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The Effectiveness of the Sexual Education Package on the Sexual Identity of Primary School Children

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ABSTRACT

Objective: The present investigation was undertaken with the objective of assessing the efficacy of the sexual education curriculum on the sexual identity of children in primary education.

Methods: This research was characterized as experimental, employing a pre-test-post-test framework alongside a control group. The statistical population for this inquiry encompassed all primary school females in Shiraz during the academic year of 2021. The methodology of sampling utilized in this study was random selection from girls' primary educational institutions in Shiraz. The sample comprised 30 female pupils who were enrolled at the elementary level during the academic year of 2021. In this study, the gender identity index was evaluated utilizing the questionnaire developed by Schertzer et al. (2008).

Results: The findings from the multivariate analysis of covariance indicated that the F statistic pertaining to the gender identity variable was significant at the 0.001 level. From this evidence, one may infer that the application of the sexual education curriculum for primary school children has exerted a positive and significant influence on gender identity.

Conclusions: Educators and guardians may derive advantages from this curriculum to improve both the attitudes and understanding of sexual identity among primary school children.

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Introduction

The initiation of formal education and the attendance of school mark the commencement of a novel realm for children, necessitating a plethora of transformative experiences. At this juncture, as cognitive complexity escalates, the child starts to scrutinize occurrences via their perceptual faculties and engages in independent inquiry, culminating in the derivation of conclusions. Moreover, the comprehension and reinforcement of established gender norms, along with the emergence of inquiries pertaining to puberty, are salient attributes of children aged 7 to 9 years (Brown et al., 2020).

Between the ages of 10 and 12, the sexual maturation of children becomes pronounced, and their curiosity regarding sexual matters begins to manifest (Kellogg, 2010); during this developmental phase, the child gradually transitions into a period of transformation encompassing physical, emotional, psychological, and behavioral dimensions (Leland et al., 1995). This transformation reveals the gender distinctions between boys and girls, concurrently altering the perception that others hold of the individual. The designation of male or female becomes more pronounced, solidifying gender identity, which encompasses the individual's self-perception as either a woman or a man (Bussey, 2011).

The establishment of a robust gender identity significantly influences the individual's future prospects and societal health; thus, the sexual and social experiences encountered by individuals in adulthood are deemed satisfactory only when there has been the cultivation of an appropriate gender identity (Halim et al., 2011). The development of a healthy identity substantially impacts the emergence of other individual characteristics, such as self-esteem and bodily respect. de Graaf et al. (2018) assert that numerous individuals afflicted with gender identity disorder experience social ostracism, wherein isolation and rejection contribute to diminished self-esteem.

Given the critical significance of the aforementioned subjects in relation to individual and societal well-being, the necessity for the accurate formation of sexual identity is increasingly evident; all of these considerations can be operationalized through a comprehensive sex education program tailored for both children and their parents. Sexual education constitutes the process of imparting information and shaping attitudes and beliefs pertaining to maturation and sexual matters, sexual identity, and sexual health (Mandigo, 2020), as well as fostering an understanding of one’s gender and sexual roles alongside promoting a sense of self-worth (van den Brink et al., 2020), which

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should ideally be facilitated prior to the onset of puberty (Chaiwongroj & Buaraphan, 2020; Mandigo, 2020). According to the United Nations Population Fund's definition (Zhukov et al., 2023), comprehensive sexuality education (CSE) is a structured educational process aimed at imparting knowledge about the cognitive, emotional, physical, and social dimensions of sexuality (Miedema et al., 2020). Its objective is to empower children and adolescents with the requisite knowledge, skills, attitudes, and values that facilitate a comprehension of their own health, well-being, and dignity, foster respectful social and sexual relationships, and cultivate an awareness of how their choices impact both their own welfare and that of others while acknowledging their rights throughout their lives.

As previously articulated, during this developmental phase, the child gradually transitions into a transformative stage encompassing all dimensions of their being, and through the observation of these modifications, an array of inquiries becomes etched in their cognitive framework; they undergo heightened levels of anxiety and tension, prompting a quest for information regarding these phenomena. Given that a considerable number of parents approach this subject as a taboo, children frequently seek answers through media outlets, peer groups of similar age, and unreliable sources, which are inclined to disseminate erroneous information (Kornienko et al., 2016). Chaiwongroj and Buaraphan (2020), through their empirical investigation, established that students acquire knowledge from highly sexualized and unrealistic portrayals prevalent in films, websites, and social media platforms.

