



Outcomes of Teenage Pregnancy in Developing Countries: A Scoping Review

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ABSTRACT

Teenage pregnancy is a health problem that impacts not just physical changes but also psychological, social, and economic ones. These numerous impacts can harm both the health and well-being of teenagers and affect the health quality of a country. This research aimed to point out and explore scientific evidence related to the impact of pregnancy on teenagers in developing countries. The scoping review method from the 2021 PRISMA ScR checklist framework was adopted in this review. Pubmed, Wiley Online Library, EBSCO, Proquest, and grey literature were used as the databases and accessed through the *Google Scholar* search engine by filtering articles published from 2016 to 2021. There were 10 of the 630 articles screened by inclusion and exclusion criteria found in this review. It showed various impacts, such as physiological, psychological, social, and economic. This review found that the impacts of teenage pregnancy are linked to many factors, including physical changes and all aspects of life lived by teenagers, such as school, work, parenting, and socializing in their neighborhood. Early sexual education must be carried out not just at school but also at home, where the beginning of the educational process happens.

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INTRODUCTION

According to the United Nations International Children's Emergency Fund (UNICEF), teenage pregnancy is defined as pregnancy among girls aged 13–19 years. Teenage pregnancy is a global problem. About 21 million pregnancies in teenagers aged 15–19 years occur in developing countries every year. Half of these pregnancies are undesirable, and more than half of them end in abortions. Most of these abortions are illegal (Mezmur et al., 2021).

In 2012, the World Health Organization (WHO) stated that 16 million births, or 11% of all births in the world, occurred to mothers aged 15–19 years, the majority of which 95% occurred in developing countries (Darroch et al., 2016). In Latin America and the Caribbean, 29% of young women are married when they are 18 years old. The highest prevalence of teenage marriage cases was recorded in Nigeria at 79%; Congo at 74%; Afghanistan at 54%, and Bangladesh at 51% (Kyari & Ayodele, 2014).

Teenage pregnancies (10–19 years) are riskier than reproductive women. Babies born to teenage mothers have a 50% higher risk of complications and mortality rates than adult mothers (20–29 years). In addition, babies born to teenage mothers are more likely to be born prematurely, have low birth weight, and have anemia (Astuti et al., 2020).

However, the high risk of stillbirth in teenage pregnancy needs to be researched further, whether it is due to maternal factors, the mother's first pregnancy, or both (Yussif et al., 2017)

Complications associated with pregnancy and childbirth are considered the major cause of mortality among teenagers in developing countries. More than half of maternal deaths globally are caused by bleeding, gestational hypertension, and sepsis (Kassa et al., 2021)). Teenagers at an early age will experience prolonged trauma, a crisis of confidence, an unwillingness to become parents, being single parents, negative stigma, and divorce (Uyun & Saputra, 2011).

Teenage pregnancy presents a high health risk for both the teen and the baby. Generally, complications of pregnancy and childbirth are the main causes of mortality for teenage girls aged 15–19 years (Neal et al., 2012). These are global problems that get attention even in developed countries. Especially in developing countries, it accounts for 99% of maternal deaths, but government funds are not usually available for these problems (Lemon, 2016; Neal et al., 2012). Teenage pregnancy is very detrimental to many people in developing countries. To prevent the impact of teenage pregnancy, especially in developing countries, changes in public policy are one of the efforts that governments can make, including improving the

quality of education, providing health access, and eliminating cultural stigma (Lemon, 2016).

Traditions become obstacles that often occur in developing countries. Ninety percent of teenage pregnancies result from marriage (Gennari, 2013). Historical and cultural traditions that regard child marriage as a matter that must be carried out are harder to regulate by in-laws because this may lead to conflicts in society (Lemon, 2016).

The purpose of this scoping review is to examine evidence related to the effects of teenage pregnancy in developing countries. The included studies provide evidence, either by quantitative measures or by qualitative evaluation of the impact of teen pregnancy.

METHOD

The scoping review was used as a method in this study. According to Arksey and O'Malley's framework, there are four reasons for conducting a scoping review, such as (1) examining the scope and nature of the research activities, (2)

determining the value of conducting a full systematic review, (3) summarizing and disseminating findings, and (4) identifying the research gaps in the existing literature (Tricco et al., 2018).

