Knowledge and Perception Towards Contraceptive and Teen Pregnancy Amongst Late Adolescents in East Malaysia

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ABSTRACT

Teenage pregnancy is a critical public health issue in Malaysia and globally. This study aims to investigate the knowledge and perceptions of contraception and teen pregnancy, while also analysing differences across various demographic profiles of adolescents aged between 16 to 19 years old. A cross-sectional study was carried out using a self-administered questionnaire in Sabah and Sarawak states of Malaysia, consisting of demographic information and perceptions and knowledge towards contraceptives and teen pregnancy. Descriptive statistics and Multivariate Analysis of Variance (MANOVA) were employed to analyse the data. A total of 105 participants answered the questionnaire, with 54.3% being females 19 years old being the largest age group (55.2%). There is a generally positive attitude regarding contraception use among the adolescents and understanding of the complexities surrounding teenage pregnancy, and an overall moderate knowledge of contraceptive use, pregnancy, and related health practices. MANOVA analysis showed that participants' perceptions were significantly different based on ethnicity, religion, and income status groups, highlighting the importance of cultural and socioeconomic background. The result of the study has implications for shaping curriculum for educating middle adolescents in East Malaysia in sexual and reproductive health, particularly on contraceptive use and teenage pregnancy.

Keywords:. Contraceptive, Knowledge, Perceptions, Teen Pregnancy, Late Adolescent

INTRODUCTION

Teenage pregnancy, defined as pregnancy occurring in adolescent girls aged 13–19 years, remains a critical public health issue globally (Ahmed et al., 2025). The United Nations Children's Fund (UNICEF) emphasizes that adolescent pregnancy poses health risks because the adolescent body is still developing and not fully prepared for reproduction (Panda et al., 2023). Globally, the adolescent birth rate in 2023 was approximately 39 births per 1,000 adolescent girls aged 15–19, with Sub-Saharan Africa recording the highest regional rate at 93 births per 1,000 adolescent girls (Boutayeb, 2024).

In Malaysia, teenage pregnancy is defined as any pregnancy occurring in girls aged 19 years or younger (Mohd Suan et al., 2015). Teenage births remain a concern, with 18,000 cases recorded in 2012 and at least 7,700 in 2018. Approximately 14 out of every 1,000 underage girls become pregnant each year (Sulaiman et al., 2021). In 2015, the Malaysian Ministry of Health reported approximately 18,000 teenage pregnancies in Sarawak, the second-highest recorded after Sabah (Panting et al., 2019).

Teen pregnancy and childbearing have significant social and economic consequences for adolescents, their children, and society. Adolescents often face barriers to accessing reliable reproductive health information and services, which can result in unintended pregnancies and other health risks (Morris & Rushwan et al., 2015; Hotz et al., 2018). Many teenagers lack awareness of available contraceptive options, their mechanisms, and how to access them. This knowledge gap is exacerbated by limited access to accurate sexual health education in schools, where discussions about contraceptives are often superficial or absent (Chandra & Akwara, 2020).

Teenage pregnancy is influenced by various factors, including early marriage, cultural norms, and limited access to education and healthcare. In Malaysia, early marriage is a significant contributor to teenage pregnancy (Kohno et al., 2020). Although Malaysian law restricts marriage for individuals under 18 years old without parental consent, Muslim girls under 16 can marry permission from Sharia authorities (Samuri et al., 2022). Teenage mothers face several health risks during pregnancy and delivery, including premature rupture of membranes, cephalopelvic disproportion, and low birth weight. Premature birth can lead to long-term health issues for the baby, such as heart disease (Chakole et al., 2022; Saleh, 2022).

The term "contraceptive" refers to any method, device, or substance used to prevent pregnancy (Jain, 2011). It encompasses a wide range of options, including hormonal pills, intrauterine devices (IUDs), condoms, and surgical procedures. The primary purpose of contraceptives is to inhibit the fertilization of an egg by sperm or to prevent the implantation of a fertilized egg in the uterus. Additionally, some contraceptives, such as condoms, provide protection against sexually transmitted infections (STIs) (Cleland et al., 2021).

Contraception has become a widely discussed issue around the world. Family planning services and supplies currently prevent 187 million unintended pregnancies each year including 60 million unplanned births and 105 million abortions (Sonfield, 2006). In European and American women, the awareness of having contraception is high and approximately 98% prefer using the contraceptive pill (Johnson et al., 2013). One study conducted in Ghana stated that 98% of all women and 99% of all men had knowledge of at least one method of contraception (Opoku et al., 2011). Besides, it is estimated about one-third of pregnancies in South and Southeast Asia are unintended due to low use of contraception, contraceptive method failure, and high unmet need for contraceptives (Hossain et al., 2005). Some studies also have been conducted by researchers to the population of Malaysia. About half of the married Malay women have low knowledge on contraception (Najafi et al., 2012). Another study reported that 70% of maternal deaths is due to lack of knowledge and awareness of family planning and contraception (Rosliza & Majdah, 2010).

