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Ummi Kalsum

*Public Health Study Program, Faculty of Medicine and Health Sciences, Universitas Jambi, Jambi, Indonesia, ummi2103@unja.ac.id*

Renny Listiawaty

*Public Health Study Program, STIKes Harapan Ibu Jambi, Jambi, Indonesia, rlistiawaty@gmail.com*

Dato Noor Aziah Mohd Awal

*Centre for International Law and Siyar, Faculty of Law, Universiti Kebangsaan Malaysia, Malaysia, naha@ukm.edu*

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# Reasons for Unwanted Pregnancy among Women of Childbearing Age (15-19 Years) in Jambi Province

Ummi Kalsum<sup>1\*</sup>, Renny Listiawaty<sup>2</sup>, Dato Noor A M Awal<sup>3</sup>

<sup>1</sup>Public Health Study Program, Faculty of Medicine and Health Sciences, Universitas Jambi, Jambi, Indonesia, <sup>2</sup>Public Health Study Program, STIKes Harapan Ibu Jambi, Jambi, Indonesia, <sup>3</sup>Centre for International Law and Siyar, Faculty of Law, Universiti Kebangsaan Malaysia, Malaysia

## Abstract

The occurrence of unwanted pregnancy (UP) among women of childbearing age (WCA) has been reported to be increasing in various regions, however, this incidence has not been assessed among the adolescents of 15-19 years age group, in Jambi City. The factors influencing this occurrence includes individual, family, and environmental determinants. This study aimed to determine the prevalence of UP among WCA (15-19 years) in Jambi Province. A cross-sectional design was used, while the participants (307 women aged 15-19 years) were selected in Jambi City and West Tanjung Jabung District, using the Multistage Random Sampling. The analytical method used was the Multiple Logistic Regression of alpha 5%. The results showed that the prevalence of UP among WCA (age 15-19 years) was 1.6%, compared to 50% of those that were married. The dominant factor of UP includes the use of contraceptives with an adjusted-odds ratio of 74.5 (95% CI = 3.58-1,549.02), while the control used were the job of WCA, knowledge, dating behaviour, accesses to information media and health facilities, as well as family education. Therefore, it is suggested that creative, innovative, informative promotions, and education were needed via the social media. Besides, the optimization and strengthening of the Gen-Re go to school program should be carried out, as well as synergizing the cross-sectoral activities, government, private sector, and the community (especially parents).

**Keywords:** adolescents, childbearing age, unwanted pregnancy, women

## Introduction

Unwanted pregnancy (UP) is defined as the conception which occurs when one or both parties in a relationship do not want a child, or desired, however, not at that particular time (mismatch), with its occurrence being faster than planned.<sup>1</sup> Approximately 38% of UP (75 million) cases were estimated by the World Health Organization (WHO), among the reported 208.2 million pregnancies per year.<sup>2</sup> Generally, unwanted pregnancy occurs among 16 million women of childbearing age (15-19 years), as they are known to deliver every year. In Asia, 38% of this incidence occur among 118.8 million pregnancies.<sup>3</sup> The prevalence of this condition among 15-19 year-old-girls in developing countries in 2016, amounted to 21 million, as one-third of teenage maternal births are unwanted or un-planned (43%, 45%, and 74% in Asia, Africa, and Latin America/Caribbean, respectively).<sup>4,5</sup>

Some of the factors that cause many teenagers to get pregnant out of wedlock while still in school are teenagers' curiosity, promiscuity, rampant pornographic

information, and disharmonious families. Currently, the increase in teenage pregnancies is estimated at more than 500 pregnancies each year. According to the 2017 Indonesian Health Demographic Survey (IDHS), the cause of the increase in pregnancy among adolescents is a significant decrease in the use of modern contraceptives in the young age segment (15-29 years) around 4% of the total population of Indonesia. In addition, this is also due to the low knowledge of adolescents on reproductive health and the lack of access to accurate and reliable information about contraception.<sup>6</sup>

According to the IDHS in 2017, approximately 45% of female adolescents in Indonesia started dating when they were not up to 15-17 years old, as this figure had increased compared to the 2012 data, which was at 33.3%. Most of them do not have adequate life skills at that age, as they are at risk of having unhealthy dating behaviours, such as engaging in pre-marital sex, which possesses the dangers of sexually transmitted diseases and unwanted pregnancy.<sup>6-8</sup>

Unwanted pregnancy is known as the main cause of

**Correspondence\*:** Ummi Kalsum, Public Health Study Program, Faculty of Medicine and Health Sciences, Universitas Jambi, Letjend Soeprapto Street No. 33, Telanaipura, Jambi, Indonesia, Email: ummi2105@unjia.ac.id, Phone: +62 741-60246

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unsafe abortion in Indonesia and the world, at approximately 48%.<sup>2</sup> However, it has negative impacts on women and fetus, which is conceived. The impact is likely to be death and morbidity in women, due to complications of pregnancy and delivery, defects and low birth weight, prematurity, with other health related problems.<sup>1</sup> Moreover, results of the previous study stated that women with UP do not provide exclusive breastfeeding and complete basic immunization, as pregnancy care was also not carried out according to the criteria.<sup>3,9</sup>