This study focuses on the impacts of teenage pregnancy in developing countries, including the physiological, psychological, social, and economic impacts that are reviewed from the latest evidence base for scoping reviews (Peterson et al., 2017). The checklists from PRISMA-ScR were used as the reference for the literature in this study (Tricco et al., 2018). PRISMA-ScR (extension for scoping review checklist) has 22 assessment items, 20 reporting items, and two optional items in the scoping review (Page et al., 2021).

Research Questions

The problem in this study is a review of the results of previous research journal articles about the impact of teenage pregnancy on developing countries. Based on this phenomenon, the PEOS framework is used to formulate the scoping review questions in table 1.

Table 1.
PEOS Framework

Population (P)	Exposure (E)	Outcomes (O)	Study Design (S)
Teenage	Pregnancy	Physiological Psychological Economy Social	All research articles related to teenage pregnancy

Strategy For Research and Design

The databases used in this research are EBSCO, PubMed, ScienceDirect, and Wiley Online Library. Unisa Library has access to the EBSCO database, Google has access to Pubmed, and PNRI has access to ScienceDirect and Wiley Online Library. Advanced and truncation/wildcard symbols were used as strategies to obtain articles for this study.

Table 2.
Keywords

P (Population)	E (Exposure)	O (Outcomes)
Remaja OR <i>Adolescent</i> * OR <i>young</i> OR <i>Teenage</i> *	Kehamilan OR <i>Pregnant</i> * OR <i>Prenatal</i> OR <i>Antenatal</i>	Dampak OR <i>Impact</i> OR <i>Effect</i> * OR <i>Ourcome</i> *

It is necessary to determine criteria for identifying relevant literature sources to facilitate the process of selecting articles.

Screenings were subsequently conducted to select the articles that fit the criteria for inclusion by reading articles based on the title, abstract, and full text.

About 630 articles from the search results are obtained in the database. There were 227 duplicate articles removed and 403 remaining. Furthermore, the review was conducted based on the title and abstract. There were 386 articles eliminated because they were not relevant, leaving just 15 articles. After reviewing the entire content of the article, 5 irrelevant articles have been eliminated for not describing the impact in detail and discussing relationships only. 10 articles were selected for scoping review. The selection of this article is described in the form of the PRISM Flowchart (Figure 1).

Table 3.
Article Criteria

Inclusion criteria	Exclusion criteria
Articles of the last 5 years	Review / comment article
Original text	Opinion articles
Articles in English and Indonesian	Book
Studies conducted in developing countries	Articles that only discuss influencing factors
Articles discussing the impact of teenage pregnancy	