Contraception offers numerous benefits, including spacing pregnancies, postponing pregnancies in young girls at higher risk of health complications, and avoiding pregnancies among older women at increased risk. It also allows women to plan their families and avoid closely spaced pregnancies, which contribute to high infant mortality rates (Festin, 2020). However, access to contraception remains a challenge, particularly for single adolescents. In Malaysia, family planning and contraceptive services are more accessible and acceptable among married individuals than single adolescents (Wong et al., 2014).

A study of 1,200 mostly single adolescents aged 15–21 in Kuala Lumpur found that knowledge about virginity, pregnancy, and contraceptive methods was low. Their sources of information were primarily books, friends, and parents, highlighting an unmet need for accurate and comprehensive sexual health education (Grimes et al., 2006; Wong, 2012). The attitudes and perceptions of Malaysian teenagers toward teen pregnancy and contraceptive use are shaped by peer pressure, family values, and cultural norms. Studies indicate limited awareness among Malaysian adolescents regarding contraceptive methods, their effectiveness, and accessibility (Low, 2009).

There is an increasing number of premarital sexual activity among youngsters, especially adolescents. The increasing incidence of premarital sexual activity and the decline usage of contraception leads in an increase rate of adolescent and youth fertility. The result of these pregnancy and childbearing has remarkable impacts on maternal and child health (Jan & Bhat, 2025). This research aims to explore late adolescents' knowledge and perceptions of contraception and teen pregnancy, as well as examine differences based on demographic profiles.

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MATERIALS AND METHODS

Population & Study Design

A descriptive research design took place from November 2024 to December 2024 with a sample of late adolescents age from 16 to 19 years old from East Malaysia which includes states from Sabah and Sarawak.

Sample Size

The estimated sample size was determined using Krejcie and Morgan's (1970) sample size table within a total population of 16-19-years old in Sabah (S = 350,000) and Sarawak (S = 280,000), assuming a 95% confidence level, a 5% margin of error, and a population proportion of $P = 0.5$. A 5% dropout rate was also accounted for, resulting in a selected sample of N = 385 for each state (September 2024) (Morgan, 1970. Convenience sampling was employed in this study due to practical considerations such as limited time and resources, as well as ease of access to willing participants within the target age group in the selected districts. A total of 105 respondents consented to participate in the research study, with the inclusion of all individuals aged 16-19 from both states. The study excluded individuals who did not provide consent for participation and those outside the specified age range.

Instrumentation

A self-administered questionnaire, shown to be valid and reliable, was compiled based on multiple studies and consisted of five sections: (a) demographics, (b) perceptions towards contraceptive (10-items), (c) perceptions towards teen pregnancy (9-items) with α value of .82 (Nepal et al., 2021) and (d) knowledge towards contraceptive and teen pregnancy (27-items) with α value of .72 (Frost et al., 2012). In section (b) and (c), a-5 point Likert scale was employed ranging from 1 (totally disagree) to 5 (totally agree) whilst in section (d), a dichotomous Yes/No scale was used for all items, with each correct response was awarded 1 point, with the total higher scores indicated greater knowledge. The questionnaire was first subjected to face validity assessment to ensure its clarity and relevance. This was followed by content validation conducted by public health physician and health educationist.

Data Collection Procedures

The Research Ethics Committee of UiTM granted ethical approval under referral number ED/REC/F/11886. The questionnaire was distributed and collected from respondents across districts in Sabah and Sarawak using the Google Form link. The front page of the questionnaire included a concise study overview along with a consent form for both legal guardian and respondents, ensuring voluntary participation devoid of any pressure or coercion. A period of 3 weeks was given for data collection. A reminder was sent once during the final week to ensure all the respondents completed the form. All the information collected was then kept anonymous and confidential by the researcher.

Data Analysis

The data collected were analyzed using IBM Statistical Package for Social Science (SPSS) for Windows, Version 28. Descriptive statistics were employed to evaluate frequency distribution, mean, and standard deviation for the perception towards contraceptive and teen pregnancy together with the knowledge. To assess differences among the demographic profiles regarding knowledge and perceptions towards contraceptive and teen pregnancy, Multivariate Analysis of Variance (MANOVA) was utilized. Tests to ensure underlying assumptions were conducted: the Shapiro-Wilk test confirmed univariate normality, no multivariate outliers were detected, the correlation between dependent variables was within acceptable limits, and Box's M test signified homogeneity of variance-covariance matrices. Statistical significance was predetermined at a probability value of 0.05 or lower, two-tailed.