Also, UP is caused by unhealthy behaviours and conditions at the time before or during pregnancy, such as rape, lack of knowledge about contraception, too many children, health reasons, fetal defects, young age, irresponsible spouses, and unstable relationship with partners. This is closely related to the sociodemographic conditions of the family (low income), culture, and societal beliefs. Government programs in reproductive health, such as family planning and adolescent wellness services, which are less successful, are also thought to be one of the triggers for UP. Besides being caused by the failure of family planning, unwanted pregnancy cases are likely experienced by those that have not used contraceptives in the last three months, even though they are sexually active.<sup>10,11</sup>

A study in the working area of Pakem Primary Health Care in 2017,<sup>12</sup> discovered that low knowledge about reproductive health, permissive attitude and influence of close friends in social interactions, easy access to pornographic media, and parenting patterns in applying permissive indifference, were factors that affect the occurrence of UP in adolescents. However, the results of a study in Madiun,<sup>13</sup> observed that risky sexual behaviour had a direct effect on UP, with that of the indirect being the negative influence of peers, media exposure, detrimental attitude, parental roles, knowledge, and level of religiosity.

The number of children, age, socioeconomic status, and access to health services, are also factors associated with UP.<sup>14</sup> Also, low education, housing, living together without marriage, parity, complications of pregnancy, contraceptive use, and history of diseases, are associated with unwanted pregnancy in Indonesia.<sup>10</sup> In adolescents, UP occurs due to not being ready to undergo pregnancy psychologically, socially, physically, or economically. Also, premarital sex carried out by adolescents tends to be directly related to the incidence of UP. According to the results of a survey conducted by the non-government organization (NGO), *Sentra Informasi dan Konsultasi Orang Kito* (SIKOK) Jambi, 8% among 1,182 adolescents at 10 high schools, were observed to often engage in sexual intercourse,<sup>15</sup> as unwanted pregnancies were discovered to be at 14% (7% each, not at the right time and desired).<sup>10</sup>

Also, the National Basic Health Research/*Riset Kesehatan Dasar* (Riskesdas) data analysis in 2013, observed that the prevalence of unwanted pregnancy was 15% in women at 10-54 years of age.<sup>16</sup> However, the incidence of UP at the age of 15-19 years in Jambi Province, is still unknown. There has never been a result of data analysis or surveys conducted specifically to determine the incidence of UP in Jambi Province, especially in adolescents. As a result of that, there was need for a study to be conducted, in order to determine the prevalence of UP, especially in adolescents within 15-19 years, with other related factors in Jambi Province. Therefore, this study aimed to determine the prevalence of UP in women of childbearing age (15-19 years) in Jambi Province, with related determinants.

## Method

The study design in this study was cross-sectional, as samples amounted to 307 women of childbearing age (15-19 years) in Jambi and West Tanjung Jabung Districts, which were selected by Multistage Random Sampling. The first step was to select a random cluster, which was one of the selected districts or cities. Afterwards, the second step was to proportionally select villages in selected sub-districts, with the third stage being the selection of respondents by simple random sampling in each chosen location. In West Tanjung Jabung District, Merlung and Betara were randomly selected from 13 existing sub-districts, which consisted of nine villages. However, in Jambi City, South Jambi and Paalmerah were selected randomly from 11 sub-districts, which consisted of five villages. The samples successfully interviewed were 307 women of childbearing age (WCA), with 153 and 154 of them located in West Tanjung Jabung District and Jambi City, respectively. The study time for this study was six months, which occurred from June to November 2017.

The dependent variable was the incidence of unwanted pregnancy, as measured by interviews in this study. The variables measured were WCA (age, education, occupation, marital status, contraceptive use, history of illness, level of knowledge and religiosity, sexual and dating behaviours, with access to information media), family (socioeconomic, family size, the work and education of the family head, with parental supervision) and environmental (area of residence, Adolescent Reproductive Health/*Kesehatan Reproduksi Remaja* (KRR) program policies, and access to health care facilities) factors.

Moreover, the questionnaire used was developed by the authors, which referred to the theory and some questions from the IDHS data collection instrument. The questionnaire included several questions about general data (location information), sociodemographic characteristics of respondents (age, education, occupation, ad-

dress, number of household members, monthly average income, and marital status), knowledge level of women about reproductive health and family planning, with sexual behaviour (consisting of 18 question items). It also included dating attitude (consisting of four question items), religiosity level (consisting of 12 question items), use of contraceptives, history of illness, access and contact to media, parental supervision, access to facilities health services, and questions about unwanted pregnancy as the dependent variable.

An unwanted pregnancy occurred when one or both parties of the relationship do not want children at all. It is also likely to be a desired pregnancy, which was not readily needed, as it occurred earlier than planned. This was categorized as either "Yes" or "No" in the study questionnaire.

