EFFECTIVENESS OF *SMARTSHIELD* SEXUAL ABUSE PREVENTION IN PRIMARY SCHOOL CHILDREN IN MALAYSIA

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by

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LIST OF ABBREVIATIONS

CDAE	Centre of Academic Excellence
CSA	Child sexual abuse
CVI	Content validity index
FVI	Face validity index
I-CVI	Item-content validity index
I-FVI	Item level face validity index
IQR	Interquartile range
ITGSE	International technical guidance on sexuality education
KMO	Kaiser-Meyer-Olkin
MOE	Ministry of Education
MOOC	Massive Open Online Course
NGT	Nominal group technique
NUTP	National Union of the Teaching Profession Malaysia
PEERS	Prevention, education, empowerment, response, and support
PTSD	Post-traumatic stress disorder
RM ANOVA	Repeated measure analysis of variance
S-CVI	Scale level content validity index
S-FVI	Scale level face validity index
SD	Standard deviation
SUS	System Usability Scale
UNESCO	United Nations Educational, Scientific and Cultural Organization
VARK	Visual, auditory, read, kinesthetics
WHO	World Health Organization

KEBERKESANAN *SMARTSHIELD* DALAM PENCEGAHAN PENDERAAN SEKSUAL DALAM KALANGAN MURID SEKOLAH RENDAH DI MALAYSIA

ABSTRAK

Penderaan seksual kanak-kanak merupakan kecemasan kesihatan yang senyap, dengan kesan serius terhadap kanak-kanak. Pendidikan berasaskan sekolah membantu kanak-kanak mengenal pasti situasi tidak selamat dan melindungi diri mereka. Kajian ini bertujuan untuk menentukan kebolehgunaan modul *SmartShield*, mengesahkan soal selidik, mengenal pasti tahap pengetahuan, sikap, dan kemahiran dalam pencegahan penderaan seksual, serta membandingkan keberkesanan modul *SmartShield* dengan pendekatan pedagogi bilik darjah dalam kalangan murid sekolah rendah. Fasa 1 merupakan kajian keratan rentas menggunakan soal selidik *System Usability Scale (SUS)* versi Bahasa Melayu yang telah disahkan kesahihannya, melibatkan 30 ibu bapa dan guru melalui pensampelan mudah. Soal selidik *SmartShield* 1 untuk tahap rendah dan *SmartShield* 2 untuk tahap tinggi telah dibangunkan. Kesahan kandungan dinilai oleh enam pakar, kesahan muka oleh 10 orang guru, dan struktur dalaman dinilai oleh 167 murid sekolah rendah. Fasa 2 melibatkan kajian keratan rentas menggunakan pensampelan kelompok berstrata pelbagai peringkat, dengan formula satu perkadaran menganggarkan 900 murid sekolah menggunakan soal selidik *SmartShield* yang telah disahkan. Analisis deskriptif telah dijalankan. Fasa 3 merupakan kajian kuasi-eksperimen terkawal dengan penilaian pra dan pasca intervensi pada asas, Minggu ke-2 dan Minggu ke-4. *Repeated measures ANOVA* telah dijalankan. Fasa 1, skor median (IQR) SUS bagi

SmartShield 1 ialah 95.0 (89.38, 98.13), dan bagi *SmartShield* 2 ialah 96.3 (87.5, 100.0). Kesahan kandungan bagi pengetahuan, sikap, dan kemahiran untuk *SmartShield* 1 masing-masing ialah 0.85, 0.98 dan 0.95; manakala bagi *SmartShield* 2 ialah 0.90, 0.94 dan 0.94. Fasa 2 menunjukkan 48.1% murid tahap rendah mempunyai pengetahuan tinggi, 39.8% mempunyai sikap positif, dan 78.5% mempunyai kemahiran yang baik. Bagi tahap tinggi pula, peratusan masing-masing ialah 59.9%, 41.4% dan 78.9%. Fasa 3 menunjukkan terdapat perbezaan skor yang signifikan bagi pengetahuan ($p < .001$), sikap ($p = .015$) dan kemahiran ($p < .001$) dalam kalangan murid sekolah rendah tahap rendah. Terdapat juga perbezaan skor yang signifikan bagi pengetahuan ($p < .001$), sikap ($p < .001$) dan kemahiran ($p < .001$) dalam kalangan murid sekolah rendah tahap tinggi. Soal selidik *SmartShield* merupakan alat yang sah untuk menilai pengetahuan, sikap dan kemahiran berkaitan pendidikan seksual. Sebanyak 48% hingga 60% murid mempunyai pengetahuan tinggi, 40% menunjukkan sikap positif terhadap pendidikan seksual, dan 78% mempunyai kemahiran yang baik dalam mencegah penderaan seksual. Modul *SmartShield* 1 dan *SmartShield* 2 terbukti lebih berkesan berbanding pendekatan pedagogi bilik darjah dan wajar dipertimbangkan untuk dimasukkan ke dalam kurikulum sekolah kebangsaan.

