

Exploring Factors Influencing Pre-Service Teachers' Knowledge and Attitudes Regarding Early Childhood Sexuality Education in China (Menelusuri Faktor-Faktor yang Mempengaruhi Pengetahuan Sikap dan Guru Pra-Perkhidmatan terhadap Pendidikan Seksualiti Awal Kanak-Kanak di China)

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ABSTRACT

Although sexuality education is widely recognized for its role in individual and societal well-being, it remains controversial in many Asian cultures, including China. Particularly at the early childhood stage, no common understanding of sexuality education has yet emerged, necessitating a systematic exploration of how to facilitate the implementation of age-appropriate sexuality education at this stage. This quantitative study surveyed 458 Chinese pre-service teachers to investigate the influencing factors of pre-service teachers' knowledge and attitudes toward early childhood sexuality education. Results indicated that ethnic culture, educational experience of sexuality, and online media significantly influenced pre-service teachers' knowledge and attitudes; however, gender showed meaningful effects on their attitudes but not on their knowledge level. Religion was found with no significant effect on both dimensions. This study provides insight on the mechanisms of multiple factors acting on pre-service teachers' perceptions of children's sexuality education, which not only enriches the research on pre-service teachers in the field of early childhood sexuality education but also provides an evidence-based foundation for education policymakers and administrators, making it a valuable reference for the development of targeted pre-service teacher training and professional development support programs and policies.

Key Words: Knowledge; Attitude; Pre-Service Teacher; Sexuality Education; China

ABSTRAK

Meskipun pendidikan seksual secara meluas diiktiraf atas peranannya dalam kesejahteraan individu dan masyarakat, ia kekal sebagai isu yang kontroversial dalam banyak budaya Asia, termasuk China. Khususnya pada peringkat awal kanak-kanak, belum wujud kesepakatan umum mengenai pendidikan seksual, sekali gus memerlukan penerokaan sistematik tentang cara melaksanakan pendidikan seksual yang sesuai mengikut usia pada peringkat ini. Kajian kuantitatif ini melibatkan 458 guru pelatih di China bagi meneliti faktor-faktor yang mempengaruhi pengetahuan dan sikap mereka terhadap pendidikan seksual awal kanak-kanak. Dapatan menunjukkan bahawa budaya etnik, pengalaman pendidikan seksual, dan media dalam talian memberi pengaruh signifikan terhadap pengetahuan dan sikap guru pelatih; namun, jantina hanya memberi kesan ketara terhadap sikap, bukan tahap pengetahuan. Agama didapati tidak mempunyai kesan signifikan terhadap kedua-dua dimensi tersebut. Kajian ini memberikan wacana mendalam mengenai mekanisme pelbagai faktor yang mempengaruhi persepsi guru pelatih terhadap pendidikan seksual kanak-kanak, sekali gus memperkaya penyelidikan dalam bidang ini serta menyediakan asas berasaskan bukti kepada pembuat dasar dan pentadbir pendidikan bagi pembangunan program latihan guru pelatih yang lebih berfokus dan berkesan.

Key Words: Pengetahuan; Sikap; Guru Pra-Perkhidmatan; Pendidikan Seksualiti; China

INTRODUCTION

Promoting individuals' scientific understanding and appropriate awareness of sexuality is becoming an important educational and research topic in the context of the worldwide advancement and advocacy of sexuality education. As an essential initiative for public health and social development, it raises individuals' awareness of sexual health and risks, strengthens their understanding of bodily autonomy and gender issues, and fosters the cultivation of inclusiveness and social responsibility (Michielsen & Ivanova 2022; United Nations Educational, Scientific and Cultural Organization [UNESCO] et al. 2018). In light of these benefits, it has been integrated into the important agendas of public policies and education systems globally. With the increasing attention given to sexuality-related issues such as sexually transmitted diseases, gender inequality, discrimination against the lesbian, gay, bisexual, transgender, and queer (LGBTQ+) community and child sexual abuse worldwide, the accessibility and quality of sexuality education from early childhood to adulthood is becoming a valued subject of all countries (UNESCO 2021; UNESCO et al. 2018; UNESCO 2015).

Sexuality education is of great significance in a child's education. The evidence-based and age-appropriate sexuality education from early childhood can help children to learn about their bodies, understand emotions, enhance awareness of boundaries, and cultivate a sense of respect and responsibility during their growth, thereby laying a solid foundation for their future sexual identity and interpersonal relationships (Council of Europe 2020; UNESCO et al. 2018; Breuner & Mattson 2016; UNESCO 2015). Meanwhile, sexuality education at an early age contributes to the prevention of sexual abuse, the reduction of sexual misconceptions, and the promotion of mental health and social resilience (Goldfarb & Lieberman 2021). Yet in many countries and regions, young children's sexuality education continues to face challenges such as the absence of curricula, scarcity of specialized teachers, and a conservative social culture, rendering it difficult for young children to be exposed to science-based sexuality knowledge at an appropriate age. Such challenges are also acute in the Chinese context.

