

Uncovering hidden predictors of teacher knowledge and attitudes in child sexual abuse prevention

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Article Info

Article history:

Received Jan 17, 2026

Revised Jun 15, 2026

Accepted Aug 5, 2026

Keywords:

Attitudes

Child sexual abuse

Knowledge

Prevention

Teachers

ABSTRACT

Teachers play a critical role in preventing child sexual abuse (CSA) in school settings. However, empirical evidence on how sociodemographic characteristics and information exposure shape teachers' knowledge and attitudes remains limited, particularly in low- and middle-income contexts. This study aimed to examine the associations between teachers' sociodemographic characteristics and exposure to CSA-related information with their knowledge and attitudes toward prevention. A quantitative cross-sectional study was conducted from March to December 2024 involving 56 teachers from two districts in West Java, Indonesia, using total population sampling. Data were collected using structured questionnaires and analyzed using descriptive statistics and chi-square tests, with Phi (ϕ) and Cramér's V used to assess the strength of associations. Teachers' knowledge was significantly associated with gender and information sources, including newspapers, Instagram, and headmasters ($p < 0.05$). Attitudes were significantly associated with ethnicity, headmasters, and TikTok ($p < 0.05$). These findings provide novel evidence highlighting the role of institutional leadership, cultural background, and digital media in shaping teachers' preparedness for prevention. Strengthening school-based prevention requires integrated strategies that combine leadership engagement, culturally sensitive approaches, and the effective use of digital platforms.

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1. INTRODUCTION

Child sexual abuse (CSA) is a serious global public health concern [1], with long-term physical, psychological [2], [3], and social consequences for children [4]–[6]. World Health Organization (WHO) defines CSA as children's involvement in sexual activities they cannot understand, consent to, or that violate norms [7]. Global estimates indicate that a substantial proportion of children experience sexual abuse before the age of 18 [8], with girls disproportionately affected [9], [10]. United Nations Children's Fund (UNICEF) reports that over 370 million girls and women have experienced sexual violence in childhood [11]. Despite growing international attention, CSA remains underreported and insufficiently addressed in many contexts.

CSA is a serious public health issue in Indonesia [12], with cases increasing annually. A study conducted by Linadi and Ayubi [13] demonstrated a rising trend in child abuse cases in Indonesia, with sexual abuse emerging as the most prevalent form. Indonesia's 2021 national children and youth survey reveals that 8.4% of girls and 3.7% of boys experienced sexual abuse during their childhood [14]. National data from the Gender and Child Information System of the Ministry of Women's Empowerment and Child Protection (Kemen PPPA) recorded 25,559 cases of child abuse in 2024, of which 46% involved sexual abuse [15]. The Indonesian Child Protection Commission (KPAI) reported 2,057 cases from 1,604 complaints in 2024. A total 67% of these cases were about abuse of children's rights. The most common problems were bad parenting (14.9%) and sexual abuse (7.8%) [16]. Although schools are expected to be safe environments, abuse can occur, underscoring the vital role of elementary school teachers as frontline agents in prevention and early detection [17]. The success of CSA prevention strategies in schools relies heavily on teachers' knowledge and attitudes, which are influenced by sociodemographic characteristics and exposure to CSA-related information. These factors shape their willingness and capacity to engage in preventive communication and protective practices [1]. Previous studies show substantial variation in teachers' preparedness; between 38% and 62% report inadequate knowledge or negative attitudes toward prevention, while in other contexts attitudes are positive but knowledge remains superficial [18]–[20].

In Indonesia, cultural taboos surrounding sexual health and the absence of formal training [20] limit teachers' capacity to serve as preventive agents against CSA. While studies in high-income countries have predominantly examined children or parents, evidence focusing on teachers, particularly in low and middle-income contexts, remains scarce [20]. Teachers' knowledge and attitudes are shaped by sociodemographic characteristics such as gender, age, income, and cultural background, as well as exposure to information from institutional sources, traditional media, and digital platforms [1], [21], [22]. These factors affect how teachers perceive CSA, assess its seriousness, and respond to prevention initiatives. These determinants can be conceptually understood as interacting factors that influence both knowledge and attitudes, highlighting the need for a comprehensive theoretical framework.