However, the independent variables consisted of Age: it was categorized as less than, more than, or equal to 17 years; Education: it was categorized as high and low, when  $\geq$  and  $\leq$  completing junior high school, respectively; Work: it is the activity carried out by a WCA, in order to earn a living or additional income for the family. This was routinely classified into work/not working; Marital status: it was classified as married or not; the Use of contraceptives: it aims to prevent or delay pregnancy, by women that are assessed as using hormonal contraceptives, namely pills, injections, and implants. This was grouped into the usage or non-usage of contraceptives; Disease history: this is the condition of disease morbidity, which had been experienced by WCA during the last six months. It was also categorized as yes/no; Knowledge: it is defined as the awareness of the respondent, about the meaning, impact, and the causes of unwanted pregnancy, which includes knowledge or understanding of risky sexual behaviours, and other factors related to preventing adverse events. This was categorized into a high and low category, when the criteria is  $\geq$  and  $\leq$  score 75% of the total score, respectively; Sexual behaviour: it is the perception of WCA towards promiscuity or premarital sexual behaviours, which involves whether or not they have ever had risky intercourse activity, which had led to an adverse event with their partner. This was further categorized as risky and non-risky; Dating behaviour: it is the perception of dating, which is carried out by WCA with their partners, including the intensity of meetings and activities, which in turn leads to unwanted pregnancy after sexual intercourse. This was categorized as risky and non-risky; Access to information media: It is the respondent's access, exposure or contact with information media, such as television, radio and print channels (newspapers, magazines, and tabloids). This was grouped as ever or never; Level of religiosity: it is the closeness and understanding of religion to religious orders, which are being adhered to, in the daily life of WCA. This was further

grouped into religious and non-religious; Socio-economy: it is the level of family ability or purchasing power, especially in fulfilling household needs, as observed from the average income per capita per month. It was categorized as poor and rich, when the income was less and more than the poverty line, respectively, according to Satistic Indonesia/*Badan Pusat Statistik* (BPS),<sup>7</sup>; Family size: this is the number of household members, which are borne by the head of the family in one house and kitchen. This was grouped into small and large, when household members are less and more than five, respectively; Work of the family head: it is the activity of the family head, which is carried out regularly, in order to earn income used in supporting the household. This was categorized as permanent and temporary works, or not working; Education of the family head: this was classified as high and low, when  $\geq$  and  $\leq$  completing junior high school, respectively; Parental supervision: this is an effort made by parents in supervising the activities or behaviours of their children, especially in sexual or dating aspects, in order to prevent premarital sex. This was also categorized as good and bad; the Area of residence: this was categorized as rural/urban; Policy: this is defined as whether there is a statutory regulation, which contains efforts to protect the reproductive health of female prostitutes (teenagers), or binding provisions against unwanted pregnancy; KRR program: This is defined as the presence or absence of an activity, which is related to adolescent reproductive health, at the sub-district or city level; and Access to health service facilities: this is the affordability of health facilities, including the availability of different types, the ease of reaching them according to the distance or length of time from the respondent's house, and the means of transportation commonly used. This was grouped into easy and difficult accesses.

The analyzation of data carried out included several stages, such as the univariate, bivariate, and multivariate analysis, which was conducted to determine the frequency distribution and proportion of the variables in this study, on both nominal and ordinal scales. It was also used as a description of data variations at the interval or ratio scale, by looking at the mean, standard deviation, variance, and detection of outlier information. Bivariate analysis was also conducted by using the chi-square test with the alternative Fisher's Exact Method, when the number of the Expected Value was  $>20\%$  of cells, or there were one or more groups with an indication of zero. In order to observe the results of significance, statistical calculations were used, with p-value  $<0.05$ , which indicated a significant relationship. The stage was multivariate analysis, which used Binary Logistic Regression to obtain the most dominant factor on the incidence of adverse events. The independent variables included in the modeling were those that had p-value  $<0.25$  or substan-

tially considered important, even though statistically it does not meet the requirements. This determination of p-value <0.25 was based on empirical experience from various previous studies, where identification of important variables were often unsuccessful, when being placed into the usual p-value (0.05). Furthermore, the candidate selection stage and several modeling tests were carried out, until the final robust model, confounding, and interaction test was also conducted.

## Results

The results of this study indicated that the proportion of unwanted pregnancy among WCA of 15-19 years, was relatively low in Jambi Province (1.6%), as it was larger in married women (aged 15-19 years), reaching around 50%. Table 1 shows the characteristics of respondents, as the proportion of the age group was relatively equal between those that were less than 17 years old and older. More of the respondents were highly educated (completed high school), do not work, and were not married. They

Table 1. Characteristic of Respondents

Variable	Category	Total	%
Age	<17 years	140	45.6
	≥17 years	167	54.4
Education	High	193	62.9
	Low	114	37.1
Work	Does not work	288	93.8
	Work	19	6.2
Marital status	Not	297	96.7
	Mate	10	3.3
Morbidity	Not	241	78.5
	Yes	66	21.5
Use of contraceptive	Not	297	96.7
	Yes	10	3.3
Knowledge	High (>median)	146	47.6
	Low (≤median)	161	52.4
Sexual behaviour	Not at risk	264	86.0
	At risk	43	14.0
Dating behaviour	Not at risk	282	91.9
	At risk	25	8.1
Religiosity	Yes	265	86.3
	Not	42	13.7
Media access	Well	129	42.0
	Not good	178	58.0
Parental supervision	Well	136	44.3
	Less	171	55.7
Residence	City	154	50.2
	Village	153	49.8
Family size	Small (≤5)	232	75.6
	Large (>5)	75	24.4
Head of family's education	High	132	43.0
	Low	175	57.0
Head of family's work	Permanent	53	17.3
	Not fixed	254	82.7
Head of family's social economy	Not poor	268	87.3
	Poor	39	12.7
Access to health facilities	Easy	154	50.2
	Relatively difficult	153	49.8
Regional policy	There is no	153	49.8
	There is	154	50.2

also had good health and do not make use of contraceptives. The knowledge level of women at reproductive age was also relatively low, as they claimed to have sexual behaviours that were not at risk. Also, most do not have dating behaviour risks, and have claimed to possess good levels of religiosity.