Pre-service teachers, as the future responsibility and guides of school sexuality education, play a crucial role in shaping its effectiveness. Their scientific knowledge and skills, together with their attitudes toward sexuality, directly influence children's sexual perceptions and values (van der Gaag, Gisella Gwendolyn Walpot & Boendermaker 2024; Fisher & Cummings 2016; Coyle, Anderson & Laris 2015; Barr et al. 2014). It has been noted that teachers' expertise and personal beliefs are directly linked to the content

accuracy and the inclusiveness and openness of learning atmosphere (Maasoumi et al. 2024; Kapella & Brockschmidt 2017). Teachers who possess both accurate knowledge and positive attitudes towards sexuality education are better prepared to support young children's healthy development in sexuality, while deficiencies in either aspects may result in incomplete or inappropriate instruction and limit educational outcomes (Cheung, Kwan & Yim 2020; Council of Europe 2020; Goodh & Brown 2016). Therefore, cultivating professional competence including both knowledge acquisition and attitude development among pre-service teachers during their higher educational programs is essential to ensure the quality and effectiveness of future school-based sexuality education (Bourke, Cullen & Maunsell 2025; Barr et al. 2014; Future of Sex Education, Advocates for Youth, & SIECUS n.d.).

While strong awareness of the key role sexuality education plays in a child's holistic development and of the direct effect of professionalism on the implementation and quality of it, many obstacles remain to the promotion and practice of school-based sexuality education in China. China has amended its Law on the Protection of Minors in 2020 to explicitly state the requirement of providing age-appropriate sexuality education in kindergartens (The Central People's Government of the People's Republic of China 2020), however, lack of professional teachers, insufficient resources, missing curricular frameworks, and failure of scope and assessment method clarification make it impractical to enforce the policy regulations and educational advocates (Liu et al. 2023; Xiong, Warwick & Chalias 2019; UNESCO & United Nations Population Fund [UNFPA] 2018). It also shows signs of missing attention to knowledge and instructional skills development regarding sexuality education at the higher education, leaving pre-service teachers without requisite professional preparation to effectively respond to sexuality educational content in schools before they enter the workforce. Furthermore, the traditional Chinese culture taboos and sensitivities about sexuality restrict the openness of school sexuality education and hinder effective communication and cooperation among schools, families and society in terms of early childhood sexuality education (Wu et al. 2021; Leung et al. 2019).

Despite the extensive research on school-based sexuality education in the existing literature, studies focusing on school-based sexuality education for the early childhood sector remain relatively limited, especially in the Chinese context. Additionally, much of the available research centres on in-service teachers, with relatively limited attention paid to the critical transition cohort of pre-service teachers. It is therefore urgent to address pre-service teachers' concerns about sexuality education for young children by focusing on teacher preparation development. Through exploring the social factors affecting

pre-service teachers' knowledge and attitudes, this study aims to offer theoretical support and practical guidance for subsequent pre-service teacher preparation strategies, the optimization of curricular framework of pre-school education majors in higher education, and the development of educational policies. The main objective of this study was to explore the effects of gender, education experiences of sexuality, ethnic culture, religious, and online media on Chinese pre-service teachers' knowledge and attitudes regarding early childhood sexuality education. The sub-questions were:

- a. Which variables have a significant effect on pre-service teachers' knowledge of early childhood sexuality education?
- b. Which variables have a significant effect on attitudes towards early childhood sexuality education?

LITERATURE REVIEW

Social cognitive theory (SCT) by Bandura states that individual behaviour is composed of the interaction of cognition, emotion, and environment (Bandura 1986, 1977). Knowledge and attitude are considered as the core elements of behaviour formation: knowledge offers the conceptual foundation and attitudes reflect behavioural tendencies. SCT also stresses that social contexts, such as educational experiences, cultural norms, gender roles, and media content, can profoundly influence an individual's knowledge acquisition and attitude development through the mechanisms of observational learning, modelling, and outcome expectations (Bandura 1986, 1977). Based on this, in-depth analysis of the interaction between social factors and the intrinsic psychological variables of pre-service teachers can bring further light to their psychological mechanisms in teacher preparation process and a scientific basis for the development of targeted educational interventions, which is of great value in educational practice.

Gender has been noted as a key player in the development and acquisition of teachers' professional knowledge (Xiong, Warwick & Chalias 2019), though findings remain inconsistent. For example, Erten & Akçam Yalçın (2019) and Adogu & Nwafulume (2015) pointed out that female teacher had higher sexual health knowledge than male counterpart, while Owoyemi, Uchendu & Olabumuyi (2020) attitude and practices of primary school teachers on primary prevention of child sexual abuse in Agege Local Government Area of Lagos State. **METHODS:** Cross-sectional design that utilized a two-stage cluster sampling technique was used to select 463 public primary school teachers in Agege Local Government of Lagos State. A self-administered questionnaire was used to obtain information on respondents' socio-demographic profile, knowledge, attitude and practices on primary prevention of

child sexual abuse. Data were analysed using SPSS version 23. Descriptive statistics, Chi-square test and multivariate regression analysis were done. Statistical significance was set at 5%. **RESULTS:** The mean age of the teachers was 46.4 ± 6.5 years and the majority (70.8% stated that male teachers expressed higher knowledge of child sexual abuse than those of females. Varied findings may stem from contextual confounding factors such as location, culture, sampling objectives, etc. Moreover, according to SCT, individuals tend to accept information that aligns with their self-concept, which may explain why male teachers to show a higher degree of openness and motivation in delivering sex-related topics due to personal experience and social role expectations that are less associated with shame (Acharya 2023; Halder 2020). Yet, other studies suggest that teacher's attitude are more likely to be influenced by factors like educational background, training experience, and social support, with gender showing no significance difference in how they approach sexuality education (Bibina, Mathew & Jeyavel 2023; Onoyase 2018).