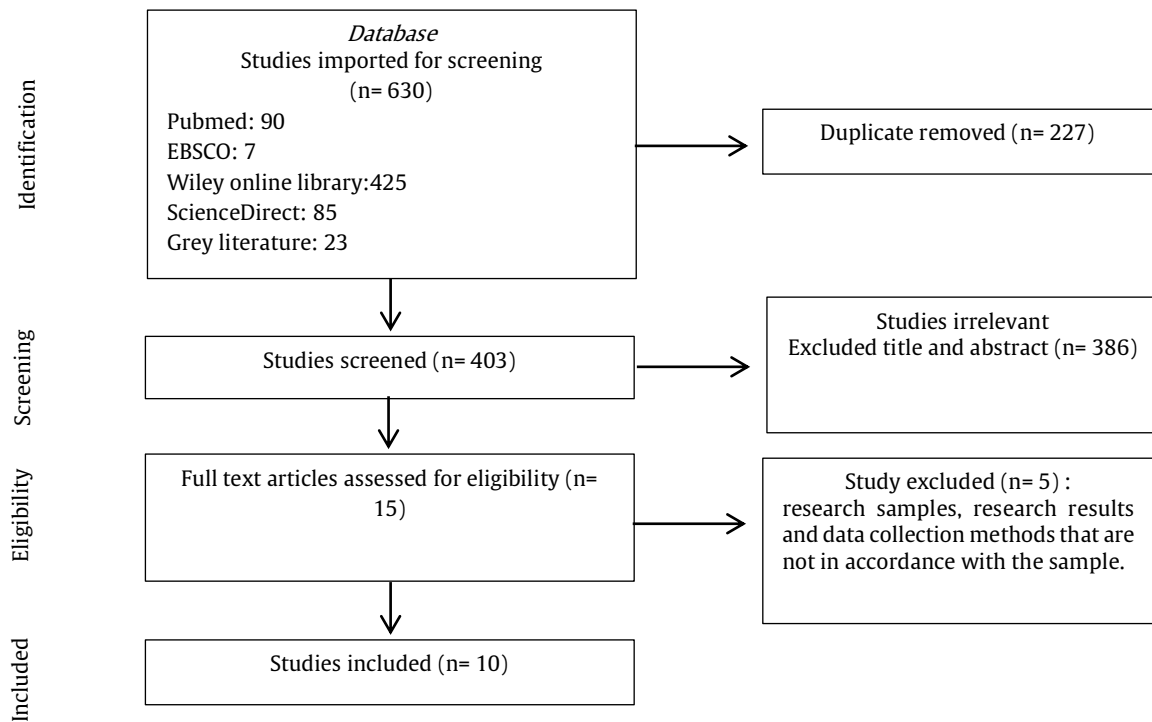


Fig. 1 PRISMA Flowchart

Table 4.
Data Extraction

No.	Author/ Year/Title/ Grade	Country	Aim	Type of Research	Data Collection	Participants/ Sample Size	Result
A1	(Woollett, Bandeira, Sibisiswe, et al., 2021)/ Adolescent pregnancy and young motherhood in rural Zimbabwe: Findings from a baseline study/	Zimbabwe	To inform the intervention of young mothers and their children affected by the drought in Zimbabwe.	Quantitative	A questionnaire is used as a data collection technique.	Sample size: 442 women aged 14-24 years from 160 health facilities, 24 villages, and 10 Zimbabwe provinces.	Results based on the theme: 1. Psychological impacts: Most of the participants experienced a crisis of identity, self-quality, and future loss due to teenage pregnancy, which causes a lack of interest in expressing themselves. 2. Social impacts: The participants' loss of interest in socializing causes them to feel lonely and they do not want to ask for help from others (independently) to solve their problems. On average, participants rarely feel comfortable with the community or participate in social activities. In addition, early marriage, in this case has become common.
A2	(Mullu et al., 2021)/ Adverse maternal outcomes of adolescent pregnancy in Northwest Ethiopia: A prospective cohort study /	Ethiopia	To assess the adverse maternal impact of adolescent pregnancy in northwestern Ethiopia.	Quantitative	Cohort and questionnaire were used in the data collection technique.	Participants: 1254 pregnant women in Ethiopia.	Results based on the theme: 1. Psychological impacts: Physical, psychological, and sexual violence are more common in pregnant teenagers than in pregnant adults. However, gender-based violence is more common in pregnant adults than in pregnant teenagers. 2. The impact of childbirth on the mother: – The incidence of pre-eclampsia and bleeding is more is higher in pregnant adults than in pregnant teenagers, but the p-value does not show significant results – However, based on the p-value, significant results indicate that the incidence of PPD and premature rupture of membranes in adolescents has a fairly high percentage compared to adult women.
A3	(Aker, 2019)/ Physical and Psychological Vulnerability of Adolescents during Pregnancy Period as Well as Post Traumatic Stress and Depression after Childbirth/	Bangladesh	To assess the physical and psychological vulnerability of teenagers during pregnancy as well as postnatal stress and depression.	Quantitative	Observation, case studies and interviews were used in the data collection technique.	The numbers are not mentioned.	Results based on the theme: 1. Physically, most teenagers are not ready for pregnancy or childbirth, so they are more susceptible to complications from several health diseases, such as dizziness, poor energy levels, hypertension, and low blood pressure.

