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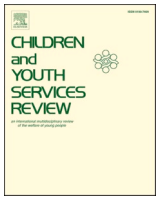

Teachers' detection and reporting of children at risk: findings from a vignette study in Hungary

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ABSTRACT

Teachers are the primary source of child protection referrals, yet little is known about the factors shaping their detection and reporting of children at risk in Europe. This study examines how case-, teacher-, and school-level characteristics influence Hungarian teachers' detection and reporting decisions, with particular attention to a child's ethnicity and socioeconomic background. A vignette-based survey was completed by 270 primary school teachers, each of whom assessed four randomly assigned scenarios varying by type of case, family income, ethnicity, and parental cooperation. Three-level ordinal models were estimated to reflect the hierarchical data structure, with vignettes nested within teachers and teachers nested within schools.

Teachers' detection of children at risk was significantly associated with all case characteristics, including the type of case, family income, ethnicity, and parental cooperation. Individual teacher characteristics (except for participation in child protection training) and features of the school context were not related to detection. A different pattern emerged for reporting. Teachers' reporting was associated with all case characteristics (though for ethnicity significance was only at the 10% level). It was also related to individual teacher characteristics, including teaching experience and participation in child protection training, as well as to school-level characteristics, such as the proportion of Roma pupils in the school.

Overall, the findings suggest potential social and ethnic biases in teachers' detection and reporting, and highlight the need for standardized child protection training in supporting teachers' detection and reporting decisions.

1. Introduction

Data from various countries show that schools are the primary source of reports of suspected child abuse and neglect (CAN) (Walsh et al., 2008; Vanderfaeillie et al., 2018; Alazri & Hanna, 2020). This is unsurprising, as teachers –and other school professionals– interact with children on a daily basis, placing them in a unique position to notice concerns. Among all the mandated reporters, teachers have the greatest opportunity to observe children regularly and to detect changes in their behavior, appearance, and emotional state (Crenshaw et al., 1995; O'Toole et al., 1999). Pupil–teacher relationships are often built on trust. As a result, children are generally more willing to disclose cases of CAN involving themselves or their classmates to teachers (Egu & Weiss, 2003; Schols, de Ruiter, & Öry, 2013). Although teachers are a key source of child protection reports, studies consistently show that they often fail to report concerns (Alazri & Hanna, 2020; Crenshaw et al., 1995; Greco et al. 2017). Understanding the factors that shape teachers' reporting behavior is therefore a critical research priority.

Teachers' reporting behavior can be conceptualized as a two-step process; first, the detection of CAN, and second, the decision to report it to child protection services (Egu & Weiss, 2003; Walsh et al., 2008). Building on this distinction, and drawing on the Decision-Making Ecology (DME) framework, as well as related work in judgment and decision making (Baumann et al., 2013), these processes can be understood as a sequence of judgments in which multiple factors shape how situations are perceived, interpreted, and acted upon. Within this framework, factors influencing detection and reporting can be grouped into three levels: (1) case characteristics (e.g., type and severity of CAN, gender, age, and ethnic background of the child), (2) teacher characteristics (e.g., gender, age, years of professional experience, knowledge and experience of CAN), and (3) school characteristics (e.g., size of school, type of school provider, socio-economic composition of pupils).

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These factors influence how situations are perceived in terms of severity and ambiguity, how risk and responsibility are evaluated, and how decisions about reporting are ultimately made.

In line with this framework, several implications can be derived regarding the role of different factors in shaping detection and reporting, consistent with prior research in this area (e.g., Walsh et al., 2008). Characteristics of the case, closely linked to how situations are perceived, are expected to play an important role in both detection and reporting. Teacher- and school-level characteristics may further shape how such situations are interpreted and acted upon, reflecting differences in experience, norms, and institutional context.

Building on this framework, the current study explores how characteristics of the case, the teacher, and the school influence teachers' detection and reporting of situations in which a child may be "at risk" – a concept in the Hungarian Child Protection Act that encompasses a broader range of concerns than CAN. Among case characteristics, particular attention is given to children's ethnic background and socioeconomic status. The vignette survey used in this study, which involved 270 primary school teachers, was part of a larger mixed-method study that also included semi-structured interviews and focus group discussions.

The study offers multiple contributions to the literature on school professionals' reporting behavior. First, given the paucity of research in Europe (Vanderfaeillie et al., 2018), it contributes to filling an important research gap. Second, and more specifically, very little research in Europe has examined the impact of child ethnicity on school professionals' detection and reporting of CAN (Bruyninckx et al., 2021; Vanderfaeillie et al., 2018), and none has focused on the Roma. To our knowledge, this is the first study to explore how a child's Roma background influences teachers' reporting behavior. As the Roma constitute the largest ethnic minority in Europe (O'Nions, 2016), the findings may be informative for other European countries with substantial Roma populations. Third, our research is also novel in terms of the types of abuse investigated. Whereas previous studies have included the four forms of CAN (physical abuse, emotional abuse, sexual abuse, and neglect), this study additionally examines children's exposure to domestic violence, which has been referred to as one of "new classes of abuse" (Mathews & Kenny, 2008, pp. 57–58). Moreover, the study considers not only forms of parental abuse but also abuse perpetrated by peers. Finally, few vignette studies have examined school characteristics (O'Toole et al., 1999; Walsh et al., 2008; Bruyninckx et al., 2021), so little is known about how these factors influence teachers' reporting behavior. Our study contributes to this body of knowledge.

The remainder of the paper is structured as follows. Section 2 reviews previous findings on how different case, school professional, and school characteristics influence the detection and reporting of CAN. Section 3 outlines the context of child protection reporting in Hungary. Section 4 describes the methodology employed, while Sections 5 and 6 present and discuss the results. Finally, Section 7 provides conclusions.

2. Factors associated with school professionals' detection and reporting of CAN

A number of studies have investigated how different factors influence the reporting behavior of school professionals (for a review, see Alazri & Hanna, 2020). Many of these have applied a vignette design, which is a widely used research tool for analyzing the judgments of professionals (Taylor, 2006). Findings from vignette studies indicate that case characteristics are strong predictors of school professionals' reporting behavior, whereas teacher- and school-level characteristics appear to play a more limited role (Walsh et al., 2008; Vanderfaeillie et al., 2018).

2.1. Case characteristics

Previous research has consistently shown that case characteristics are the most influential factors in determining the detection and reporting of CAN (O'Toole et al., 1999; Walsh et al., 2008; Vanderfaeillie et al., 2018). Studies have examined different forms of CAN, making it difficult to draw definitive conclusions about the impact of the specific type of CAN on reporting. Nevertheless, evidence suggests that the *type of case is* an important predictor of reporting decisions. Comparing two forms of CAN, Walsh et al. (2008) found that teachers are more likely to detect and report incidents of physical abuse than neglect, while O'Toole et al. (1999) reported that sexual abuse is the most likely to be recognized and reported. Other research similarly indicates that sexual abuse and physical abuse are more likely to be detected (Toros & Tiirik 2016; Vanderfaeillie et al., 2018; Bruyninckx et al., 2021) and reported by school professionals (Beck et al., 1994; Crenshaw et al., 1995; Vanderfaeillie et al., 2018; Bruyninckx et al., 2021) than emotional abuse. The only form of child abuse for which there appears to be consensus is emotional abuse, which is the least reported (cf. Glouchkow et al., 2023). Additionally, research indicates that the severity and frequency of incidents influence reporting: more severe (O'Toole et al., 1999; Egu & Weiss, 2003; Tillman et al., 2015) and recurrent (Walsh et al., 2008) cases are more likely to be reported by teachers and other school professionals.