Empirical evidence focusing on teachers as primary prevention agents remains limited, particularly in low- and middle-income countries such as Indonesia. Existing research has largely emphasized case reporting, response mechanisms, media roles, or collaborative perspectives involving parents and service providers [22], [23]. In particular, quantitative studies systematically examining how sociodemographic characteristics and information exposure shape teachers' knowledge and attitudes toward CSA prevention in Indonesia are lacking, leaving an evidence gap that constrains the development of effective and context-specific preventive policies. Specifically, previous studies have not comprehensively examined how multiple sociodemographic characteristics and diverse sources of information are associated with both teachers' knowledge and attitudes toward CSA prevention within a single analytical framework. In addition, limited attention has been given to the role of digital media and institutional actors, such as school leadership, in shaping these outcomes. Therefore, this study differs from previous research by integrating these factors within a unified framework to provide a more comprehensive understanding of determinants influencing teachers' preparedness for CSA prevention. However, no prior study has simultaneously examined sociodemographic characteristics and multi-platform information exposure within a unified analytical framework in Indonesia, highlighting a critical gap in the existing literature.

Understanding these factors requires a structured theoretical framework that explains how individual, informational, and institutional determinants interact to shape preventive behaviors. To address this gap, the present study applies Green's PRECEDE–PROCEED model [24], which provides a comprehensive framework for understanding how predisposing factors (e.g., sociodemographic characteristics), enabling factors (e.g., access to information), and reinforcing factors (e.g., institutional support) influence health-related behaviors, including teachers' readiness for CSA prevention. Guided by this framework, this study examines the associations between teachers' sociodemographic characteristics, exposure to CSA-related information, and their knowledge and attitudes toward prevention. As illustrated in Figure 1, the conceptual framework highlights how these factors influence teachers' preparedness for prevention practices. The study specifically aims to: i) examine the associations between sociodemographic characteristics and teachers' knowledge and attitudes toward CSA prevention, and ii) assess the role of information exposure in shaping these outcomes. Accordingly, the study addresses these research questions:

- Are teachers' sociodemographic characteristics associated with their knowledge and attitudes toward CSA prevention?
- Is exposure to CSA-related information associated with teachers' knowledge and attitudes toward prevention?

Despite increasing research attention, no prior study has simultaneously examined the role of sociodemographic characteristics and multi-platform information exposure within a unified analytical framework in Indonesia. This study provides novel empirical evidence by examining how sociodemographic characteristics and multi-platform information exposure influence teachers' knowledge and attitudes toward

CSA prevention within a unified analytical framework in Indonesia. This study makes three key contributions to the literature. First, it provides empirical evidence on the role of teachers as frontline agents in the prevention of CSA in a low- and middle-income country context. Second, it examines the associations between teachers' knowledge and attitudes and their sociodemographic characteristics and exposure to information sources. Third, it applies the PRECEDE–PROCEED model as a theoretical framework to explain factors influencing teachers' preparedness for prevention practices.

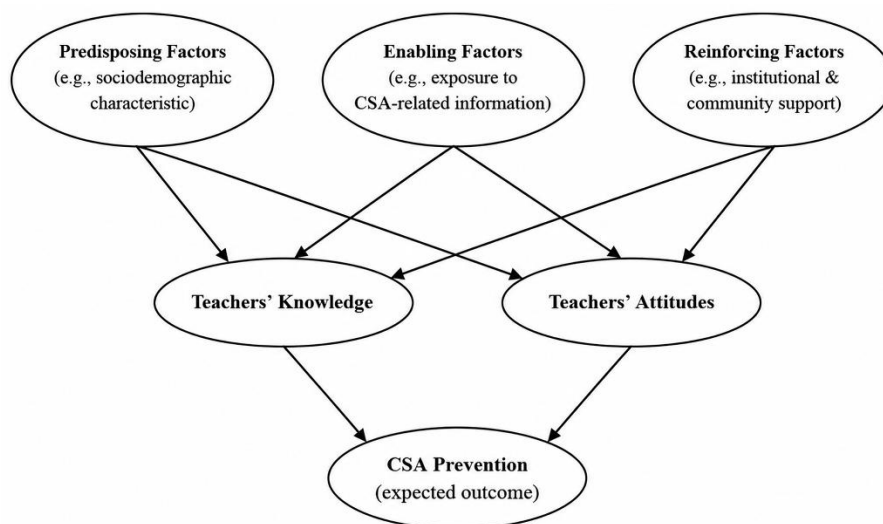


Figure 1. Conceptual framework of teachers' CSA prevention, based on Green's PRECEDE–PROCEED model

2. METHOD

2.1. Study design

An analytical cross-sectional design was employed to assess the associations between teachers' sociodemographic characteristics, exposure to CSA-related information, and their knowledge and attitudes toward prevention.