							<ol style="list-style-type: none"> 2. Teen mothers are more likely to be subjected to a variety of social and psychosocial pressures, as well as to suffer from mental health issues. Sometimes, the responsibilities and demands of parenting seem overwhelming to them, so they fail to cope with the new situation. 3. Teenage pregnancy affects future education and employment opportunities. Teenagers are faced with dropouts and are less likely to continue their education, thus making their portfolios less qualified and increasing the risk of poverty.
A4	(Gurung et al., 2020) / The burden of adolescent motherhood and health consequences in Nepal /	India	To find out the incidence rate, risk factors, and health consequences for mothers and babies of teen mothers.	Quantitative	Medical records and semi-structural interviews were used in the data collection technique.	Participants: 60,472 pregnant women.	<p>Results based on the theme:</p> <ol style="list-style-type: none"> 1. Physiological: The mother of a teen pregnancy causes prolonged labor, low birth weight, premature birth, and intrapartum stillbirth. 2. Social and economic: Pregnant teens of less fortunate ethnicities have a higher risk. Reduced access to education and employment is a negative impact of teenage pregnancy. Unschooling young women are at risk of losing sexual education, information about pregnancy benefits, and health consequences of early pregnancy.
A5	(Yussif et al., 2017)/ The long-term effects of adolescent pregnancies in a community in Northern Ghana on subsequent pregnancies and births of the young mothers /	Ghana	To explore the long-term effects of teenage pregnancy on subsequent pregnancies and births and on socioeconomic status.	Quantitative	Questionnaires and interviews were used in the data collection technique.	Sample size: 400 women aged 13-80 years.	<p>Results based on the theme:</p> <ol style="list-style-type: none"> 1. Teenage pregnancy has no effect on socioeconomic status. However, the participants in this study mostly had low socioeconomic status and had failed to complete their elementary school education.
A6	(Maemeko et al., 2018) / The Impact of Teenage Pregnancy on Academic Performance of Grade 7 Learners at a School in the Zambezi Region/	Namibia	To find out the impact of teenage pregnancy on the academic achievement of 7th graders in Zambezi schools.	Qualitative	In-depth interviews in the form of open-ended questions were used in the data collection technique.	Informants: 2 Young women, 2 teachers and 2 teenage parents.	<p>Results based on the theme:</p> <ol style="list-style-type: none"> 1. Teenage pregnancy has detrimental impacts on their future. 2. Pregnant teens neglect their schoolwork because they are busy taking care of their pregnancy and preparing to become parents. <p>How to reduce impacts: Reduce the impacts by implementing sex education in schools, adopting appropriate approaches to teenagers, and collaborating with influential figures in society.</p>

A7	(Cruz et al., 2021)/ The impact of teenage pregnancy on school dropout in Brazil: a Bayesian network approach / A	Brazil	To look for causation in the context of teenage pregnancy.	Qualitative	Database and interviews were used in the data collection technique.	Sample size: 294 teenage girls.	Results based on the theme: 1. Teenage pregnancy makes it impossible for teens to enroll in school and become dropouts. How to reduce the impacts: Teenage pregnancy is an age-old phenomenon. The way to reduce these impacts is to carry out preventive campaigns aimed at both teenagers who are not pregnant and mothers to have good relationships with their daughters.
A8	(Neal et al., 2018) / The impact of young maternal age at birth on neonatal mortality: Evidence from 45 low and middle-income countries/ A	Chile	This study aims to explore the impact of teenage pregnancy on neonatal mortality and how it differs between low- and middle-income countries.	Quantitative	DHS survey of 45 countries between 2005-2015 was used to collect the data.	The numbers are not mentioned.	Results based on the theme: 1. There is a higher risk of death in neonates born to teenage mothers, both before and after being adjusted for the confounding factors. This demonstrates that one of the effects of teenage pregnancy is the increased potential physiological risk of neonatal death.
A9	(Tembo et al., 2020)/ The association of maternal age with adverse neonatal outcomes in Lusaka, Zambia: a prospective cohort study /	Zambia	To explore the relationship between the mothers's age and the results of neonatal screening among pregnant women in Lusaka, Zambia.	Quantitative	The population-based prospective cohort was used to collect the data.	Sample size: 11.501 pregnant women aged 10–35 years or more.	Results based on the theme: 1. Low birth weight is the most detrimental impact of a teenage pregnancy. 2. Premature birth and the need for resuscitation at birth are other impacts of teenage pregnancy. 3. There were no statistically significant differences in maternal and neonatal outcomes between teenage and adult mothers.
A10	(Mirna, 2019)/ Remaja Putus Sekolah Akibat Hamil Pranikah/	Indonesia	To find out: (i) the causes of teenagers' dropping out of school due to premarital pregnancy. (ii) the impacts of school dropout for perpetrators and their families in cases of premarital pregnancy. (iii) solutions for dealing with dropouts in premarital pregnancy cases.	Quantitative	Observation, interviews and documentation were used to collect the data.	The numbers are not mentioned. The researcher involved information from school, families, teenagers who dropped out of school, local governments, and society.	Results based on the theme: 1. Social impacts: pregnant teens will be expelled from school and estranged from their families as a result of disappointments in the great hopes for their child's success. 2. Psychological impacts: they are embarrassed and isolated from their family. 3. Economic impact: low levels of education make it difficult for pregnant teens to find employment. Solutions to overcoming school dropout: applying sex education that starts with the family, thus creating good communication between children and parents.

