







## The Relationship between Maternal Self-Efficacy and Attitudes towards Childbearing Incentives and Associated Factors

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Article Type	ABSTRACT
Research Paper	<p><b>Background and Objective:</b> Women's self-efficacy makes them feel better about motherhood and improve general health. Incentives for having children are one of the basic solutions for correcting population decline. This study was conducted with the aim of investigating the relationship between maternal self-efficacy and attitude towards childbearing incentives and associated factors.</p> <p><b>Methods:</b> This cross-sectional study was conducted on 384 women between the ages of 18 and 40 who referred to health and treatment centers of Babol University of Medical Sciences from 2020 to 2022. Data were collected using questionnaires of socio-demographic and fertility characteristics, attitudes towards childbearing incentives and maternal self-efficacy. Childbearing incentives questionnaire included 15 items with a range of scores from 15 to 75 and maternal self-efficacy questionnaire included 9 items with a range of scores from 9 to 45.</p> <p><b>Findings:</b> The mean age of women was <math>30.99 \pm 5.42</math> years. The mean number of desired children was <math>2.20 \pm 1.02</math> and the mean time of the first desired child after marriage was <math>2.96 \pm 1.89</math> months. The mean score of childbearing incentives was <math>50.45 \pm 15.36</math> and the mean score of maternal self-efficacy was <math>31.47 \pm 5.72</math>. The results of the multiple linear regression test, after adjusting other variables, indicate the presence of a significant positive association between the attitude towards childbearing incentives and the age of marriage (<math>\beta=0.177</math>, <math>p=0.001</math>), the desired number of children (<math>\beta=0.179</math>, <math>p=0.001</math>), and the time of the first desired child after marriage (<math>\beta=0.116</math>, <math>p=0.029</math>) and there was a significant negative association with the duration of marriage (<math>\beta=-0.329</math>, <math>p=0.023</math>).</p> <p><b>Conclusion:</b> The result of the study showed that childbearing incentives have a positive role on mothers' attitudes toward childbearing. It is suggested that these incentives be considered in the design of programs to increase childbearing.</p> <p><b>Keywords:</b> <i>Childbearing, Fertility Behavior, Maternal Self-Efficacy, Childbearing Incentive.</i></p>

Received:

Apr 1<sup>st</sup> 2023

Revised:

May 3<sup>rd</sup> 2023

Accepted:

May 31<sup>st</sup> 2023

**Cite this article:** Adib-Rad H, Khadivzadeh T, Hasanzadeh-Shahabi F, Pasha H, Purbagherey R, MashaghiTabari R. The Relationship between Maternal Self-Efficacy and Attitudes towards Childbearing Incentives and Associated Factors. *Journal of Babol University of Medical Sciences*. 2023; 25(1): 534-43.



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Publisher: Babol University of Medical Sciences

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## Introduction

Fertility decline has become an inevitable trend in the world and many countries are adopting policies to increase fertility. Fertility intention plays an important role in predicting fertility behavior (1). Having children is an important biological and social event in the life of most women and a voluntary behavior that can be influenced by many factors (2). The primary driver of reproductive behavior is the motivation to have children, which is an important factor in fertility decision-making (3). In recent years, extensive social and technological changes have been made in families and having children has faced transformation more than other family values worldwide (4). The trend of population decline in Iran is worrying, and in recent years, the fertility rate has decreased significantly (5). The total fertility rate in Iran has reached the replacement level (1.7 in 2019) and the birth rate has had a negative growth for the fourth consecutive year from 2017 to 2020 (6).