The reliance on dubious sources exacerbates the potential risks and maltreatment faced by children (Schneider & Hirsch, 2020); this concern represents a significant challenge confronting contemporary societies, impacting numerous facets of children's lives and well-being, including self-esteem (Apple et al., 2022) and personal dignity (Othman et al., 2024), which are profoundly influenced by these factors, and the initiative to mitigate the abuse and harm experienced by our youth substantially contributes to the overall health of each generation and society at large.

Sadowski and Gaffney (2018) determined in their research that a notable correlation exists between depression, susceptibility to addiction, and the inclination towards suicide among individuals diagnosed with gender identity disorder. Turban and Ehrensaft (2018), in their scholarly inquiry, deduced that the domain of children's gender identity has undergone significant evolution. Such individuals are afflicted by an alarmingly elevated prevalence of anxiety, depression, and suicidal

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ideation. Recent findings indicate that the elevated prevalence of anxiety, depression, and suicidality among these individuals appears to have improved under positive intervention protocols, although longitudinal studies are warranted for further validation. Clements et al. (2021), in their analysis, concluded that LGB students grappling with insecurities regarding their gender identity, who have been subjected to higher rates of adverse childhood experiences (ACE), manifest a disproportionately elevated incidence of suicidal ideation and attempted suicides. Perry et al. (2019), in their examination of the five dimensions of gender identity, discerned that the perception of same-sex normality bolsters the child's self-efficacy (Motamedi et al., 2019) and serves as a protective factor against the detrimental effects of stressors. The experience of gender dysphoria may inflict significant distress upon a child who does not conform to the normative patterns associated with their assigned gender. Children perceiving sexual incongruence or dissatisfaction with their gender identity are likely to encounter considerable anxiety, especially when subjected to societal pressures to conform to their assigned gender roles. The pursuit of sexual pleasure may significantly influence the acceptance of normative sexual behaviors by the child. In light of the issues arising from inadequate sexual education in society and the improper development of sexual identity, alongside the maltreatment of children and adolescents, this study seeks to examine the significance of these variables in addressing the following inquiry: Does sex education have a positive effect on the sexual identity of primary school children?

Material and Methods

The present research was characterized as an experimental investigation employing a pre-test-post-test design alongside a control group. The statistical population for this inquiry encompassed all female elementary school students residing in Shiraz city during the academic year 2021. The sampling technique utilized in this study was random selection from girls' primary educational institutions in Shiraz. The sample consisted of 30 female elementary school students from the academic year 2021, with 15 individuals assigned to the experimental group and 15 to the control group through random allocation.

Initially, a formal letter was provided by the office of the Islamic Azad University, Marvdasht Branch, to facilitate the introduction of the researcher to the *Muallem Research Institute*. Following completion of the administrative protocols at the General Directorate of Education of

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Fars, the researcher successfully obtained authorization to execute the research in elementary educational settings. Subsequently, 30 primary school females were chosen through a random selection process. It is pertinent to highlight that the allocation of participants to each group was conducted randomly, and the pre-test, which incorporated a self-esteem questionnaire, was administered to the sample group under uniform conditions within the school environment. Given the young age of the participants and their potential difficulties in comprehending certain questions, each inquiry was articulated individually, followed by prompting the students to select the appropriate response after providing necessary clarifications. After the pre-test was conducted across all samples, the training sessions targeted at the experimental group were executed over a duration of 10 sessions, with each session lasting 45 minutes, while taking into account ethical considerations, Iranian cultural context, and the developmental stage and inquisitiveness of the children. Upon the conclusion of the training sessions, both experimental and control groups underwent a subsequent evaluation under identical conditions utilizing the aforementioned scale, and the resultant data were analyzed employing SPSS software. The compilation of materials prepared by the researcher concerning sex education encompasses the following sessions (table 1).

Table 1. Summary of sexual education package sessions

Session	Content
1	-Getting to know the students and talking with them -Creating a friendly and trusting environment -Conducting the pre-test -Familiarity with body parts in general and their hygiene and naming
2	-Getting to know the genitals in general and their hygiene and naming -Getting to know the concept of public and private body in general -Complete a number of worksheets with children -Reviewing the contents of the previous sessions and answering the children's possible questions -Getting to know the differences between humans in general and the differences between girls and boys
3	-Encouragement to love yourself as a girl -Talking and telling stories about some heroic women and girls, athletes and elites, using photos, pictures and videos, and reading their life stories. -Reviewing the contents of the previous sessions and answering the children's possible questions
4	-Continuity of touches -Inevitable touches -Red flag, green flag game -We all need nice touches
5	-Secret law -Reading the book Touch Good Touch Bad -Reviewing the contents of the previous sessions and answering the children's possible questions -Teaching the skill of saying no/the skill of assertiveness/along with the performance of the game with Poppy doll -Leaving the place/best reaction -Report to an elder/ask for help -Reading the book I can say out loud no!