2.2. Setting and participants

This study was conducted between March and December 2024 in selected primary schools in Bandung and Sumedang Regencies, West Java, Indonesia. Schools were selected using simple random sampling from a list of eligible schools in each district. Subsequently, all teachers within the selected schools were included using total population sampling. A total of 56 teachers participated, representing the entire teacher population within the selected schools. Although the sample size is relatively small ($n=56$), it represents the total population sampling within the selected schools, ensuring full coverage and strengthening internal validity. All eligible teachers were invited to participate. Inclusion criteria were teachers currently teaching at selected schools, owning a smartphone, being able to read and understand Indonesian, and providing informed consent. Teachers on extended leave or those submitting incomplete responses were excluded. In total, 56 teachers met the eligibility criteria and completed the survey. The flow of participants from school selection to final inclusion is presented in Figure 2.

2.3. Variables and Instruments

Data were collected using a structured, self-administered online questionnaire. Independent variables included sociodemographic characteristics (age, gender, marital status, income, and ethnicity) and exposure to CSA-related information from multiple sources (mass media, digital platforms, interpersonal, and institutional sources), recorded as dichotomous responses (yes/no). Dependent variables were teachers' knowledge and attitudes toward CSA prevention. The instrument was developed and validated by Solehati [25] and was based on established concepts and prior research [26]–[33]. Content validity assessed using the content validity index (CVI) showed values of 1.00 for both knowledge and attitude sections. Reliability testing in prior research demonstrated acceptable internal consistency (Cronbach's $\alpha=0.776$ for knowledge and 0.837 for attitudes) [25]. Knowledge was measured using 30 multiple-choice items covering definitions, risk

factors, perpetrators, signs, consequences, prevention strategies, and reporting mechanisms. Scores ranged from 0 to 30, with $\geq 80\%$ categorized as good knowledge. Knowledge levels were classified according to the methodology described in previous studies [34], [35]. Attitudes were assessed using 13 Likert-scale items (4=strongly agree to 1=strongly disagree), including reverse-scored items. Total scores ranged from 13 to 52, with scores ≥ 41 categorized as favorable.

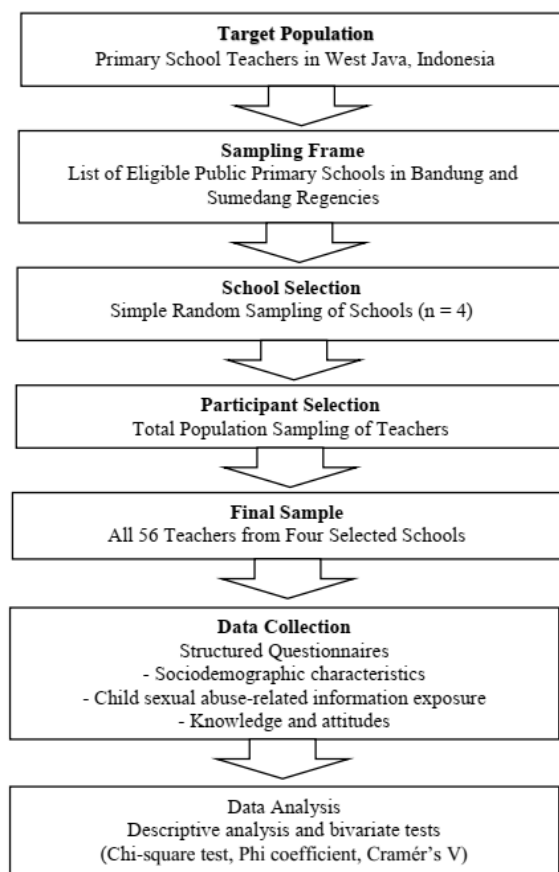


Figure 2. Flow of participants included in the study

2.4. Data collection and procedure

Data collection was conducted after obtaining ethical approval and permission from relevant authorities. Participants were informed about the study, and written informed consent was obtained. The questionnaire was administered online using Google Forms during supervised sessions at schools. Participation was voluntary, and confidentiality was ensured through anonymized data coding.