EFFECTIVENESS OF *SMARTSHIELD* SEXUAL ABUSE PREVENTION IN PRIMARY SCHOOL CHILDREN IN MALAYSIA

ABSTRACT

Child sexual abuse is a silent health emergency, with serious consequences for children. School-based education helps children recognize unsafe situations and protect themselves. This study aimed to determine the usability of the *SmartShield* modules, validate the questionnaires, determine the proportion of knowledge, attitude, and skills for sexual abuse prevention and compare the effectiveness of *SmartShield* modules than classroom-based pedagogical approaches among primary school children. Phase 1 was a cross-sectional study using the validated Malay System Usability Scale (SUS) questionnaire, involving 30 parents and teachers through convenient sampling. *SmartShield* 1 for lower primary and *SmartShield* 2 for upper primary questionnaires were developed. Content validity assessed by six experts, face validity by 10 teachers, and internal structure assessment by 167 primary school children. Phase 2 involved a cross-sectional study employing stratified multistage cluster sampling with single proportion formula estimated 900 school children using validated *SmartShield* questionnaires. A descriptive analysis was conducted. Phase 3 was a quasi-experimental controlled trial with pre- and post-assessments at baseline, Week 2, and Week 4. Repeated measures ANOVA was conducted. Phase 1, the median (IQR) SUS score for *SmartShield* 1 was 95.0 (89.38, 98.13), and *SmartShield* 2 was 96.3 (87.5, 100.0). Content validity for knowledge, attitude, and skills of *SmartShield* 1 were 0.85, 0.98, and 0.95, respectively, and for *SmartShield* 2 were 0.90, 0.94, and 0.94, respectively. Phase 2, 48.1% of lower primary children had high knowledge,

39.8% had positive attitudes, and 78.5% had good skills. For upper primary, the figures were 59.9%, 41.4%, and 78.9%, respectively. Phase 3, there were significant differences in score changes for knowledge ($p < .001$), attitude ($p = .015$) and skills ($p < .001$) for lower primary school children. There were significant differences in score changes for knowledge ($p < .001$), attitude ($p < .001$) and skills ($p < .001$) for upper primary school children. *SmartShield* questionnaires are valid tools for evaluating knowledge, attitudes, and skills related to sexual education. 48% to 60% have a high knowledge, 40% have positive attitudes toward sexual education, and 78% have good skills in preventing sexual abuse. The *SmartShield* 1 and *SmartShield* 2 module was effective than classroom-based pedagogical approaches and should be considered for integration into the national school curriculum.

CHAPTER 1

INTRODUCTION

1.1 Background of the study

1.1.1 Definitions and types of sexual abuse

Child sexual abuse (CSA) can be defined as any activity with a child before the age of legal consent for the sexual gratification of an adult or a substantially older child. These activities include oral-genital, genital-genital, genital-rectal, hand-genital, hand-rectal, or hand-breast contact; exposure of sexual anatomy; forced viewing of sexual anatomy; and showing pornography to a child or using a child in the production of pornography. Viewing or touching the genitalia, buttocks, or chest by preadolescent children, separated by no more than four years of age, with no force or coercion, is termed sexual play (Johnson, 2000). Incest is defined as any sexual intercourse between close-blood relatives, including step-relatives and family members, and legal marriage is forbidden between them (Yildirim *et al.*, 2014). Incest is the severest form of CSA (Sahin & Taşar, 2012) and is categorized as intrafamilial sexual abuse. Incest usually involves more invasive sexual acts and causes deeper emotional and physical harm to the victim (Quadara *et al.*, 2015).

There are three main types of CSA. First, contact sexual abuse happens when someone forces a child into any kind of physical sexual activity. This can include inappropriate touching, fondling, or making the child take part in sexual acts. It often involves direct contact with the child's body, such as touching private parts, oral-genital contact, or even penetration. These acts are deeply harmful because they violate the child's sense

of safety and dignity, cause emotional trauma, and can lead to long-lasting psychological and physical damage (Csorba, Elfrink & Tsikouras, 2024).

Second, non-contact sexual abuse occurs when someone harms a child without any physical touch. This can include exposing the child to pornography, sending sexually explicit messages, or forcing them to watch inappropriate sexual acts. Even though there is no direct contact, these actions can deeply confuse and frighten a child, leaving emotional scars and long-term psychological harm (Ali *et al.*, 2024).

Third, intrafamilial sexual abuse happens when the abuser is someone within the child's own family. This could involve a parent, sibling, or other close relatives, making it especially damaging because it breaks the trust and safety a child expects at home. Such abuse often causes deep emotional and psychological harm, as the child feels trapped and powerless in an environment that should protect them (Scott, 2023).