SCT proposes that individuals acquire learning through either direct experience or the observation of others' behaviours and outcomes (Bandura 1977). From this theoretical perspective, sexual-related knowledge gained during the school years is of critical interest in the development of pre-service teachers' sexual-related knowledge. Structured educational experiences have been shown to support the development of a scientifically and culture-sensitivity grounded knowledge base, thereby reducing informational blind spots when addressing sexuality-related topics (Niland, Flinn & Nearchou 2024; Szucs et al. 2020) interventions, comparisons, outcomes and study design. Five electronic databases were searched up to February 2023 including PUBMED, Cochrane Central Register of Controlled Trials, ERIC, Web of Science Core Collection and PsycINFO. Methodological quality was assessed using the Effective Public Health Practice Project, Quality Assessment tool. Results were presented as a narrative synthesis. Of the 1387 studies identified, twenty-seven studies met the inclusion criteria. Studies examined sexual health behaviours such as condom usage, frequency of sexual activity, initiation of sexual activity and number of sexual partners. More than half studies (56%. Conversely, the absence of such experiences often results in vague perceptions and hesitant responses to sexual-related incidents in school settings, reflecting uncertainty in knowledge foundations. Furthermore, school-based sexuality education significantly influences pre-service teachers' attitudes, which in turn affect the content of future teaching and also their cognitive stance on the comprehensive development of students (Bourke, Cullen & Maunsell 2025; Bibina, Mathew & Jeyavel 2023). Research tells that individuals with experienced of receiving sexual-related

information from schools are more likely to value its importance and show greater interest (Mike & Hartal 2025), with such experiences contributing to the formation of professional beliefs and offering a firm foundation for their future teaching (Maasoumi et al. 2024; Martin et al. 2020; Brouskeli & Sapountzis 2017).

The acceptance of sexuality education, traditional culture and information dissemination patterns may vary among different ethnic groups that affect individuals' knowledge of sexuality education, for example, ethnic groups like Yi often rely more on familial and community-based transmission of sexual knowledge (Badolato, Sadeghi & Goyal 2022; Ran 2022) with non-Hispanic (NH). Though a scarcity of research on how Chinese ethnic groups' cultures influence teachers' knowledge of sexuality persists, ethnic cultures possess a significant influence on sexuality issues (Odimegwu & Somefun 2017; Heinemann, Atallah & Rosenbaum 2016). Cultural sensitivities and taboos on the topic of sexuality often leave some ethnic groups with more conservative or even avoidant attitudes (Gao, Qin & Liu 2020). Empirical evidence from Yunnan has reported that the impact of ethnic culture on teachers' attitudes toward sexual health education is complicated and multidimensional, containing both the positive incentives of cultural identity and the negative constraints of social constraints (Liu 2019). Other studies also support the point, emphasizing the vital role of ethnic culture in sexuality education (Singh 2016; Vanderberg et al. 2016). Hence, the inclusion of ethnic culture as a socio-cultural variable in the research context is of vital educational research and practical significance.

Religious beliefs heavily influence an individual's access to and cognitive framework of sexual knowledge (Arousell & Carlbom 2016). Different religious cultures maintain different perspectives and norms on topics such as the body and sexual health, which determines directly the openness and restrictions of believers in terms of information acquisition. For example, in areas such as Iran, Afghanistan and Malawi, religious taboos and notions of purity contribute to limited dissemination of basic sexual health information like menstruation information and hinder the successful implementation of comprehensive sexuality education, which in turn leading to deficiency and misconceptions of individuals' sexual-related knowledge (Global Education Monitoring Report Team 2019). Rather than simply neglecting the topic, some religious frameworks actively restrict access to scientific sexual health knowledge by prohibiting cross-gender interaction, suppressing information on contraception, enforcing abstinence, and condemning diverse sexual orientations and gender identities (Glazer et al. 2023; Westwood 2022; Somefun 2019). Consequently, pre-service teachers raised in such environments may lack a

foundational understanding of sexuality, which may compromise their future professional competence. Moreover, religious beliefs that regulate sexual-related topics often shape the way believers form their attitudes and express themselves on these topics (Shin 2024; Sell & Reiss 2022; Sümer 2015). In some U.S. states, for instance, Christian-influenced curricula advocates one-sided sexuality education, omitting key topics like contraception, consent, and LGBTQ+ issues (The Associated Press 2022; Global Education Monitoring Report Team 2019). Under the influenced of religious culture, many people regard themes such as gender and sexual orientation concepts as private or family matters, discouraging school-based education (Reimers 2025; Department for Education United Kindom 2016). Teachers may exhibit caution or resistance in such belief framework (Galano, Grund & Emslander 2024; Rossouw 2024), underscoring the necessity of addressing religion's role in the development of teachers' professionalism (Anice, Serrão & Marques 2023).