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	-Reviewing the contents of the previous sessions and answering the children's possible questions
6	-Self-esteem skills -Positive mental image of the body -Value and respect for the privacy of oneself and others and increase body self-esteem -Find your abilities game and worksheet and I can, they can -Reading the book you are unique. -You are responsible for your own body -Reviewing the contents of the previous sessions and answering the children's possible questions
7	-Recognizing one's own and others' feelings -Trust your feelings -Playing and telling stories with the help of emotions -Reviewing the contents of the previous sessions and answering the children's possible questions
8	-Reviewing the contents of the previous sessions and answering the children's possible questions -Ways in which children are threatened or seduced -Reading book : Topoli! Don't touch my body!
9	-post test

In the present investigation, the measurement of the construct of gender identity was conducted utilizing the Questionnaire of Gender Identity in Diverse Cultures as developed by Schertzer et al. (2008), which comprises 16 items and is delineated into two subscales: one assessing male characteristics (comprising 8 items) and another evaluating female characteristics (also consisting of 8 items), thereby facilitating the examination of gender identity across various cultural contexts. Regarding the validity of the instrument, Schertzer et al. (2008), during their assessment of the validity of this measurement tool, determined its reliability to exceed 0.86 through the application of Cronbach's alpha methodology. In the current study, the researcher calculated the Cronbach's alpha coefficient as 0.92 for total scale, for masculinity dimension as 0.67 and for femininity dimension as 0.90. The inclusion criteria for participants encompassed: enrollment in one of the primary educational institutions for girls located in Shiraz city, absence of any documented history of physical ailment, willingness and informed consent to partake in the study, non-consumption of psychiatric medication, lack of engagement in alternative psychological therapeutic interventions throughout the research period, and no occurrences of significant stressors such as divorce or bereavement within the preceding six months. The exclusion criteria consisted of: failure to attend the scheduled training sessions, absence exceeding two sessions within the defined timetable, inability to accurately complete and submit the questionnaires at each research phase, the emergence of any personal life events that hindered the subject’s capacity to continue participation in the sessions, and the administration of any medications that could potentially influence the research outcomes. Moreover, the ethical considerations adhered to in this study included: the

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acquisition of informed voluntary consent from all participants, the provision for subjects to withdraw from the intervention program at any point if they felt unable to continue, and the assurance that all personal information pertaining to the subjects was maintained in strict confidentiality.

Results

Table 2 shows the mean and standard deviation of the sexual identity variable and its components in the experimental and control groups.

Table 2. Mean and standard deviation of the studied variables in the experimental and control groups

Group	Variable	Pretest		Post test	
		Mean	SD	Mean	SD
Control	Sexual identity	58.46	5.81	56	5.91
	Masculinity	28	5.05	26.86	4.91
	Femininity	30.46	3.66	29.13	3.99
Experimental	Sexual identity	55.86	6.11	65.86	4.38
	Masculinity	27.60	5.22	19.46	4.29
	Femininity	28.26	4.11	46.40	2.41

The Kolmogorov-Smirnov test was used to check the normality of the data. Since the values of the Kolmogorov-Smirnov test were not significant in any of the steps ($p>0.05$), it can be concluded that the distribution of scores is normal. Levine's test was also used to check the homogeneity of variances. According to the results, Levin's test statistic was not statistically significant ($p>0.05$) and thus the assumption of equality of variances was confirmed. The research data did not question the assumption of homogeneity of variance-covariance matrices (M-Box); Therefore, this assumption has also been met ($p>0.05$). The significant level of the interaction between the group and the pre-test was greater than 0.05 and this indicated the homogeneity of the slope of the regression line. Considering that the assumptions of using multivariate analysis of covariance have been met, this statistical test can be used. Table 3 shows the results of multivariate analysis of covariance.

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Table 3. The results of multivariate covariance analysis tests

Effect	Test	Value	F	DF	P
Group	Pillai's trace	0.539	14.60	25	0.001
	Wilks' lambda	0.461	14.60	25	0.001
	Hotelling's trace	1.16	14.60	25	0.001
	Roy's largest root	1.16	14.60	25	0.001

Table 3 shows that the value of F is significant at the level of 0.001 in the four tests of Pillai's trace, Wilks' lambda, Hotelling's trace, and the Roy's largest root. Therefore, the effect of the independent variable on the dependent variable (components of gender identity) is based on the existence of a significant difference, so it is concluded that there is a significant difference in at least one of the components of gender identity. To clarify the significance of the difference for each of the components of gender identity, the results of univariate variance analysis are reported in Table 4.