Evidence regarding the *racial/ethnic background of the child* is mixed. Several U.S. studies found no association between race and teachers' or school counselors' recognition or reporting of CAN (O'Toole et al., 1999; Egu & Weiss, 2003; Tillman et al., 2015). In contrast, research in Belgium suggests that school professionals perceive cases involving children of non-European origin as more severe and more in need of intervention than cases involving children of European origin (Vanderfaeillie et al., 2018; Bruyninckx et al., 2021).

Research findings on the effect of a child's family *socioeconomic status* are also mixed. A study in Switzerland found that school professionals are more likely to report cases involving children from low socioeconomic background (Jud & Gartenhauser, 2015). Tillman et al. (2015) reported that, although the likelihood of detecting abuse varies significantly by students' socioeconomic status, the likelihood of reporting the incident does not. Other studies (O'Toole et al., 1999; Walsh et al., 2008) found no association between a child's socioeconomic status and the recognition or reporting of CAN.

Research on the effect of a *child's gender* has yielded conflicting results. Some studies suggest that the detection and reporting of CAN do not differ by gender (Crenshaw et al., 1995; Bruyninckx et al., 2021), while others indicate a potential association. Vanderfaeillie et al. (2018) found that a child's gender is not associated with the likelihood of detection and reporting, but school professionals are more likely to perceive the need for judicial intervention in cases involving boys. In contrast, O'Toole et al. (1999) reported that teachers are more likely to report incidents involving girls than boys. Existing studies generally indicate that a *child's age* is not associated with the recognition or reporting of CAN by school professionals (O'Toole et al., 1999; Vanderfaeillie et al., 2018).

There is some evidence that *parents' cooperation* with the school influences the decision to report CAN. Jud and Gartenhauser (2015) found that school professionals are more likely to report cases when parents do not cooperate. Similarly, Walsh et al. (2008) reported that a lack of parental cooperation increases the likelihood of detecting and reporting CAN. However, Tillman et al. (2015) found that while defensive parental behavior raised school counselors' suspicion of CAN, it did not lead to a higher number of reports (Tillman et al., 2015).

2.2. School professional characteristics

Studies to date have examined the relationship between various characteristics of teachers and other school professionals and the recognition and reporting of CAN. Findings regarding the *gender of school professionals* are inconclusive. Some studies indicate that women are more likely to report cases of CAN (Beck et al., 1994; Vanderfaeillie

et al., 2018), whereas others report the opposite (O'Toole et al., 1999; Walsh et al., 2008). According to Crenshaw et al. (1995), gender does not appear to play a significant role in the reporting of CAN.

Findings on the effect of *parenthood* are also mixed. O'Toole et al. (1999) reported that teachers with more children are less willing to recognize and report child abuse. In contrast, Walsh et al. (2008) found no evidence of the association between parenthood and detection or reporting of CAN.

Similar mixed findings are reported regarding the effect of *teacher race/ethnicity*. Some studies in the U.S. found no significant association between a school professional's race and their decision to report (Egu & Weiss, 2003; Tillman et al., 2015). However, another U.S. study indicated that white teachers are more likely to recognize and report child abuse (O'Toole et al., 1999).

Research on the impact of *teachers' years of experience* has also produced mixed findings. O'Toole et al. (1999) reported that years of teaching experience are negatively associated with recognition, but not with reporting, of child abuse. In contrast, Walsh et al. (2008) found that more experienced teachers are more likely to report incidents of physical abuse, although this experience does not significantly affect detection. Bruyninckx et al. (2021) observed a positive association between years of teaching experience and detection, but a negative association with the perceived need for judicial intervention.

Evidence on the effects of *training in and knowledge of CAN* is generally consistent. (Hawkins & McCallum, 2001) found that mandatory reporting training increases the likelihood of recognition and reporting, particularly in cases where evidence of abuse is less clear (e.g., emotional abuse). Similarly, Feng et al. (2012) reported that in-service training on CAN enhanced teachers' intention to report. However, another study found a significant negative association between teachers' participation in training and their detection or reporting of CAN (Walsh et al., 2008). Studies examining teachers' knowledge of CAN have generally found a positive association with recognition or reporting. Teachers with greater knowledge of CAN are more likely to report physical and emotional abuse (Beck et al., 1994; Dinehart & Kenny, 2015) as well as physical, emotional, and sexual abuse (O'Toole et al., 1999).

Research also suggests that *previous experience with and reporting of CAN* are positively associated with school professionals' decision to report. Walsh et al. (2008) found that while prior experience with CAN increases the likelihood of reporting, prior reporting increases the likelihood of both detection and reporting. Other studies similarly observed a positive association between previous reporting and willingness to report (O'Toole et al., 1999; Jud & Gartenhauser, 2015).

2.3. School characteristics

Relatively few studies have examined the role of school characteristics in teachers' reporting behavior. Existing research has focused on factors such as school size, socioeconomic composition, and types of school funding. Some studies suggest that larger schools are associated with a lower likelihood of reporting (O'Toole et al., 1999; Bruyninckx et al., 2021), whereas Walsh et al. (2008) reported the opposite. School socioeconomic status has been found to be positively associated with teachers' willingness to report (Walsh et al., 2008; Bruyninckx et al., 2021). Findings also indicated that reporting behavior varies by type of school funding, with Catholic schools more likely to report than non-Catholic, private non-religious, or public schools. Additionally, the likelihood of reporting child abuse is higher in rural schools than in urban schools (O'Toole et al., 1999).

2.4. The aim of the study

Overall, the existing vignette-based literature provides a mixed and incomplete picture of the factors associated with school professionals' reporting behavior. While a relatively large body of research has examined *case characteristics,* findings are often mixed, and their comparability is limited. Research on the relationship between *school professionals' individual characteristics* and their reporting behavior has likewise produced inconsistent results, although some factors show more consistent associations with reporting behavior. At the same time, some potentially relevant factors have received very limited attention in vignette studies. In particular, little empirical evidence is available on the relationship between *school characteristics* and school professionals' reporting behavior.

Taken together, the limited and often inconsistent evidence in the existing vignette-based literature does not allow for the formulation of well-grounded hypotheses about the effects of specific characteristics on reporting behavior. Accordingly, the present study adopts a primarily exploratory approach. At the same time, the study is guided by the DME framework, which suggests that case-, teacher-, and school-level factors may all contribute to variation in detection and reporting decisions. We therefore examine how case characteristics, school professionals' characteristics, and school characteristics relate to different stages of the decision-making process. Consistent with this framework, characteristics of the case are expected to play a central role in both detection and reporting. Teacher and school characteristics may further influence how situations are understood and acted upon, reflecting differences in experience, norms, and institutional context.