The World Health Organization (WHO) classifies CSA as a silent health emergency (Yesuiah, 2018). However, it continues to be a social issue that is not given the attention it requires, especially in the case of sexual relationships involving children. Most of the incest victims in reported cases were children (Asmida & Ramzi Sulaiman, 2017). Data from a meta-analysis study showed that victims of intrafamilial sexual abuse were younger than victims of extrafamilial abuse (Ventus et al., 2017).

1.1.2 Magnitude of sexual abuse on children

In Canada, out of 282 Indigenous participants, 35% of boys, 50% of girls, and 57% of trans and gender non-conforming participants reported experiencing childhood sexual abuse. These percentages significantly exceed the global meta-analytic estimates of 7.6% for boys and 18.0% for girls (Helmus & Kyne, 2023). Children in Pakistan face an elevated risk of CSA, particularly during the COVID-19 pandemic. The research revealed a substantial 96.7% surge in awareness regarding 'personal safety and space bubble' achieved through video literacy programmes (Razzaq et al., 2023).

In Zimbabwe, teachers believe that providing comprehensive sexuality education is essential for empowering young children in the early grades. This education helps them gain the necessary skills, knowledge, and attitudes to keep themselves safe from sexual abuse (Mahoso & Finestone, 2023). The research centred on male children undergoing rehabilitation in Kathmandu Valley, revealing that street children face heightened vulnerability to various forms of abuse, including CSA. Perpetrators commonly take advantage of these children by offering them drugs, money, and gifts (Khanal & Shakya, 2022). The research discovered that in Sohag Governorate, Egypt, the highest percentage of sexually abused children (47.7%) were boys aged 6 to 12 years. Among the boys, anal abuse was the most common type of abuse (Hamdy et al., 2022).

The study revealed that 60% of children in Rwanda had faced various forms of violence, including sexual abuse. Additionally, the research indicated that children who go to school are more prone to encountering physical violence (Nyandwi *et al.*, 2022). A study was conducted on exploring intimate partner violence and child abuse

within the healthcare professional community. Those who have experienced intimate partner violence are 2 to 3 times more prone to have physical, sexual, or emotional abuse in their childhood (McLindon *et al.*, 2022).

In Lagos State, Nigeria, this study discovered that kids in primary school know a lot about sexual violence. Almost 80% of the kids said that girls are the ones most affected, and they learn about it mainly from the media. About 60% think strangers are the main people who do it, and around 59% said they would tell someone if something like that happened (Sulaiman, Tahir & Ifenaike, 2021). In developing countries, when sexual violence increases by one standard deviation, it hurts the education of girls. Specifically, there is a decrease in the enrolment rate by 2.4% and a drop in the completion rate by 3.2% points (Okafor & Piesse, 2022). It was shown that children under the age of nine who have not been abused have little knowledge of the functions of their private parts and have little comprehension of adult interactions (Van Ham et al., 2020).

A total of 15.8% of the school children in Nepal reported experiencing CSA, with a higher prevalence among boys (73.43%) compared to girls. Most incidents occurred when the victims were between 12 and 16 years old, while fewer cases were reported before the age of 6. Despite experiencing abuse, only about half of the victims disclosed the incidents, most often confiding in friends rather than parents. Unfortunately, many of those who disclosed were dismissed or not believed, with shame being the primary reason for non-disclosure (Shrestha *et al.*, 2021).

In Nairobi City County, 78% of girls and 22% of boys aged 5 to 8 years experienced sexual abuse. The study recommended adding life skills education to school curricula to help children protect themselves (Kamau-Kang'ethe & Walioli, 2020). Therefore, the findings of our study provide valuable insights and contribute to understanding the level of knowledge and skills among primary school children, aiming to reduce the prevalence of CSA.

The reported cases of child sexual abuse in Malaysia rose sharply in 2023, reaching 1,567 incidents compared to 1,239 in 2022. This represents a 26.5% increase year-on-year, signalling a significant escalation in the prevalence of such crimes. The upward trend highlights growing concerns about child safety and underscores the urgent need for stronger preventive measures and enforcement strategies (*Crime statistics Malaysia*, 2024).

1.1.3 Impacts of sexual abuse on children

Psychological Impact: Trauma means bad experiences that hurt a person a lot. When someone is sexually abused, it can make them feel very upset inside. This hurt is like a deep wound in their emotions and stays for a long time. It makes it hard for them to feel okay. These bad feelings can stick with them, affecting their thoughts and feelings. It is essential to understand that this hurt can last long, leaving marks on their mind and heart. Helping and supporting them is crucial so they can heal from these bad experiences (Ochoa & Constantin, 2023).