2.5. Statistical analysis

Given the sample size and distribution of variables, bivariate analysis was considered appropriate to explore initial associations between variables. Multivariable analysis was initially considered; however, the limited sample size resulted in unstable estimates and potential overfitting. Therefore, bivariate methods were retained. Data were analyzed using SPSS. Descriptive statistics were used to summarize participants' characteristics and study variables. Associations between variables were examined using Chi-square tests, with Phi (ϕ) coefficients applied for 2×2 tables and Cramér's V for larger tables. Statistical significance was set at $p < 0.05$. Given the relatively small sample size, multivariable logistic regression was initially considered but not retained due to unstable estimates and the risk of overfitting. Therefore, bivariate analysis was considered appropriate for this exploratory study.

2.6. Ethics

This study was reviewed and approved by the Research Ethics Committee of Padjadjaran University, Bandung, and was conducted in accordance with the ethical principles of the Declaration of

Helsinki. Ethical approval was granted under registration number 2404070555 (ethical clearance certificate No. 783/UN6.KEP/EC/2024). To protect participants' confidentiality, each questionnaire was assigned a unique numeric code, and all data were securely stored with access limited to the research team. Participation was voluntary, and informed consent was obtained from all participants prior to data collection. The study involved minimal risk, and appropriate measures were taken to ensure participants' psychological comfort throughout the research process.

3. RESULTS AND DISCUSSION

3.1. Sociodemographic characteristics

Table 1 presents the sociodemographic characteristics of the 56 respondents. The largest proportion of participants was aged 26–35 years (28.6%), followed by those aged 36–45 years (26.8%). Most respondents were female (67.9%) and married (82.1%). More than half reported an income above the regional minimum wage (53.6%), and the sample was predominantly of Sundanese Ethnicity (94.6%). All teachers reported exposure to CSA-related information (100%). School headmasters were the most frequently reported source (82.1%), followed by television (58.9%), health workers (39.3%), Instagram (37.5%), and TikTok (37.5%). Other sources, including WhatsApp, newspapers, and Facebook, were reported by approximately one-quarter of respondents, while remaining sources were reported less frequently. These findings suggest that teachers are widely exposed to information, with institutional and digital platforms emerging as dominant channels. The prominence of headmasters highlights the role of school leadership in information dissemination, while the use of television and social media reflects a combination of traditional and digital information access. However, exposure through community-based sources appeared limited, suggesting potential gaps in community-level dissemination.

3.2. Teachers' knowledge and attitude

Most teachers demonstrated poor knowledge of CSA prevention (64.3%), whereas the majority showed favorable attitudes (85.7%), as shown in Table 2. These findings suggest a discrepancy between knowledge and attitudes among teachers. Although all participants reported exposure to CSA-related information, limited knowledge suggests that access to information alone may be insufficient to ensure adequate understanding. The effectiveness of information may depend on its quality, relevance, mode of delivery, and contextual appropriateness. This finding is consistent with previous studies reporting that teachers often have inadequate knowledge of CSA prevention despite exposure to related information [36]. Limited training opportunities and sociocultural constraints may contribute to this gap. In the Indonesian context, particularly within the Sundanese community, cultural norms that discourage open discussion of sexual topics may hinder teachers' understanding and limit effective communication with students [37]–[39]. Despite limited knowledge, most teachers demonstrated favorable attitudes toward prevention. This suggests that attitudes may be influenced by professional responsibility, ethical considerations, and supportive school environments, even in the absence of strong knowledge foundations. Similar findings have been reported, where teachers expressed support for prevention efforts despite insufficient knowledge [1], [17]. These findings highlight the need for structured, culturally sensitive, and practice-oriented training programs to improve both knowledge and attitudes and strengthen teachers' preparedness for CSA prevention.