Given the low fertility rate of the country, the United Nations has predicted three consequences for the future of Iran's fertility, according to which in 2051, Iran will experience one of the three patterns of: negative population growth (-0.23%), average population growth (0.35%) or positive population growth (nearly 0.89%) (7). It is predicted that the annual growth of Iran's population will reach 1% in the period of 2011 to 2031 with the continuation of the fertility reduction process below the replacement level (1.2 children for each woman). According to the low population growth scenario published by the United Nations in 2010, if Iran continues population replacement and does not have a plan to balance it, in the next 80 years it will experience a population of 31 million, of which 47% includes the elderly over 60 years old (8). The excessive decrease in the fertility rate in the country has led to a change in the population policies of policymakers and encouraging couples to have children in recent years (9). At present, the incentives for having children in the country include obliging the Ministry of Roads and Urban Development to provide housing for the family after the birth of the third child, building dormitories for married students, paying housing deposits to students without a house, granting birth loan facilities, increasing the recruitment and hiring of new staff for getting married and having children, not allowing the organizations to fire employees with at least three children, pregnant mothers and those with infants, increasing child allowances and family rights of employees, increasing maternity leave to nine months (12 months for the birth of twins and more) with payment of all related salaries and benefits, optional night shift work for pregnant mothers and mothers with infants up to two years old and fathers up to one month old, and allowing remote work at the request of expectant mothers for at least four months during pregnancy. Also, working mothers who give birth to children after this law becomes effective, can enjoy a one-year reduction in the retirement age for each child (10).

According to Bandura's theory, one of the personal factors related to parenting is self-efficacy. The feeling of self-efficacy enables people to overcome problems by relying on their abilities and skills and remove existing obstacles to perform an important activity such as childbearing (11). Mother's self-efficacy is her judgment and feeling about her ability to perform mother's duties, which in addition to the effect it has on mother-child interaction, also predicts mother's disciplinary method regarding parenting methods and even her sensitivity and responsiveness (12). Self-efficacy plays a very important role in childbearing (13). The results of a study showed that mothers' perceived self-efficacy is positively and directly effective in having children, and mothers who had high self-efficacy expressed a greater desire to have children (14). Self-efficacy can improve a person's performance. The theory of self-efficacy is widely used to facilitate behavior and appropriate intervention increases self-efficacy (15). Women's self-efficacy makes them feel better about being mothers, improve general health, reduce unnecessary interventions in childbirth, and improve mental health after childbirth. Mothers who have low self-efficacy feel the changes during

pregnancy and common complaints more than others (16). There is a significant relationship between self-efficacy and the desire to have children (5), also quality of life and emotional maturity are related to the desire to have children in women. Emotional immaturity is one of the reasons for women's delay in having children (17).

Reproduction, pregnancy, breastfeeding, and child care require direct costs and energy (18), so having childbearing incentives can play an effective role in the attitude toward childbearing. Paying monthly salaries, granting leave after childbirth and allocating supportive items are among the incentive policies to increase the number of births and as a result the natural increase of the population (19). Factors such as education level, occupational level, place of residence, social or economic status, religiosity and family orientation, ethnic affiliations, personal decisions, marriage age, unemployment and government decisions regarding population control are important and effective factors on childbearing (20). Studies conducted in Germany and Australia show that by providing incentives, couples' fertility has increased (21, 22). One of the important factors that lead to the decision to reduce childbearing is the economic concerns of child care. Providing childbearing incentives is one of the basic solutions to this challenge. Previous studies show the effect of mother's self-efficacy and childbearing incentives on increasing childbearing (9, 14). Considering the decrease in the fertility rate in the country and the policy of increasing childbearing, the purpose of this study is to investigate the relationship between maternal self-efficacy and attitudes towards childbearing incentives and related factors in health service centers in Babol, northern Iran.

## Methods

After being approved by the ethics committee of Babol University of Medical Sciences with ethics code IR.MUBABOL.REC.1399.052, this cross-sectional study was conducted on 384 women aged 18 to 40 referring to the health and treatment centers of Babol University of Medical Sciences from 2020 to 2022 who had at least one child. The sample size was estimated as 384 based on the  $n = \frac{z_{1-\frac{\alpha}{2}}^2 pq}{d^2}$  formula with a confidence level of 95%, the assumption of  $p=0.5$  and accuracy  $d=0.05$ . Sampling was done by probability, cluster and multi-stage method. In this way, five active centers in four geographical regions were randomly selected from the health centers of Babol, and available samples were selected from each selected center in proportion to the population of that center. In order to conduct the study, written informed consent was obtained from all the participants in the study, and after stating the objectives of the project, explanations were given about how to complete the questionnaires. At the beginning of the study, in addition to the instructions for answering, voluntary participation, guaranteeing the confidentiality of information, being free to withdraw from the study and not participating in it were explained. The inclusion criteria for the study included Iranian race and resident of Babol, being married, having no history of hysterectomy, tubectomy or vasectomy in the spouse, having at least one child and not being pregnant at the time of the study, and the exclusion criteria included incomplete completion of questionnaires, migration and death.

