

## The Effectiveness of Psychoeducation and Mind Mapping in Preventing Early Marriages in Central Java, Indonesia

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### Abstract

During the COVID-19 pandemic, the number of early marriages increased. Early marriage causes biological and psychological problems in the mother and her baby. The combination of psychoeducation and mind mapping emerged as a preventive effort against early marriage. The aim of this study was to analyze the effectiveness of this combination in preventing early marriage in Central Java, Indonesia by influencing adolescents' knowledge and intentions. This study was conducted using a convergent mixed-methods design. For the quantitative phase, the pre-test – post-test control group experimental design was used, while in the qualitative phase, a thematic analysis was performed using focus group discussion (FGD) as an additional evaluation. A total of 32 participants with a history of risky sexual activity and moderate-to-high early marriage intentions were recruited from a Senior High School in Central Java during the COVID-19 pandemic using Proportional Random Sampling. Classically, the control group in this study was given standard interventions with education through socialization in one session. The intervention group was given psychoeducation and mind mapping in a 3-hour face-to-face session with an FGD. The data collected were analyzed using a paired-samples *t* test. This study shows that the provision of psychoeducation interventions combined with mind-mapping techniques was effective in influencing the knowledge and early marriage intentions of adolescents in Central Java. The intervention succeeded in increasing the adolescents' level of knowledge about marriage by 6.78% ( $\Delta$ Mean, 9.89) and reducing their early marriage intentions by 46.29% ( $\Delta$ Mean, 4.31), with significant differences from those of the adolescents in the control group ( $p = 0.004$  and  $p = 0.001$ , respectively). Therefore, the combination of psychoeducation and mind mapping can reduce adolescents' intentions to get married early and increase their knowledge about marriage. This study demonstrates that it can be used as an alternative preventive effort against early marriage.

**Keywords:** early marriage, early marriage intention, knowledge, mind mapping, psychoeducation

### Abstrak

**Efektivitas Psikoedukasi dan Mind Mapping dalam Mencegah Pernikahan Dini di Jawa Tengah, Indonesia.** Selama pandemi COVID-19, jumlah pernikahan dini meningkat. Pernikahan dini menyebabkan masalah biologis dan psikologis pada ibu dan bayinya. Kombinasi psikoedukasi dan pemetaan pikiran muncul sebagai upaya pencegahan terhadap pernikahan dini. Tujuan dari penelitian ini adalah untuk menganalisis efektivitas kombinasi ini dalam mencegah pernikahan dini di Jawa Tengah, Indonesia dengan mempengaruhi pengetahuan dan intensi remaja. Penelitian ini dilakukan dengan menggunakan desain metode campuran konvergen. Untuk fase kuantitatif digunakan desain eksperimental kelompok kontrol pre-test – post-test, sedangkan pada fase kualitatif dilakukan analisis tematik dengan menggunakan focus group discussion (FGD) sebagai evaluasi tambahan. Sebanyak 32 responden dengan riwayat aktivitas seksual berisiko dan intensi menikah dini sedang hingga tinggi dari salah satu Sekolah Menengah Atas di Jawa Tengah selama pandemi COVID-19 menggunakan Proportional Random Sampling. Secara klasikal, kelompok kontrol dalam penelitian ini diberikan intervensi standar dengan edukasi melalui sosialisasi dalam satu sesi. Kelompok intervensi diberikan psikoedukasi dan pemetaan pikiran dalam sesi tatap muka selama 3 jam dengan FGD. Data yang dikumpulkan dianalisis menggunakan uji *t* sampel berpasangan. Penelitian ini menunjukkan bahwa pemberian intervensi psikoedukasi yang dikombinasikan dengan teknik pemetaan pikiran efektif dalam mempengaruhi pengetahuan dan intensi menikah dini remaja di Jawa Tengah. Intervensi berhasil meningkatkan tingkat pengetahuan remaja tentang pernikahan sebesar 6,78% ( $\Delta$ Mean, 9,89) dan mengurangi intensi menikah dini mereka sebesar 46,29% ( $\Delta$ Mean, 4,31), dengan perbedaan yang signifikan dari remaja dalam kelompok kontrol (masing-masing  $p = 0,004$  dan  $p = 0,001$ ). Oleh karena itu, kombinasi psikoedukasi dan pemetaan pikiran dapat mengurangi intensi remaja untuk menikah dini dan meningkatkan pengetahuan mereka

tentang pernikahan. Penelitian ini menunjukkan bahwa hal itu dapat digunakan sebagai alternatif upaya pencegahan terhadap pernikahan dini.