With the rapid expansion of the Internet and social media, online media is now an essential channel for obtaining knowledge on sexuality (Nikkelen, van Oosten & van den Borne 2020; UNESCO 2020; Doornwaard et al. 2017), delivering information through both active searches and passive exposures such as algorithm-driven content recommendations and prompts, consistent with the process of alternative learning in the SCT (Bandura 1977). Available studies have indicated that online media can effectively enhance understanding of sexuality education concepts, means of transmission and preventive measures, with observable gender differences in the types of content sought (Berger et al. 2022; Saha et al. 2022; Nikkelen, van Oosten & van den Borne 2020). Additionally, individuals are likely to be liberal and tolerant in their attitudes towards sexuality education under the influence of online media, especially when they are exposed to sexual-related issues through social media platforms where interactivity and sharing of individual experiences often triggers emotional resonance and encourages attitudinal change (Olamijuwon & Odimegwu 2022). Extensive publicly accessible content centred on de-stigmatization, gender equality and respect for diversity allows individuals to gradually embrace more inclusive values of sexuality education (UNESCO 2023), which the process applies among the pre-service teacher as well. Online media's high interactivity, accessibility, anonymity, and content freedom make it especially favoured by ethnic and sexual minorities (Döring 2020; Doornwaard et al. 2017). Its diverse modes of engagement broaden access and influence knowledge acquisition and attitude formation, further underscoring its significant role in fostering pluralistic values within sexuality education (UNESCO 2023, 2022).

It is of great value for sexuality education to promote the sound psychological and physical development of early childhood (UNESCO et al. 2018; UNESCO 2015). However, misconceptions about early childhood sexuality education can lead to multifaceted negative impacts. When educators possess biases or misunderstandings regarding sexual knowledge, sexual behaviours, or the nature of sexuality education in general, their teaching behaviours and discourse may adversely impact on children's perception formation (Li 2023; Shibuya et al. 2023; Cheung, Kwan & Yim 2020; Balter, Rhijn & Davies 2018). They may cause confusion, anxiety, or even feelings of shame in their self-perception, body awareness, and social interactions. Moreover, such misconceptions may prevent them from developing respectful and inclusive sexual values, hinder their understanding of relationships, and limit their ability to clarify personal boundaries (Li 2023; Balter, Rhijn & Davies 2018). The absence of scientifically grounded guidance and support for young children may lead challenges in their emotional development and social (UNESCO et al. 2018; UNESCO 2015). Such potentially negative consequences underscore the necessity for systematic research into the role and mechanisms of early childhood educators' knowledge acquisition and attitude formation in sexuality education.

Generally, studies have paid extensive attention to the effects of factors such as gender, educational experience, ethnic culture, religious beliefs and online media on teachers' knowledge and attitude regarding sexuality education. Despite some factors not yet being examined systematically in the context of sexuality education, their value and prominence in the field of education have been widely recognized. The studies have broadened theoretical horizons and provided a preliminary basis for understanding teachers' roles and behaviours in sexuality education. Nevertheless, most of the current literature concentrates on in-service teachers, and systematic evidence on pre-service teachers' perspectives remains very limited. Furthermore, sexuality education has long been subject to both concept and cultural constraints in Chinese context, making the dearth of relevant research even more evident. This study, therefore, seeks to fill the gaps in existing literature by addressing key factors affecting pre-service teachers' understanding of and attitudes towards young children's sexuality education in the Chinese setting, thereby contributing to the empirical support of localized teacher education practice and policy development.

METHODOLOGY

RESEARCH DESIGN

Drawing on the positivist paradigm's emphasis on systematic observation and the scientific approach (Park,

Konge & Artino 2020), this study utilizes a quantitative research methodology to examine the statistical relationships among the variables. Quantitative research methods enable gathering quantifiable data through standardized instruments and reveal potential causal pathways among variables, thus enhancing the objectivity and reproducibility of the study (Creswell & Creswell 2018). As the study investigates factors influencing pre-service teachers' knowledge and attitudes concerning early childhood sexuality education, a quantitative approach aligns well with the study's aims and the problem-solving orientation of positivist inquiry.

Data were collected from pre-service teachers via an anonymous, voluntary questionnaire, which excluded any personally identifiable information. Participants were required to read and acknowledge an informed consent statement outlining the study's purpose, voluntary nature, anonymity, confidentiality, and the right to withdraw at any time before proceeding. Since the Chinese universities involved in the study have not yet established formal ethical review committees, no ethical approval number was granted. However, the study involved no minors, sensitive content, or psychological interventions, and posed minimal risk. All procedures complied with ethical standards for educational research, ensuring informed consent, data privacy, and participants' rights throughout.

PARTICIPANTS

Cluster sampling approach was adopted to undertake a cross-sectional survey of pre-school education students in Chinese higher education institutions located in Liaoning and Jiangxi Provinces. In Chinese universities, students are assigned to fixed classes upon enrolment based on institutional criteria, which remain unchanged throughout their studies, rendering cluster sampling appropriate.

The questionnaire was distributed online through *Questionnaire Star*, and the 14-day active survey link was shared with potential respondents via WeChat, a widely used social networking app in China. Based on Cochran's formula and an expected response rate of over 80%, the target sample size was set at 462 (Wu, Zhao & Fils-Aime 2022; Cochran 1977). In total, 497 pre-service teachers responded. To ensure data quality, after excluding 39 responses that were fictitious or inconsistent (e.g., identical answers across all items), 458 valid responses were retained for the final analyses.