Sampling tools in this study included demographic-fertility, attitudes towards childbearing incentives as well as maternal self-efficacy questionnaires (14, 23). The demographic-fertility questionnaire included the variables of age, spouse's age, education, spouse's education, age of marriage, duration of marriage, age of first child, desired number of children, time of the first desired child after marriage and satisfaction with income adequacy. The questionnaire of childbearing incentives was designed by Khadivzadeh et al., which included 15 items. A 5-point Likert scale was used for scoring, from "not at all" (1) to "very much" (5). This questionnaire has been confirmed with Cronbach's alpha coefficient of 0.97. The total score range is 15-75 (23). Maternal self-efficacy questionnaire includes 9 items designed by Khadivzadeh et al. Responses

were scored on a five-point Likert scale from strongly agree to strongly disagree. The scoring of five items is reversed (items 2, 4, 5, 6, 7, 10 and 11). The total score range is 9-45. Its internal consistency is 0.81 (14).

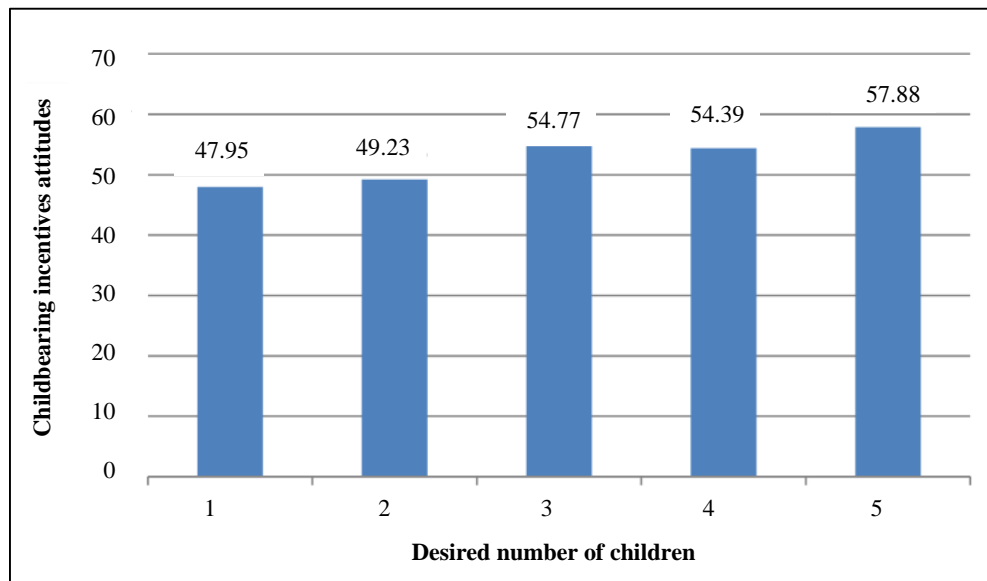
After collecting the data, they were analyzed using SPSS software (version 22) and descriptive statistics (mean, standard deviation, frequency distribution table and relative frequency), linear regression and Pearson correlation coefficient, and  $p < 0.05$  was considered significant.