**Kata Kunci:** intensi menikah dini, pemetaan pikiran, pengetahuan, pernikahan dini, psikoedukasi

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## Introduction

Early marriage is a major problem in Indonesia. According to revised Indonesian Law No. 1 of 1974, the minimum age at which marriage is allowed is 19 years for both men and women. This change in the age limit for marriage is based on the age at which the body and soul are mature enough to form a healthy and quality family without divorce. In addition, this change will result in lower birth rates and risks of maternal and infant mortalities ([Undang-undang Republik Indonesia Nomor 16 Tahun 2019, 2019](#)).

However, despite the changes in the law and rules for marriage dispensation in accordance with Indonesian Law No. 16 of 2019, the number of early marriages could not be reduced. According to World Health Organization, the percentage of women aged 20–24 years who were married before the age of 18 years in Indonesia was 16% ([Program Studi Kajian Gender, 2016](#)). During the COVID-19 pandemic, in addition to the increasing number of early marriages, applications for dispensation also increased sharply. Local statistics reflect this trend; for instance, in 2020, at the Semarang City Religious Court, 231 marriage dispensation applications were granted. Semarang is one of the city at Central Java. This city is ranked fifteenth among the thirty-five regencies/cities with the highest cases of early marriage in Central Java ([Pranita, 2021](#)).

Previous research have revealed that early marriage causes several biological and psychological impacts on the mother and her baby, including higher rates of maternal mortality, unsafe childbirth, or reproductive health disorders. ([Maharani et al., 2024](#); [Nur et al., 2019](#); [Singh, 2024](#); [Sütlü & Kutlu, 2024](#); [Uddin, 2024](#)). Among the psychological effects of early marri-

age on women are depression, anxiety, regret, and fear of leaving their marriages due to domestic violence, which is common among these women ([Nhampoca & Maritz, 2024](#); [Sari et al., 2020](#); [Yadav et al., 2024](#)).

The high infant mortality rate in early marriages indicates the low health statuses of mothers and their newborns, and the low access to and quality of maternal and child health services. This is closely related to the number of child marriages, which impact the health conditions of mothers and children. Various health studies and medical experts outline the risks of pregnancy at too young an age, including: anemia and high blood pressure; bleeding due to improper implantation and premature release of the placenta; childbirth complications and death; cervical cancer, as the younger the age at first sexual intercourse, the greater the risk of the reproductive area being contaminated with the causative virus; and short body or stunting and small brain volume in babies born to young women ([Kusumaredi, 2022](#); [Muntamah et al., 2019](#); [Natalia et al., 2021](#); [Rumble et al., 2018](#)). In addition, the potential for young mothers to experience postpartum depression is quite high because of their unpreparedness to care for their babies ([Natalia et al., 2021](#)).

Early marriage occurs owing to various factors, namely religion, poverty, education, promiscuity, and culture ([Muntamah et al., 2019](#)). Knowledge is an important domain that affects the initial motivation that drives human behavior ([Diniyati & Jayatmi, 2017](#)). A study in the Trowulan District showed that the higher the level of knowledge, the lower the incidence of early marriage ([Widiyawati & Muthoharoh, 2020](#)). Psychoeducation is a systematic and structured educational method aimed at providing the information and training needed by individuals or

families in collaboration with health workers (Anwar & Rahmah, 2017). A study on psychoeducation about the risk of young marriage that aimed to reduce the intention of early marriage in adolescents in South Kalimantan, found that the method was quite effective in reducing the intention of early marriage in adolescents (Rahmah & Anwar, 2015). However, in this study, only one group was included, without a group for comparison ( $t = 39.305$ ; effect size, 0.7).