INSTRUMENTATION

The first section of the questionnaire was a socio-demographic information sheet intended to collect basic information about the pre-service teachers required for the

study. Five items were designed to collect basic demographic information about the participants, including gender, age, location of the school attended, ethnicity, and religious. Another four items were utilized to collect information on whether or not they had received sexuality education in school and whether they have been contacted with sexuality information in online media.

The questionnaire was adopted for this study based on a range of previous scales and published research (UNESCO et al. 2018; Koch & Brick 2011; De Almeida Reis & Vilar 2006; Perez, Luquis & Allison 2004). Given the changing nature of the population being studied and the Chinese context, several items related to early childhood education as well as pre-service teachers were added through an extensive literature review (e.g. "School sexuality education should be obligatory for pre-service students enrolling in educational program").

The knowledge scale consists of six constructs with a total of 24 items, including scientific concepts of child sexuality education, gender cognition, patterns of physical development, child safety, child sexuality, and reproductive health knowledge. These domains reflect age-appropriate aspects of early childhood development and are essential for accurate sexuality education and early safety and prevention efforts (e.g., "Children who are sexually abused always exhibit physical science of abuse"). Each item has three options, "Yes," "Not sure," and "No," which are scored as 2, 1, and 0. Total scores range from 0 to 48, with higher scores indicating greater knowledge of early childhood sexuality education among pre-service teachers.

A total of 18 items in four constructs in the attitude scale includes beliefs about school-based sexuality education, comfort with child sexuality education, personal values regarding sexuality, and concerns over responsibility for delivering such education, are included in the attitude scale (e.g., "Children should be discouraged from asking sexuality related questions to the teachers", and "I have strong feelings against teaching sexuality in the schools"). Responses are rated on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree), with total scores ranging from 18-90. A higher score on this scale suggests a more positive attitude toward sexuality education.

A bilingual translator was invited to review the questionnaire translation to ensure linguistic clarity, fluency, and accuracy, revising four items based on feedback. Three experts specializing in early childhood education were then invited to review its feasibility. Content validity, assessed using the Content Validity Index (CVI), leading to the removal of four additional items. The final scales demonstrated high internal consistency, with Cronbach's α of .932 (knowledge) and .964 (attitude).

DATA ANALYSIS METHOD

SPSS 29.0 software was used to analyse the data. Descriptive statistics were used to report the demographic characteristics of the pre-service teachers, and the difference analysis was conducted to examine the association of pre-service teachers' knowledge and attitudes regarding early childhood sexuality education and their socio-demographic characteristic variables.

FINDINGS

CHARACTERISTICS OF PARTICIPANTS

A total of 458 pre-service teachers participated in the questionnaire, of which 426 were female (93.01%) and 32 were male (6.99%). Mean age of the participants was 19.5. Regarding geographic location, 177 samples were from Jiangxi Province and 281 samples were from Liaoning Province. In terms of year-level distribution, majority were sophomores (58.95%), followed by freshmen (23.58%), juniors (13.97%) and seniors (3.49%). As for ethnic diversity, it covered nine ethnic groups, with the largest number of Han Chinese totalling 385, followed by Tibetans (28) and Zhuang (24). Moreover, 94.1% of the respondents reported that they had no religious beliefs. The findings revealed that the overwhelming proportion of pre-service teachers were positively inclined to receive systematic sexuality education. There were 416 (90.83%) who clearly expressed their wish to get scientific education and guidance on sexuality knowledge at the university level, mirroring their urgent demand for learning in this field. Detailed information on socio-demographics is presented in Table 1.

TABLE 1: Descriptive Information

Category	Profile	Frequency	Percentage
Gender	Male	32	6.99
	Female	426	93.01
Age	16-18	97	21.18
	19-21	343	74.89
	22+	18	3.28
Location	Jiangxi	177	38.65
	Liaoning	281	61.35
	Freshman	108	23.58
Year of Study	Sophomores	270	58.95
	Junior	64	13.97
	Senior	16	3.49
	Han	385	84.06
Ethnicity	Zang	28	6.11
	Zhuang	24	5.24
	Others	21	4.33

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	None	431	94.1
Religions	Buddhism	21	4.59
	Others	6	1.32
Willingness to Learn	Yes	416	90.83
Sexuality	No	42	9.17

ANALYSIS OF RQ1: FACTORS INFLUENCING KNOWLEDGE

Independent samples t-tests were applied to examine whether participants' gender, educational experience regarding sexuality, and online media usage were associated with significant differences in their knowledge of sexuality. In addition, analysis of variances (ANOVA) examined whether ethnic culture and religious beliefs and were associated with variations in knowledge. The results are summarized in Table 2 and Table 3 respectively.

The analysis of independent t-test revealed no significant differences in knowledge based on gender. However, participants who had received in-school sexual-related information demonstrated significantly higher levels of knowledge compared to those who had not received such content in schools ($p < 0.001$). Furthermore, the results indicated that exposure to sexual-related content online—whether through active searching or passive exposure (e.g., webpage pop-ups, short videos on social media)—was also associated with significant differences in participants' knowledge ($p < 0.001$).