Post-traumatic stress disorder (PTSD) is one of the possible impacts of CSA. This is when a child who has been through a scary or bad experience, like sexual abuse, starts having memories and feelings that make them feel scared and upset, even after the bad thing is over. These memories can come suddenly, even when the child is awake, and they are called flashbacks. When the child is sleeping, these memories can cause scary dreams or nightmares, making it hard for them to feel safe. Because of these memories, the child might also feel extra worried or scared, even in situations that are supposed to be okay. PTSD is like having scary memories that keep coming back and making the child feel fearful or anxious. It is crucial to help and support a child who has been through this so they can start feeling better over time (Ucuz et al., 2022).

CSA can make children feel very sad and worried, leading to depression and anxiety. Depression is when a child feels down and has a hard time enjoying things. Anxiety is when they feel very nervous or scared, even when there is no apparent danger. These bad feelings can also lead to other mood problems. It is like having a heavy weight on their hearts and minds, making it challenging to be happy or feel calm. Supporting CSA victims is vital so they can work through their complex emotions (May et al., 2021).

Emotional impact: CSA can make kids feel bad about themselves. They might feel embarrassed and think they are bad because of what happened. Sometimes, they may feel it is their fault or they did something wrong. These feelings are like carrying a heavy burden inside. It is essential to let them know it is not their fault and help them feel better. Supporting and caring for them can make a big difference in assisting them to heal over time (Erdoğan, 2023).

When kids go through sexual abuse, it can make them feel bad about themselves. It is like the bad things that happen make them believe they are not necessary or valuable. This feeling gets very strong, and they begin to see themselves negatively. They forget about the good things about themselves and only think about the bad stuff. This is called low self-esteem, which means they do not feel good about who they are. It is important to help them remember that they are valuable and vital. We want to show them good things about themselves and support them so they can start feeling better about who they are as time goes on (Shen & Soloski, 2024).

Physical impact: Physical injuries in cases of violent sexual abuse can be significant and require careful attention. When children experience violent forms of sexual abuse, their bodies may be harmed in various ways. This can involve injuries to different parts of their bodies, such as bruises, cuts, or internal injuries. The severity of these injuries often necessitates medical attention to adequately address and treat the physical harm inflicted upon the child. Seeking prompt medical care is essential for healing and documenting the extent of the injuries, which can be crucial for legal proceedings (Tenkorang, 2023). Besides the direct physical effects, these injuries can also affect the child's overall health. The combined effects of physical pain, emotional distress, and possible long-term health issues may deepen the overall psychological impact of the traumatic experience (Lamela *et al.*, 2024).

Caring for physical injuries is an essential part of helping children recover from sexual abuse. This process involves teamwork between healthcare providers, caregivers, and support services to ensure the child’s physical health is addressed and their recovery

is properly supported (Herbert & Bromfield, 2021). Sexual abuse can interfere with a child's reproductive health, including changes in puberty, menstrual cycles, and future sexual well-being. For girls especially, the emotional stress from abuse may lead to irregular periods and delayed development (Noll *et al.*, 2017). Getting early help from doctors and counsellors is important, and children need a safe space to share their feelings and start to heal (Mbizvo *et al.*, 2023).

Children who have experienced sexual abuse may struggle with sleep problems, including difficulty falling asleep, frequent awakenings, and nightmares linked to the trauma. Their sleep is often restless, and the distress can continue the next day. These disruptions in sleep patterns can contribute to fatigue, irritability, and difficulties concentrating during waking hours (Langevin *et al.*, 2023). CSA can lead some children to develop unhealthy eating habits to cope with emotional pain. They might use food to feel in control or to block out complicated feelings, which can sometimes result in overeating or binge-eating (Alves et al., 2024).

Some children may stop eating or eat very little to take control of their bodies when everything else in their life feels overwhelming (Boumpa *et al.*, 2022). Weight changes from disordered eating can affect physical health and add to emotional distress. Whether through weight gain or loss, these changes may also lead to body image issues, further complicating recovery (McLindon *et al.*, 2022). It is crucial to recognize and address these signs of distress in children who may have been victims of sexual abuse. Early intervention, therapy, and support can play a significant role in helping these children cope with the trauma and work toward healing (Wamser-Nanney & Campbell, 2020).

According to the Women, Family and Community Development Ministry of Malaysia, the number of overall rape cases (13,272, or 59.7%); incest (1,796 cases or 8.07%), unnatural sex (1,152 cases or 5.18%), and sexual assault (6,014 cases or 27.04%) involving children were reported from 2010 to May 2017 (Farhana, 2017; Geraldine, 2017; Yesuiah, 2018). Sabah recorded the highest number of incest incidences, at 263 cases or 14.64% of the total (Farhana, 2017; Geraldine, 2017). Meanwhile, data from the Royal Malaysia Police showed that 22% of the incest cases reported from 2013 to 2017 consisted of children aged 6 to 12 (Women's Aid Organisation, 2018).

