74 professionals were excluded because they did not answer all questions relevant to this study (n = 72) or had missing values on crucial variables (n = 2). Ultimately, the responses of 154 participants were included in further analyses. Details on participation rates per organization are provided in Appendix A (See Supporting Information).

In the final sample, almost all participants were female (95.5%). This percentage is in accordance with previous research performed among Dutch preventive child health care professionals working in well-baby clinics (Boere-Boonekamp, Haasnoot-Smallegange, & Rutten, 2005). Physicians were slightly overrepresented (42.2%). More than half (57.8%) of the sample worked with children younger than four years of age, 28.1% worked with children of four years of age and older and 13.7% provided services to children of all ages. Participants had an average of 16.32 years of experience as a preventive child health care professional (SD 9.84). The mean number of working hours per week was 22.42 (SD = 6.11). On average, participants had 4.45 suspicions of CAN in the previous twelve months (SD = 3.11).

2.4. Questionnaire

A self-report questionnaire was developed. The full questionnaire included the following components: (A) background variables (gender, discipline, target group service provision, years in professional practice, working hours per week, and number of suspicions in the previous twelve months), (B) awareness of, and familiarity with, the CAN guideline, (C) implementation strategies, (D) degree of performance of six key guideline activities (Box 1), (E) intentions regarding future guideline use, (F) determinants of overall guideline adherence, and (G) in-house CAN expert consultation. For answering the research questions of the current study we used data collected with questions from components A, B, C, D, the determinants 'knowledge and skills' and 'self-efficacy in relation to key guideline related activities' from component F, and G. The component G was included in the questionnaire specifically for the purpose of the current study and were not reported on in earlier publications. The twelve determinants included in the current study were measured using 4-point, 5-point and 7-point Likert scales. The questionnaire was pilot-tested with four preventive child health care professionals to assess comprehensibility and then distributed using the online survey application LimeSurvey. The full questionnaire is included in Appendix B (See Supporting Information).

2.5. Operationalization of variables

2.5.1. Degree of in-house CAN expert consultation

The score for the degree of consultation with the in-house CAN expert was based on one question: "When answering the following question, please keep the previous twelve months in mind. For what share of the children in your caseload, whom you suspected to be abused or neglected, did you consult an in-house CAN expert?" There were seven responses possible on a seven-point Likert scale: "no children (0)", "almost no children (1)", "a minority of the children (2)", "half of the children (3)", "a majority of the children (4)", "almost all children (5)", and "all children (6)".

2.5.2. Determinants of in-house CAN expert consultation

The determinants and their operationalization were based on the Measurement Instrument for Determinants of Innovations (MIDI) (Fleuren, Paulussen, Van Dommelen, & Van Buuren, 2014a) and results of a qualitative study (Konijnendijk et al., 2014). The MIDI is a generic questionnaire-format that describes how determinants of innovations in the context of preventive child health care and schools should best be measured, and is based on the conceptual framework used in this study (Fleuren et al., 2004). Although the MIDI was not yet validated when used in this study, it is a promising instrument for studying innovation in preventive child health care and the best available instrument as both the developers of MIDI and we were not aware of validated instruments for measuring these determinants (Fleuren et al., 2014b). The current study measured twelve determinants that may explain variance in the dependent variable 'degree of in-house CAN expert consultation'. To confine the length of the questionnaire, we included only those determinants that we deemed most applicable based on the results of earlier studies (Fleuren et al., 2014b; Konijnendijk et al., 2014). Appendix C (See Supporting Information) presents the twelve determinants, their descriptions based on Fleuren et al. (2014a, 2014b) and Konijnendijk et al. (2014), a reference to specific question numbers (Appendix B), the number of questions used to measure each determinant, the Cronbach's alpha values when determinants were measured with multiple questions, and theoretical ranges of the Likert scales.

2.5.3. Degree of performance of six other CAN guideline activities

Participants were asked to indicate to what extent they performed the other six CAN guideline activities presented in Box 1. For each CAN guideline activity, the question asked for what share of the children in their caseload, who they suspected to be abused or neglected, they had performed the activity. Again, they were asked to keep the previous twelve months in mind. Performance of the six guideline activities was measured in the same manner as adherence to in-house expert consultation, using the same seven-point Likert scale with items ranging from "no children"(0) to "all children"(6).