## Results

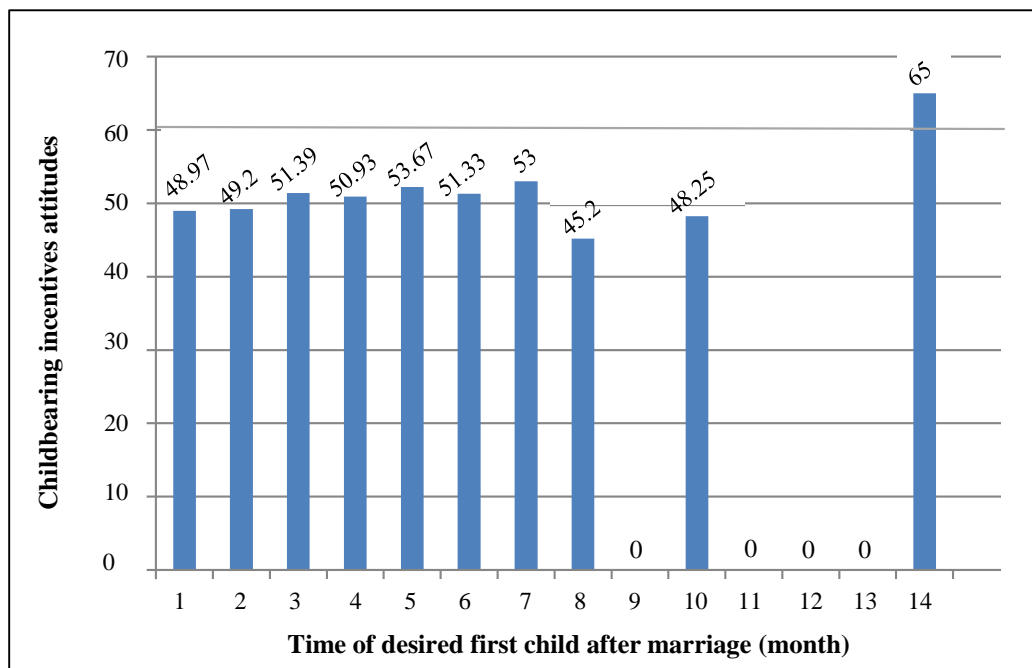
The mean age of women referring to comprehensive health service centers of Babol was  $30.99 \pm 5.42$  years and the mean age of their husbands was  $35.45 \pm 5.99$  years. The level of education of most women and their husbands was academic education (44% and 46.6%, respectively). The mean age of marriage and duration of marriage were  $20.89 \pm 3.88$  and  $10.03 \pm 5.50$  years, respectively. The mean number of desired children of women was  $2.20 \pm 1.02$  and the mean time of the first desired child after marriage was  $2.96 \pm 1.89$  months (Table 1). The level of satisfaction with the sufficiency of income was satisfied in only one third of the cases (33.6%). The highest total score was the attitude towards childbearing incentives in couples who preferred five children ( $p = 0.019$ ) (Figure 1). Also, the highest total score of the attitude towards childbearing incentives was among couples who considered the best time to have their first desired child after marriage in 15 months after marriage ( $p = 0.756$ ) (Figure 2).

**Table 1. Demographic-fertility characteristics of women referring to comprehensive health service centers in Babol**

Variable	Number(%) or Mean $\pm$ SD
<b>Education</b>	
High school	73(19.0)
High school diploma	132(34.4)
Academic education	179(46.6)
<b>Spouse's level of education</b>	
High school	67(17.4)
High school diploma	148(38.5)
Academic education	169(44.0)
<b>Satisfaction with income adequacy</b>	
Satisfied	129(33.6)
Relatively satisfied	190(49.5)
Dissatisfied	65(16.9)
age (years)	$30.99 \pm 5.42$
Age of spouse (years)	$35.45 \pm 5.99$
Age of marriage (years)	$20.89 \pm 3.88$
Duration of marriage (years)	$10.03 \pm 5.50$
Desired number of children	$2.20 \pm 1.02$
The time of the desired first child after marriage (month)	$2.96 \pm 1.89$
Age of first child (years)	$6.95 \pm 5.37$



**Figure 1. The relationship between the score of childbearing incentives and the desired number of children**



**Figure 2. The relationship between the mean score of childbearing incentives and the time of the desired first child after marriage**