Educational impact: Children who have experienced sexual abuse often struggle with focus and cognitive engagement in educational settings. Trauma from abuse can disrupt attention regulation and working memory, making it difficult for children to stay engaged during classroom activities, follow instructions, or complete tasks. Studies show that children who experience sexual abuse often face long-term learning difficulties, such as trouble focusing and staying engaged in school (Jean-Thorn & Hébert, 2024).

Sexual abuse can negatively affect school attendance, as survivors may avoid school settings due to anxiety, fear, or emotional distress. This disengagement from regular schooling can disrupt learning continuity and social integration with peers, further weakening educational outcomes. Evidence from retrospective studies of CSA survivors indicates that childhood sexual abuse is associated with adverse effects on attendance, underscoring how trauma can interfere with consistent school participation (Cagney *et al.*, 2025).

The cumulative impact of trauma, disrupted attendance, and difficulty concentrating often results in lower academic performance among children who have experienced sexual abuse. These students tend to achieve lower school grades and face higher risks of dropping out compared with non-abused peers (Ochoa & Constantin, 2023). Longitudinal evidence shows that CSA adversely influences educational outcomes, including grade attainment and overall academic success, highlighting the long-term educational costs of such early trauma .

SmartShield is a web-based child sexual abuse prevention programme designed for primary school children in Malaysia. It includes two age-appropriate modules: *SmartShield* 1 for lower primary students and *SmartShield* 2 for upper primary students. The programme uses animated videos and interactive activities to teach children about body safety, personal boundaries, and protective skills in a child-friendly way that aligns with the national curriculum. It is important to study the usability and effectiveness of *SmartShield* among both lower and upper primary students because children's understanding, attention span, and learning needs differ across age groups, and the programme must be suitable and effective for each developmental stage.

1.2 Problem statement and study rationale

In Malaysia, people rarely talk openly about sexual issues. Cultural taboos make it hard to discuss sex or related topics. Because of this, many people lack accurate information and often believe myths instead of facts (Mohd Yusof et al., 2015; Mollamahmutoglu et al., 2014). Many children do not understand or are unable to

recognize what counts as sexual misconduct. Most children suffer in silence because they do not know whom to call for help. Usually, the abuse lasted for years before the victims were rescued. In some cases, the victims were warned by the perpetrators to keep silent. Even if the family members knew the case, no action was taken to fear repercussions (Haliburn, 2017).

Sex education seeks to provide people with sex-related information, motivation, and behavioural skills to help them avoid sex-related issues and attain sexual well-being. Existing sex education programmes are typically offered using relatively passive classroom-based pedagogical strategies, and their effectiveness in accomplishing their goals is debatable (Barak & Fisher, 2001). Adopting technological advances and digital media as an approach to child sexuality education enhances classroom-based learning (Sierra-Yagüe *et al.*, 2025).

To the researchers' knowledge, there has been no recent study on sexual education in Malaysia since the guidelines from UNESCO were revised in 2018. The bulk of the studies on sexual abuse were performed abroad. The *SmartShield* module was consolidated from Ministry of education textbook to provide a digital, locally designed tool for sexual education and abuse prevention among Malaysian primary school children.

1.3 Research questions

Phase 1

1. Is *SmartShield* a usable tool for primary school children?
2. Are the knowledge, attitude, and skills for sexual education and abuse prevention questionnaires valid and reliable tools for primary school children?

Phase 2

3. What is the level of knowledge, attitude, and skills for sexual education and abuse prevention among lower primary school children?
4. What is the level of knowledge, attitude, and skills for sexual education and abuse prevention among upper primary school children?

Phase 3

5. Is *SmartShield* effective for lower primary school children?
6. Is *SmartShield* effective for upper primary school children?

1.4 Objectives of the study

1.4.1 General objective

To determine the *SmartShield* usability and effectiveness among primary school children in Malaysia.

1.4.2 Specific objectives

Phase 1

1. To determine the usability of *SmartShield* for primary school children.
2. To validate the knowledge, attitude, and skills for sexual education and abuse prevention questionnaires for primary school children.

Phase 2

3. To determine the proportion of (i) high level of knowledge of sexual education, (ii) positive attitude toward sexual education, and (iii) good skills for sexual abuse prevention among lower primary school children.
4. To determine the proportion of (i) high level of knowledge of sexual education, (ii) positive attitude toward sexual education, and (iii) good skills for sexual abuse prevention among upper primary school children.