3. The Hungarian context

3.1. Child protection reporting

In Hungary, child protection is regulated by the 1997 Child Protection Act, which applies nationwide. The Act aims to ensure children's proper development and prioritizes their best interests, safeguarding them against abuse and neglect. While the Act does not explicitly mention CAN, it defines the concept of a "child at risk", which encompasses a broader range of concerns beyond abuse and neglect. However, this definition is relatively general and vague, leaving considerable discretion to professionals working with children. To support practitioners, several guidance documents are available to help identify risks and navigate the reporting process. In addition to abuse and neglect, a child may be considered at risk due to factors such as parental substance abuse, antisocial behavior, poor parenting, inadequate housing, poverty, the child's behavioral problems (e.g., vagrancy), or peer abuse, etc. Under current legislation, it is also mandatory to report cases in which a child's unexcused absences exceed the legal threshold. According to data from the Hungarian Central Statistical Office, more than 164,000 children were registered as being at risk in 2022.

Hungary has a mandatory child protection reporting system, operated by locally organized Family and Child Welfare Services. All professionals who come into contact with children (teachers, doctors, family and school nurses, etc.) are required to report any child suspected of being at risk. Failure to report can result in legal consequences, and with stricter regulations coming into force in 2024, failing to report a serious case may lead to criminal liability. Importantly, mandatory reporting is embedded in a multi-level child protection system that operates through a graduated intervention logic, in which reports may lead to different responses depending on the severity and persistence of risk. In most cases, reports result in assessment and supportive services

provided by Family and Child Welfare Services, whereas removal from the family and placement in out-of-home care is considered a measure of last resort.

Data from the Hungarian Central Statistical Office indicate that schools account for the highest number of reports each year. In 2022, Family Child Welfare Services received a total of 148,877 reports concerning 106,130 children, with schools submitting 43% of these reports, highlighting the crucial role of teachers in the child protection reporting system. While the Child Protection Act regulates the operation of the reporting system, teachers' reporting obligations are further specified in the 2011 National Public Education Act. According to this legislation, teachers must fulfil their reporting duty through the school principal. If a teacher suspects a child is at risk, they are required to report their concerns to the principal, who is then responsible for forwarding the information to the Family and Child Welfare Services. Ultimately, the school principal bears the responsibility for ensuring that the report is submitted.

3.2. Roma children in Hungary

The Roma population is Hungary's largest ethnic minority. According to the 2022 census, 209,909 people (2.2% of the population) identified as Roma (Hungarian Central Statistical Office, 2022), although some estimates suggest the actual number may be closer to 700,000 (Council of Europe, 2010; Messing & Pap, 2024). Roma communities in Hungary often face significant socioeconomic disadvantage, including poverty, inadequate housing, and lower educational attainment compared with the general population (Gábos & Szivós, 2006). These structural inequalities contribute to social marginalization and shape the broader context in which Roma children grow up.

There is evidence that in Hungary, as in several other European countries, Roma children are overrepresented in the child protection system relative to their proportion in the overall population (Herczog & Neményi, 2007; European Roma Rights Centre, 2011; Darvas et al., 2016). The international literature offers two main explanations for ethnic disproportionality in the child protection system. One explanation is that this pattern reflects the poverty and associated vulnerability of these groups (Fluke et al., 2011). In other words, real differences in the incidence of CAN exist between ethnic groups, and ethnic disproportionality primarily reflects these underlying disparities (Drake et al., 2009; Feely & Bosk, 2021). An alternative explanation suggests that the overrepresentation of minority children in the child protection system is the result of differential treatment based on ethnicity, or ethnic bias (Fluke et al., 2011). Such differential treatment may occur within or outside the child protection system. While research in Hungary suggests that ethnic bias in risk assessment among child and family social workers may be limited (Kopasz et al., 2024), ethnic bias in related systems, such as public education, remains largely unexplored.

4. Methods

4.1. Procedure and participants

The study was reviewed and approved by the HUN-REN Centre for Social Sciences Institutional Ethics Review Board. All participants provided informed consent prior to participating in the research, and appropriate measures were implemented to ensure the confidentiality of participants.

The research was conducted in Hungarian primary schools (ISCED 1–2 levels). The schools included in the study were selected strategically to ensure representation from all regions of Hungary. Efforts were also made to balance between urban and rural areas, as well as state, church-affiliated, and other types of schools. The first step in designing the research sample was to establish contact with school providers, including school districts and dioceses. After obtaining permission from these providers to conduct the research, individual school principals were contacted and asked to forward a link to the online survey to all teachers in their school. Data collection took place between 27 May and 10 June 2024. The sampling frame included 596 schools. The survey link was opened from 181 schools, indicating that these schools were reached at least at the level of the principal. Completed teacher responses were received from 110 schools. The distribution of the schools in our sample by region, type of locality, and type of school provider roughly corresponds to the distribution of primary schools across Hungary.

The target sample size was 200 teachers[1]; however, the survey ultimately resulted in 270 completed responses. The number of respondents per school ranged from 1 to 11. Participation was incentivized through a gift card draw. Due to the study design, the response rate could not be determined, as the total number of teachers who received the survey link is unknown.

In the survey, 86% of respondents identified as female, 11% as male, and 3% preferred not to disclose their gender (see Appendix A).[2] Regarding professional experience, 9% of teachers had been working in their current school for less than one year, 27% for 1–5 years, 31% for 6–15 years, 14% for 16–25 years, and 19% for more than 25 years. The majority of respondents (74%) have children of their own. Half (50%) had received training in child protection, and most teachers (86%) reported professional experience with children at risk. In terms of school type, 81% work in state-run schools, 12% in church-run schools, and 7% in other types of schools. The largest proportion of respondents (44%) work in schools with 151 to 400 pupils, 29% work in schools with more than 400 pupils, and 27% in schools with fewer than 150 pupils.

In the absence of official data on the proportion of Roma pupils in schools, teachers were asked to estimate their shares. Approximately 45% estimated that their schools have less than 5% Roma pupils, 35% estimated the proportion to be between 6% and 25%, and 20% estimated it to be between 26% and 100%.

4.2. Instruments

Data were collected through an online questionnaire specifically designed for teachers by the research team. The questionnaire consisted of four sections: teacher characteristics, school characteristics, hypothetical scenarios describing the at-risk status of the child (vignettes), and teachers' experience with at-risk children and knowledge of child protection. The vignettes were used to examine the factors shaping teachers' detection and reporting of children at risk.

The vignette scenarios were developed by the research team and refined through focus group research to ensure their realism. Focus group participants included primary school teachers and school social workers, who agreed that the child depicted in each vignette was at risk. Based on the feedback received during these discussions, the vignettes were revised and subsequently retested.

Four case characteristics were manipulated in the vignettes as explanatory variables: the type of case (neglect/emotional abuse/exposure to domestic violence/peer bullying), family ethnicity (Roma/non-Roma), family income status (average/poor), and parental cooperation (high/low). Each vignette consisted of a description of a specific incident. The *neglect vignette* presents a scenario in which a boy is left unsupervised at night, negatively affecting his academic performance. The *emotional abuse vignette* describes a case in which a boy experiences frequent verbal degradation by his father. The *exposure to domestic*

[1] The target of 200 teachers was based on the aim of obtaining 800 completed vignette evaluations, with each teacher completing four vignettes. Further details on the vignette design are provided in Section 4.2.