2.5.4. Control variables

Control variables used in this study included years in professional practice and the number of suspicions of CAN in the twelve months preceding the questionnaire completion date.

Table 1
Descriptives and Pearson's correlations coefficients for determinants and the degree of in-house expert consultation, with 90% bias corrected and accelerated confidence intervals reported in parentheses. Confidence intervals based on 1000 bootstrap samples (n = 154).[a]

	M	SD	Range	Correlations with in-house expert consultation (r)[b]	Coef.*	Std. Err.**	p
Dependent variable In-house CAN expert consultation	4.10	1.62	1–6	–	–	–	–
Control variables							
Years in professional practice	16.32	9.84	1–38	−.04	−0.01 (−0.03, 0.02)	0.01	.633
Number of CAN suspicions in previous 12 months	4.45	3.11	1–12	−.29	−0.15 (−0.21, −0.09)	0.04	< .001
Determinants associated with the preventive child health care professional							
Outcome expectations[c]	11.79	4.44	2–20	.50	0.18 (0.14, 0.22)	0.03	< .001
Social support	3.09	0.76	1–4	.36	0.77 (0.50, 1.05)	0.16	< .001
Descriptive norms	2.67	1.01	0–4	.60	0.96 (0.77, 1.15)	0.10	< .001
Subjective norms[d]	3.19	2.37	−2.25–8.50	.55	0.37 (0.31, 0.43)	0.05	< .001
Self-efficacy in-house expert consultation	3.58	0.53	2–4	.36	1.10 (0.75, 1.46)	0.23	< .001
Self-efficacy key guideline related activities	3.25	0.40	2–4	.17	0.68 (0.15, 1.17)	0.33	.040
Knowledge and skills	2.02	0.35	0.96–3.00	−.01	-0.04 (-0.56, 0.46)	0.37	.926
Familiarity with the activity in-house expert consultation	2.36	0.69	0–3	.38	0.88 (0.56, 1.18)	0.18	< .001
Attitudes and beliefs	3.07	0.62	1–4	.55	1.45 (1.06, 1.82)	0.18	< .001
Recollection of consulting the in-house expert	2.56	0.89	0–4	.53	0.96 (0.67, 1.24)	0.13	< .001
Determinant associated with the in-house CAN expert							
Characteristics of the in-house CAN expert	3.07	0.61	2–4	.42	1.12 (0.77, 1.48)	0.20	< .001
Determinant associated with preventive child health care organization							
Perceived time available to consult the in-house CAN expert[e]	2.31	1.10	0–4	.17	−0.25 (−0.45, −0.08)	0.12	.036

*Coef. represents the gradient of the regression line; ** = Std. Err. represents the robust standard error.

[a] Higher scores indicate more positive answers.

[b] Bivariate correlation analyses with Spearman's method found similar coefficients.

[c] Questions on perceived importance of in-house expert consultation and perceived probability that in-house expert consultation support preventive child health care assessment of the situation were combined into one variable (outcome expectations) following the instructions provided by MIDI (Fleuren et al., 2014a).

[d] Questions on normative beliefs and motivation to comply were combined into four different variables (subjective norms related to (1) preventive child health care physicians in the participant's team, (2) preventive child health care nurses in the participant's team, (3) the participant's supervisor and (4) management) following the instructions provided by MIDI (Fleuren et al., 2014a).

[e] Rescaled.

2.6. Ethical approval

The study was reviewed and approved by the institutional ethical committee (reference number 15380). According to the criteria of Dutch Medical Research (Human Subjects) Act (1998), this study did not need to be submitted for ethical approval by a Medical Ethical Committee.

2.7. Data analysis

After cleaning the data, the following operations and analyses were performed. First, all items were checked for extreme scores. These were found in relation to the number of suspicions participants reported in the previous twelve months. Six respondents had extreme scores (25 or more suspicions). These extreme scores were replaced with the next highest score that is not an outlier (Field, 2013). Second, scales were constructed for determinants that were measured with multiple items and reliability analyses were performed for these scales. Appendix C shows that all scales have respectable Cronbach's alpha values, ranging between .75 and .95. Third, descriptive scores (M, SD, scales) were computed for all variables in this study (see Table 1).