TABLE 2: Effect of Factors Influencing Knowledge – Independent T-test

Factors	Mean \pm SD		T-value	P-value
	Male (n=32)	Female (n=426)		
Gender	1.13 \pm 0.41	1.17 \pm 0.43	- 0.475	p = .635
Educational Experience	1.38 \pm 0.30	0.73 \pm 0.28	- 22.068	p < .001
Unintentional Exposure via Online Media	1.34 \pm 0.34	0.65 \pm 0.16	- 29.874	p < .001
Proactive Seeking via Online Media	1.52 \pm 0.08	1.02 \pm 0.43	- 20.267	p < .001

The analysis of ANOVA showed significant differences in knowledge among ethnic groups. Han Chinese participants scored higher than those from other ethnic backgrounds, suggesting that ethnic culture may influence the acquisition of sexuality knowledge. In contrast, no significant differences were observed across religious groups ($p > 0.05$), indicating that religious belief did not affect participants' knowledge levels.

TABLE 3: Effect of Factors Influencing Knowledge – ANOVA

	Ethnicity		Religion	
	Han (n=385)	1.23 \pm 0.39	None (n=431)	1.16 \pm 0.43
Mean \pm SD	Man (n=28)	0.80 \pm 0.44	Buddhism (n=21)	1.25 \pm 0.38
	Zang (n=24)	0.80 \pm 0.43	Daoism (n=2)	0.81 \pm 0.03
	Zhuang (n=7)	0.56 \pm 0.52	Christianity (n=3)	1.32 \pm 0.53
	Menggu (n=7)	1.05 \pm 0.37	Islam (n=1)	0.67 \pm null
	Dongxiang (n=3)	0.81 \pm 0.51		
	Yao (n=2)	0.69 \pm 0.03		
	Miao (n=1)	0.58 \pm null		
	Maonan (n=1)	0.75 \pm null		
F-value	10.230		1.002	
P-value	p < .001		P = 0.406	

ANALYSIS OF RQ2: FACTORS INFLUENCING ATTITUDE

Using an independent samples t-test, this study explored the differences of individuals' gender, educational experience of sexuality, and online media usage regarding their attitudes toward sexuality education. Additionally, ANOVAs were used to assess differences in participants' attitudes across ethnic culture and religious beliefs. The corresponding results are reported in Table 4 and Table 5.

The results from independent t-tests indicated a significant a significant gender difference in personal attitudes toward sexuality education, with male pre-service teachers scoring higher than their female counterparts. Results also demonstrated that participants who had received school-based sexuality education also demonstrated more positive attitudes compared to those without such experience. Moreover, either through proactive searching for relevant information or passive exposure to online sex-related content, the respondents exhibited significant differences in attitude dimensions, which underscores a strong link between online media contact and pre-service teachers' attitudes in early childhood sexuality education exists.

TABLE 4: Effect of Factors Influencing Attitude

Factors	Mean \pm SD		T-value	P-value
	Male (n=32)	Female (n=426)		
Gender	3.90 \pm 0.56	3.45 \pm 0.81	- 4.299	p < .001
Educational Experience	3.76 \pm 0.74	2.92 \pm 0.63	- 12.726	p < .001

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Unintentional Exposure via Online Media	3.72 ± 0.76	2.80 ± 0.47	- 15.305	p < .001
Proactive Seeking via Online Media	0.15 ± 4.31	0.71 ± 3.13	28.452 -	p < .001

The ANOVA analysis showed significant differences among ethnic groups in attitudes toward sexuality education. Han Chinese participants reported higher mean scores than those from other ethnic groups, suggesting that ethnic culture may influence the acceptance and effectiveness of sexuality education for young children. In contrast, ANOVA results indicated no significant differences in attitudes across religious groups ($p > 0.05$), implying that religious belief did not affect participants' attitudes.

TABLE 5: Effect of Factors Influencing Attitude – ANOVA

	Ethnicity		Religion	
Mean ± SD	Han (n=385)	3.59 ± 0.77	None (n=431)	3.49 ± 0.81
Man (n=28)	2.85 ± 0.74	Buddhism (n=21)	3.31 ± 0.75	
Zang (n=24)	2.98 ± 0.80	Daoism (n=2)	2.97 ± 0.04	
Zhuang (n=7)	2.56 ± 0.54	Christianity (n=3)	3.89 ± 0.82	
Menggu (n=7)	3.01 ± 0.26	Islam (n=1)	2.94 ± null	
Dongxiang (n=3)	2.65 ± 0.25			
Yao (n=2)	3.34 ± 1.18			
Miao (n=1)	4.17 ± null			
Maonan (n=1)	2.44 ± null			
F-value	6.993		0.736	
P-value	p < .001		P = 0.568	

DISCUSSION

EFFECTS OF GENDER

The findings are in line with previous research positing that males exhibit higher levels of acceptance on sexual-related topics, which may stem from the internalized influence of gender roles in educational contexts (Acharya 2023; Halder 2020; Toor 2012). Building on the SCT, gender, as a socialization-constructed individual attribute, may affect the depth and intensity of an individual's internalization in the process of knowledge acquisition and attitude development by impacting the person's experience, social role expectations, gender role internalization, and self-identity conceptualization. Yet, this is at odds with the conclusion of Bibina, Mathew & Jeyavel (2023) and

Onoyase (2018) that gender has no effect on teachers' sexual knowledge, hinting at the situational nature of gender effects in different cultural and educational contexts.