[2] No data were collected on teachers' ethnic identity in the survey. As entry into the teaching profession requires tertiary education, and only around 2% of the Roma population has attained such qualifications (2022 census), the number of Roma teachers in Hungary is likely to be very small.

violence vignette depicts a situation where a child witnesses his father physically abusing his mother during an escalating divorce conflict. The *peer bullying vignette* outlines a scenario in which a boy behaves aggressively toward his classmates, both physically and verbally. The full text of the vignette scenarios is provided in Appendix B.

Following the approach used in other vignette studies (e.g., Bertrand & Mullainathan, 2004; Fekjær et al., 2024; Gielens et al., 2019), ethnicity was identified through ethnically distinctive names included in the scenarios. Prior research in Hungary also indicates that certain names are strongly associated with the Roma community (Váradi, 2012; Kisfalusi et al., 2024). The names used in the vignettes were validated through focus group discussions, which confirmed that participants could clearly distinguish between Roma and non-Roma children based solely on the names. The age and sex of the vignette child were not manipulated; each scenario featured a 10-year-old boy to ensure that the scenarios were realistic and relevant for teachers in both lower and upper primary grades.

Based on the categories of the variables, a 4*2*2*2 factorial design was created. Each vignette consisted of a series of statements presented in a fixed order. A total of 32 vignettes were generated, ensuring that each level of one case variable was paired with each level of the other case variables.

All respondents were asked to rate four vignettes. To assign vignettes, the full set was divided into eight decks of four vignettes each, and each respondent was randomly assigned one deck. The order of the vignettes within each deck remained fixed to maintain a simple and reliably implementable survey design.

Following the vignette scenarios, respondents were asked four questions: *(1) How likely is it that the child is at risk? (2) Would you report the case to someone at school? (3) How likely is it that the school would report the case to child protection? (4) How would it affect the child if the school reported the case to child protection?* In this study, we focus on the first two questions as the dependent variables. Responses were recorded on a 5-point Likert-type scale, where 1 indicates 'not at all likely' and 5 indicates 'almost certain'.

In addition to the vignette questions, six teacher characteristics were included as explanatory variables: gender (male/female), years of experience in the current school (less than 1/1–5 years/6–15 years/16–25 years/25 + years), attendance at child protection training (yes/no), and parenthood (yes/no). Previous professional experience with children at risk was assessed using a single question asking whether respondents had ever encountered a case in which they detected a child at risk (yes/no). Teachers' knowledge of child protection was measured with four items: three based on the work of Greco et al. (2017), and one developed by the research team. Participants were asked to determine whether each statement about CAN was true or false. Knowledge scores were categorized into three levels based on the number of correct answers: little knowledge (0–2 correct answers), moderate knowledge (3 correct answers), and a lot of knowledge (4 correct answers).

Three school characteristics were included in the analysis: type of school provider (state/church/other), proportion of Roma pupils at school (less than 5%/6–25%/26–100%), and school size based on the number of pupils (maximum 150 pupils/151–400 pupils/more than 400 pupils).

4.3. Data analysis

We analyzed two dependent variables. In the first model, the dependent variable was the likelihood that a teacher would detect that the child is at risk (DET model). In the second model, the dependent variable was the likelihood that the teacher would report the case to someone at school (REP model). We began by fitting null models for both outcomes to assess the need for multilevel modeling. The data are hierarchical from several perspectives. First, teachers evaluated multiple vignettes (teacher effect). Second, the vignettes were clustered into eight decks, each randomly assigned to teachers (deck effect). Third, multiple teachers were from the same school (school effect). Finally, multiple schools could participate from the same locality (locality effect). The intra-class correlation coefficients (ICC) indicated that, for both dependent variables, only teachers and schools contributed meaningfully to the variance. ICCs for respondents from the same locality (0.0006 in the DET model and 0.007 in the REP model) and for those filling out the same deck (0.01 in the DET model and 0.007 in the REP model) were close to zero. Accordingly, we conducted a three-level multilevel analysis, with vignettes at the lowest level and teachers and schools as the higher levels. In the DET model, 18% of the variance was attributable to teacher-level differences and 8% to school-level differences. In the REP model, these proportions were higher, at 50% for teachers and 23% for schools. These findings suggest that while both school- and teacher-level characteristics significantly influenced evaluations, the majority of the variance in the detection model was at the vignette level (74%), underscoring the dominant role of case-specific factors. In contrast, for the REP model, teacher-level characteristics played a more substantial role than case characteristics, accounting for 27% of the variance. It is also noteworthy that school and locality types were highly correlated, as typically only one school per locality participated. Furthermore, the number of teachers per school is relatively small and varies across schools, with some schools represented by only a single respondent. Nonetheless, the multilevel specification was retained to account for the hierarchical structure of the data (teachers nested within schools).

The models are multilevel ordinal models, considering that respondents evaluated the vignettes using a five-point scale. Due to the low frequency of some responses, categories were collapsed. In the DET model, 'not at all' and 'not likely' were merged, while in the REP model, 'almost certainly would not report', 'would probably not report', and 'might or might not report' were combined. This resulted in a four-point scale for the DET model and a three-point scale for the REP model.

In both models, the independent variables include *vignette characteristics* (type of case, child's ethnicity, family income, and parental cooperation), *teacher characteristics* (years of teaching experience at the school, participation in child protection training, prior professional experience with at-risk children, knowledge of child protection, gender, and parental status), and *school characteristics* (school size, proportion of Roma pupils, and type of school provider).

We tested the effects of the independent variables stepwise. First, we included vignette characteristics, followed by teacher characteristics, and finally, school characteristics. This approach allowed us to observe how the effects of vignette characteristics changed after accounting for teacher and school characteristics. Model fit was assessed using intra-class correlations and AIC values at each step.

5. Results

Results are reported using exact p-values, in line with the recommendations of the American Statistical Association (ASA) (Wasserstein & Lazar, 2016), rather than relying solely on conventional significance thresholds. In addition to the 5% level, we also report results that reach significance at the 10% level, explicitly noting in the text when findings are significant only at this threshold.

Table 1 presents the results of models including only the vignette characteristics. For the type of case, emotional abuse was used as the reference category. The findings indicate that, compared to emotional abuse, teachers were more likely to detect a child's exposure to domestic violence ($b = 1.38$; $p < 0.001$) and neglect ($b = 1.21$; $p < 0.001$), but less likely to detect peer bullying (b = -0.54; $p < 0.001$). A similar pattern was observed for reporting, except that peer bullying was more likely to be reported than emotional abuse ($b = 0.36$; $p = 0.08$), although this result was only significant at the 10% level. Pairwise comparisons between all case types for both detection and reporting are presented in Appendix C, based on models re-estimated with alternative reference categories.

Table 1
Multilevel models of detection and reporting with vignette characteristics.