RESULTS

The sample comprised 105 participants, with a nearly even gender distribution—around 45% were male and

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54% were female. The age distribution was predominantly centered around 19 years, which was the most common age group, followed by smaller groups of 18-, 16- and 17-year-olds. Most participants were from Sabah, with the highest representation from districts such as Tambunan and Keningau, while a smaller portion hailed from Sarawak, mainly from Samarahan, Kuching, and Sibu. Ethnically, the largest group identified as Dusun/Kadazan, with smaller proportions of Melayu and Iban, among others. The majority reported Christianity as their religion, with Islam being the next most common faith; Hinduism and Buddhism were less prevalent. Regarding socioeconomic status, most participants fell within the B40 income category, with smaller proportions in the M40 and T20 groups (Table 1).

Table 1 Demographic Profiles

Demographics	Description	N (%)
Gender	Male	48(45.7)
	Female	57(54.3)
Age	16	16(15.2)
	17	10(9.5)
	18	21(20)
	19	58(55.2)
State	Sabah	73(69.5)
	Sarawak	32(30.5)
District	Keningau	15(14.3)
	Kudat	3(2.9)
	Kota Marudu	5(4.8)
	Tambunan	32(30.5)
	Tenom	5(4.8)
	Papar	3(2.9)
	Penampang	1(1.0)
	Sandakan	2(1.9)
	Tawau	4(3.8)
	Kota Kinabalu	4(3.8)
	Kuching	6(5.7)
	Samarahan	9(8.6)
	Saratok	3(2.9)
	Sarikei	2(1.9)

The survey examined attitudes toward contraceptive use and revealed varied perceptions among participants. While a significant portion recognized the effectiveness of contraceptives in preventing pregnancy, there were notable misconceptions and reservations. Some participants viewed contraceptives as meant primarily for married adults, and concerns about cost were common, though many participants remained neutral on this issue. Misunderstandings about infertility and social stigma were evident, with a sizable minority believing contraceptive use could cause infertility or felt embarrassed to obtain them. Negative traits associated with adolescent use and moral concerns about advertising contraceptives persisted, yet there was also recognition of their benefits for sexually active teens. Support for involving male adolescents in prevention programs was limited, with more participants disagreeing than supporting such initiatives. Overall, the mean attitude score

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indicated a generally positive view of contraception among late adolescents, though gaps in awareness and acceptance highlight opportunities for targeted education and awareness campaigns (Table 2).

Table 2 Perception towards contraceptive

Items	Scale	N (%)
Contraceptives are only for adult married person	strongly disagree	10(9.5)
	disagree	12(11.4)
	neutral	24(22.9)
	agree	31(29.5)
	strongly agree	28(26.7)
Contraceptives are effective in avoiding pregnancy	strongly disagree	-
	disagree	9(8.6)
	neutral	34(32.4)
	agree	41(39.0)
	strongly agree	21(20.0)
Advertising the information about contraceptive use is immoral	strongly disagree	26(24.8)
	disagree	34(32.4)
	neutral	28(26.7)
	agree	8(7.6)
	strongly agree	9(8.6)
Contraceptives are so expensive to use	strongly disagree	4(3.8)
	disagree	12(11.4)
	neutral	45(42.9)
	agree	29(27.6)
	strongly agree	15(14.3)
Adolescents who use contraceptives are bad person	strongly disagree	15(14.3)
	disagree	19(18.1)
	neutral	39(37.1)
	agree	21(20.0)
	strongly agree	11(10.5)
Contraceptive use is beneficial to all sexually active teenagers	strongly disagree	11(10.5)
	disagree	20(19.0)
	neutral	30(28.6)
	agree	22(21.0)
	strongly agree	22(21.0)
Contraceptive use leads to infertility	strongly disagree	10(9.5)
	disagree	15(14.3)
	neutral	45(42.9)