Both bivariate and multivariate regression analyses were performed to study the associations between determinants and the extent to which participants had consulted the in-house CAN expert in the previous twelve months. In total, four linear regression models were tested. We chose for linear regression models instead of ordinal models because the four underlying assumptions to conduct linear regression analysis were met (Field, 2013; p 309–311): 1) the residuals in the population are normally distributed; 2) the outcome variable is linearly related to the predictors (linearity), (3) the residual terms for the outcome variable and each predictor are uncorrelated (i.e. independent); and (4) at each level of the predictor variables, the variance of the residual terms are constant (homoscedasticity). We first tested the isolated effects of determinants associated with the preventive child health care professional (model 1). In model 2, we included determinants associated with the in-house CAN expert and the organizational context. Conceptually, 'recollecting of consulting the in-house expert', i.e. not forgetting to consult the in-house expert, is quite close to behavior in the previous twelve months. It might therefore be possible that the effects of the other independent variables are

mediated by 'recollection'. Therefore, model 3 included all determinants except 'recollection'. Finally, in model 4, we included all determinants measured in this study. The results of the regression analysis were corrected for within-cluster correlation to control for the fact that participants worked in seventeen organizations (Froot, 1989; Williams, 2000).

Bivariate analyses were performed to analyze the relationships between the extent to which professionals consulted the in-house expert and the extent to which professionals performed the six other recommended guideline activities in the previous twelve months. For both the bivariate and multivariate analyses, p-values of < 0.05 (two-tailed) were considered statistically significant.

3. Results

3.1. Degree of in-house expert consultation

Seventy-two participants (46.8%) consulted the in-house expert in (almost) all of their suspected CAN cases in the previous twelve months. The mean score (0–6) of adherence to in-house expert consultation was 4.10 (SD = 1.62, range 1–6).

3.2. Determinants of the degree of in-house expert consultation

Table 1 presents descriptive information for all determinants and the bivariate correlations between the determinants and the degree of in-house CAN expert consultation. Higher, more positive, scores on almost all determinants were associated with a higher degree of consulting the in-house CAN expert. Based on the results of the bivariate analyses, professionals especially seek in-house CAN expert consultation when they are less inclined to forget to seek in-house CAN consultation ($r = .53$, $p < .001$), when they think their colleagues also seek in-house CAN consultation (descriptive norms) ($r = .60$, $p < .001$), when they are more susceptible to the expectation and opinion of colleagues (subjective norms) ($r = .55$, $p < .001$) and when they have positive attitudes and beliefs towards in-house CAN consultation ($r = .55$, $p < .001$). The level of knowledge and skills regarding CAN was the only factor measured in this study that did not seem to matter for professionals in their decision making about seeking in-house CAN consultation ($r = -.01$, $p = .926$). Finally, the results indicate that participants who have more suspicions in the previous twelve months are less inclined to consult the in-house CAN expert ($r = -.29$, $p < .001$).

The final multivariate regression model (Table 2), with all determinants included, shows that professionals who were less likely to forget to consult the in-house CAN expert ($b = 0.42$, $p = 0.001$), who reported to have a stronger belief that their colleagues consulted the in-house CAN expert (descriptive norms) ($b = 0.40$, $p = .001$), and who were more familiar with the activities of the in-house expert ($b = 0.38$, $p = .002$) were more likely to seek in-house CAN expert consultation. Also, professionals who were more easily influenced by the expectations and opinions of colleagues (subjective norms) ($b = 0.12$, $p = 0.025$) and who had more positive attitudes and beliefs towards consultation ($b = 0.54$, $p = 0.011$) were more inclined to consult the in-house CAN expert. The negative relationship between the number of reported suspicions and the degree of in-house expert consultation persist in the

Table 2
Linear model of predictors of in-house expert consultation, with 90% confidence intervals reported in parentheses.[a,b]