	Detection (DET1)			Reporting (REP1)		
	b	p	ci95	b	p	ci95
Type of case (ref = emotional abuse)						
exposure to domestic violence	1.38	<0.001	1.03,1.74	1.64	<0.001	1.20,2.09
neglect	1.21	<0.001	0.86,1.57	1.05	<0.001	0.63,1.47
peer bullying	−0.54	<0.001	−0.88,-0.20	0.36	0.08	−0.04,0.76
Family income status (ref = average)						
poor	0.63	<0.001	0.39,0.88	0.65	<0.001	0.35,0.95
Ethnicity (ref = non-Roma)						
Roma	0.38	<0.001	0.13,0.62	0.26	0.08	−0.03,0.56
Parental cooperation (ref = high)						
low	1.57	<0.001	1.31,1.84	1.00	<0.001	0.69,1.30
cut1	−1.36	<0.001	−1.77,-0.96	−2.73	<0.001	−3.28,-2.17
cut2	0.71	<0.001	0.33,1.09	0.65	0.01	0.14,1.15
cut3	3.30	<0.001	2.86,3.75			
var({\,}_cons[school])	0.21	0.25	−0.14,0.56	0.49	0.26	−0.37,1.36
var({\,}_cons[school > teacher])	1.60	<0.001	0.95,2.24	4.45	<0.001	2.80,6.09
ICC school		0.04			0.06	
ICC teacher		0.31			0.54	
AIC		2337.58			1627.79	
Observations		1080			1080	

The family's income status also influenced both detection and reporting. Cases involving children from poor families were more likely to be detected ($b = 0.63$; $p < 0.001$) and reported ($b = 0.65$; $p < 0.001$) to someone at school. Regarding ethnicity, cases involving Roma children were more likely to be detected ($b = 0.38$; $p < 0.001$) and reported ($b = 0.26$; $p = 0.08$); however, the difference for reporting is significant only at the 10% level. Finally, parental cooperation played a role: children whose parents were not cooperative were more likely to be detected ($b = 1.57$; $p < 0.001$) and reported ($b = 1.00$; $p < 0.001$) compared to those whose parents were cooperative.

Tables 2 and 3 present the results when teacher characteristics are included in the models (DET 2 and REP2). Years of experience in the current school influenced only the REP model. Using the most experienced group (25 + years) as the reference category, the results showed a significant difference compared to teachers with 1–5 and 6–15 years of experience ($b = 1.13$; $p < 0.03$ and $b = 0.99$; $p = 0.04$, respectively). Specifically, teachers with 1–5 and 6–15 years of experience were more likely to report cases within the school than those with 25 + years of experience. However, no significant differences were found between the most experienced group and those with less than 1 year or 16–25 years of experience ($b = 0.46$; $p = 0.48$ and $b = 0.78$; $p = 0.18$, respectively). Gender had no significant effect on detection (b = -0.35, $p = 0.32$) or reporting ($b = 0.03$, $p = 0.96$). Likewise, parenthood status was not a significant predictor of either detection (b = -0.07, $p = 0.78$) or reporting ($b = 0.10$, $p = 0.81$). Participation in child protection training significantly increased the likelihood of both detection ($b = 0.74$; $p < 0.001$) and reporting ($b = 0.75$; $p = 0.03$). However, prior experience with children at risk did not significantly influence evaluations in either the DET (b = -0.09; $p = 0.82$) or the REP ($b = 0.34$; $p = 0.57$) models. Likewise, in these models, moderate levels of knowledge (DET: $b = 0.16$, $p = 0.58$; REP: $b = 0.46$, $p = 0.32$) and high levels of knowledge (DET: $b = 0.31$, $p = 0.32$; REP: $b = 0.59$, $p = 0.22$) did not significantly differ from low levels of child protection knowledge. When controlling for school characteristics (Tables 2 and 3), all previously described teacher effects remained stable. Among school characteristics, school size and the proportion of Roma pupils influenced reporting but not detection. Teachers were more likely to report cases in schools where the proportion of Roma pupils was below 5% or between 6–25% ($b = 1.58$; $p < 0.001$ and $b = 1.62$; $p < 0.001$, respectively) compared to schools with 26–100% Roma pupils. Additionally, the likelihood of reporting was lower in schools with 151–400 pupils and schools with more than 400 pupils (b = -0.83; $p = 0.06$ and b = -0.85; $p = 0.09$, respectively) compared to schools with fewer than 151 pupils, although these effects are only significant at the 10% level. Reporting was also less likely in state-run schools than in church-run schools ($b = 1.02$; $p = 0.05$).

It is important to note that there are weak correlations between school size, type of school provider, and the proportion of Roma pupils. Large schools (400 + students) are significantly more common among state-run schools than in other categories ($C = 0.21$; $p < 0.001$), while smaller schools tend to have a higher proportion of Roma pupils ($C = 0.26$; $p < 0.001$). Considering these relationships, examining these characteristics separately is informative. When only the type of school provider is included in the model, the difference between church-run and state-run schools becomes significant at the 5% level ($b = 1.13$, $p = 0.04$), while in other cases, significance levels remain largely unchanged.

Controlling for teacher and school characteristics, the ICC for schools decreased (in both the DET and REP models) (Tables 2 and 3), indicating that the included variables accounted for some of the variation previously attributed to having multiple teachers from the same schools. Variance components further show that school-level differences were initially more prominent for reporting, as reflected by the relatively high school-level variance in the null model. This variance was largely explained after controlling for teacher characteristics, and fully accounted for after adding school-level variables, suggesting the model captured the initial between-school differences in reporting. School-level variance in detection remained small throughout and approached zero in the final model.[3] In both reporting and detection, however, individual-level variance remained relatively high, indicating that most of the remaining unexplained variation is attributable to further individual-level and vignette-level factors rather than school-level differences. Additionally, the AIC decreased across the models, indicating an improvement in model fit.

6. Discussion

This study examined how case-, teacher-, and school-level characteristics influence Hungarian primary school teachers' detection and reporting decisions. Our findings indicate that variation in teachers' detection and reporting was associated both with differences in case characteristics and with differences among teachers, with teacher-level

[3] The estimated school-level variance was 0.00 (p = 1.00), indicating a boundary estimate. This may suggest that, after the inclusion of the explanatory variables, limited between-school variance remained in the outcome.

Table 2
Multilevel models of detection with vignette, teacher, and school characteristics.