Notably, this study did not reveal any significant difference in pre-service teachers' sexual knowledge level by gender, which disagrees with the previous findings arguing for an effect of gender on their professional knowledge (Owoyemi, Uchendu & Olabumuyi 2020; Erten & Akçam Yalçın 2019; Xiong, Warwick & Chalias 2019; Adogu & Nwafulume 2015) attitude and practices of primary school teachers on primary prevention of child sexual abuse in Agege Local Government Area of Lagos State. METHODS: Cross-sectional design that utilized a two-stage cluster sampling technique was used to select 463 public primary school teachers in Agege Local Government of Lagos State. A self-administered questionnaire was used to obtain information on respondents' socio-demographic profile, knowledge, attitude and practices on primary prevention of child sexual abuse. Data were analysed using SPSS version 23. Descriptive statistics, Chi-square test and multivariate regression analysis were done. Statistical significance was set at 5%. RESULTS: The mean age of the teachers was 46.4±6.5 years and the majority (70.8%). While no significant gender differences in the knowledge dimension were found in this study, the linkage between knowledge and personal attitudes and feelings of one's own teaching competence as mentioned in the SCT, with multiple studies addressing the role of gender in sexuality education, prompts the need for further exploration. This result implies that future research on pre-service teachers' knowledge of early childhood sexuality education should not only further emphasize the potential shaping power of gender roles on psychological mechanisms in pre-service teacher preparation but also give more comprehensive attention to the interplay of multiple factors.

Findings contribute to both practice and policy development. From a practical perspective, sexuality education training programs for pre-service teachers should be properly adapted to gender differences and the content and framework should be maintained in a gender-sensitive and inclusive manner in the curricula. For instance, contextual simulations, reflective practices and psychological support mechanisms can be strengthened in the program for female pre-service teachers to boost their positive attitudes towards sexuality education. At the policy level, it provides reference for policymakers, highlighting the value of paying more attention to the gender-specific perceptions and attitudes of individuals in the policy and regulatory development of sexuality education for pre-service teachers, with a view to avoiding gender imbalance in the preparation of pre-service teachers.

EFFECTS OF EDUCATIONAL EXPERIENCE OF SEXUALITY

The results are consistent with the mainstream findings of international studies indicating that systematic educational experiences exert meaningful positive effects on individuals' cognition and attitudes on sexual-related topics (Bourke, Cullen & Maunsell 2025; Maasoumi et al. 2024; Niland, Flinn & Nearchou 2024; Bibina, Mathew & Jeyavel 2023; Martin et al. 2020; Szucs et al. 2020; Brouskeli & Sapountzis 2017) and teachers' comfort and competence in teaching is critical to delivering high-quality CSE. Good quality Initial Teacher Education (ITE. Viewed from the SCT perspective, learners internalize knowledge by observing and imitating role model behaviours in the social environment and gradually develop favourable attitudes driven by self-evaluative mechanisms (Bandura 1977). Hence, the experience of receiving sexual-related education could guide individuals to build scientific understanding through the constructive learning, role modelling effect and contextual feedback process, which further assist pre-service teachers to develop their role awareness and professional attitude as future educators.

It is therefore proposed that higher education institutions and educational practitioners should consider childhood sexuality education as part of the specialized curriculum in the pre-service teacher education system, making it an essential element of teachers' core competencies. The program design should cover not only systematic sexuality knowledge and instructional techniques but also attach more weight to pre-service teachers' attitudinal change in addressing sexuality education. Practical activities such as simulation classes, case studies and kindergarten observations could be carried out to empower them with the ability and confidence to respond to issues related to sexuality of young children in real educational contexts. Such initiatives contribute to the upgrading of teachers' professionalism and tackle the issue of inadequate preparation of schoolteachers in sexuality education. It is suggested to policymakers that educational experience should be sufficiently considered as an influence on individual knowledge and attitudes, and that sexuality education should be explicitly introduced into the cultivation requirements of pre-school education majors in the training standards and education system, thus pushing for the effective implementation of sexuality education in schools from both educational and political level.

EFFECTS OF ETHNIC CULTURE

Consistent with previous research, Liu (2019) noted that youth in China's ethnic minority regions showed poor awareness of sexuality education and that sexual knowledge

and attitudes were heavily influenced by ethnic cultures and customs. Other studies also support the view that sexuality education among ethnic groups with relatively conservative cultures tends to be restricted by social norms and cultural taboos, and the absence of school and family education schemes makes teachers or individuals to approach, understand, and disseminate sexuality knowledge in a more reserved manner that inhibits knowledge mastery and attitude development (Ran 2022; Gao, Qin & Liu 2020). As SCT recognizes the interplay of role modelling, social acceptance and expectations, individuals in different cultures might differ in the belief patterns, social support and coping strategies in receiving information (Bandura 1977), thus the promotion of sexuality education in multi-ethnic societies in China cannot be divorced from the cultural contexts.

Given the findings, it is suggested that educational programmes for pre-service teachers equipped with cultural sensitivities should be developed, particularly for those belonging to ethnic minorities, considering customized educational resources and consultation services to assist them in gaining insights into and coping with sexuality topics. Attention should be paid to minimizing communication resistance due to ethnic cultural taboos and conflicts through building safe and inclusive communication and learning environments. For policymakers, the balanced provision of pre-service teacher preparation on sexuality education with locally adapted content should be further facilitated in multi-ethnic areas. For instance, cultural needs and barriers should be considered in the design of curricula and programs for ethnic minority communities. Meanwhile, it is also recommended to improve public communication strategies and community-level engagement to influence people's perceptions and attitudes towards sexuality issues with respect for ethnic cultures, so as to minimize social barriers to pre-service teachers' practice.