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	agree	25(23.8)
	strongly agree	10(9.5)
The process of acquiring contraceptives is often embarrassing	strongly disagree	13(12.4)
	disagree	21(20.0)
	neutral	33(31.4)
	agree	30(28.6)
	strongly agree	8(7.6)
Since pregnancy can be terminated if it occurs, contraceptives might not be necessary	strongly disagree	47(44.8)
	disagree	17(16.2)
	neutral	24(22.9)
	agree	9(8.6)
	strongly agree	8(7.6)
Male adolescent should also engage in teen pregnancy prevention program	strongly disagree	32(30.5)
	disagree	36(34.3)
	neutral	16(15.2)
	agree	12(11.4)
	strongly agree	9(8.6)
Total	Mean (SD)	
	27.7(6.07)	

The survey explored perceptions of teenage pregnancy and its related factors, revealing a range of attitudes among participants. A considerable number held neutral views on whether teenage females are physically and mentally prepared for pregnancy, though some agreed or strongly agreed that they are not. There was prevalent attribution of teenage pregnancy to the girl's mistakes, with many participants also recognizing that teenage mothers face various challenges—physical, psychological, social, and financial. Opinions about teenage mothers balancing their own growth with child-rearing were mixed, with equal proportions agreeing, disagreeing, or remaining neutral. When it came to education, most participants were neutral about whether teenage mothers could continue schooling, though a notable portion supported the idea that accessible contraceptives could reduce teenage pregnancy. The perception of maternal morbidity and mortality as consequences of teenage pregnancy was widespread, with many agreeing or strongly agreeing. Views on whether teenagers can give birth to healthy babies were divided. Support for involving males in prevention programs was strong, with a majority strongly endorsing male participation. Overall, the average attitude score suggested a generally positive awareness of the complexities surrounding teenage pregnancy, highlighting both recognition of challenges and support for preventive measures (Table 3).

Table 3 Perception towards teen pregnancy

Items	Scale	N (%)
Teenager female is physically and mentally preparing for pregnancy	strongly disagree	15(14.3)
	disagree	22(21.0)
	neutral	34(32.4)
	agree	18(17.1)
	strongly agree	16(15.2)

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Teenage pregnancies are due to the teenage girl's mistake	strongly disagree	
	disagree	5(4.8)
	neutral	19(18.1)
	agree	39(37.1)
	strongly agree	42(40.0)
If teenager girl gives birth; she may face physical, psychological, social and financial problems	strongly disagree	5(4.8)
	disagree	6(5.7)
	neutral	29(27.6)
	agree	52(49.5)
	strongly agree	13(12.4)
teenage mother rears her child along with her growth	strongly disagree	5(4.8)
	disagree	13(12.4)
	neutral	24(22.9)
	agree	39(37.1)
	strongly agree	24(22.9)
teenage pregnant mother can continue her education	strongly disagree	4(3.8)
	disagree	12(11.4)
	neutral	48(45.7)
	agree	25(23.8)
	strongly agree	16(15.2)
teenage pregnancy increases maternal morbidity and mortality	strongly disagree	5(4.8)
	disagree	10(9.5)
	neutral	52(49.5)
	agree	30(28.6)
	strongly agree	8(7.6)
teenage pregnant mother give birth to a healthy baby	strongly disagree	2(1.9)
	disagree	10(9.5)
	neutral	40(38.1)
	agree	40(38.1)
	strongly agree	13(12.4)
Easily availability and accessibility of contraceptive can decrease teenage pregnancy	strongly disagree	1(1.0)
	disagree	2(1.9)
	neutral	12(11.4)
	agree	32(30.5)
	strongly agree	58(55.2)
male teenagers should also engage in teenage pregnancy prevention program?	strongly disagree	1(1.0)
	disagree	3(2.9)

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	neutral	8(7.6)
	agree	26(24.8)
	strongly agree	67(63.8)
Total	Mean (SD)	
	29.26(3.16)	

The survey assessed participants' knowledge and beliefs about contraceptive use, pregnancy, and related health practices, uncovering several misconceptions and knowledge gaps. A majority correctly identified that condoms should not be reused and are marked with expiration dates, indicating a good baseline awareness. However, understanding of proper condom use was inconsistent, with fewer participants recognizing the importance of leaving space at the tip and misconceptions about lubricants—many believed that petroleum jelly or Vaseline could be safely used with latex condoms. Knowledge of male contraceptive practices showed some strengths, such as recognizing the need to withdraw immediately after ejaculation, but also misconceptions, including the incorrect belief that wearing two condoms provides extra protection. Understanding of birth control pills varied; most participants knew that missing doses for a few days does not significantly reduce effectiveness, but many erroneously believed that women should take periodic breaks from the pill. Awareness of managing side effects was moderate, with some understanding that switching to different brands can help. Knowledge about long-acting methods like intrauterine devices (IUDs) was mixed. While many recognized that IUDs are not banned in Malaysia and can be used by women who have not had children, misconceptions persisted—nearly half thought IUD insertion requires surgery, and over half believed that an IUD cannot be felt during intercourse. Conversely, awareness that IUDs are suitable for nulliparous women and safe for breastfeeding was reasonably high. Participants demonstrated good awareness of pregnancy-related care, though misconceptions remained, such as beliefs that pregnant women should avoid exercise. Most correctly identified common pregnancy symptoms like cramps and abdominal pain. Overall, the mean score indicated moderate knowledge, with notable gaps particularly in detailed understanding of contraceptive methods and pregnancy practices (Table 4).