Phase 3

5. To compare the effectiveness of *SmartShield* 1 in (i) knowledge scores for sexual education, (ii) attitude scores for sexual education, and (iii) skills scores for sexual abuse prevention versus standard classroom-based pedagogical techniques at baseline and two weeks post-intervention among lower primary school children.
6. To compare the effectiveness of *SmartShield* 2 in (i) knowledge scores for sexual education, (ii) attitude scores for sexual education, and (iii) skills scores for sexual abuse prevention versus standard classroom-based pedagogical techniques at baseline and two weeks post-intervention among upper primary school children.

1.5 Hypotheses

1. *SmartShield* is a usable tool for sexual abuse prevention in children.
2. Knowledge, attitude, and skills for sexual education and abuse prevention questionnaires are valid and reliable assessment tools for primary school children.
3. *SmartShield* for sexual abuse prevention is effective for lower primary school children.
4. *SmartShield* for sexual abuse prevention is effective for upper primary school children.

1.6 Definition of terms

Usability of SmartShield modules refers to how easily and accurately primary school children can use the modules to achieve intended learning objectives, efficiently and with user satisfaction, within the context of sexual abuse prevention (Martins *et al.*, 2015).

Knowledge of sexual education refers to the ability to understand sexual education. The knowledge of sexual education consists of 14 items for the *SmartShield* 1 questionnaire and 32 items for the *SmartShield* 2 questionnaire. The knowledge of sexual education was presented as scores and can also be categorized based on Bloom's cut-off point (60-80%) (Bloom *et al.*, 1956). Within this range, scores were equated with having a moderate level of knowledge. Scores above the cut-off indicated a high level of knowledge, while scores below indicated a low level of knowledge.

Attitude toward sexual education refers to a responsive expression toward sexual education. The attitude towards sexual education consists of 5 items for the *SmartShield* 1 questionnaire and 10 items for the *SmartShield* 2 questionnaire. The attitude toward sexual education was presented as scores and can also be categorized based on Bloom's cut-off point (60-80%) (Bloom *et al.*, 1956). Within this range, scores were equated with having a neutral attitude towards sexual education. Scores above the cut-off reflected a positive attitude toward sexual education, while scores below suggested a negative attitude.

Skills for sexual abuse prevention refer to actions taken to prevent sexual abuse. Skills for sexual abuse prevention consist of 5 items for the *SmartShield* 1 questionnaire and 10 items for the *SmartShield* 2 questionnaire. The skills for sexual abuse prevention were presented as scores and can also be categorized based on Bloom's cut-off point (60-80%) (Bloom *et al.*, 1956). Within this range, scores were equated with having fair skills for sexual abuse prevention. Scores above the cut-off indicated good skills in sexual abuse prevention, while scores below suggested poor skills in sexual abuse prevention.

SmartShield **modules** provide sexual education content based on Malaysia's primary school curriculum, while ***SmartShield*** **questionnaires** are validated tools designed to assess understanding of that content.

1.7 Structure of the thesis

This thesis is divided into six chapters. Chapter 1 introduces research. This includes the background, research questions, study objectives, hypotheses and operational definitions used. Chapter 2 reviews the literature about the sexual abuse prevention programmes, knowledge of sexual abuse, attitudes towards sexual abuse, and skills of sexual abuse prevention. Chapter 3 explains the research methodology and the approach used. The three phases of the research to capture data are described, and the flow chart of the study is also displayed. Chapter 4 presents the findings of the quantitative questionnaire survey. Chapter 5 discusses the findings of the objectives. In Chapter 6, conclusions based on the study objectives are drawn, and recommendations are made.

CHAPTER 2

LITERATURE REVIEW

This chapter covers sexual abuse prevention programmes related to knowledge of sexual education, attitudes towards sexual education and skills to prevent sexual abuse.

2.1 Sexual abuse prevention programmes

A sexual abuse prevention program is a structured intervention designed to reduce the risk of sexual abuse through education, awareness, and behavioural training (Shin *et al.*, 2019). Sexual abuse prevention programs are generally categorized by their target population: (i) the general population, which seeks to prevent abuse beforehand via awareness, education, and skill enhancement (Finkelhor, 2009); (ii) at-risk children, through specific programs designed to mitigate vulnerability (Rudolph *et al.*, 2023); and (iii) abuse victims, aimed at decreasing harm and preventing a recurrence through therapy, support, and rehabilitation (Michael *et al.*, 2014).

The sexual abuse program is delivered based on the place setting. School-based programs are the most common type of sexual abuse prevention and are usually integrated into the school curriculum or extracurricular activities (M. Lu *et al.*, 2022). Community-based programs are delivered through community centers and religious institutions, involving local groups in efforts to prevent sexual abuse (McCartan & Brown, 2019). Healthcare-based programs are provided in hospitals or clinics, often as part of secondary or tertiary prevention efforts for children at risk or those who have experienced abuse (Chen *et al.*, 2022). Home-based programs are designed for parents

to guide their children through simple activities at home, helping them understand personal safety and ways to prevent sexual abuse (Khoori *et al.*, 2020).