Access to the media was good enough for most of the respondents, as they do not have good parental supervision. The characteristics of the family were more with the small size of the family (less than five peoples), as the education level of most family heads were low. The work of most family heads were also not permanent jobs, as the socioeconomic level of the respondents' families was quite good. Moreover, WCA that resided in cities had better access to medical facilities, as there were local government policy related to adolescent reproductive health, compared to those living in districts (rural areas).

There were several variables related to UP at WCA (15-19 years), namely work, marital status, the use of contraceptives, and risky sexual behaviours. WCA that have jobs, were married, used contraceptives, and have risky sexual behaviours, had greater risk of UP, compared to those that were jobless and single, with no endangered intercourse attitudes and use of prevention measures (Table 2).

The determinants of unwanted pregnancy in WCA (15-19 years) were the use of contraception, possession of work, unwanted pregnancy knowledge, dating behaviour, access to information media & health care facilities, with the educational level of households. The most dominant factor was the use of contraceptives, accompanied by women's work, knowledge, dating behaviour, access to information media & health facilities, with education of the family head. Women that used contraceptives had higher risks of UP, compared to those that did not. Also, WCA that had a job had a higher risk for UP occurrence, compared to those that were jobless. The low knowledge level of WCA also increased the tendency of UP occurrence, compared to those with higher awareness. Risky dating behaviour and poor access to information media were also observed to have greater tendencies of UP occurrence, compared to those that did otherwise. However, easy access to health facilities reduced the risk of UP, compared to WCA possessing much difficulties (Table 3).

## Discussion

Unwanted pregnancy (UP) is often experienced by a woman that has no desire in getting pregnant anymore. The occurrence of UP was often due to some reasons, such as rape, unexpected pregnancy time, severe disability compound of fetus, and premarital sexual intercourse. Therefore, the consequences of UP triggers abortion or result in the birth of an unwanted child, which

**Table 2. The Relationship between Individual, Family, and Environmental Characteristics of the Incidence of Unwanted Pregnancy in Woman of Childbearing Age (15-19 years) in Jambi Province**

Variables	Category	Unwanted Pregnancy				Odds Ratio	95% CI	p-value
		Yes		No				
		n	%	n	%			
WCA education	Low	0	0.0	114	100.0	0.97	0.952-0.997	0.162
	High	5	2.6	188	97.4		Reference	
WCA's work	Work	2	10.5	17	89.5	11.18	1.75-71.43	0.033
	Does not work	3	1.0	285	99.0		Reference	
Marital status	Mate	5	50.0	5	50.0	2.00	1.08-3.72	<0.001
	No	0	0.0	297	100.0		Reference	
Morbidity	Yes	1	1.5	65	98.5	0.91	0.10-8.30	1.000
	No	4	1.7	237	98.3		Reference	
Use of contraceptive	Yes	3	30.0	7	70.0	63.2	9.09-439.83	<0.001
	No	2	0.7	295	99.3		Reference	
Knowledge of UP	Low	4	2.5	157	97.5	3.69	0.41-33.44	0.374
	High	1	0.7	145	99.3		Reference	
Sexual Behavior	At risk	5	11.6	38	88.4	1.13	1.02-1.26	<0.001
	Not at risk	0	0.0	264	100.0		Reference	
Dating behavior	At risk	1	4.0	24	96.0	2.90	0.31-26.95	0.348
	Not at risk	4	1.4	278	98.6		Reference	
Religiosity	No	1	2.4	41	97.6	1.59	0.17-14.59	0.523
	Yes	4	1.5	261	98.5		Reference	
Media access	Not good	4	2.2	174	97.8	2.94	0.33-26.64	0.403
	Well	1	0.8	128	99.2		Reference	
Parental supervision	Less	4	2.3	167	97.7	3.23	0.36-29.27	0.387
	Well	1	0.7	135	99.3		Reference	
Residence	Village	3	2.0	150	98.0	1.52	0.25-9.23	0.684
	City	2	1.3	152	98.7		Reference	
Large family	Large (>5)	0	0.0	75	100.0	0.98	0.96-0.98	0.340
	Small (≤5)	5	2.2	227	97.8		Reference	
Head of family's education	Low	2	1.1	173	98.9	0.50	0.08-3.02	0.655
	High	3	2.3	129	97.7		Reference	
Head of family's work	Not fixed	5	2.0	249	98.0	1.02	1.00-1.04	0.592
	Permanent	0	0	53	100		Reference	
Family social economy	Poor	0	0	39	100	0.98	0.97-1.00	1.000
	Not poor	5	1.9	263	98		Reference	
Regional policy	Yes	2	1.3	152	99	0.66	0.11-3.99	0.684
	No	3	2	150	98		Reference	
Access health facilities	Difficult	3	2	150	98	1.52	0.25-9.23	0.684
	Easy	2	1.3	152	99		Reference	