3.3. Relationship between sociodemographic characteristics, information exposure, and teachers' knowledge and attitudes toward CSA prevention

Chi-square analysis showed that teachers' knowledge of CSA prevention was significantly associated with gender ($\chi^2=6.994$, $\phi=-0.353$, $p=0.008$), exposure to information through newspapers ($\chi^2=3.373$, $\phi=0.258$, $p=0.050$), Instagram ($\chi^2=4.065$, $\phi=-0.269$, $p=0.044$), and school headmasters ($\chi^2=6.233$, $\phi=0.334$, $p=0.013$). The negative ϕ values for gender and Instagram indicate inverse associations, whereas the positive ϕ values for newspapers and headmasters indicate positive associations with knowledge levels. No statistically significant associations were found for other sociodemographic variables or most information sources ($p>0.05$). Significant associations were also identified between teachers' attitudes and ethnicity ($\chi^2=6.384$, Cramér's $V=0.338$, $p=0.041$), information from headmasters ($\chi^2=7.527$, $\phi=-0.367$, $p=0.044$), and TikTok ($\chi^2=5.600$, $\phi=-0.316$, $p=0.018$). No significant associations were found for other variables ($p>0.05$). Detailed results are presented in Table 3.

These findings are consistent with international studies conducted in various settings, including China and other regions, where institutional sources were found to be more effective than informal channels in improving teachers' awareness and responses to CSA [40], [41]. This may be due to the perceived authority, credibility, and structured nature of information delivered through formal institutional systems. The association with gender suggests that differences in social roles, cultural expectations, and access to

training opportunities may influence knowledge levels, as reported in previous studies [42]. In addition, the positive association with newspapers and school headmasters indicates that structured and institutional information channels may play a more effective role in knowledge dissemination. In contrast, the negative association with Instagram suggests that exposure to this platform may be linked to lower levels of knowledge, possibly due to variability in information quality.

Table 1. Sociodemographic characteristics of teachers and exposure to CSA-related information (n=56)

Variable	n	%
1. Age (year)		
17-25	8	14.3
26-35	16	28.6
36-45	15	26.8
46-55	11	19.6
>55	6	10.7
2. Gender		
Female	38	67.9
Male	18	32.1
3. Marital status		
Married	46	82.1
Not married	10	17.9
4. Income according to regional minimum wage (RMW)		
≤RMW	26	46.4
>RMW	30	53.6
5. Ethnic group		
Sunda	53	94.6
Jawa	2	3.6
Padang	1	1.8
6. Exposure to CSA-related information		
No	0	0
Yes	56	100
a. CSA information from newspapers		
No	42	75
Yes	14	25
b. CSA information from the magazine		
No	48	85.7
Yes	8	14.3
c. CSA information from TV		
No	23	41.1
Yes	33	58.9
d. CSA information from radio		
No	51	91.1
Yes	5	8.9
e. CSA information from healthcare workers		
No	34	60.7
Yes	22	39.3
f. CSA information from health cadres		
No	50	89.3
Yes	6	10.7
g. CSA information from a friend		
No	49	87.5
Yes	7	12.5
h. CSA information from religious leaders		
No	49	87.5
Yes	7	12.5
i. CSA information from families		
No	46	82.1
Yes	10	17.9
j. CSA information from the headmaster		
No	10	17.9
Yes	46	82.1
k. CSA information from Yahoo		
No	53	94.6
Yes	3	5.4
l. CSA information from Facebook		
No	41	73.2
Yes	15	26.8
m. CSA information from Twitter		
No	49	87.5
Yes	7	12.5
n. CSA information from parents		
No	46	82.1
Yes	10	17.9
o. CSA information from Instagram		
No	35	62.5
Yes	21	37.5
p. CSA information from WhatsApp		
No	40	71.4
Yes	16	28.6
q. CSA information from Line		
No	56	100.0
Yes	0	0.0
r. CSA information from TikTok		
No	35	62.5
Yes	21	37.5
s. CSA information from neighbors		
No	56	100
Yes	0	0.0

Table 2. Teachers' knowledge and attitudes toward CSA prevention (n=56)

Variable	n	%
1. Knowledge		
Good	20	35.7
Poor	36	64.3
2. Attitude		
Favorable	48	85.7
Unfavorable	8	14.3

Table 3. Association between sociodemographic characteristics, information exposure, and teachers' knowledge and attitudes toward CSA prevention (n=56)