Mind mapping is a model or technique designed to help students remember subjects more easily during the learning process by using maps, graphs, and symbols (Anwar & Rahmah, 2017). Previous study reported significant increases in the knowledge of the learning outcomes and creativity of class sixth-grade students (Pudjiastuti, 2018). Research has also proven the effectiveness of these methods in improving the creative thinking abilities of junior high school students. Most students often get bored in the classroom because the teacher does not use varied techniques and media that can catch their attention and fails to make them easily understand the materials. However, mind mapping can increase students' memorization and understanding of a given material by stimulating their creativity in visualizing relationships between concepts (AL Subaie, 2025; Purnomo et al., 2024). Mind mapping encourages creative thinking by allowing students to explore and connect ideas in a non-linear fashion (Rai & Kaur, 2024). The use of colors, images, and spatial organization in mind maps stimulate both the left and right hemispheres of the brain, enhancing creativity and imagination (Liu et al., 2024). Through this method, students can think about general to specific things, with visuals that suit their individual personalities. It is explained that Bloom's taxonomy has two dimensions: cognitive processes and knowledge. The cognitive dimension has six categories: remembering, understanding, applying, analyzing, evaluating, and creating. The knowledge dimension has four categories: factual, conceptual, procedural, and meta-cognitive (Anderson & Krathwol, 2001). With this method, knowledge about early marriage

can be understood comprehensively and thoroughly in relation to the concept and impacts of all aspects of early marriage.

Although much scientific evidence shows the effectiveness of mind mapping as an effort to increase knowledge, no studies have been conducted on its effectiveness in influencing the intentions of adolescents to marry early. Previous studies have shown that psychoeducation reduces adolescents' intentions to marry early. The findings suggest that the combination of psychoeducation and mind mapping can prevent early marriage. Adolescents are at high risk of experiencing early marriage, especially those who already have a partner who, under the pretext of love, has planned to get married or those who already have risk factors, such as a premarital sexual activity level  $> 1$ . Therefore, integrated education where students can access additional subjects and methods for free is needed to overcome this problem. However, it is not enough for care centers to wait for students' awareness to access integrated education. Potential young brides and grooms must be prevented from early marriage, obtain the information that they need, and be motivated to stand up for themselves through this method, which is formed by a combination of psychoeducation and mind mapping (Anwar & Rahmah, 2017; Rahmah & Anwar, 2015). The expected outcome is that each student understands the material provided so that staying away from the risk factors that cause early marriage will radiate from their attitudes and behaviors.

## Methods

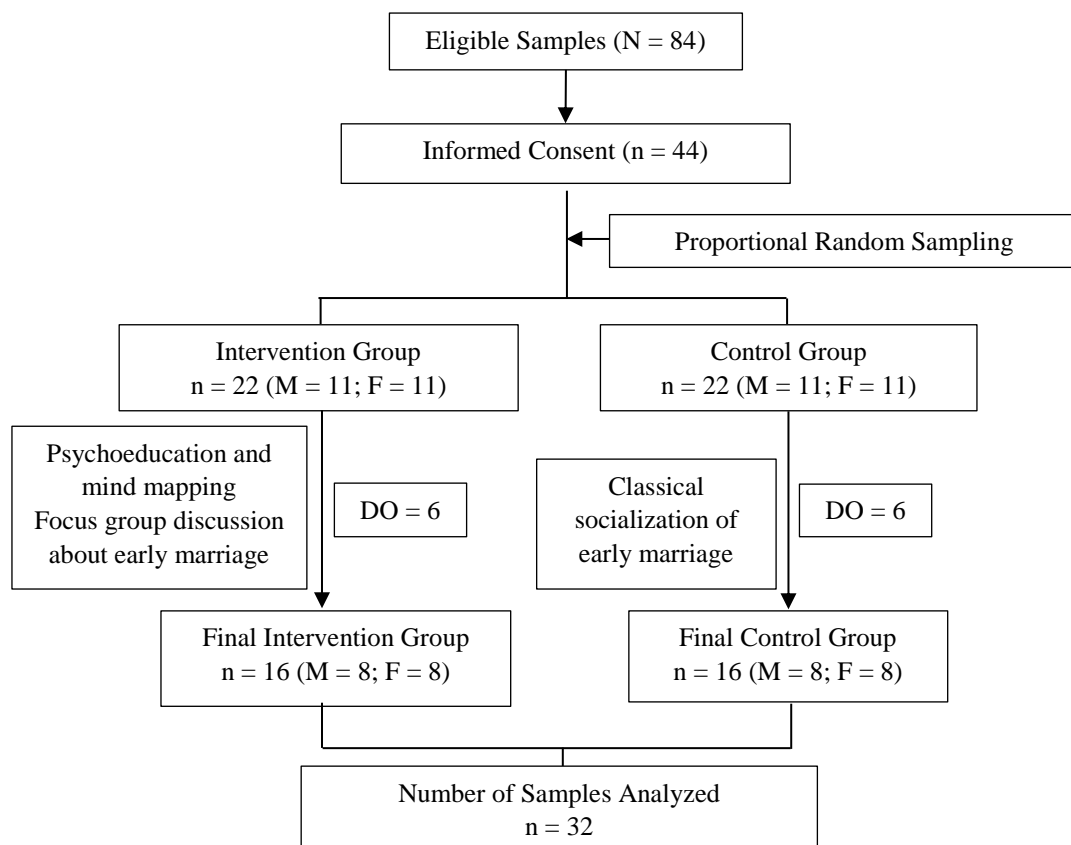
This study was conducted using convergent mixed methods design to develop and investigate the effectiveness of psychoeducation and mind mapping in preventing early marriage in adolescents. For the quantitative phase, the pretest-posttest control group experimental design was used, while in the qualitative phase, a thematic analysis was performed using focus group discussion (FGD) as an additional evaluation. This design allows for obtaining a holistic under-