	DET2			DET3		
	b	p	ci95	b	p	ci95
Vignette characteristics						
Type of case (ref = emotional abuse)						
exposure to domestic violence	1.34	<0.001	0.96,1.73	1.36	<0.001	0.97,1.76
neglect	1.28	<0.001	0.90,1.67	1.29	<0.001	0.89,1.68
peer bullying	−0.41	0.02	−0.78,-0.05	−0.46	0.02	−0.83,-0.08
Family income status (ref = average)						
poor	0.61	<0.001	0.34,0.87	0.60	<0.001	0.33,0.88
Ethnicity (ref = non-Roma)						
Roma	0.36	0.01	0.10,0.62	0.37	0.01	0.10,0.64
Parental cooperation (ref = high)						
low	1.51	<0.001	1.23,1.80	1.51	<0.001	1.22,1.81
Teacher characteristics						
Years of experience in current school (ref = 25 +)						
less than 1	0.20	0.63	−0.62,1.03	−0.17	0.70	−1.04,0.70
1–5	0.51	0.12	−0.13,1.16	0.48	0.16	−0.19,1.15
6–15	0.33	0.28	−0.28,0.95	0.40	0.22	−0.23,1.02
16–25	0.31	0.41	−0.43,1.04	0.25	0.51	−0.50,1.00
Gender (ref. = male)						
female	−0.35	0.32	−1.06,0.35	−0.27	0.47	−0.99,0.46
Parenthood (ref = no)						
yes	−0.07	0.78	−0.58,0.43	−0.17	0.52	−0.69,0.35
Child protection training (ref = no)						
yes	0.74	<0.001	0.31,1.18	0.75	<0.001	0.30,1.20
Previous experience with children at risk (ref = no)						
yes	−0.09	0.82	−0.85,0.67	−0.12	0.77	−0.90,0.66
Knowledge of child protection (ref. = little knowledge)						
moderate knowledge	0.16	0.58	−0.42,0.74	0.17	0.58	−0.44,0.79
a lot of knowledge	0.31	0.32	−0.30,0.91	0.19	0.57	−0.45,0.83
School characteristics						
School provider (ref = state)						
church				0.53	0.14	−0.18,1.25
other				−0.30	0.53	−1.24,0.64
Share of Roma pupils at school (ref = 26–100%)						
less than 5%				0.31	0.34	−0.33,0.95
6–25%				0.43	0.18	−0.20,1.07
School size (ref= <151 pupils)						
151–400				−0.28	0.36	−0.87,0.31
400+				0.02	0.95	−0.65,0.69
var({\,}_cons[school)	0.18	0.36	−0.20,0.55	0.19	0.32	−0.19,0.58
var({\,}_cons[school > teacher])	1.32	<0.001	0.68,1.95	1.22	<0.001	0.59,1.85
ICC school		0.04			0.04	
ICC teacher		0.27			0.26	
AIC		2016.61			1920.76	
Observations	916			868		

variation being particularly pronounced in reporting decisions. Meanwhile, school-level differences also contributed to variance, but accounted for the smallest proportion in both detection and reporting. These patterns can be interpreted as being broadly consistent with expectations derived from the DME framework, suggesting that different levels of factors may play different roles in detection and reporting. Substantial variation at the teacher level may, however, be related to the vagueness of the statutory definition of 'child at risk' in Hungary, which may leave greater room for individual interpretation when assessing the vignettes.

6.1. Case characteristics

The detection and reporting of children at risk were influenced by all *case characteristics* examined in this study: type of case, child ethnicity, family income status, and parental cooperation. Consistent with the literature, the type of case emerged as a strong predictor. Among the four types studied, exposure to domestic violence was both the most frequently detected and reported. However, the least detected and least reported types did not coincide: teachers were least likely to detect peer bullying and least likely to report emotional abuse, confirming prior findings for emotional abuse (cf. Glouchkow et al. 2023). An important finding regarding peer bullying is that, although teachers were less likely to detect it than emotional abuse (the reference category), they were more likely to report it to someone at school, with this effect reaching significance only at the 10% level. This pattern suggests that, once detected, peer bullying may be somewhat more likely to be addressed within the school context than emotional abuse perpetrated by parents. One possible interpretation is that teachers may perceive greater scope for responding to peer-related incidents within the school environment than to situations involving parental behavior. However, this interpretation should be treated with caution.

Our study shows that family income is a significant predictor of teachers' detection and reporting: teachers were more likely to detect and report cases involving children from low-income families, suggesting a potential social bias. These findings are consistent with Jud and Gartenhauser (2015) and partially align with the results of Tillman et al. (2015).

There is no previous evidence on the relationship between a child's Roma background and the reporting behavior of school professionals. Our findings suggest that cases involving Roma children are significantly more likely to be detected and reported within the school than

Table 3
Multilevel models of reporting with vignette, teacher, and school characteristics.

	REP2			REP3		
	b	p	ci95	b	p	ci95
Vignette characteristics						
Type of case (ref = emotional abuse)						
exposure to domestic violence	1.68	<0.001	1.20,2.15	1.72	<0.001	1.23,2.22
neglect	1.05	<0.001	0.60,1.50	1.04	<0.001	0.58,1.49
peer bullying	0.38	0.08	−0.04,0.81	0.39	0.08	−0.05,0.83
Family income status (ref = average)						
poor	0.57	<0.001	0.25,0.89	0.53	<0.001	0.20,0.85
Ethnicity (ref = non-Roma)						
Roma	0.26	0.11	−0.06,0.57	0.28	0.09	−0.04,0.61
Parental cooperation (ref = high)						
low	0.82	<0.001	0.49,1.15	0.84	<0.001	0.50,1.18
Teacher characteristics						
Years of experience in current school (ref = 25 +)						
less than 1	0.46	0.48	−0.82,1.73	0.36	0.58	−0.92,1.64
1–5	1.13	0.03	0.14,2.12	1.15	0.02	0.18,2.12
6–15	0.99	0.04	0.03,1.95	1.15	0.02	0.21,2.09
16–25	0.78	0.18	−0.36,1.93	0.87	0.12	−0.24,1.97
Gender (ref. = male)						
female	0.03	0.96	−1.05,1.10	0.29	0.59	−0.77,1.36
Parenthood (ref = no)						
yes	0.10	0.81	−0.70,0.89	0.09	0.81	−0.68,0.87
Child protection training (ref. = no)						
yes	0.75	0.03	0.08,1.42	0.82	0.02	0.15,1.49
Previous experience with children at risk (ref = no)						
yes	0.34	0.57	−0.82,1.49	0.31	0.60	−0.84,1.45
Knowledge of child protection (ref. = little knowledge)						
moderate knowledge	0.46	0.32	−0.44,1.35	0.60	0.20	−0.32,1.52
a lot of knowledge	0.59	0.22	−0.34,1.52	0.52	0.28	−0.43,1.48
School characteristics						
School provider (ref = state)						
church				1.02	0.05	−0.02,2.06
other				0.06	0.93	−1.35,1.48
Share of Roma pupils at school (ref = 26–100%)						
less than 5%				1.58	<0.001	0.62,2.54
6–25%				1.62	<0.001	0.66,2.58
School size (ref= <151 pupils)						
151–400 pupils				−0.83	0.06	−1.68,0.02
more than 400 pupils				−0.85	0.09	−1.81,0.12
var({\,}_cons[school])	0.06	0.87	−0.69,0.82	0.00	1.00	−0.00,0.00
var({\,}_cons[school > teacher])	4.26	<0.001	2.53,5.98	3.74	<0.001	2.31,5.18
ICC school		0.01			0.00	
ICC teacher		0.56			0.53	
AIC		1424.68			1334.49	
Observations		916			868	

cases involving non-Roma children, which may indicate a potential ethnic bias (though the result for reporting reaches significance only at the 10% level). Taken together with the findings on family income, these results suggest that cases involving children from non-poor and non-Roma families are more likely to remain undetected and unreported.

As discussed earlier, differential treatment based on ethnicity may occur both within and outside the child protection system. The present study provides evidence that such bias may exist in systems that interact with the child protection system, such as schools. In other words, ethnic bias in school professionals' detection and reporting may contribute to the overrepresentation of ethnic minorities in the child protection system.