Assessment of Quality Articles with the *Critical Appraisal Tool*

Critical appraisal is a critical and systematic assessment of the quality of articles on the results of scientific research (Al-Jundi & Sakka, 2017). In this scoping review, article quality assessment was carried out using the JBI assessment tool for quantitative and qualitative research. Quality assessment was carried out on 10 research articles using JBI with the assessment criteria used, which are describe in table 5

Table 5.
Quality assessment

Grade	Scale
A = very good (21-30)	0 = NO
B = good (11-20)	1 = Not Applicable
C = poor (0-10)	2 = Unclear
	3 = Yes

Table 6.
JBI *Critical Appraisal Cohort Study*

No	Question items	No item		
		1	7	9
1	Were the two groups similar and recruited from the same population?	2	3	3
2	Were the exposures measured similarly to assign people to both exposed and unexposed groups?	2	3	3
3	Was the exposure measured in a valid and reliable way?	3	3	3
4	Were confounding factors identified?	2	2	3
5	Were strategies to deal with confounding factors stated?	2	2	3
6	Were the groups/participants free of the outcome at the start of the study (or at the moment of exposure)?	0	3	2
7	Were the outcomes measured in a valid and reliable way?	3	3	3
8	Was the follow up time reported and sufficient to be long enough for outcomes to occur?	2	0	3
9	Was follow up complete, and if not, were the reasons to loss to follow up described and explored?	2	0	3
10	Were strategies to address incomplete follow up utilized?	2	0	3
11	Was appropriate statistical analysis used?	3	1	3
	Score	23/B	20/B	32/A

Table 7
JBI *Critical Appraisal Cross-Sectional Study*

No	Question items	No item			
		2	4	5	8
1	Were the criteria for inclusion in the sample clearly defined?	3	3	2	2
2	Were the study subjects and the setting described in detail?	3	3	3	3
3	Was the exposure measured in a valid and reliable way?	2	2	3	3
4	Were objective, standard criteria used for measurement of the condition?	3	2	3	3
5	Were confounding factors identified?	2	3	2	2
6	Were strategies to deal with confounding factors stated?	2	2	2	2
7	Were the outcomes measured in a valid and reliable way?	3	3	3	3
8	Was appropriate statistical analysis used?	3	3	3	3
	Score	21/A	21/A	21/A	21/A

Table 8.
JBI *Critical Appraisal Qualitative*

No	Question items	No item		
		3	6	10
1	Is there congruity between the stated philosophical perspective and the research methodology?	3	3	3
2	Is there congruity between the research methodology and the research question or objectives?	3	3	2
3	Is there congruity between the research methodology and the methods used to collect data?	3	3	3
4	Is there congruity between the research methodology and the representation and analysis of data?	3	3	3
5	Is there congruity between the research methodology and the interpretation of results?	3	3	3
6	Is there a statement locating the researcher culturally or theoretically?	2	3	2
7	Is the influence of the researcher on the research, and vice-versa, addressed?	2	2	2
8	Are participants, and their voices, adequately represented?	3	3	3
9	Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body?	1	3	2
10	Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?	3	3	3
	Score	26/A	29/A	26/A

The results of the critical appraisal of the article showed that there were 8 articles of A quality (A3, A4, A5, A6, A7, A8, A9, A10) and 2 articles of B quality (A1, A2).