standing by balancing the strengths of one data type with the weaknesses of the other (Creswell & Creswell, 2022). We divided the respondents into two groups: a control group given the standard intervention through classical socialization in one session. Proven scientific evidence shows a decrease in early marriage intentions with one session of psychoeducation (3 hours) using classical methods. In this study, the same length (one session for 3 hours) of intervention was adapted in the intervention group, with a more specific method combining psychoeducation and mind mapping in FGD activities. The level of early marriage intention was measured twice, once in the pretest and again in the posttest (Anwar & Rahmah, 2017).

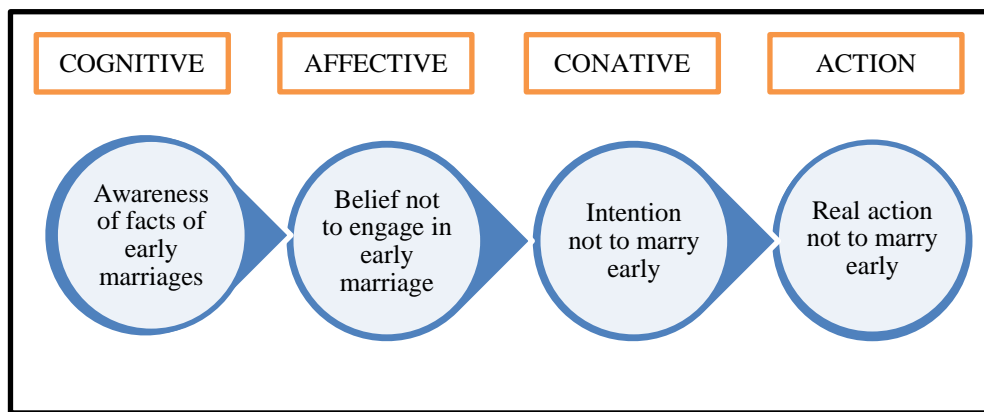
Figure 1 shows the total of eligible samples from the science (*Ilmu Pengetahuan Alam [IPA]*), social (*Ilmu Pengetahuan Sosial [IPS]*), and language literature departments (*Bahasa*). Of the total sample of 84 people, 44 signed the

informed consent form and were then divided into two groups using proportional random sampling techniques with equal numbers of males and females. Thus, in the intervention group, the 22 respondents consisted of 11 boys and 11 girls. The control group also consisted of equal proportions of males and females. In both groups, 6 students dropped out during data collection. In both groups, those who dropped out did not participate much in the process and did not complete the questionnaires. Thus, the final number of respondents from whom data were collected and analyzed was 16 (men:  $n = 8$  and women:  $n = 8$ ) in both groups.

The study was conducted for 1 week at Semarang Senior High School during the COVID-19 pandemic. The sample was composed of 32 respondents. The inclusion criteria for respondents were adolescents aged 15–18 years, a history of risky sexual activity,  $n > 1$  (have engaged in one or more of the following activities: deep kissing,



**Figure 1.** Flowchart of the Participant Selection for the Study



**Figure 2.** Adaptation Model of This Study

oral sex, petting, or sexual intercourse), moderate-to-high early marriage intentions,  $n > 11$  (based on the assessment using the Early Marriage Intention Questionnaire), and willingness to participate in the study indicated by signing the informed consent form. Online screening was performed to obtain eligible samples, and proportional random sampling was used to divide the samples into equal proportions of men and women.