School-based programs to prevent CSA are structured educational efforts delivered in classroom settings to help children learn how to protect themselves from abuse (Walsh *et al.*, 2015). These programs were first developed in the United States during the 1970s, primarily led by feminist and women's advocacy groups, as part of broader efforts to raise awareness about sexual abuse and equip children with self-protection skills (Wurtele, 2009). Since then, similar programs have been implemented in various countries (Walsh *et al.*, 2018).

Schools offer an effective platform for CSA prevention programs as they reach children from diverse backgrounds and allow large-scale delivery of structured education (M. Lu *et al.*, 2022). The classroom environment is typically safe and supportive, providing an appropriate space to teach body awareness, personal boundaries, and protective skills (Allen, Livingston & Nickerson, 2020). Given the significant time students spend in school, these messages can be reinforced consistently over time (Rudolph *et al.*, 2023). Teachers and staff, who often form close bonds with students, are also in a strong position to spot early warning signs and respond when children choose to speak up (Wurtele, 2009). On top of that, CSA-related topics can easily be integrated into subjects like health, moral education, or life skills (Le *et al.*, 2024).

2.1.1 International technical guidance on sexuality education

The United Nations Educational, Scientific and Cultural Organization (UNESCO) commissioned an International Technical Guidance on Sexuality Education (ITGSE) in 2018. There are eight key concepts designed to support children and adolescents in developing the knowledge, values, and practical skills they need to make informed decisions about their health and well-being. These concepts also encourage them to respect their rights and those of others, while being mindful of how their choices impact people around them. The concepts are (i) relationships, (ii) values, rights, culture, and sexuality, (iii) understanding gender, (iv) violence and staying safe, (v) skills for health and well-being, (vi) the human body and development, (vii) sexuality and sexual behavior and (viii) sexual and reproductive health (Table 2.1).

Each concept is divided into four age groups (5-8 years, 9-12 years, 12-15 years, and 15- 18+ years). However, the lessons could be adjusted to include earlier or later age groups based on needs and country or regionally specific characteristics, such as social and cultural norms and epidemiological context (UNESCO, 2018).

Table 2.1 The UNESCO key concept and its related topics

Key concept	Topic
1. Relationships	a. Families b. Friendship, love and romantic relationship c. Tolerance, inclusion and respect d. Long-term commitments and parenting
2. Values, rights, culture and sexuality	a. Values and sexuality b. Human rights and sexuality c. Culture, society and sexuality

Table 2.1 Continued

Key concept	Topic
3. Understanding gender	a. The social construction of gender and gender norms b. Gender equality, stereotypes and bias c. Gender-based violence
4. Violence and staying safe	a. Violence b. Consent, privacy, and bodily integrity c. Safe use of information and communication technologies
5. Skills for health and well-being	a. Norms and peer influence on sexual behaviour b. Decision-making c. Communication, refusal and negotiation skills d. Media literacy and sexuality e. Finding help and support
6. The human body and development	a. Sexual, reproductive anatomy and physiology b. Reproduction c. Puberty d. Body image
7. Sexuality and sexual behaviour	a. Sex, sexuality and the sexual life cycle b. Sexual behaviour and sexual response
8. Sexual and reproductive health	a. Pregnancy and pregnancy prevention b. HIV and AIDS stigma, care, treatment and support c. Understanding, recognizing and reducing the risk of STIs, including HIV

2.1.2 National curriculum on sexuality education

According to the Ministry of Education (MOE), suitable training sessions were undertaken for the right teachers to ensure they were comfortable teaching the topics in schools. On the other side, a key informant from the National Union of the Teaching Profession Malaysia (NUTP) stated that many instructors are still hesitant to discuss sexuality education in schools. Teachers have not received sufficient training on the subject, especially at the basic level, according to the NUTP, and they believe they are not entirely qualified to teach it (Sheila, 2019). Teachers are also very conservative

and very shy about teaching sexual education. They can only teach science subjects, living skills, and life skills, but accurate sex education is not taught (Khalaf *et al.*, 2014).

The national curriculum on sexuality education in Malaysia was introduced by the Ministry of Education (MOE) in 1989 for secondary schools, and in 1994, it was expanded to primary schools through the Health Education Curriculum. The content of the curriculum was changed and updated, and the curriculum was renamed 'Reproductive Health and Social Education' from 2006 forward (PEERS). PEERS offers a wide range of sexual and reproductive health topics and is integrated into various areas, including science, biology, religion and moral education, and physical education .