Variable		Knowledge		χ^2	df	p; ϕ /V	Attitude		χ^2	df	p; ϕ /V	
		Good	Poor				Favorable	Unfavorable				
1. Age (years)	17–25	5	3	7.706	4	p=0.088; V=0.381	8	0	2.795	4	p=0.570; V=0.229	
	26–35	6	10				14	2				
	36–45	3	12				13	2				
	46–55	2	9				8	3				
	>55	4	2				5	1				
2. Gender	Female	18	20	6.994	1	p=0.008*; ϕ =-0.353	34	4	1.365	1	p=0.243; ϕ =-0.156	
	Male	2	16				14	4				
3. Marital status	Married	16	30	0.097	1	p=0.755; ϕ =-0.042	38	8	2.029	1	p=0.154; ϕ =-0.190	
	Not married	4	6				10	0				
4. Income	≤RMW	7	19	1.634	1	p=0.201; ϕ =0.171	22	4	0.48	1	p=0.827; ϕ =-0.029	
	>RMW	13	17				26	4				
5. Ethnic group	Sundanese	19	34	0.734	2	p=0.114; V=0.693	46	7	6.384	2	p=0.041*; V=0.338	
	Javanese	1	1				2	0				
	Padangnese	0	1				0	1				
6. Exposure to CSA-related information	Newspapers	No	18	24	3.373	1	p=0.050*; ϕ =0.258	34	8	3.111	1	p=0.078; ϕ =-0.236
	Yes	2	12	14				0	ϕ =-0.236			
	Magazine	No	18	30	0.467	1	p=0.495; ϕ =0.091	40	8	1.556	1	p=0.212; ϕ =-0.167
	Yes	2	6	8				0	ϕ =-0.167			
	Television	No	5	18	3.320	1	p=0.068; ϕ =-0.243	18	5	1.771	1	p=0.183; ϕ =-0.178
	Yes	15	18	30				3	ϕ =-0.178			
	Radio	No	18	33	0.044	1	p=0.834; ϕ =-0.028	43	8	0.915	1	p=0.339; ϕ =-0.128
	Yes	2	3	5				0	ϕ =-0.128			
	Healthcare workers	No	11	23	0.426	1	p=0.514; ϕ =-0.087	27	7	2.807	1	p=0.094; ϕ =-0.224
	Yes	9	13	21				1	ϕ =-0.224			
	Health cadres	No	16	34	2.804	1	p=0.094; ϕ =-0.224	42	8	1.120	1	p=0.290; ϕ =-0.141
	Yes	4	2	6				0	ϕ =-0.141			
	Friends	No	19	30	1.600	1	p=0.206; ϕ =0.169	41	8	1.333	1	p=0.248; ϕ =-0.154
	Yes	1	6	7				0	ϕ =-0.154			
	Religious leader	No	18	31	0.178	1	p=0.673; ϕ =0.056	41	8	1.333	1	p=0.248; ϕ =-0.154
	Yes	2	5	7				0	ϕ =-0.154			
	Families	No	17	29	0.173	1	p=0.677; ϕ =0.056	38	8	2.029	1	p=0.154; ϕ =-0.190
	Yes	3	7	10				0	ϕ =-0.190			
	Headmaster	No	7	3	6.233	1	p=0.013*; ϕ =0.334	9	1	7.527	1	p=0.044*; ϕ =-0.367
	Yes	13	33	39				7	ϕ =-0.367			
	Yahoo	No	19	34	0.008	1	p=0.930; ϕ =0.012	45	8	0.528	1	p=0.467; ϕ =-0.097
	Yes	1	2	3				0	ϕ =-0.097			
	Facebook	No	14	27	0.164	1	p=0.686; ϕ =-0.054	33	8	3.415	1	p=0.065; ϕ =-0.247
	Yes	6	9	15				0	ϕ =-0.247			
	Twitter	No	17	32	0.178	1	p=0.673; ϕ =-0.005	41	8	1.333	1	p=0.248; ϕ =-0.154
	Yes	3	4	7				0	ϕ =-0.154			
	Parents	No	14	32	3.127	1	p=0.077; ϕ =-0.236	38	8	2.029	1	p=0.154; ϕ =-0.190
	Yes	6	4	10				0	ϕ =-0.190			
	Instagram	No	9	26	4.065	1	p=0.044*; ϕ =-0.269	29	6	0.622	1	p=0.430; ϕ =-0.105
	Yes	11	10	19				2	ϕ =-0.105			
	WhatsApp	No	16	24	1.120	1	p=0.290; ϕ =0.141	35	5	0.365	1	p=0.546; ϕ =0.081
	Yes	4	12	13				3	ϕ =0.081			
	TikTok	No	10	25	2.074	1	p=0.150; ϕ =-0.192	27	8	5.600	1	p=0.018*; ϕ =-0.316
	Yes	10	11	21				0	ϕ =-0.316			