The respondents were evaluated using characteristic and adolescent sexual behavior instruments, which measured adolescent sexual behavior using the same questionnaire and was conducted three times, in 2012, 2015, and 2016. The questionnaire was valid and reliable each year (Muflih et al., 2017; Muflih & Syafitri, 2018). The questionnaire responses are categorized as mild, moderate, and severe. The instrument for measuring early marriage intention, which was adapted from Rahmah and Anwar's (2015) questionnaire, has been declared valid and reliable. The responses are categorized as very low, low, moderate, high, and very high. Our instrument for evaluating knowledge of the concept of marriage was tested on 3 experts and 30 respondents using the Pearson product moment statistical test ( $r = 0.610$ ) and Cronbach's reliability test ( $\alpha = 0.89$ ). The data obtained were tested using the parametric paired-samples  $t$ -test for ratio data, while the ordinal, nominal, and interval data were tested using the Wilco-

xon nonparametric test. Meanwhile, the interview and FGD data were analyzed using data reduction. This study was conducted after passing the ethical feasibility test administered by the research ethics committee of the Polytechnic of the Ministry of Health Semarang (clearance permit No. 0240/EA/KEPK/2022).

The "theory of reasoned action" (TRA) model was also used in psychoeducation combined with mind mapping to explain the relationship between attitudes and behaviors in human actions and to predict how individuals will behave based on preexisting behavioral attitudes and intentions. The theory is adapted from Fishbein and Ajzen's (1975) model, as shown in Figure 2.

## Results

Table 1 presents the frequency distributions of the respondents' characteristics. The table statistically shows that the intervention and control groups had the same age variant: a productive age range of 16–18 years. The proportions of male and female respondents were equal at a ratio of 1:1. As many as 53% of the total number of respondents had a partner. Regarding the respondents' family wealth statuses, the parents' income per month in 62.5% of the respondents is <3,000,000 rupiah. The dominant highest educational level obtained by parents was senior high school (mothers, 43.75%; fathers, 56.25%).

Table 1. Frequency Distribution of the Respondents' Characteristics

Variable Characteristic	Groups			
	Intervention (n = 16)		Control (n = 16)	
	n	%	n	%
Gender				
Male	8	50	8	50
Female	8	50	8	50
Romantic Relationship Experience				
Yes	9	56.25	8	50
No	7	43.75	8	50
Department				
Science (IPA)	8	50.00	11	68.80
Social (IPS)	6	37.50	3	18.80
Language Literature (Bahasa)	2	12.50	2	12.50
Age (years)				
16	6	37.50	4	25.00
17	9	56.20	11	68.80
18	1	6.20	1	6.20
Mean ± SD	16.75 ± 0.775		16.81 ± 0.544	
Household Income (rupiah)				
<3,000,000	10	62.50	10	62.50
3,000,000–5,000,000	5	31.25	5	31.25
>5,000,001	1	6.25	1	6.25
Mother's Education				
Elementary school	2	12.50	4	25.00
Junior high school	3	18.80	3	18.80
Senior high school	7	43.80	7	43.80
Diploma				
Bachelor's/master's/doctoral	3	18.80	0	0
Father's Education				
Elementary school	1	6.20	2	12.50
Junior high school	3	18.80	3	18.80
Senior high school	1	6.20	1	6.20
Diploma	9	56.20	9	56.20
Bachelor's/master's/doctoral	1	6.20	0	0
Bachelor's/master's/doctoral	2	12.50	3	18.80

Table 2 shows that overall, the respondents did not have a safe sexual behavior. The level of security was predominantly unsafe in both groups, but the highest number of scores was in the mild category in both groups, ranging from 1 to 5. In addition, the average score for adolescent sexual behavior in the intervention group was 5.25, which means moderate adolescent sexual behavior, whereas in the control group, it was 2.1875, which means mild adolescent sexual behavior.

On the basis of the results presented in Table 3, there are influences that have a unidirectional relationship so that when psychoeducation and mind mapping interventions are given, the ado-

lescents' level of knowledge about early marriage increased from medium to good ( $t = 3.545$  and  $p = 0.003$ ). This means a meaningful difference in the level of knowledge of the adolescents in the intervention group after receiving psychoeducation and mind-mapping interventions.