Table 4 Knowledge towards contraceptive and teen pregnancy

Items	Descriptions	N (%)
It is okay to use the same condom more than once	True	11(10.5)
	False	94(89.5)
Condoms have an expiration date	True	90(85.7)
	False	15(14.3)
When putting on a condom, is it important to leave a space at the tip	True	67(63.8)
	False	38(36.2)
It is okay to use petroleum jelly or Vaseline as a lubricant when using latex condoms	True	47(44.8)
	False	58(55.2)
When using a condom, is it important for the man to pull out right after ejaculation	True	72(68.6)
	False	33(31.4)
Wearing two latex condoms provide extra protection	True	56(53.3)
	False	49(46.7)
Birth control pills are effective even if a woman misses taking them for two	True	41(39)

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or three days in a row	False	64(61)
Women should "take a break" from the pill every couple of years	True	70(66.7)
	False	35(33.3)
If a woman is having side effects with one kind of pill, switching to another type or brand might help	True	64(61)
	False	41(39)
Birth control pills reduce the chances that women will get certain types of cancer	True	38(36.2)
	False	67(63.8)
After a woman stops taking birth control pills, she is unable to get pregnant for at least two months	True	44(41.9)
	False	61(58.1)
In order to get the birth control pill, a woman must have a pelvic exam	True	65(61.8)
	False	40(38.1)
All IUDs are banned from use in Malaysia	True	21(20)
	False	84(80)
A woman can use an IUD even if she has never had a child	True	59(56.2)
	False	46(43.8)
Women who use IUDs cannot use tampons	True	60(57.1)
	False	45(42.9)
To obtain an IUD, a woman must undergo a surgical operation	True	51(48.6)
	False	54(51.4)
An IUD cannot be felt by a woman's partner during sex	True	54(51.4)
	False	51(48.6)
IUDs can move around in a woman's body	True	46(43.8)
	False	59(56.2)
Women using the birth control shot, Depo-Provera, must get an injection every three months	True	75(71.4)
	False	30(28.6)
Even if a woman is late getting her birth control shot, she is still protected from pregnancy for at least three more months	True	54(51.4)
	False	51(48.6)
Negative effects that a woman has from Depo-Provera can last for the rest of her life	True	62(59)
	False	43(41)
Women using the vaginal ring, NuvaRing, must have it inserted by a doctor or health care provider every month	True	64(61)
	False	41(39)
Long-acting methods like the implant or IUD cannot be removed early, even if a woman changes her mind about wanting to get pregnant	True	81(77.1)
	False	24(22.9)
Pregnant woman must consult a clinician (doctor or midwife/nurse)	True	95(90.5)
	False	10(9.5)
A pregnant woman must consult her clinician (doctor or midwife/nurse) each time that she feels unwell, has a fever, and/or experiences an unusual physical change	True	91(86.7)
	False	14(13.3)

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Pregnant women should avoid exercise	True False	33(31.4) 72(68.6)
One of the pregnancy symptoms is persistent cramps and abdominal (stomach) pain	True False	76(72.4) 29(27.6)
Total Score	Mean (SD)	
	15.74(2.85)	

A one-way MANOVA analysis was conducted to examine the differences in the level of knowledge, and perceptions in contraceptive and teen pregnancy towards the demographic profiles. The findings indicated a notable impact of the respondents' ethnics F (9,95) = 4.17, $p < .001$, religions F (3,101) = 5.01, $p = .003$, and income status F (3,101) = 3.24, $p < .001$ on the combined dependent variables. The analysis of the dependent variables individually showed significant differences for perceptions. Specifically, the perceptions towards contraceptive variables demonstrated statistical significance at a Bonferroni-adjusted alpha level of .017, for ethnics F (9,95) = 3.69, $p < .001$, religions F (3,101) = 4.60, $p = .005$ and income status F (3,101) = 8.89, $p < .001$ respectively (Table 5).