	Final model		
	Coef.*	Std. Err.**	p
Control variables			
Years in professional practice	−0.01 (−0.03, 0.00)	0.01	.209
Number of CAN suspicions in previous 12 months	−0.09 (−0.14, −0.04)	0.03	.009
Determinants associated with the preventive child health care professional			
Outcome expectations	0.02 (−0.03, 0.07)	0.03	.413
Social support	−0.29 (−0.71, 0.14)	0.24	.255
Descriptive norms	0.40 (0.22, 0.58)	0.11	.001
Subjective norms	0.12 (0.04, 0.21)	0.05	.025
Self-efficacy in-house expert consultation	−0.04 (−0.53, 0.45)	0.28	.869
Self-efficacy key guideline related activities	0.08 (−0.36, 0.51)	0.25	.765
Knowledge and skills	−0.44 (−0.89, −0.00)	0.25	.099
Familiarity with the activity in-house expert consultation	0.38 (0.20, 0.57)	0.11	.002
Attitudes and beliefs	0.54 (0.21, 0.87)	0.19	.011
Recollection of consulting the in-house CAN expert[c]	0.42 (0.25, 0.59)	0.10	.001
Determinants associated with the CAN expert			
Characteristics of the CAN expert	0.35 (0.04, 0.66)	0.18	.066
Determinants associated with the organization			
Perceived time available to consult the in-house CAN expert[c]	0.20 (0.03, 0.38)	0.10	.060

Note. Adj. $R^2 = .59$ ($p < .001$) *Coef. represents the gradient of the regression line; ** = Std. Err. represents the robust standard error.
[a] Higher scores indicate more positive answers.
[b] Corrected for within-cluster (organization) correlation.
[c] Rescaled.

Table 3
Descriptives and Pearson's correlations coefficients for 'in-house expert consultation' and the six other CAN guideline activities, with 90% bias corrected and accelerated confidence intervals reported in parentheses. Confidence intervals based on 1000 bootstrap samples (n = 154).[a,b]

	M (SD)	Range	Correlations with in-house expert consultation (r)[b]	Coef.*	Std. Err.**	p
In-house CAN expert consultation	4.10 (1.62)	1–6	–	–	–	–
Risk assessment based on protective and risk factors	3.76 (1.68)	0–6	−.04	−0.04 (-0.17, 0.09)	.08	.654
Discussing suspicions with caregiver(s) and/or child	4.25 (1.48)	1–6	.13	0.14 (−0.01, 0.30)	.09	.106
Consulting the regional child protection service: the Advice and Reporting Center	3.77 (1.66)	0–6	.26**	0.26 (0.12, 0.40)	.08	.001
Requesting information from professionals outside the preventive child health care organization who are involved with the family	4.29 (1.32)	0–6	.11	0.13 (−0.07, 0.32)	.10	.196
Acting: providing support, referring to appropriate care or reporting suspicions to Advice and Reporting Center	4.81 (1.23)	1–6	.14	0.18 (0.00, 0.36)	.11	.088
Monitoring the support that is provided to the family and taking action again if the support is inadequate	4.43 (1.45)	0–6	.22**	0.25 (0.09, 0.42)	.09	.005

*Coef. represents the gradient of the regression line; ** = Std. Err. represents the robust standard error.
[a] Higher scores indicate more positive answers.
[b] Bivariate correlation analyses with Spearman's method found similar coefficients.

multivariate regression analysis, but its predictive value seems to be marginal (b = −0.09, p = .009). The determinants included in the final model explained 59% of the variation in consultation of the in-house CAN expert. All four multivariate regression models can be found in Appendix D (See Supporting Information).

3.3. Associations between in-house expert consultation and performance of other CAN guideline recommended activities

Table 3 presents descriptive scores, including the mean performance scores, for each of the six other recommended activities in the CAN guideline, presented in Box 1. Participants were most compliant with the recommendation to act (M = 4.81, SD = 1.23, range 1–6), and least compliant with the recommendation to perform a risk assessment based on protective and risk factors (M = 3.76, SD = 1.68, range 0–6). Table 3 shows the associations between the degree of in-house expert consultation and the degree of performance of each guideline activity. The results indicate that professionals who seek in-house expert consultation more often also tend to consult the regional child protection service more often (r = .26, p = .001), and monitor the support that is provided to the family in more suspected CAN cases (r = .22, p = .005).