The mean total score of maternal self-efficacy was  $31.47 \pm 5.72$  and the attitude towards childbearing incentives was  $50.45 \pm 15.36$ . The most encouraging factors for having children were related to the plan to reduce mandatory working hours and part-time attendance at work for pregnant mothers (59.9%), insurance coverage for infertility treatment (54.4%), and then free monthly examinations for pregnant mothers (54.2%). According to Pearson's correlation coefficient, maternal self-efficacy has a significant positive association with mother's age ( $p=0.031$ ,  $R=0.110$ ) and desired number of children ( $p=0.004$ ,  $R=0.145$ ), but

it had a significant negative association with the time of the first desired child after marriage ( $p=0.002$ ,  $R=0.161$ ). That is, the higher the mother's age and the number of desired children, the higher the maternal self-efficacy, while the longer the time of the first desired child after marriage, the lower the maternal self-efficacy score (Table 2).

According to the results of the multiple linear regression test, after adjusting other variables, maternal self-efficacy had no significant relationship with childbearing incentives, but there was a significant positive association between attitude toward childbearing incentives and marriage age ( $\beta=0.177$ ,  $p=0.001$ ), the number of desired children ( $\beta=0.179$ ,  $p=0.001$ ), and the time of the first desired child after marriage ( $\beta=0.116$ ,  $p=0.029$ ) and there was a significant negative association with the duration of marriage ( $\beta=-0.329$ ,  $p=0.023$ ) (Table 3). There was a statistically significant positive association between childbearing incentives and marriage age after adjusting other variables, that is, the higher the age at marriage, the higher the attitude towards childbearing incentives. After adjusting for other variables, there was a statistically significant inverse relationship between the attitude towards childbearing incentives and the duration of marriage, that is, the shorter the duration of marriage, the higher the attitude towards childbearing incentives (Table 3).

**Table 2. Pearson's correlation coefficient for the relationship between demographic-fertility factors and maternal self-efficacy**

Variable	Maternal self-efficacy	Age	Spouse's age	Marriage age	Duration of marriage	Desired number of children	Time of desired first child after marriage
Maternal self-efficacy							
Age	$R=0.110$ $p=0.031$						
Spouse's age	$R=0.097$ $p=0.057$	$R=0.854$ $p=0.384$					
Marriage age	$R=0.054$ $p=0.290$	$R=0.331$ $p=0.383$	$R=0.161$ $p=0.383$				
Duration of marriage	$R=0.076$ $p=0.140$	$R=0.746$ $p=0.381$	$R=0.725$ $p=0.381$	$R=-0.379$ $p=0.380$			
Desired number of children	$R=0.145$ $p=0.004$	$R=0.174$ $p=0.384$	$R=0.238$ $p=0.384$	$R=0.000$ $p=0.383$	$R=0.169$ $p=0.381$		
Time of the desired first child after marriage	$R=-0.161$ $p=0.002$	$R=0.019$ $p=0.384$	$R=-0.014$ $p=0.384$	$R=-0.042$ $p=0.383$	$R=0.053$ $p=0.381$	$R=-0.034$ $p=0.384$	

**Table 3. Multiple linear regression between attitudes towards childbearing incentives and maternal self-efficacy and related factors**

Variable	Standardized beta	95% confidence interval	p-value*
Constant		21.53-48.11	<0.001
Marriage age	0.177	0.27-1.11	0.001
Duration of marriage	-0.329	-1.70 - -0.12	0.023
Desired number of children	0.179	1.37-4.92	0.001
Time of desired first child after marriage	0.116	0.10-1.82	0.029
Age of the first child	0.237	-0.01-0.12	0.094
Maternal self-efficacy	-0.052	-0.40-0.12	0.308

\*Multiple linear regression analysis



After adjusting other variables, there was a statistically significant relationship between the attitude towards childbearing incentives and the desired number of children, that is, the higher the attitude towards childbearing incentives, the higher the desired number of children. Also, there was a statistically significant positive relationship between the attitude towards childbearing incentives and the desired first childbearing time after marriage and after adjusting other variables, that is, the higher the attitude towards childbearing incentives, the higher the desired first childbearing time after marriage (Table 3). The above variables were able to explain 10.3% of women's attitude towards childbearing incentives.