RESULT AND DISCUSSION

Article Characteristics

Characteristics of articles by country can be seen in Chart 1

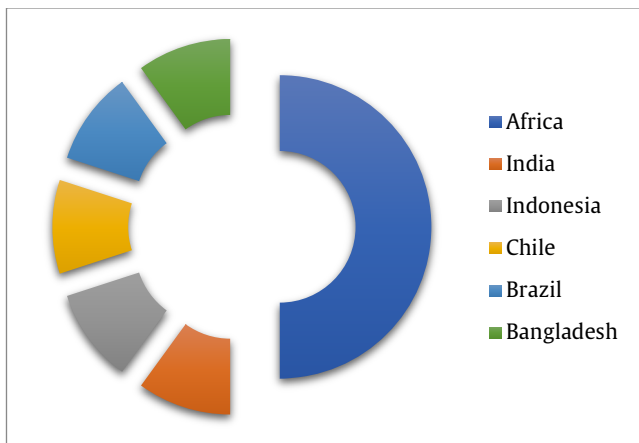


Chart 1.
Articles by country

In this scoping review, the research articles used came from several countries, including Bangladesh, Brazil, Chile, Indonesia, India, and several countries on the African continent (Ghana, Zambia, Zimbabwe, Ethiopia, Namibia).

The characteristics of the article based on the research design used can be seen in Chart 2:

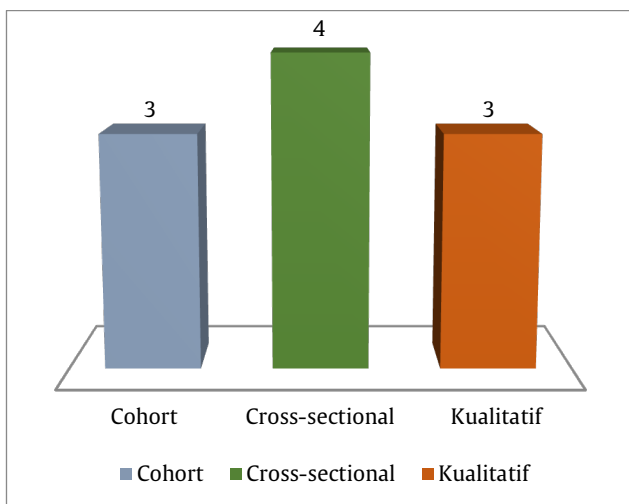


Chart 2.
Article based on the research design

There are 10 articles selected in this literature study. Cohort and cross-sectional methods were selected as quantitative research designs. Observation, interviews, and case studies were used as qualitative research designs.

Characteristics of the articles based on quality can be seen in Chart 3.

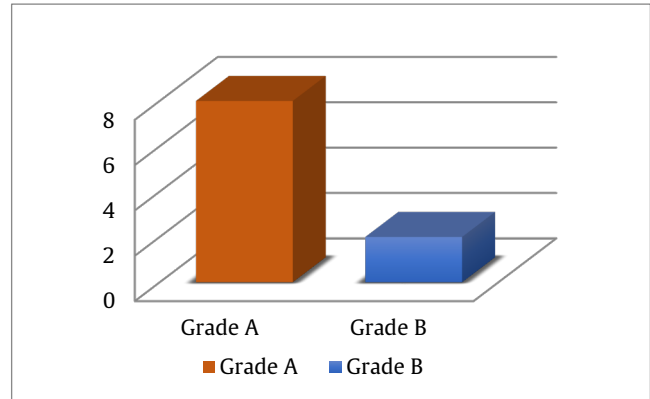


Chart 3.
Articles based on quality

The 10 articles that have been critically appraised in this study are articles from indexed journals and have an article index of Q1 with 8 articles of A-quality and 2 articles of B-quality. The research articles with B quality did not explain the exclusion criteria for the research sample, research results, or data collection methods that were not appropriate for the sample.

Based on the theme analysis of the article, which was carried out after data analysis through data extraction and quality assessment of the research article, the themes of the selected research articles were identified (table 9).