In the control group, classical socialization increased knowledge but was not meaningful ( $t = -0.805$  and  $p = 0.433$ ; Table 3). Psychoeducation and mind mapping with the FGD method were effective in increasing the knowledge of early marriage of adolescents at the high school level in Semarang ( $t = 3.298$  and  $p = 0.004$ ). The increase in the level of knowledge in the

Table 2. Frequency Distribution of the Respondent’s Sexual Behaviors

Adolescent Sexual Behavior Category	Intervention Group (n = 16), n (%)	Control Group (n = 16), n (%)
Safety Levels of Adolescent Sexual Behavior:		
Less secure	5 (31.25)	7 (43.75)
Insecure	11 (68.75)	9 (56.25)
Adolescent Sexual Behavior Levels:		
Mild	8 (50)	14 (87.5)
Moderate	6 (37.5)	2 (12.5)
Severe	2 (12.5)	0 (0)
Mean ± SD	5.25 ± 3.56838	2.1875 ± 2.07264

Table 3. Comparison of the Changes in the Average Adolescent Knowledge Levels in the Intervention and Control Groups

Level of Knowledge	Intervention (n = 16)	Control (n = 16)	t	p
	Mean ± SD	Mean ± SD		
Pretest	67.97 ± 13.754	61.72 ± 14.209	1.123	0.279
Posttest	77.86 ± 7.090	65.10 ± 13.598	3.298	0.005
ΔMean ± SD	9.89 ± 11.167	3.38 ± 16.820		<b>0.004</b>
t	3.545	-0.805		
p	<b>0.003</b>	0.433		

intervention group was from medium to good (increased by 9.89), but that in the control group was unchanged at medium. Although there was an increase in knowledge value, this did not change the level (increased by 3.38).

Table 4 shows that the adolescent early marriage intention in the intervention group decreased at an average of 6.81 (intermediate) to 2.50 (low). Meanwhile, the control group showed a slight decrease, with an average of 3.81 (low) to 2.75 (low).

Table 5 shows that psychoeducation and mind mapping using the FGD method can reduce the intention of early marriage among high school students from medium to low ( $t = -4.707$  and  $p = 0.000$ ). This indicates a meaningful difference in early marriage intention in the intervention group after the subject received psychoeducation and mind-mapping interventions. This can be interpreted as influences having an inversely proportional relationship, which means that when given significant interventions in psychoeducation and mind mapping, adolescents’ ear-

ly marriage intention will also decrease. In the control group, classical socialization decreased the early marriage intention but not meaningfully ( $t = -1.638$  and  $p = 0.122$ ). Psychoeducation and mind mapping with the FGD method were effective in reducing the early marriage intentions of adolescents at the high school level in Central Java ( $t = -3.389$  and  $p = 0.003$ ). This is also evident in the decrease in the level of early marriage intention in the two groups, which was from medium to low in the intervention group (decreased by 4.31) but did not change from low in the control group (decreased by 1.06).

## Discussion

The effectiveness of the combination of psychoeducation and mind mapping with the FGD method were effectively influencing adolescents’ knowledge and intentions. Based on the findings, we conclude that psychoeducation and mind mapping with an FGD effectively reduce adolescents’ early marriage intentions. According to planned behavior theory, intention is the

Table 4. Average Scores for Adolescent Early Marriage Intentions in the Intervention and Control Groups

Intentions for Early Marriage	Intervention Group (n = 16)		Control Group (n = 16)	
	Mean ± SD	Range	Mean ± SD	Range
Before intervention	6.81 ± 3.781	2–17	3.81 ± 2.536	1–9
After intervention	2.50 ± 2.129	0–8	2.75 ± 1.291	1–6

Table 5. Comparison of Changes in the Average Scores for Adolescent Early Marriage Intention Between the Intervention and Control Groups

Intentions for Early Marriage	Intervention (n = 16)	Control (n = 16)	t	p
	Mean ± SD	Mean ± SD		
Pretest	6.81 ± 3.781	3.81±2.536	-3.051	0.008
Posttest	2.50 ± 2.129	2.75±1.291	-3.389	0.003
ΔMean ± SD	4.31 ± 3.665	1.06±2.594		0.001
t	-4.707	-1.638		
p	0.000	0.122		

root of a behavior. This means that the stronger the intention to engage in a behavior, the more likely the behavior will be performed. (Ajzen & Kruglanski, 2019; Ajzen & Schmidt, 2020). Adolescence is an age at which individuals are easily affected by various outside influences. The age of the respondents in this study (16–18 years) could be a factor that influenced their decision to get married early. This is in line with the results of previous studies, which indicated that age can be a factor that influences decision-making patterns, the higher a person’s age, the more mature the person will be in determining the right decision since it also enhances decision-making through accumulated experience and emotional regulation (Sparrow & Spaniol, 2016; Zakirov & Krasilnikov, 2020). Thus, the decision to marry early or during adolescence can occur at the instigation of oneself or one’s partner or family since it also involves personal desires, familial pressure, peers influence, or societal norms (Azmi et al., 2021; Bhushan, 2024; Kusumaningsih et al., 2023).