One point to mention is that the current study found certain variations in the knowledge and attitudes of pre-service teachers from different ethnic groups. Ethnic diversity should therefore not be simplified as a matter of information deficiency for Chinese ethnic minorities as a whole. Future research is advised to expand the sample size of pre-service teachers from different ethnic minorities to further discover heterogeneous differences within different ethnic groups to advance sexuality education to cultural integration and effectiveness enhancement.

EFFECTS OF RELIGION

The findings of this study were different from previous studies that have argued religious beliefs influencing individuals' attitudes and behaviours in sexuality education through their intrinsic value system (Glazer et al. 2023;

Sell & Reiss 2022; Global Education Monitoring Report Team 2019; Sümer 2015) the United States has one of the highest teen pregnancy rates in the world. Religion and associated values may shape the sexual health behaviors of college students, as prior studies have aimed to determine how social factors may influence the use of contraception amongst college students. Thus, we sought to examine the differences in current contraceptive methods and the age of first contraceptive usage among sexually active female college students with different religious affiliations and strengths of religiosity. It was hypothesized that there would be no difference in current contraceptive methods among different religious affiliations and strengths of religions and that there would be a difference in the age of first contraceptive usage among different religious affiliations and strengths of religiosity. Two hundred and twenty-four college-aged females completed a 20-question survey about sexual health and religious practices. Chi-squared tests were implemented to determine the frequencies of responses across religious affiliations and strengths of religiosity. Significant differences in the frequency of responses for the age of first contraceptive usage were observed across different strengths of religiosity ($p = 0.016$). One of the possible reasons might lie in the low proportion of religious believers in the sample and the uneven distribution of religions, which restricts the effect shown by the religion variable in the statistical analysis. Moreover, religion tends to have a more restrained impact on communal behaviours and professional practices in the Chinese cultural context, favouring it as a private psychological support rather than an explicit behavioural guide.

The phenomenon implies that the absence of statistically significant effects of religion in this study cannot be simply interpreted to exclude its influence on pre-service teachers' knowledge and attitudes, but should instead concern whether it impacts individuals' cognition and beliefs in specific contexts in a more implicit and indirect way. Future research should therefore incorporate greater representation of religious groups in the sample profile and integrate qualitative research methods like in-depth interviews to further investigate the possible subtle mechanisms of its effect on pre-service teachers' knowledge and attitudes development.

EFFECTS OF ONLINE MEDIA

Consistent with the previous findings (Setty 2023; Berger et al. 2022; Olamijuwon & Odimegwu 2022; Saha et al. 2022; UNESCO 2022; Simon & Daneback 2013; Guse et al. 2012) "plainCitation": "(Setty 2023; Berger et al. 2022; Olamijuwon & Odimegwu 2022; Saha et al. 2022; United Nations Educational, Scientific and Cultural Organization

2022; Simon & Daneback 2013; Guse et al. 2012, the result indicates that the accessibility of information from online media as a positive relationship with young people's sexual-related knowledge and attitudes. From the perspective of SCT, individuals progressively construct their knowledge and behavioural tendencies on sexual topics by observing, imitating, and reproducing the information they have received (Bandura 1977). Regardless of whether the information originates from proactive search or passive exposure, the continuous experience contributes to the internalization of knowledge and attitude enhancement. Especially in the domain of sexuality education, the low-threshold, non-face-to-face and relatively private learning channels provided by online media effectively lower the resistance feelings, thereby creating conditions for individuals to cultivate more positive and self-confident sense of engagement in sexuality education.

Hence, at the practical level, it is recommended the education practitioners should consider creating online resources and platforms for pre-service teachers and optimizing the content presentation style such as interactive quizzes and popular science videos to enrich the visualization and attractiveness of the information. Incorporating the online media could not only accelerate the spread of sexuality knowledge but also decrease the potential sensitivities of pre-service teachers during the training on child sexuality education to promote their professionalism. Moreover, policymakers are also alarmed about the necessity to pay further attention to the contents review and quality control of sexuality education resources on online platforms and to effectively regulate the online environment while safeguarding the free flow of information, which is crucial to ensure that online media plays the positive roles.

CONCLUSION

The present study explored the effects of social factors on pre-service teachers' knowledge and attitudes regarding sexuality education in early childhood. Findings indicated that educational experience, ethnic culture, and online media had significant effects on both variables, gender showed statistical differences on attitudes, while religion failed to show any significant effect, possibly due to sample limitations. The overall pattern supports the essential role of social factors in pre-service teachers' preparation for sexuality education. It highlights the necessity of constructing locally and individually adapted sexuality education curricula by integrating cultural sensitivity and media context in the educational programs for pre-service teachers. Despite the limitations of the sample and self-reported data, the study empirically supports policymakers

and practitioners in upgrading the professionalism of pre-service teachers to facilitate the implementation of sexuality education for sustainable development. Future studies are recommended to expand the sample diversity and incorporate multiple research methodologies to further validate and broaden the current findings to advance the broad applicability and interpretive depth of the findings.

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