Notes: WCA: Women of Childbearing Age, UP: Unwanted Pregnancy, CI: Confidence Interval

**Table 3. Determinants of Unwanted Pregnancy in Women of Childbearing Age (15-19 years) in Jambi Province**

Variable	p-value	OR-Adjusted	95% CI
WCA's work	4.018	0.026	55.59
Contraception Use	4.311	0.005	74.50
Knowledge of UP	2.402	0.230	11.05
Head of family's education	-0.508	0.722	0.60
Access to media	0.547	0.691	1.73
Access to health facilities	-1.210	0.453	0.30
Dating behavior	1.164	0.412	3.20
Constant	-7.228	<0.001	0.00

Notes: WCA: Women of Childbearing Age, UP: Unwanted Pregnancy, CI: Confidence Interval, OR: Odds Ratio

further leads to the disruption of psychological development, due to poor care, with inadequate treatment and affection from parents or their family.<sup>17</sup>

In this study, the prevalence of UP in WCA (15-19 years) was much lower than the results of studies conducted by previous researchers. A meta-analysis study

conducted in Iran, stated that the incidence of unwanted pregnancy was 27.9%.<sup>18</sup>

However, the study that used 2013 Riskesdas data, analyzed that the occurrence of unwanted pregnancy in WCA (10-54 years) in Indonesia, amounted to 15%.<sup>10</sup> These results differed from those of this study, since the researchers previously analyzed WCAs, which were 10-54 years of age, making it difficult to compare both studies. In the previous study, the highest age group that did not wish to conceive were those above 35 years, which were at high risk of becoming pregnant.

However, this study at least showed a similar pattern, which mentioned that the prevalence of UP in all adolescents (15-19 years) was less than 10% (relatively rare), as stated in the 2012 IDHS results that the incidence of unwanted pregnancy was 7% (this was among the WCA 15-49 years).<sup>14</sup> According to data from Riskesdas (2013), it was also stated that the proportion of pregnancies occurring at the age of 15-19 years was 1.97%, as this figure strengthened the results of this study.<sup>16</sup> The prevalence observed in this study was also in line with that of a survey by the Jambi City NGO, SIKOK Jambi, which provided information that about 8% of adolescents have had sexual intercourse. Unhealthy adolescent sexual behaviour also had an impact on the incidence of unwanted pregnancy.<sup>15</sup>

The results of this study are almost the same as the study conducted in Jimma, Ethiopia, which found that the prevalence of unintended pregnancy was 32.5% among the study sample.<sup>19</sup> It can also be said to be similar to that found in Nigeria which reported that the overall unintended pregnancy prevalence rate of 29%, ranging from 10.8% in Nigeria to 54.5% in Namibia. As compared to women aged 15–19 years, women of all other age categories had higher odds of unintended pregnancies. Married women were 6 times more probable to report unintended pregnancy as compared to women who had never married (OR = 6.29, 95% CI = 5.65–7.01).<sup>20</sup> Study in India and Bangladesh found that amongst the total women (n = 41,689), overall, 19.1% pregnancies were reported as unintended (ranging from 11.9% in India to 28.4% in Bangladesh).<sup>21</sup>

Although among the adolescents' population (15-19 years), the prevalence of UP discovered was very small, compared to those that were married, which was half. Generally, when further analyzed, the union of currently married WCA (15-19 years) was caused by pregnancies, which occurred as a result of premarital sex. Moreover, this study showed that dating behaviour tended to increase the risk of UP in WCA. The WCA that were already dating with stimulant attitudes, such as lip kissing or other stimulating actions, were at risk of unwanted pregnancy (data not shown).

Many factors influenced the occurrence of UP in

WCA. The results in this study were not in line with that of a previous study conducted by Saptarini and Suparmi,<sup>10</sup> where the dominant factor of UP was the use of contraceptives. Women that have used or were currently using contraceptives had higher risks of UP, compared to those not using them. This further explained that WCA using contraceptives, were indeed pregnant or do not want pregnancy. Logically, WCA that experienced failure in family planning and conceived as a result, did not want the pregnancy.<sup>10</sup>

This result was in line with research conducted in India and Australia, where couples who use contraceptives were more likely to have unwanted pregnancies than those who did not use contraception. Couples who were used contraception, but an unwanted pregnancy may be caused by the failure of contraception used. Contraceptive failure was a case of pregnancy in active acceptors who at that time used contraceptive methods. This contraceptive failure can be caused by failure of the contraceptive method itself or because of non-compliance and imperfections in accepting contraception.<sup>2,22</sup>

Further in this study, half of the currently married WCA were family planning acceptors (currently using contraception). The use of contraception was another form for WCA to prevent pregnancy. This relatively young age in marriage caused unpreparedness in having children. The tendency of UP in WCA of 15-19 years of age, was because psychologically, it was still classified as a teenager. The ideal age for marriage in women is more than 20 years old, where they are physically and psychologically considered ready to perform their reproductive health functions.<sup>8</sup>

This study discovered that the use of contraceptives in WCA (15-19 years), increased the risk for unwanted pregnancy, after being controlled by working status, knowledge, dating behaviour, access to information media & health care facilities, with family head's education. Employed WCA (15-19 years old) are related to the occurrence of UP, when compared to those that are jobless. In this study, most of the WCA were still students (not working), as those that attended school did not engage in active sexual activity, and indeed did not desire pregnancy. However, employed WCA no longer attended school, as most of them already had married statuses. Also, employed WCA have more opportunities and time to carry out their sexual activities because they are no longer in school.