Notes: χ^2 =Chi-square; df=degree of freedom; ϕ =Phi coefficient; V=Cramér's V; *p<0.05; RMW=regional minimum wage

Regarding attitudes, the association with ethnicity suggests that cultural norms may shape how teachers perceive and engage with CSA prevention efforts, particularly in contexts where discussions of sexuality remain sensitive. This finding is consistent with previous studies indicating that sociocultural norms influence attitudes toward sensitive issues such as CSA [43]. Information from school headmasters was also significantly associated with teachers' attitudes, highlighting the role of institutional leadership in shaping teachers' acceptance of prevention efforts. As institutional authorities, headmasters may function as reinforcing factors that influence norms and encourage positive attitudes through credible and structured communication. Exposure to TikTok was also associated with teachers' attitudes, suggesting that digital platforms may influence perceptions through interactive and emotionally engaging content. However, this relationship should be interpreted cautiously, as the quality and credibility of information on such platforms may vary. This finding highlights the importance of strengthening teachers' media literacy to critically evaluate digital content related to CSA prevention [41].

Within the PRECEDE–PROCEED framework, headmasters can be understood as reinforcing factors that strengthen or sustain positive knowledge and attitudes, while digital platforms function as

enabling factors that influence how information is accessed and interpreted. By contrast, most other sociodemographic factors and informal or community-based information sources were not significantly associated with teachers' knowledge or attitudes. These findings should be interpreted with caution, as small subgroup sizes may affect the stability of the estimates.

3.4. Integration with the PRECEDE–PROCEED model

The findings of this study align with the PRECEDE–PROCEED framework, which conceptualizes behavior as influenced by predisposing, enabling, and reinforcing factors. In this study, predisposing factors include individual characteristics such as gender and ethnicity, which were significantly associated with differences in teachers' knowledge and attitudes. Enabling factors refer to access to information sources, including newspapers, Instagram, and TikTok, which facilitate knowledge acquisition and interpretation. Reinforcing factors are represented by institutional influences, particularly the role of school headmasters, which consistently showed significant associations with both knowledge and attitudes. These findings demonstrate that teachers' preparedness for CSA prevention is shaped by the interaction of individual, informational, and institutional determinants. Therefore, effective prevention strategies should integrate these components rather than rely solely on information dissemination.

3.5. Implications for policy and practice

These findings emphasize the importance of embedding CSA prevention within school systems through the active involvement of headmasters, who function as institutional gatekeepers for both information and cultural legitimacy. Training programs should adopt gender-sensitive approaches to address disparities in knowledge and be tailored to accommodate cultural variations in attitudes. Prevention strategies may also leverage digital platforms in complementary ways, using Instagram for structured knowledge dissemination and TikTok to support attitude formation, while ensuring that all content remains evidence-based and aligned with national child protection frameworks. Furthermore, the findings underscore the need to consider both sociodemographic characteristics and formal information sources when designing policies and teacher training programs. The association between gender and knowledge highlights the relevance of gender-responsive capacity-building, while the consistent role of headmasters in disseminating information reinforces the importance of strong school leadership in legitimizing and sustaining prevention initiatives. Taken together, these implications indicate that culturally sensitive, leadership-driven, and digitally supported strategies are essential for strengthening teachers' capacity as frontline protectors and provide a coherent foundation for the study's conclusions. Specifically, the Ministry of Education and local school authorities are encouraged to develop targeted, evidence-based educational content on CSA prevention for dissemination through widely used digital platforms such as Instagram and TikTok. In addition, headmasters can play an active role in facilitating structured training and integrating such content into school-based professional development programs to enhance teachers' knowledge and attitudes toward child safety.