Table 5 Multivariate test of knowledge and perception of contraceptive and teen pregnancy towards gender, age, state, districts, ethnics, religions and income status

Source	Value	F	Hypothesis df	Error df	Sig	Partial η^2
Pillai's Trace (Gender)	.058	2.07	3	101	.108	.058
Pillai's Trace (Age)	.080	2.69	3	101	.050	.074
Pillai's Trace (State)	.042	1.40	3	101	.228	.042
Pillai's Trace (Districts)	.304	1.67	16	88	.067	.233
Pillai's Trace (Ethnics)	.396	4.17	9	95	<.001*	.284
Pillai's Trace (Religions)	.149	5.01	3	101	.003*	.130
Pillai's Trace (Income Status)	.316	3.24	3	101	<.001*	.240
Variables	Type III Sum of Squares	df	Mean Square	F	Sig	
Ethnics (Perceptions)	995.95	9	110.66	3.698	<.001**	
Religions (Perceptions)	462.14	3	154.04	4.607	.005**	
Income Status (Perceptions)	801.48	3	267.49	8.897	<.001**	

* Significant at the level of p < .05

** Significant at the level of p <.017

DISCUSSIONS

This study was conducted among late adolescents aged 16–19 years across districts in Sabah and Sarawak, Malaysia, to examine their perceptions and knowledge of contraception and teen pregnancy. From the perspective of the Theory of Planned Behavior (TPB), these perceptions are influenced not only by individual attitudes but also by social norms and perceived control over behaviors. Additionally, the study explored differences in these aspects based on the demographic profiles of the respondents. The findings revealed that over half of the respondents believed contraception is only meant for married adults, reflecting attitudes rooted

in cultural, religious, and societal norms that align with traditional perspectives (Ekambi et al., 2023). Many adolescents also expressed doubts about the effectiveness of contraception, driven by misconceptions about fertility and concerns about cost—demonstrating how attitudes and perceived barriers affect their behavioral intentions. (Mbachu et al., 2021). Furthermore, feelings of embarrassment and moral judgments—such as belief that contraception is inappropriate for sexually active teens—highlight social norms that discourage open discussions and contraceptive use (perceived social pressures) (Osaikhuwuomwan et al., 2013). The majority of respondents believed that males are unwilling to participate in teen pregnancy prevention programs, further emphasizing how normative beliefs shape behaviors and attitudes toward shared responsibility.

These attitudes are influenced by a lack of comprehensive sexual education and misinformation. According to TPB, such misconceptions and social norms directly impact adolescents perceived behavioral control—reducing their confidence and perceived ability to access and properly use contraceptives. Younger adolescents are susceptible to false beliefs, such as the idea that contraception promotes promiscuity or is hazardous (Chandra Mouli, 2015). These perceptions can serve as perceived barriers that inhibit contraceptive use and hinder responsible behavior (perceived behavioral control. Many teenagers also perceive that women bear a disproportionate burden of contraceptive use, discouraging male adolescents from engaging in contraceptive conversations, illustrating normative beliefs that limit shared responsibility (Odewusi, 2020; Hanson et al., 2014). Additionally, concerns about long-term contraceptive methods, such as IUDs causing infertility, highlight the need to shift attitudes through culturally sensitive education. Misconceptions about effectiveness and safety, as well as doubts about efficacy, contribute to a reluctance to adopt contraceptive methods, revealing gaps in perceived behavioral control (Kirubarajan et al., 2022). This underscores the importance of targeted interventions that address these barriers directly improving adolescents' confidence and perceptions about contraception (enhancing perceived behavioral control) (Tohit & Haque, 2024).

Evidence suggests that tailored, truthful, and nonjudgmental sexual education can influence attitudes and modify social norms to foster healthier behaviors. For instance, comprehensive sex education has been shown to delay sexual initiation and increase contraceptive use among adolescents (Sharma et al., 2021). These findings align with the TPB's emphasis that attitudes and norms significantly influence behavioral intentions and actual behavior. However, inconsistent use of contraceptives, such as missing doses of oral contraceptives or incorrect condom use, significantly reduces their reliability, further emphasizing the importance of proper education and guidance. These findings collectively underscore the necessity of targeted interventions to address misconceptions, improve knowledge, and promote responsible contraceptive use among middle adolescents (Kirubarajan et al., 2022).

Regarding perceptions toward teen pregnancy, the respondents generally agreed that adolescents are not ready for pregnancy, citing the physical, psychological, social, and financial challenges that accompany it. These perceptions are driven by attitudes rooted in awareness of the difficulties faced by pregnant teens but are also shaped by norms that tend to blame young women for unintended pregnancies. Most respondents attributed teen pregnancy primarily to girls' mistakes, which aligns with societal norms that often place disproportionate blame on young women (Smith et al., 2016). Despite this, respondents showed empathy for pregnant teens, acknowledging the significant challenges they encounter reflection of more supportive attitudes (Bah, 2016).