Table 4. Results of univariate analysis of covariance

Effect	Variable	SS	DF	MS	F	P
Group	Sexual identity	561.42	1	561.42	52.13	0.001
	Masculinity	22.44	1	22.44	2.58	0.12
	Femininity	242.88	1	242.88	30.31	0.001

According to the results of analysis of variance and the level of significance in Table 4, it can be seen that after removing the effect of the pre-test, the F index is significant for the total score of gender identity as well as the dimension of femininity characteristics. According to the average values in Table 2, it can be seen that the scores of gender identity as well as the dimension of femininity characteristics have increased in the post-test stage compared to the pre-test, which shows that this significance is in favor of the experimental group, therefore, based on the covariance analysis test indicators, it can be said that sex education has had a positive and significant effect on improving sexual identity and its dimensions.

Discussion

According to the findings derived from the multivariate covariance analysis, it was determined that sexual education exerted a significant influence on the enhancement of children's sexual identity. Numerous studies have been conducted, the outcomes of which can be regarded as analogous to the findings of this particular research, including the investigations conducted by Yazdani (2017), Mandigo (2020) and Chaiwongroj and Buaraphan (2020).

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In elucidating this finding, it is pertinent to highlight that in all studies examining the influence of sexual education on various aspects of individuals' lives, there has been a consensus regarding the imperative of implementing sexual education consistently and in alignment with the developmental stages of the child, in order to attain accurate sexual knowledge and subsequently foster a healthy sexual identity, which is posited as a fundamental, significant, and essential component in the sexual maturation of a child.

Gender identity encompasses the child's evaluations of adaptability and motivation to assimilate within gender cohorts, which is recognized as a multidimensional construct (Perry et al., 2019), wherein two potent physiological forces and social learning converge to shape identity. These elements contribute to sexual identity formation. Byrne (2004) delineates four phases in the development of gender identity: gender identification (when a child identifies with a specific gender); gender stability (the realization that gender remains constant); differential heredity (the child's aspiration to excel); and gender self-regulation (when a child exercises control over their own behavior).

Gender identity does not develop in isolation; rather, it is shaped by gender stereotypes, attitudes, knowledge, and societal values prevalent within a specific culture. A child does not comprehend their gender identity at birth but rather acquires this understanding progressively. Furthermore, Samani and Khaier (2001) assert that the evolution of sexual identity adheres to the trajectory of cognitive development; consequently, given that the educational and socialization processes significantly impact cognitive advancement and the formation of an individual’s sexual identity, sexual education can play a pivotal role in cultivating a healthy sexual identity.

Should sexual education be overlooked, the child's sexual identity may become compromised, leading to the manifestation of prevalent sexual disorders among youth. Consequently, an individual’s perception of their gender may diverge from their biological sex at birth, and given that sexual health constitutes a cornerstone of mental well-being, any disorder that arises can adversely affect other dimensions of mental and interpersonal functioning, thus resulting in complications.

Sexual education that aligns with the developmental trajectory of children will neither suppress their natural sexual curiosities nor diminish the risk of their cognitive focus being misdirected

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towards sexual matters; hence, it is essential for a child to recognize and attain a profound understanding of their own gender identity, whether as a girl or a boy.

Consequently, through the provision of timely sexual education, we enhance the understanding of masculinity and femininity within our youth, facilitating their self-awareness as girls or boys while fostering an interest in their respective genders. Such educational interventions contribute to the development of healthy sexual attitudes among our children, ultimately safeguarding their sexual health and that of the broader society, thereby ensuring the emergence of healthy familial structures in the future.

The investigator has encountered the following constraints during the research endeavor:

- The lack of collaboration from educational and related organizations in the comprehensive and principled execution of the sexual education curriculum within academic institutions, alongside heightened sensitivity surrounding the term "sex."
- Misconceptions held by certain officials and parents regarding the sexual education initiative, often conflating it with mere sexual instruction.
- The absence of analogous studies to provide a foundational context for this research.

Moreover, to enhance the focus and efficacy of future investigations, the following recommendations are proposed:

- Sexual education programs ought to be accessible to children from the pre-primary stage and beyond, free from cultural and political prejudices, and tailored to align with the developmental stages of children in a gradual manner.
- Entities tasked with the education of children and adolescents are required to formulate comprehensive strategies in this regard.
- Broadcasting mediums such as radio and television should engage experts and filmmakers knowledgeable about the developmental phases and needs of children and adolescents to create animations and related content, thereby furnishing essential awareness.

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Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by ethics committee of Islamic Azad University.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection and analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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