In this study, only 12 (16.67%) of the 72 parents of the respondents had high educational attainment, and most were poorly educated. Parents’ levels of understanding and education affect their parenting styles. Our interview results showed that most (65.625%) of the respondents

experienced permissive parenting, in which the parent gives the child complete freedom to make decisions and does so without giving any explanation or direction to the child (Adawiah, 2015; Adriana & Zirmansyah, 2021; Noor, 2019; Zalfa, 2019). The permissive parenting style was evident from the answers of the respondents, most of whom replied, “I have no one looking after me at home. When my parents come home from work, they usually go straight to rest,” “My parents let me go out,” and “At home, I am free to access the internet. Free to play mobile phones too.” Adolescents nurtured by permissive parenting have a high vulnerability to promiscuous sex behavior. This is due to the lack of parental supervision, which allows teenagers to do what they want (Overbeek et al., 2018; Reis et al., 2023).

The results of this study show that as many as 53.125% of the total respondents had a romantic relationship experience. However, after conducting a statistical test of the correlation between having romantic relationship experience and early marriage intentions in adolescents, we found no significant relationship. A consistent direction was noted between adolescents; prior romantic experience and their intentions toward early marriage. This indicates that teenagers with a partner have the potential to have the

motivation to get married early. According to previous studies, it is common for young men to marry early after discovering sexual desires so that they can continue after getting married. In addition, marriage is considered socially more acceptable, and marriage arranged by the family is more honorable than allowing children to elope or decide on their own, which leads to sex before marriage (Biswas et al., 2020).

The results presented in Table 2 show that all respondents had unsafe sexual activity. This is a risk factor for early marriage, which is caused by promiscuity. Important influences include spouses, parental parenting, and mass media. Parental parenting is a severe risk factor for sexual behavior. In addition, couples and the mass media also influence adolescents' decisions to engage in sexual behavior (Reis et al., 2023; Tati & Indarjo, 2017). Apart from this fact, sexual behavior became an effect of the COVID-19 pandemic. Instead of taking advantage of Indonesia's demographic bonus, adolescents are currently experiencing adolescent health challenges, one of which is unwanted pregnancies. Premarital sexual behavior is now rife among teenagers who are dating. It starts with a physical touch. According to one respondent in this study, "when we are dating, at least we can hug and hold hands." Another respondent said that "kissing, hug are bare minimum in dating." The COVID-19 pandemic forced people to move and interact online, but easy Internet access means that teenagers receive information that they are not ready to receive. This phenomenon is caused by several factors, including a decrease in the use of reproductive health services, lack of proper information on premarital sexual behavior, working from home, and distance-learning policies that increase Internet use and exposure to pornography (Muthmainnah et al., 2023).

The fulfillment of sexual desire was cited as one of the reasons that influenced young men's decision to marry early. In the face-to-face interviews and informal discussions, some respondents acknowledged that the desire to have sex

was one of the reasons for getting married early. Through marriage, young men want easy access to sexual relations with their wives without having to spend money (Biswas et al., 2020).

Several interventions have been made to improve adolescents' level of knowledge of early marriage, such as health education/counseling and snowball-throwing learning models. Research has been conducted on the effect of health education on adolescents' levels of knowledge about the dangers of early marriage in West Lombok. The results of this study showed an increase in adolescents' knowledge of early marriage ( $p = 0.000$  and  $ES = 0.7$ ) (Millenia et al., 2022). In addition, studies with the same interventions and variables were conducted in 2017. Two studies found an increase in knowledge from less to good after interventions were given ( $p_1 = 0.016$  and  $ES_1 = 0.98$ ;  $p_2 = 0.001$  and  $ES_2 = 0.74$ ) (Amelia et al., 2017; Madinah et al., 2017).