Furthermore, WCA's employment status was related to the occurrence of UP observed in this study, as it was not in line with the results of Saptarini and Suparmi's study,<sup>10</sup> which stated that maternal working level was not related to the incidence of unwanted pregnancy in Indonesia, based on 2013 Riskesdas data analysis. This difference was also due to the respondents studied, as

WCA in this study were only teenagers, compared to previous studies (10-54 years old).

In this study, results showed that WCA's knowledge of reproductive health was related to the incidence of UP, where those with low awareness had a greater risk of unwanted pregnancy. These results were consistent with that of Azinar's study,<sup>23</sup> which discovered that in the case group of UP, most WCA do not have enough knowledge (60%) of unwanted pregnancies. Inadequate knowledge caused respondents not to understand the factors that led to unwanted pregnancy. However, in the control group (not UP), most of the respondents had good knowledge.<sup>23</sup>

Moreover, the results of Mutiara, Budihastuti, and Pamungkasari's study discovered that low knowledge was an indirect factor in the occurrence of UP.<sup>13</sup> Also, the qualitative study conducted by Ismarwati and Utami,<sup>12</sup> showed low knowledge as a factor related to UP occurrence. Kusmiran's study,<sup>24</sup> results further stated that 46.2% of adolescents still think women do not become pregnant after engaging only once in sex. This misperception was mostly believed by young men (49.7%), compared to girls (42.3%). In the control group that did not experience UP, most of them had good knowledge about unwanted pregnancy (73.3%).<sup>12,13,25</sup>

The factors that influences a person's knowledge are education, self-experience, social media, and residential environment. Also, the results of Saptarini I and Suparmi study,<sup>10</sup> discovered a significant relationship between educational level and the occurrence of UP, where good education was directly proportional to the knowledge status. The study also discovered that good access to information media, prevented the occurrence of UP. This result was in line with Azinar's study,<sup>23</sup> which stated that there was a significant relationship between media access and contact information, with premarital sexual behaviours, which was at higher risk of UP. Also, Ismarwati and Utami,<sup>12</sup> observed that the effect of easy access to media, especially pornographic channels, increased the risk of unwanted pregnancy occurrences in adolescents. This was also under Sarlito's statement,<sup>19</sup> which stated that teenagers in an exploration period (wanting to know and try) were likely to imitate all they observe or listen to from the mass media, due to their low knowledge of sex problems or lack of sexual education from their parents. Through various channels, both printed and electronic, sharing information should be accepted by the community, as someone with much exposure to mass media (television, radio, magazines, pamphlets, etc.) is likely to obtain more information than those with low knowledge. This means that exposure to the mass media, both printed and electronic, influences a person's level of knowledge.<sup>24</sup>

Many researchers acknowledged that both printed

and electronic media showed significant contribution to the emergence of the premature sexual maturity phenomenon. Brown JD and Bobkowski PS that studies adolescents with sexual exploitation in video clips, magazines, and television, turned out to encourage teenagers to engage in free sex.<sup>26</sup> This was also in line with the results of Ismarwati and Utami's study,<sup>12</sup> which further stated that media access to information about pornography, were related to the incidence of UP in adolescents. Also, Rusmilawaty, Yuniarti, and Tri Tunggal's study,<sup>27</sup> mentioned that the intake of sexual content from the media, increased the risk of adolescent sexual behaviour by 2.5 times, compared to those without access.

Sex education was mostly obtained from mass media. This was following the results of Brown's study from North Carolina, which generally stated that the most sexually motivated adolescents tended to have sex at the ages of 14 to 16 years, which was 2.2 times higher than other teens that observed less sexual exploitation from the media.<sup>26</sup> This was also under Green's theory, which stated that media as one of the enabling factors associated with sexual behavior, was closely related to the incidence of unwanted pregnancy.<sup>13</sup>

Furthermore, the results of this study also discovered that dating behaviour relationship was risky for the occurrence of UP. These results were in line with the study of Mutiara, Budihastuti, and Pamungkasari,<sup>13</sup> which observed a direct relationship between negative (risky) sexual behaviour and the incidence of UP in Madiun adolescents. However, peers with negative influences and attitudes, parental supervision roles, detrimental media exposure, low knowledge, and lack of religiosity, were the indirect causes of the UP incidence in adolescents.