The national curriculum on sexuality education has traditionally been taught in classrooms using textbooks and delivered by teachers. Some topics are illustrated with diagrams in the textbooks to help students visualize better (Figure 2.2-2.3). However, this approach could be improved by using digital media with interactive content, supported by visuals and audio for enhanced learning.

Figure 2.2 Primary school textbook

Figure 2.1 Reproductive health content

2.1.3 Knowledge of sexual education

Data from the Sex Education Forum 2016 stated that one girl in four starts her first menstrual period before they learn about sexuality, and 38% of boys do not know anything about wet dreams before they experience them (Emmerson, 2016). Research on teenagers' understanding of human sexuality conducted in Spain revealed that adolescents with lower secondary education levels, regardless of gender, commonly have inaccurate information about it (Fernández-Rouco *et al.*, 2019). Adolescents' misunderstanding of sexuality is caused by a range of issues, including parental silence, a lack of sex education in schools, bad peers, and pornography (Khan & Raby, 2020).

Children should learn age-appropriate prevention knowledge of sexual abuse in schools (Feldmann, Storck & Pfeffer, 2018). In general, sexual education for children must cover things like body ownership, safety guidelines, identifying good and harmful touches, understanding how to communicate thoughts about sexual wrongdoing, resisting peer pressure, and asking for help (Walsh *et al.*, 2018). In Malaysia, the acceptance of sexuality education curriculum was aided by a culturally sensitive approach (Mutalip & Mohamed, 2012; Ang & Lee, 2016).

According to studies conducted worldwide, parents and educators are aware of CSA. Despite 65.3% of Spanish teachers having received CSA education and training, 97% of them were unable to identify cases of CSA (Márquez-Flores, Granados-Gámez & Márquez-Hernández, 2016). Jordanian mothers demonstrated limited knowledge of CSA signs, with only 33.6% recognised abnormal interest in sexual activities or genitals as a sign and 34% recognizing improper sexual behaviours with toys (Alzoubi

et al., 2018). There seems to be a lack of knowledge and a tendency to underreport CSA in Indian cultures. It was discovered that a significant number of parents had no idea that child abuse occurred. 25% of parents believe that child abuse and sexual violence are similar (Sharma & Mathur, 2019).

Studies have revealed that teachers' knowledge about CSA is inadequate and insufficient to tackle the risk of CSA in current society, particularly in countries with low and middle incomes (Hynniewta, Treesa Jose & G, 2017). Most respondents had insufficient knowledge of CSA; teachers and strangers would not be perpetrators (57.9% and 74%); and schools and homes were safe places (55.8% and 58.8%). Most participants did not agree with any touching or non-touching actions, even if they came from someone they knew (94.5% to 99.5%) (Do *et al.*, 2019).

The prevalence of knowledge about sexual education among children varies across countries, age groups, and socio-cultural contexts. While some studies suggest a relatively high prevalence, others highlight alarming gaps. For instance, a study from India reported that 83% of school-aged children had good knowledge about CSA, which was positively associated with higher parental education levels (Ojha, 2021). However, another study in India involving 500 children showed a more concerning picture: only 6% had good knowledge, 36% had some, and 58% had none regarding concepts like good and bad touch (Batham, Koreti & Gaur, 2019).

In China, many preschools and early primary school children showed a limited understanding of how to respond to sexual abuse. Alarmingly, only 16% believed they should report inappropriate touching, and fewer than 30% knew how to react

appropriately in such situations (Zhang *et al.*, 2013), while among primary students, just 28.3% said they would leave a harmful situation and 48.3% would tell an adult (Jin, Chen & Yu, 2016).

Similar trends were observed in the U.S., where most 10-year-old girls in one study lacked fundamental CSA awareness (Purohit, Purohit & Shah, 2022), and another showed that 73–80% of children aged 11–12 had unsatisfactory CSA knowledge before any educational intervention (Aziz, 2017). In Iran, only 16% of preschool girls could correctly name private body parts, and 80% believed they should keep it a secret if someone told them not to talk about inappropriate touching (Khoori *et al.*, 2020).

The adapted 'I Have the Right to Feel Safe at All Times' program was implemented among 4,932 children aged 7 to 12 in a randomized controlled trial and evaluated using the Children's Knowledge of Abuse Questionnaire-Revised. The program led to meaningful improvements in children's understanding of sexual abuse prevention, with knowledge gains maintained six months later, while also strengthening their confidence, awareness of safe and unsafe situations, ability to seek help from trusted adults, and understanding that abuse is never their fault (Bustamante *et al.*, 2019).

The *Play It Safe!* program was delivered in a one-hour session to 539 elementary school students across six schools in Texas. The program was facilitated by trained educators and included age-appropriate videos, guided scripts, and interactive activities such as role-play and colouring to teach children how to identify and respond to unsafe situations. Children who participated showed significantly greater improvement in their understanding of physical and sexual abuse prevention compared