Most believe that teens who become pregnant should continue their education, highlighting positive attitudes toward supporting adolescent mothers. The acknowledgment of the importance of prenatal care and the belief that access to contraception can reduce teen pregnancy reflect perceived behavioral control—the confidence that responsible contraception can mitigate risks (perceived barriers) (Sadyalunda, 2013). Furthermore, there was strong support for involving males in pregnancy-related programs, highlighting the need for shared responsibility in preventing and addressing teen pregnancy (Kane et al., 2019).

However, misconceptions, such as the belief that pregnant teens may die, reveal gaps in knowledge that could negatively influence perceived behavioral control and decision-making (beliefs and attitudes). While teen pregnancy is associated with higher risks of complications compared to older mothers, advancements in healthcare have significantly reduced maternal mortality rates among adolescents. These misconceptions

underscore the need for accurate, evidence-based education to address myths and provide adolescents with reliable information about reproductive health (Jeha et al., 2015).

The study reveals varying levels of knowledge among adolescents regarding contraceptive use and pregnancy, reflecting both accurate understanding and persistent misconceptions. While many adolescents demonstrated good knowledge about condoms, significant gaps were evident in their understanding of proper usage. For instance, there was confusion about the effects of using suitable lubricants and the misconception that wearing two condoms provides extra protection against unintended pregnancy (Aventin et al., 2021). Similarly, misunderstandings about oral contraceptives were prevalent, particularly regarding their effectiveness, the consequences of missing doses, and the belief that periodic breaks from the pill are necessary. Knowledge about intrauterine devices (IUDs) also showed mixed results: while most understood how IUDs are used, some incorrectly believed that their insertion requires surgery. These gaps highlight the need for more comprehensive and accurate education on contraceptive methods (Gomez et al., 2020).

Most adolescents demonstrated good knowledge about pregnancy symptoms but also showed gaps, such as misconceptions about exercise during pregnancy, which can affect behavioral intentions and behaviors. Addressing these gaps through education would influence attitudes and bolster adolescents' confidence in making appropriate health choices (perceived control) (Otu et al., 2024).

The misconceptions surrounding contraceptive use and pregnancy are not unique to this study but reflect global trends in adolescent reproductive health. Research by Darroch et al. (2016) and Chandra-Mouli et al. (2015) highlights how misinformation about contraceptives contributes to improper use and increases the risk of unintended pregnancies. For example, beliefs such as the need for surgical IUD insertion or the idea that hormonal contraceptives cause long-term fertility issues deter adolescents from using effective methods. Similarly, misconceptions about the safety and side effects of contraceptives, such as Depo-Provera, further complicate decision-making. These findings align with Hubacher & Trussell (2015), which emphasize the role of evidence-based education in addressing these gaps. Programs like UNESCO's Comprehensive Sexuality Education (CSE) have proven effective in improving adolescents' understanding of reproductive health and reducing misinformation.

Cultural and societal factors also play a significant role in shaping adolescents' knowledge and behaviours. The study noted that teenage pregnancies often result from cultural practices such as early marriages and premarital relationships, particularly in regions where contraceptive use is low among younger and unmarried women (Jain, 2011). These trends highlight the importance of culturally sensitive interventions that address both knowledge gaps and societal norms. Public health campaigns must prioritize accurate, accessible, and culturally appropriate information to empower adolescents to make informed decisions about their reproductive health. By addressing misconceptions and promoting evidence-based practices, such initiatives can reduce the prevalence of unintended pregnancies and improve maternal and fetal outcomes globally.

The findings of this study highlight significant differences in perceptions of contraceptive use based on religion, ethnicity, and income status, underscoring the complex interplay of sociocultural and economic factors in shaping family planning attitudes. As most respondents in this study are Christian and Muslim, religious beliefs often influence contraceptive perception, as doctrines regarding procreation and morality may either discourage or encourage use (Turner, 2021; Pinter et al., 2016). In addition, the diverse ethnic backgrounds of the respondents may also shape their perceptions of contraception. Many are influenced by cultural norms that discourage contraceptive use, historical experiences, and limited access to education or healthcare related to family planning. These factors minimize exposure to contraceptives and subsequently shape attitudes, which can persist across generations (Kabagenyi et al., 2016). Furthermore, income status is a critical determinant, as most respondents belong to lower-income groups. These individuals may face barriers such as the cost of contraceptives, limited access to formal education about their effective use, and restricted healthcare access, all of which contribute to varied perceptions of contraception (Engelbert Bain et al., 2021). The intersection of these factors—religion, ethnicity, and income—creates unique patterns in contraceptive perception, emphasizing the need for culturally sensitive and multifaceted family planning interventions (Islam, 2024).