Among the case characteristics, parental cooperation with the school was also found to significantly influence reporting behavior. Consistent with previous findings (Walsh et al., 2008; Jud and Gartenhauser, 2015), higher parental cooperation decreases the likelihood of teachers' detection and reporting. Crenshaw et al. (1995) interpreted this as a tendency for teachers to be less objective with cooperative parents—a cognitive bias (halo effect) that could be mitigated through teacher training. An important avenue for further research is to examine the extent to which teachers are aware of this cognitive bias.

6.2. Teacher characteristics

Regarding *teacher characteristics,* neither gender nor parental status had a significant influence on the reporting behavior, consistent with previous studies (Crenshaw et al., 1995; Walsh et al., 2008). An important finding is that the years spent in the current school do not affect the detection of a child's at-risk status (cf. Walsh et al., 2008), but they do influence reporting within the school. Teachers with limited (1–5 years) or moderate (6–15 years) experience are more likely to report than those with extensive experience (25 +). One possible explanation is that teachers with limited to moderate experience may have already acquired some practical experience in handling child protection issues. At the same time, they may not yet have encountered a large number of child protection cases that could result in a reduced

sensitivity to potential risks affecting children. The latter point is consistent with the argument proposed by O'Toole et al. (1999).

Our findings on the impact of training and child protection knowledge are partially consistent with previous research. Participation in training increases the likelihood of both detection and reporting (cf. Beck et al., 1994; O'Toole et al., 1999; Dinehart & Kenny, 2015). However, in this study, child protection knowledge was not associated with either detection or reporting, likely due to the measurement method, as the questions may have been too easy to differentiate participants' knowledge level. Future research should further investigate the impact of teachers' child protection knowledge on detection and reporting behaviors. Finally, prior professional experience with children at risk was not found to be a predictor of reporting behavior. This finding contradicts previous research (O'Toole et al., 1999; Walsh et al. 2008; Jud & Gartenhauser, 2015) and may reflect the fact that the vast majority of teachers in our sample had such experience, likely due to the high incidence of unexcused absences and behavioral problems among children, as confirmed by our survey data.

6.3. School characteristics

In this study, *school characteristics* were associated with teachers' reporting within the school but not with detection. Consistent with O'Toole et al. (1999) and Bruyninckx et al. (2021), teachers in larger schools were less likely to report than those in smaller schools, although the effects were only significant at the 10% level. This may be because teachers who see more pupils daily develop lower sensitivity and greater tolerance for risk (O'Toole et al., 1999), and in larger schools with more staff, teachers may expect others to report incidents. We also found that teachers in church-run schools were more likely to report than those in state-run schools.

An important finding is that teachers in schools with a higher proportion of Roma pupils (more than 25%) are less likely to report than teachers in schools with fewer Roma pupils. The current study cannot fully explain this pattern. However, previous research indicates that Roma children face higher rates of poverty (Gábos & Szivós, 2006), making them particularly vulnerable. Consequently, teachers in these schools may encounter more children at risk, which may lead to greater tolerance. While these teachers are no less likely to detect children at risk, they are less likely to report them within the school. However, another plausible interpretation is that teachers in these schools may have learned from experience that reporting does not necessarily lead to meaningful outcomes, which may reduce their motivation to report.

6.4. Ethnicity: case- and school-level effects

Our results regarding ethnicity may appear contradictory. On the one hand, Roma ethnicity in the vignette was associated with a somewhat higher likelihood of reporting. On the other hand, teachers were less likely to report in schools with a higher proportion of Roma pupils. To address this apparent contradiction, we included an interaction term between these two variables (see Appendix D for detailed results). The analysis suggests that Roma pupils are more likely to be reported in schools, where their proportion is noticeable but still low (i.e., in schools referred to as predominantly majority schools by Messing, 2017), compared to schools where their proportion exceeds 25%. However, this result is only significant at the 10% level and should therefore be interpreted as preliminary, suggesting a pattern that warrants further investigation.

6.5. Limitations

The study has several limitations. First, as noted, the survey response rate is unknown due to the research design, which limits our ability to assess potential non-response bias. Second, however, schools and teachers more engaged in child protection may have been more likely to participate. Third, small cluster sizes may reduce the precision of school-level variance estimates and should therefore be considered when interpreting the results. Fourth, because respondents assessed hypothetical scenarios, we cannot be certain how they would behave in real-life situations. Fifth, the vignettes were presented to respondents in a fixed order; thus, the results may be biased by order effects (Auspurg & Jäckle, 2017). Sixth, children's ethnicity was signaled using ethnically distinctive names, which may also have influenced perceptions of socioeconomic status (Crabtree et al., 2022). Seventh, all vignettes featured a 10-year-old boy, which may limit the generalizability of the findings to girls and children of other ages. Finally, certain teacher characteristics were not fully captured. Further research is needed to clarify the impact of teachers' child protection knowledge and prior experience with at-risk children on reporting behavior.

7. Conclusions

In this study, case characteristics were consistent predictors of both the detection of children at risk and the reporting of such cases within the school. Teachers' detection, however, was not significantly associated with either individual teacher characteristics (except for participation in child protection training) or the school context. At the same time, reporting was associated with multiple teacher- and school-level characteristics.

Importantly, our findings suggest the presence of social and ethnic bias in teachers' detection and reporting within the school. These patterns were more pronounced in predominantly majority schools than in mixed schools, although this finding should be considered preliminary. Overall, the study points to the role of social and ethnic factors in shaping teachers' detection and reporting behavior. One policy implication of this research is the importance of providing teachers with standardized and targeted training in child protection. In Hungary, there is currently no unified child protection training for teachers, underscoring the need for such initiatives. Targeted training can help teachers recognize factors that may influence their reporting decisions, including ethnic and social biases. To enhance teachers' skills in responding to children at risk, schools should be supported in developing and implementing institutional child protection guidelines and standard reporting protocols tailored to local circumstances. It is also important that schools receive (more) support from child protection institutions. In this regard, school social workers, who have been active in Hungarian schools since 2018, can play a key role in raising teachers' awareness of child protection issues and improving the effectiveness of their responses to children at risk.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A

Characteristics of respondents.

Teacher characteristics	%
Years of experience in current school	
less than 1	8.9
1–5	26.7
6–15	31.5
16–25	13.7
25+	19.3
Gender	
female	85.6
male	11.5
missing	2.9
Parenthood	
yes	74.4
no	21.5
missing	4.1
Child protection training	
yes	50.4
no	42.6
don't know	7.0
Previous experience with children at risk	
yes	85.9
no	10.0
don't know/missing	4.1
Knowledge of child protection	
little knowledge	18.9
moderate knowledge	47.0
a lot of knowledge	34.1
School characteristics	
School provider	
state	81.1
church	11.1
other	7.0
Share of Roma pupils at school	
less than 5%	43.0
6–25%	33.7
26–100%	18.5
missing	4.8
School size	
150 or less	26.7
151–400	44.1
400+	29.3

Appendix B. Description of the vignettes

Neglect

Ten-year-old Márió Orsós lives with his parents. He has no siblings. His family is facing severe financial difficulties. You have observed for some time that he often lacks basic school supplies, and he does not always complete his homework. Occasionally, he arrives at school late. In recent weeks, he has also shown visible signs of struggling to concentrate and has even fallen asleep during class on several occasions. His academic performance is steadily declining, raising serious concerns about his learning progress. In response to your inquiry, the boy shares that he is frequently left without supervision in the evenings. He admits that he is afraid to be alone and has trouble falling asleep, often staying awake late into the night. His parents regularly spend their evenings away from home, and frequently return only late at night. You decided to discuss these concerns with the boy's parents. They respond cooperatively to your outreach and appear open to addressing the issues.