Modern developments and advancements influences sexual behaviour in dating teens. For example, it had been observed that the things known as taboo by teenagers few years ago, such as kissing and flirting, were being justified by them now. There were even a small percentage of them also agreeing with free sex. It was also discovered in this study that, being permissive to risky sexual behaviour, having erotic perceptions, and also portraying negative attitudes during dating stimulation, such as lip kissing or other things, enhanced the occurrence of UP.<sup>12,13</sup> The study also discovered that there were unmarried WCA using contraception (five peoples), with two women further claiming to live together without marriage ties. The results of this study were also in line with the discoveries by the SIKOK, which stated that 8% of adolescents in Jambi City, had engaged in sexual relations.<sup>15</sup>

The results of this study further discovered that the educational level of the family head was also related to the occurrence of UP in adolescents (15-19 years). Similarly, access to health care facilities at the regional



level also influenced the incidence of UP. Prevention of UP occurrence in adolescents should be possible, when the access to health facilities becomes easy. Woman of childbearing age 15-19 years or adolescents should also have access to information and reproductive health services counseling, from medical facilities around their neighborhood. Also, easy access provides conveniences in receiving services and information about adolescent reproductive health.<sup>13</sup>

Adolescent Reproductive Health/*Kesehatan Reproduksi Remaja* (KRR) services have been carried out by the Government through various institutions. The Ministry of Health had launched the Adolescent Care Health Service/*Pelayanan Kesehatan Peduli Remaja* (PKPR) and the National Population and Family Planning Board/*Badan Kependudukan dan Keluarga Berencana Nasional* (BKKBN) programs, which are specific in handling and fostering adolescent families (Adolescent Family Development). Dozen years ago, they also implemented Youth Information and Counseling Center/*Pusat Informasi dan Konseling Remaja* (PIK-R), which began in 2010 with the implementation of PIK activities, KRR that was currently changed to PIK-R. This PIK-R program was observed to have a target group of adolescents. These activities applied the empowerment of peer counselors, in order to provide education, communication, and information about reproductive health, especially triad problems. At about that time, the BKKBN launched the Planning Generation/*Generasi Berencana* (Gen-Re) program, which actively involved students to become the brand ambassadors. In some regions, the "Gen-Re goes to school" program is also after the acquisition of younger targets.<sup>28,29</sup>

Further in this study, the related UP determinant models were contraceptive use, adolescent knowledge, dating behaviour, access to information media and health care facilities, with family head education. It was also necessary to improve the knowledge level of adolescents about UP and reproductive health. Innovative, creative, and educative public service advertisements should also make use of popular social media, which were widely used by teenagers. Alternatively, the use of instructive, informative, innovative, and enhanced creativity games, which are likely to be developed up-to-date and online, should be encouraged, in order to bolster and improve the knowledge level of adolescents. Also, the use of these instruments provides access to information on reproductive health, which in turn is very useful in fostering the WCA physical, psychological, and emotional readiness in planning for the family, with the right concept.

Adolescence is a period of rapid growth and development, physically, psychologically, and intellectually. The characteristics of adolescents includes curiosity, affection for adventures and challenges, while also tending to be

brave enough to take risks for actions, without careful consideration. When the decisions made in dealing with conflict were not right, most of them fall into negative behaviours, and have to bear the short and long-term consequences of various physical and psychosocial health problems, such as adverse events and other medical effects.<sup>9,30</sup>

The increase of knowledge by providing exposure information, needs to be provided according to their age. This should be carried out through the use of promotional media, which are light, informative, and educative. Also, the use of social media platforms, such as Facebook, Instagram, Twitter, Line, WhatsApp, WeChat, and more, are encouraged. This was also the target and goal of Gen-Re, which had been carried out by selecting Ambassadors, through BKKBN. The Gen-Re program is an activity developed in the context of preparing adolescents for family life, as they look to carry out education, work in a career, and get married in full planning, according to the reproductive health cycle. The objectives of this program were to increase understanding, knowledge, and positive attitudes of adolescents towards health and reproductive rights, in order to improve their sexual wellness and prepare them for family life. The Gen-Re further helped in improving the quality of future generations, by targeting unmarried youths (10-24 years), with families and community caring for teenagers.<sup>26</sup>

The Gen-Re program and activities that are knowledge building for adolescents, whether carried out by BKKBN, such as Ambassador Gen-Re or PIK-R, as well as those carried out by the Ministry of Health in PKPR programs and a thousand-day life movement to prevent various adverse health effects adolescents as prospective mothers need to be synergized so that they can achieve their goals to be achieved and reach the set targets.<sup>27</sup> The "Gen-Re goes to school" program needs to be optimized and improved and synergized with School Health Efforts/*Usaha Kesehatan Sekolah* (UKS) in junior high schools and senior high schools, so the incidence of unwanted pregnancies, as well as triads of KRR, can be prevented as early as possible.

The results of this study also recommends the involvement of the Religion Ministry, as program that touches young women, such as the "Ustadz" (religion teacher), should be synergized between officers health (health promotion) and Field Counselor of Family Planning/*Penyuluh Lapangan Keluarga Berencana* (PLKB), which are the spearheads of activities.

Furthermore, the need to increase and revitalize the activities of the *Remaja Masjid*, which is a place of education in the promotion of adolescent reproductive health knowledge, should also be synergized with *Karang Taruna's* events. Also, the involvement of parents in fos-

tering families, especially those with teenagers, is highly recommended.

Many programs have been developed by the Government, specifically the BKKBN and the Ministry of Health. This study strengthened the programs launched by BKKBN, such as Gen-Re, which was carried out with two steps, namely the approach to adolescents themselves, through the development of the PIK-R and approaches to parents of adolescents, by means of group development (Youth Family Development/*Bina Keluarga Remaja* (BKR)) services. Therefore, strengthening is needed for the increase and sustainability of this program.