In this study, we found that the use of psychoeducation and mind mapping with an FGD had superior effects on the level of knowledge of early marriage compared with counseling or health education in previous studies. Snowball-throwing learning models were found to have a greater effect size in this study. A study conducted in 2019 on the influence of the use of snowball-throwing learning models showed that treatment increased the respondents' knowledge from less to good ( $p = 0.000$  and  $ES = 0.8$ ) (Umairoh et al., 2019). When compared with previous research with the current research, the use of psychoeducation and mind-mapping FGD methods on the level of knowledge of early marriage is better than counseling or health education, and snowball-throwing learning models can be seen from the greater effect size of this study (Idris, 2021).

In the FGD, each participant was encouraged by the moderator to have an opinion. This method makes the learning process more interesting, allowing the material to be conveyed and understood by the students more easily. In addition,

from a behavioral perspective, psychoeducation affects students' behaviors toward early marriage. Psychoeducation affects a behavioral component that consists of a tendency or intention to act or react to something in a certain way (Anwar & Rahmah, 2017; Dwi et al., 2020).

After the psychoeducational intervention and FGD, mind mapping was performed to improve the adolescents' understanding and memory of the early marriage material discussed. By using this intervention, the adolescents' understanding increased and their intention to get married early decreased. This is in line with the results of previous studies that used the same method to improve the cognitive aspects of student learning. This study also found significant differences in the use of this method. The mind-mapping method had a positive influence and was effective in increasing students' understanding and memory, thereby increasing their motivation and creativity during learning (Danarti et al., 2021). This is because during the discussion, adding material required the students to work together, be responsible, and think individually and in groups in order to form opinions and achieve the required learning competencies during the learning process, where this process was continued by performing mind-mapping individually, training students to think creatively in describing the entirety of the material given (Piatmini et al., 2021).

Mind mapping involves working on both sides of the brain to process visual and auditory information so that students can remember information easier (Arimbi et al., 2018). The flexible use of branches, colors, and images makes it easier for students to remember information. This is in line with the previous finding that the right brain has the ability to record information quickly and store the results as memory for a long time. Therefore, this combination method can lead students to think creatively and thereby improve their cognitive learning outcomes (Hasanah et al., 2020; Niswani, 2016; Santrock, 2017; Spanoudis & Demetriou, 2020).

This is also in line with previous results showing that higher educational levels (especially post-secondary education) are associated with higher marriage age preferences (Rumble et al., 2018). This is also in line with the result that the relationship of intention with student behavior is a process from cognitive to action that goes through a mediator in which intention is a conative aspect. In addition, the level of knowledge affects student behavior and actions (Masek et al., 2022). In this context, the higher the knowledge of early marriage, the lower the intention to marry early.

This is appropriate because knowledge is an important domain of human behavior (Cahyani et al., 2021; Diniyati & Jayatmi, 2017; Riris & Purnamayanti, 2021). This means that the higher the knowledge a person has, the lower the incidence of early marriage (Widiyawati & Muthoharoh, 2020). During information transfer, an individual can be inspired, learn something new, and apply knowledge after receiving a piece of information (Masek et al., 2022; Priyoto, 2019). This is supported by the presence of mental activity (cognitive, affective, and conative elements) and actions and behaviors, with intention as a conative and determining factor of behavior (Ramdhani, 2016). The behaviors of a person or society are largely determined by their knowledge, attitudes, beliefs, traditions, and so on (Diniyati & Jayatmi, 2017).

The influence of knowledge on a person's intention to behave will be reinforced by research that concludes that people's interests and intentions to behave are greatly influenced by their knowledge of related things. This intention can be positively influenced by the perceived value and negatively influenced by the perceived risk (Wang & Hazen, 2016). Thus, when students are given subjects with psychoeducation and mind mapping about early marriage, in addition to the risks of early marriage, they also understand the concept of a healthy marriage so that they can compile more mature planning related to marriage.

The findings of this study can generalize if the samples are representative of the study population. This study is relatively easy to analyze, but related secondary data are not easy to collect, as these are sometimes not available or accessing them is difficult.

## Conclusion

On the basis of our results and discussion in the previous chapter, we can conclude that the combination of psychoeducation and mind mapping affects adolescents' early marriage intention and level of knowledge. In future research, the duration of the implementation of the combined method can be increased, and other benefit tests or tests in the same population with the same or added benefits can be performed. The results of this study can be supplemented with those of other studies using other variables.

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