3.6. Limitations and future research

This study has several limitations that should be considered when interpreting the findings. First, the cross-sectional design limits causal inference, as the observed associations do not allow conclusions about the directionality of relationships between information exposure and teachers' knowledge or attitudes. Second, the relatively small sample size, drawn from selected primary schools in two districts, may restrict the generalizability of the findings to other regions or educational contexts. In addition, the use of total population sampling without randomization may introduce selection bias and affect the robustness of the results. Third, the reliance on self-reported data may introduce social desirability and recall bias, particularly given the sensitive nature of CSA. Fourth, although multiple sources of information were examined, the study did not assess the quality, frequency, or depth of exposure, which may limit the ability to fully capture the complexity of information exposure and influenced the observed associations. Furthermore, although multivariable analysis was initially considered, the relatively small sample size resulted in unstable estimates and potential overfitting. Therefore, the analysis was limited to bivariate methods, and the findings should be interpreted as associative rather than causal. In addition, multiple statistical tests were conducted without formal correction procedures, which may increase the risk of type I error. Finally, the study focused only on teachers and did not include other key stakeholders, such as parents, school counselors, or policymakers.

Despite these limitations, this study provides important insights into how sociodemographic characteristics and information exposure are associated with teachers' knowledge and attitudes toward CSA prevention in Indonesia. Future research should involve larger and more diverse samples, incorporate more robust measurement approaches, and employ longitudinal or intervention designs to better understand causal pathways. Further studies may also explore psychosocial and institutional factors, including school leadership dynamics and digital media literacy. Specifically, the Ministry of Education and local school authorities are encouraged to develop targeted, evidence-based educational content on CSA prevention for dissemination

through widely used digital platforms such as Instagram and TikTok. In addition, headmasters can play an active role in facilitating structured training and integrating such content into school-based professional development programs to enhance teachers' knowledge and attitudes toward child safety.

4. CONCLUSION

This study provides empirical evidence that teachers' knowledge and attitudes toward CSA prevention are shaped by a combination of individual characteristics, information exposure, and institutional influences. Specifically, gender and selected information sources, particularly school headmasters, newspapers, and digital platforms, were associated with knowledge, while attitudes were influenced by ethnicity, institutional communication, and exposure to TikTok. By applying the PRECEDE–PROCEED framework, this study contributes to a clearer understanding of how predisposing, enabling, and reinforcing factors interact to shape teachers' preparedness for prevention. This underscores the importance of integrating theoretical models into school-based prevention research. From a practical and policy perspective, strengthening school-based prevention requires the active involvement of headmasters as institutional leaders, the implementation of gender-responsive and culturally sensitive training, and the strategic use of credible digital platforms for evidence-based education. These approaches can enhance teachers' capacity as frontline agents in preventing CSA. Future research should employ longitudinal and intervention-based designs to establish causal pathways and evaluate the effectiveness of integrated, leadership-driven, and digitally supported prevention strategies.

ACKNOWLEDGMENTS

The authors thank the Director of Research and Community Services at Universitas Padjadjaran for supporting and funding this study through the Riset Kompetensi Dosen Unpad (RKDU) Grant 2024.

FUNDING INFORMATION

The Riset Kompetensi Dosen UNPAD (RKDU) grant 2024 provided financial assistance for the research reported in this paper.

AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

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C : **C**onceptualization

M : **M**ethodology

So : **S**oftware

Va : **V**alidation

Fo : **F**ormal analysis

I : **I**nvestigation

R : **R**esources

D : **D**ata Curation

O : Writing - **O**riginal Draft

E : Writing - Review & **E**ding

Vi : **V**isualization

Su : **S**upervision

P : **P**roject administration

Fu : **F**unding acquisition

CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

INFORMED CONSENT

We have obtained informed consent from all individuals included in this study.

ETHICAL APPROVAL

This research involving human participants adhered to the ethical principles of the Declaration of Helsinki and complied with applicable national regulations and institutional guidelines. Ethical clearance was granted by the Padjadjaran University Research Ethics Committee, Bandung (registration number 2404070555, ethical approval certificate 783/UN6.KEP/EC/2024).

DATA AVAILABILITY

The dataset generated and analyzed during the current study is available from the corresponding author, [TS], upon reasonable request.

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