Table 9.
Analysis and Mapping of Research Article Themes

	Themes	Sub themes	Research articles
1	Physiological impact	Maternal	A2, A3, A4, A9
		Neonatal	A4, A8, A9
2	Psychological impact	Postpartum	A2, A3
		Depression	
		Violence	A2, A3
		Identity crisis	A5, A10
3	Social impact	School dropout	A1, A3, A4, A6
		Early marriage	A5
		Loss of interest in socializing	A3, A5, A10
4.	Economic impact	Economic status	A1, A4
		Loss of job opportunities	A3, A4, A10

DISCUSSION

The analysis of the articles in this review found that teenage pregnancy not just impacts their physical changes, but many other aspects as well. Pregnant teens have various impacts from complications during pregnancy, childbirth, and postpartum (Yussif et al., 2017). The high incidence rates of pre-eclampsia and bleeding in teenage pregnancies increase both maternal mortality and morbidity in several developing countries (Mullu et al., 2021). Baby birth defects such as low birth weight (LBW), prematurity, and stillbirth are also consequences of adolescent pregnancy (Boerma & Mathers, 2015). In addition, the impact of teenage pregnancy also increases the incidence of abortion, which in turn increases maternal mortality in developing countries (Neal et al., 2018)

Pregnancy causes teens to experience an identity crisis, low self-esteem, and a sense of loss for the future. It makes them less interested in participating in discussions and

expressing their opinions (Akter, 2019). Shame caused by rejection from family, friends, partners, and society makes various pressures occur in teens (Kassa et al., 2021). New situations make it difficult for teenagers to carry out their pregnancies. Post-partum depression is a greater risk for teen mothers than for other mothers (Akter, 2019). Early parenting and childbearing responsibilities can increase their depression. Untreated depression can increase the risk of suicidal tendencies and attempts (Kassa et al., 2021). Furthermore, stress and postpartum disorders arise due to negative attitudes in society. Teenagers do not even get adequate treatment and support from their families. The majority of these teenagers come from families with fewer economic conditions (Akter, 2019). In a study conducted in Nepal, families from higher castes or ethnicities that are relatively more profitable had easier access to education and employment than those from lower castes or disadvantaged ethnic groups (Langer et al., 2019). In other words, good access to education in high castes can be both a precautionary factor in premature marriage and a factor in teenage pregnancy.

Teenage pregnancy creates various social problems, such as a loss of interest in socializing both with their family and neighborhood (Maemeko et al., 2018). The disharmonious relationship between teens and their parents is one of the things having a detrimental impact on them (Mirna, 2019). Many teenagers have to drop out, even in elementary school. This condition was so pathetic because they were forced to marry at a young age (Woollett, Bandeira, Marunda, et al., 2021). The loss of opportunities for teenagers to get an education greatly influences the information and knowledge they gain regarding pregnancy, parenting, and the impacts of pregnancy (Gurung et al., 2020). Therefore, the lack of information about preventive actions that can be taken by them is one of the causes of teenage pregnancy problems (Bahriyah, 2021).

The reduced learning opportunities in school also affect job opportunities obtained by teenagers (Akter, 2019). Lack of education affects the quality of teenagers getting suitable jobs. Unrecognized interests and talents due to dropouts have led to some cases of teenage pregnancy getting jobs that are less well paid (Marteleteo & Villanueva, 2018). This also causes teenagers to have to live with their parents because they do not have jobs to meet their needs, which has an impact on the increasing economic burden on their parents. Poverty becomes inevitable because of the growing economic burden that is not followed by sufficient income.

Limitation Of The Study

This research was conducted in a review by mapping various published studies and did not conduct primary research.

CONCLUSION AND RECOMMENDATIONS

Teenage pregnancy causes not only physical changes, but also a slew of other consequences. Unprepared physical and psychological conditions cause many negative impacts that teenagers must experience. The loss of the opportunity to get a proper education and a job makes teenagers feel different from their friends. Teenagers become busy with things that they should not be doing at their age, such as babysitting and preparing to become parents. Numerous negative impacts caused by teenage pregnancy need to be emphasized in the form of prevention, including education at school and home,

contraceptive education, and religious and moral education in the family to guide teenagers to socialize in society.

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Ethical Considerations

Ethical considerations were not carried out because the author only reviewed and explained the articles in the database.

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Conflict of Interest Statement

The author declares that there is no conflict of interest associated with the authorship and publication of this research article.

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