Emotional abuse

Ten-year-old Renátó Kolompár lives with his parents. He has no siblings. His family's financial situation is considered average. The boy's behavior has changed recently. He often becomes angry without an apparent reason and has started fighting with his peers. There have also been instances where he deliberately damaged others' belongings out of revenge. He becomes noticeably distressed when things do not go his way, suggesting significant issues with his self-esteem. Most recently, when you tried to help him with a task, he suddenly became very frustrated. In response to your questions, he disclosed that his father often scolds him harshly and tells him he is "no good for anything." It also emerged that his father has threatened him with physical punishment several times, although the boy claims he has never been hit. You decided to discuss these concerns with the boy's parents. The parents were hard to reach and appeared to dismiss the problem.

Exposure to domestic violence

Ten-year-old Marcell Somogyi lives with his parents. He has no siblings. His family's financial situation is considered average. In recent months, the boy has been behaving differently from before. He often appears moody and downcast, has become noticeably withdrawn, and tends to avoid the company of others. He struggles to concentrate in class, and his academic performance has declined. He also seems to have lost a significant amount of weight. It has been known at school for some time that the relationship between the boy's parents has deteriorated. Their divorce proceedings have been ongoing for a while and are marked by serious conflicts. Recently, you witnessed the father harassing the mother on the street in the boy's presence. He suddenly jumped in front of her, threatening and insulting her. You decided to discuss these concerns with the boy's parents. They respond cooperatively to your outreach and appear open to addressing the issues.

Peer bullying

Ten-year-old Bence Király lives with his parents. He has no siblings. His family is facing severe financial difficulties. Recently, he has been frequently disruptive in class. He reacts irritably when disciplined and loses his temper quickly. He often gets into conflicts with his classmates, and his behavior is increasingly aggressive. On several occasions, he has verbally and physically assaulted a classmate. Most recently, you witnessed him pushing a classmate, cornering them against a wall, and making derogatory remarks. When you called him to account for his actions, he defended himself by saying that the classmate 'deserved the beating'. You decided to discuss these concerns with the boy's parents. The parents were hard to reach and appeared to dismiss the problem.

Appendix C

Comparisons of case types with varying reference categories in DET1 model.

	(DET1)(ref = exposure to domestic violence)			(DET1)(ref = neglect)		
	b	p	ci95	b	p	ci95
Type of case						
neglect	−0.17	0.35	−0.52,0.18			
bullying	−1.92	<0.001	−2.29,-1.55	−1.75	<0.001	−2.11,-1.39
emotional abuse	−1.38	<0.001	−1.74,-1.03	−1.21	<0.001	−1.57,-0.86
exposure to domestic violence				0.17	0.35	−0.18,0.52
/						
cut1	−3.29	<0.001	−3.75,-2.82	−3.12	<0.001	−3.58,-2.66
cut2	−1.21	<0.001	−1.60,-0.82	−1.04	<0.001	−1.43,-0.65
cut3	1.38	<0.001	0.99,1.77	1.55	<0.001	1.15,1.95
var(cons[school])	0.21	0.25	−0.14,0.56	0.21	0.25	−0.14,0.56
var(cons[school > teacher])	1.60	<0.001	0.95,2.24	1.60	<0.001	0.95,2.24
Observations	1080			1080		

Comparisons of case types with varying reference categories in REP1 model.

	(REP1)(ref = exposure to domestic violence)			(REP1)(ref = neglect)		
	b	p	ci95	b	p	ci95
Type of case						
neglect	−0.59	0.01	−1.03,-0.15			
bullying	−1.28	<0.001	−1.72,-0.84	−0.69	<0.001	−1.11,-0.27
emotional abuse	−1.64	<0.001	−2.09,-1.20	−1.05	<0.001	−1.47,-0.63
exposure to domestic violence				0.59	0.01	0.15,1.03
/						
cut1	−4.01	<0.001	−4.63,-3.38	−3.42	<0.001	−4.01,-2.82
cut2	−0.63	0.02	−1.15,-0.12	−0.04	0.87	−0.55,0.46
var(cons[school])	0.49	0.26	−0.37,1.36	0.49	0.26	−0.37,1.36
var(cons[school > teacher])	4.45	<0.001	2.80,6.09	4.45	<0.001	2.80,6.09
Observations	1080			1080		

Appendix D

Multilevel models of reporting with vignette, teacher, school characteristics, and with an interaction term between the estimated share of Roma pupils in the school and Roma ethnicity in the vignette.

	REP		
	b	p	ci95
Vignette characteristics			
Type of case (ref = emotional abuse)			
exposure to domestic violence	1.73	0.00	1.23,2.22
neglect	1.05	0.00	0.58,1.51
peer bullying	0.39	0.08	−0.05,0.83
Family income status (ref = average)			
poor	0.53	0.00	0.20,0.86
Ethnicity (ref = non-Roma)			
Roma	−0.16	0.65	−0.86,0.54
Parental cooperation (ref = high)			
low	0.84	0.00	0.50,1.18
Teacher characteristics			
Years of experience in current school (ref = 25 +)			
less than 1	0.37	0.57	−0.91,1.66
1–5	1.16	0.02	0.19,2.14
6–15	1.16	0.02	0.21,2.11
16–25	0.88	0.12	−0.23,1.99
Gender (ref. = male)			
female	0.29	0.60	−0.78,1.36
Parenthood (ref = no)			
yes	0.09	0.81	−0.68,0.87
Child protection training (ref = no)			
yes	0.82	0.02	0.15,1.49
Previous experience with children at risk (ref = no)			
yes	0.30	0.61	−0.85,1.46
Knowledge of child protection (ref. = little knowledge)			
moderate knowledge	0.61	0.20	−0.31,1.53
a lot of knowledge	0.52	0.28	−0.44,1.48
School characteristics			
School provider (ref = state)			
church	1.01	0.06	−0.03,2.05
other	0.06	0.93	−1.37,1.49
Share of Roma pupils at school (ref = 26–100%)			
less than 5%	1.41	0.01	0.35,2.46
6–25%	1.23	0.02	0.18,2.28
School size (ref= <151 pupils)			
151–400	−0.84	0.06	−1.69,0.02
400+	−0.85	0.08	−1.82,0.11
Interaction term			
Share of Roma pupils # ethnicity in vignette(ref = 26–100%#Roma)			
less than 5%#Roma	0.36	0.41	−0.50,1.22
6–25%#Roma	0.82	0.07	−0.07,1.71
cut1	0.65	0.51	−1.26,2.57
cut2	3.92	0.00	1.97,5.87
var({\,}_cons[school])	0.00	1.00	−0.00,0.00
var({\,}_cons[school > teacher])	3.78	0.00	2.33,5.24
Observations	868		

Data availability

Data will be made available on request.

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