Moreover, the Family Planning program currently being carried out does not only focus on the number of acceptors, it also focuses more importantly on the improvement of quality services, which is directed on WCA (15-19 years), as a target group that needs priority programs. According to the main tasks and functions of each cross-sector, it is also important to formulate the division of tasks, which are related to preventing the occurrence of UP in 15-19 years WCA (adolescents performing the job, by synergizing existing funds, facilities, and infrastructures).

The need for equity and increasing accessibility of health care facilities in all regions, while also improving the quality and funding for PKPR, UKS, and PIK-R activities, should also be performed. Also, increased knowledge through more informative media, such as the installation of billboards in public places with messages to prevent unwanted pregnancies and reproductive health of adolescents, should be carried out as well.

This study was the first to be conducted in this location, as one of the performance assessments of the National Family Planning Coordinating Agency of Jambi Province. There were some limitations to this research, which includes the study of UP being a sensitive and difficult problem to ask, as there was possibility of dishonesty from respondents when asked by enumerators, which then leads to bias, due to the skills of different coordinators in probing or conducting interviews. In order to overcome this problem, efforts were made by providing structured training to enumerators before conducting data collection. Being public health students, all enumerators were selected as females, in order for respondents to feel comfortable and willingly open up to sensitive matters being asked, which were also supervised during data collection.

Validation of the questionnaire was also carried out by the authors daily, until the end period of data collection. During the period of data collection, meeting up with respondents that were mostly still in school was an obstacle, as the process of obtaining information had to be carried out in the afternoon, after they had finished their

activities. Therefore, many predetermined samples were unable to be discovered after many visits, with most even refusing to become respondents. However, the response rate in this study was 77%. Besides that, formation of the determinant model of UP in Jambi Province was not full because there were still many other variables that were directly or indirectly related to the occurrence of unwanted pregnancy, which were not examined in this study.

## Conclusion

The prevalence of UP in WCA (15-19 years) was relatively low in Jambi. Also, the determinant models were contraceptive use, low knowledge, risky dating behaviour, lack of access to information media and health care facilities, with reduced educational level of family head. Increase in intervention and promotion to groups of WCA (15-19 years) was carried out, with the main focus on preventing the occurrence of unwanted pregnancies. Moreover, targets are also made to the head of the family (parents of teenagers), as optimization and strengthening of the Gen-Re program through "Gen-Re goes to school" extended the focus to senior and junior high institution students. The strengthening of BKR activities was also synergized between various Agencies (BKKBN, Ministry of Health, Ministry of Religious Affairs, and Ministry of Education and Culture). It was also necessary to preserve social norms and religious culture, based on the synergy of the government and the people that accepted or preserved these practices, (parents, teachers, extended families, religious, traditional, and community leaders, with the involvement of NGOs).

It was also necessary to target advocacy efforts and coordination, to the provincial, district, and sub-district levels, with priority on improving the quality of family planning and medical services, with adolescent reproductive health programs.

## Abbreviations

UP: Unwanted Pregnancy; WCA: Women of Childbearing Age; WHO: World Health Organization; IDHS: Indonesia Demography and Family Survey; NGO: Non-Government Organization; SIKOK: *Sentra Informasi dan Konsultasi Orang Kito*; Riskesdas: *Riset Kesehatan Dasar* (National Basic Health Research); KRR: *Kesehatan Reproduksi Remaja* (Adolescent Reproductive Health); BPS: *Badan Pusat Statistik Indonesia* (Statistic Indonesia); PKPR: *Pelayanan Kesehatan Peduli Remaja* (Adolescent Care Health Service); BKKBN: *Badan Koordinasi Keluarga Berencana Nasional* (National Family Planning Board); PIK-R: *Pusat Informasi dan Konseling Remaja* (Youth information and counseling); Gen-Re: *Generasi Berencana* (Planning Generation); UKS: *Usaha Kesehatan Sekolah* (School Health Effort); PLKB: *Petugas Penyuluh Lapangan Keluarga Berencana* (Field Counselor of Family Planning); BKR: *Bina Keluarga Remaja* (Youth Family Development).

### Ethics Approval and Consent to Participate

Participants were briefed before providing their agreement through the PSP form (Explanation form), which clearly allows them to refuse when they are not willing to participate, or want to stop during an interview. Informed Consent was voluntarily signed by each participant after receiving an explanation, without coercion. The participants were further provided with a souvenir, as a token of appreciation for contributing to the provision of data and time. Also, the Ethics approval of this research was obtained from the Research Ethics Commission of the Faculty of Medicine and Health Sciences, University of Jambi, with the No: 158/UN.21.17/PP/2017.

### Competing Interest

The author declares that there are no significant competing financial, professional, or personal interests that might have affected the performance or presentation of the work described in this manuscript.

### Availability of Data and Materials

The data are available upon request to the first author.

### Authors' Contribution

UK was the principal investigator in charge of this research activity, the process of preparing proposals and research instruments, training enumerators, collecting data, and analyzing the compilation of draft articles. RL was also a research member that assisted in preparing the research proposal, piloting the research instrument, carrying out the process of collecting data, and helping to draft the article. NAM advised on the draft article and helped with the arrangement of the discussion.

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