To improve pregnancy and contraceptive interventions in Malaysia, it is vital to adopt gender-inclusive approaches that actively involve men in family planning programs. This can be achieved through awareness campaigns, workshops, and community discussions emphasizing the shared responsibility between men and women in reproductive health. Encouraging men to participate actively can help distribute the burden of family planning more evenly, leading to better health outcomes for both partners. Additionally, targeted educational programs should be developed to enhance knowledge among specific age groups. These programs should provide accurate information about contraceptive methods, including proper use, potential side effects, and how to monitor their effectiveness. The aim is to dispel common misconceptions and address cultural taboos surrounding contraception, which can increase acceptance and usage. Educational efforts should focus on key aspects such as correct usage to maximize effectiveness, understanding potential side effects, and recognizing signs of contraceptive failure. In line with the Theory of Planned Behaviour (TPB), interventions should aim to modify attitudes through culturally sensitive, evidence-based education that dispels myths and promotes positive perceptions about contraception and pregnancy. Changing social norms involves engaging community leaders, religious figures, and peer influencers to foster supportive environments that encourage contraceptive use and responsible sexual Behaviour. To enhance perceived behavioral control, programs should improve adolescents' access to affordable, youth-friendly reproductive health services and provide comprehensive information on proper contraceptive use, side effect management, and recognizing signs of failure.

Ensuring contraceptives are easily accessible—either free or at subsidized rates—should also be a priority, especially within clinics, to reduce financial barriers. Emphasizing the cost-effectiveness of government-supported contraceptives can further encourage uptake. For adolescents, programs should aim to change perceptions around early pregnancy by emphasizing the long-term negative consequences, such as dropping out of school, limited career opportunities, and the challenges of being an unwed mother. These initiatives should promote continued education and equip teenagers with tools to make informed decisions about their future. Additionally, adolescents should be informed about available support services—offered through NGOs and community organizations, including prenatal care, shelters, counselling, and adoption options—that can help them navigate the challenges of teen pregnancy and continue their education. By addressing attitudes, social norms, and perceived control—core elements of the TPB—public health initiatives can more effectively influence adolescents' intentions and behaviours, resulting in increased contraceptive use, responsible decision-making, and a reduction in unintended teenage pregnancies.

LIMITATIONS AND FUTURE RESEARCH DESIGN

This study has several limitations that should be acknowledged. Since the study utilizes convenience sampling and the findings are based on a sample of late adolescents (aged 16–19 years) from specific districts in Sabah and Sarawak, Malaysia, this may limit the generalizability of the results to other regions, age groups, or the broader population. Second, the reliance on self-reported data may introduce biases, such as social desirability bias or recall bias, particularly given the sensitive nature of topics like contraception and teen pregnancy. Additionally, the study's cross-sectional design limits the ability to establish causal relationships or track changes in perceptions and knowledge over time. Cultural and religious diversity among respondents, while providing valuable insights, may also complicate the interpretation of findings, as attitudes toward contraception and teen pregnancy are deeply influenced by these factors. Furthermore, the study did not explore the perspectives of parents, educators, or healthcare providers, whose views could provide a more comprehensive understanding of the barriers to contraceptive use and teen pregnancy prevention. Lastly, while the study highlights significant misconceptions and knowledge gaps, it does not assess the effectiveness of existing sexual education programs or interventions in addressing these issues. Future research could address these limitations by employing longitudinal designs, expanding the sample to include diverse populations, and incorporating qualitative methods to explore the underlying reasons for these perceptions and behaviours.

CONCLUSION

This study highlights the complex interplay of cultural, religious, and socioeconomic factors shaping middle adolescents' perceptions and knowledge of contraception and teen pregnancy in Sabah and Sarawak, Malaysia. While respondents demonstrated some awareness of reproductive health issues, persistent misconceptions and

gaps in knowledge underscore the urgent need for comprehensive, culturally sensitive sexual education programs. Addressing these barriers requires targeted interventions that dispel myths, promote shared responsibility between genders, and improve access to accurate information and contraceptive methods. By empowering adolescents with evidence-based knowledge and fostering supportive environments, stakeholders can reduce unintended pregnancies, improve reproductive health outcomes, and enable young people to make informed decisions about their futures.

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