4. Discussion

This study answered two research questions: a) What determinants facilitate and impede the extent to which Dutch preventive child health care professionals consult the in-house CAN expert? b) To what extent is the degree of consultation with the in-house CAN expert by preventive child health care professionals associated with the degree of performing the six other recommended activities described in the CAN guideline?

4.1. Determinants associated with the degree of in-house expert consultation

A large proportion of the variation (59%) in the degree of consultation of the in-house expert was explained by the determinants measured in this study. Forgetting consulting the in-house CAN expert when professionals suspect CAN appeared to be an important reason for professionals not to consult the in-house CAN expert. This finding is in line with the results of a previous explorative study on overall guideline adherence in which consultation of the CAN expert was addressed briefly (Konijnendijk et al., 2014; p. 5). The strong impact of (lack of) habit on behavior was also expected based on research and theoretical models in human social behavior that recognize a role for habit in predicting behavior (Ajzen, 1985, 1991; Konijnendijk et al., 2016; e.g. Ouellette & Wood, 1998). Although not forgetting to consult the in-house expert appears to be an important factor, the other eleven determinants still explained a considerable amount of the variance of in-house expert consultation: 55%.

Familiarity with the tasks of the in-house CAN expert also appeared to be a dominant determinant of CAN expert consultation. With regard to this finding, it is also noteworthy that 10.7% of the participants were not aware of the possibility of consulting the CAN expert (24 out of the 225 professionals who answered that question). Both awareness and familiarity are crucial determinants to address when implementing an innovation in health care, as these two determinants are preconditions for health care professionals to adopt, implement, and continuously adhere to guideline recommendations (Cabana et al., 1999; Fleuren et al., 2014b).

The presence of descriptive and subjective norms, both extrinsic motivators, were positively related to in-house expert consultation. Participating professionals appeared to be susceptible to the opinions and behavior of their colleagues. They sought

in-house expert consultation more often when they perceived that their colleagues had also consulted the in-house CAN expert or expected them to do so. Previous studies have also demonstrated that health care professionals are influenced by the opinion of peers in their immediate environment (Greer, 1988; Grol et al., 2013).

The finding that professionals with positive attitudes towards in-house CAN consultation and who perceived in-house CAN consultation to be advantageous were more likely to consult the in-house CAN expert, was expected based on the theories of Ajzen (1991) and Cabana et al. (1999) and is in agreement with the results obtained by Konijnendijk et al. (2014). The framework applied in this study was proven useful in assessing and explaining the extent to which preventive child health care professionals consult an in-house expert. More than half (59%) of the variance in in-house expert consultation was accounted for by the determinants in the final regression model, many expected relationships of the model were confirmed, and the model gave a clear indication of possible facilitators of and barriers to in-house CAN expert consultation.

As hypothesized in the previous study on overall CAN guideline adherence (Konijnendijk et al., 2016), this study indeed showed that more, and also other determinants were associated with in-house CAN consultation when compared with the determinants associated with overall CAN guideline adherence, including in-house CAN consultation. The previous study on determinants of overall CAN guideline adherence, for which data were collected simultaneously with the data collection for the current study, found that participants who integrated use of the guideline in their work routine were more inclined to perform guideline related activities (Konijnendijk et al., 2016), whereas the current study identified better recollection of consulting the in-house expert (i.e. not forgetting to consult the in-house expert), familiarity with the tasks of the in-house CAN expert, attitudes and beliefs, descriptive norms and subjective norms in relation to in-house CAN consultation as important determinants of seeking in-house CAN consultation. As such, the current study provides more useful directions for organizations that aim to improve in-house CAN consultation compared to the study on overall CAN guideline adherence.

4.2. In-house expert consultation and performance of other guideline activities

Participants who sought in-house expert consultation in relatively more of their suspected cases, also consulted the regional child protection service more often and also monitored the support that is provided to the family in more of their suspected CAN cases. It is important to note that the direction of this association cannot be determined in this study, because of its cross-sectional design. However, it is more plausible that consultation of the in-house expert predicts the performance of these activities, as in-house expert consultation is typically one of the first steps in the procedure for responding to CAN concerns. An alternative interpretation is that one or more confounding variables, e.g. intentions to follow guideline recommendations, influence adherence to all three activities.

4.3. Limitations

This study's findings must be considered with regard to three limitations. The first limitation concerns response rates. The initial participation rate was 31.0%. We had to exclude half of the participants in the original sample in accordance with the exclusion criteria. Ultimately, the answers of 154 professionals could be used. Unfortunately, no data were available describing the background characteristics, including years of work experience and working hours per week, of the full population of preventive child health care professionals. Therefore we cannot state with certainty that the sample was representative for these characteristics. The finding that virtually all participants were female was expected based on previous research (Boere-Boonekamp et al., 2005). In the sample, physicians were slightly overrepresented compared to nurses. A limited response rate may indicate potential bias in the results. Possibly, especially professionals who felt committed to the subject of CAN participated in the study. These professionals may also be more motivated to respond to CAN concerns, resulting in an overestimation of performance rates of guideline activities in this study.

Second, although the MIDI – the instrument on which our questionnaire was primarily based – is promising, this instrument is not yet validated. However, the MIDI was developed specifically to study the implementation of innovations in the context of preventive child health care, is based on empirical data and several theories and models (e.g. Bartholomew, G.S., Kok, & Gottlieb, 2001; Green & Kreuter, 1999) and has good face-validity (Fleuren et al., 2014a). The developers of MIDI noted that there are indications that the MIDI is applicable to more settings outside preventive child health care and education (Fleuren et al., 2014b). Although no extensive pilot-test was carried out to establish the questionnaire's reliability, the analyses of the scales indicated good reliability.

Third, this study was limited to the adherence rates of individual professionals. This approach did not take into account performance of CAN guideline activities on a case level. It is possible that the physician and the nurse both have CAN concerns and only one of them performs guideline activities. Future research on adherence to CAN guidelines should control for the possibility that a team member or another professional involved with the family may have performed specific CAN guideline activities.

4.4. Future research

This study serves as a basis for future studies. Future research should preferably apply a longitudinal design to confirm or invalidate the direction of associations between determinants and the extent of in-house CAN expert consultation, and between in-house CAN expert consultation and adherence to CAN prevention guidelines. Also, it may be useful to use child record data to cross-validate the results of our study, and to provide more insight in what kind of cases professionals did and did not seek in-house consultation. Furthermore, we encourage researchers to replicate our study in larger samples and other health care settings to test the robustness of our results.

4.5. Implications

As this study demonstrated that in-house expert consultation might be an effective strategy to improve professionals' implementation of two key guideline activities, preventive child health care organizations are recommended to stimulate preventive child health care professionals' use of in-house CAN experts. Awareness and familiarity with the tasks of in-house expert consultation are especially important, as these two determinants are essential conditions for a target population to adopt and implement new practices (Cabana et al., 1999; Fleuren et al., 2014b; Grol et al., 2013). Awareness can be addressed by using brief messages via various channels, key figures, and networks (e.g. peer meetings) (Grol et al., 2013). Familiarity with the tasks of in-house CAN experts can be improved by providing information to professionals based on problems in practice, peer review, and feedback (Grol et al., 2013).

Preventive child health care organizations should also stimulate professionals to fit in-house expert consultation into their work routine. One strategy to change habitual behaviors includes cue altering: promoting exposure to cues that trigger habits (Wood & Neal, 2007) or feedback (Ivers et al., 2012). For example, on-screen reminders, linked to registrations in the electronic child record system, can be effective tools to prompt preventive child health care professionals to consult the in-house CAN expert (Cabana et al., 1999; Grol et al., 2013). Feedback and computer reminders are promising interventions, although the evidence for their effectiveness varies between studies (e.g. Grimshaw et al., 2004; Ivers et al., 2012). Furthermore, preventive child health care organizations should focus their implementation strategies on social influence, such as peer review (Grol et al., 2013) or the introduction of opinion leaders, who can carry out the advantages of in-house CAN consultation and can set an example through their behaviors (Doumit, Gattellari, Grimshaw, & O'Brien, 2007). Implementation strategies, preferably multifaceted interventions (Grimshaw et al., 2001), may improve professionals' use of in-house expert consultation and contribute to better care being delivered to vulnerable families and their children.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.chiabu.2017.04.025.

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