## Discussion

In this study, the mean total score of maternal self-efficacy and the mean total score of attitudes towards childbearing incentives were not high. In fact, having children is considered a value in the culture of Islamic Iran, following the indiscriminate implementation of the comprehensive population control program in the 1990s-2020s, the population rate began to decline (20). In line with our study, the results of a study showed that the level of self-efficacy of primiparous women as a vulnerable group after childbirth was at a low level. The researchers suggested that these women should be given more attention and health professionals should consider this urgent need with more interventions. They also stated that women's access to parenting education should be strengthened (24). However, the results of a study by Khadivzadeh et al. showed that perceived maternal self-efficacy has an effect on fertility initiation (14). Also, in another study, researchers reported that the total score of attitudes towards the effect of childbearing incentives was good (23). Given the lack of high levels of maternal self-efficacy and also the attitude towards childbearing incentives in the present study, and considering the downward trend of population growth in the country, it is necessary to use strategies to strengthen maternal self-efficacy and incentives to promote childbearing on the part of population policy as soon as possible.

In this study, more than half of the mothers agreed with the plan to reduce mandatory work hours and part-time attendance at work for pregnant mothers, insurance coverage for infertility treatment, and free monthly examinations for pregnant mothers. In a study by Zare et al., free monthly checkups and free food for pregnant mothers were the biggest incentives for women to have children (9). Also, in another study, free monthly examinations of pregnant mothers and free food related to pregnancy, insurance coverage for infertility treatment and free insurance coverage for mother and child up to two years were the most effective on the attitudes of women regarding childbearing incentives (23). The reason for the consistency of the results of this study with the current research can be the existence of possible cultural, social and economic similarities with the current society. Of course, it must be acknowledged that in looking at the world developments in the last three decades, the issue of women's fertility has shown a significant change. Among the changes that are going on these days, none of them are as important as what is happening in people's personal lives, including sexual relations, emotional life, marriage and family (25).

The results of the present study showed that maternal self-efficacy had a significant positive association with mother's age and desired number of children, but had a significant negative association with the time of the first desired child after marriage. In line with our study, the results of a study showed that the actual distance between marriage and the birth of the first child had a negative correlation with the mother's self-efficacy (14). Therefore, in order to increase the self-efficacy of the mother, it is better to shorten the time of having the first child after marriage.

The results of this study showed that there was a statistically significant positive relationship between the incentives to have children with the age of marriage, the desired number of children, and the time of the first desired child after marriage, after adjusting for other variables. However, there was a statistically

significant inverse relationship with the duration of marriage, that is, the shorter the duration of marriage, the higher the attitude towards childbearing incentives. The results of the same study showed that the attitude towards childbearing incentives had an inverse relationship with the desire to have children and the desired number of children, and a positive and significant relationship with the desired distance from marriage to the birth of the first child. Couples who, for any reason, had a lower desire to have children and preferred a smaller number of children, were more aware of the effect of incentives to have children in increasing the number of their children in the future (23). Based on this, it seems that by receiving childbearing incentives, the concerns of couples who prefer fewer children at the beginning of marriage will be reduced, and by providing childbearing incentives, couples can be helped to have children in the future. Population increase programs should be formulated considering the impact of encouraging factors on couples' fertility behaviors in order to facilitate the achievement of population policy goals while realizing ideal fertility (26).

According to the results of this study, maternal self-efficacy had no significant relationship with childbearing incentives. The results of a study showed that 89% of the participants did not welcome the encouraging policies regarding childbearing, and the researchers concluded that childbearing tendencies and reproductive behavior are more influenced by the economic, social, cultural and demographic aspects of society than population policies (27). A study by Karimian et al. showed that there is a significant relationship between self-efficacy and the desire to have children. Investigating the mediating role of self-efficacy also showed that this variable plays a mediating role in the relationship between quality of life and the desire to have children, as well as the relationship between emotional maturity and the desire to have children; thus, self-efficacy can mediate the relationship between quality of life and to positively and directly increase emotional maturity with the desire to have children (5).

Of course, it seems that the reasons for the lack of connection between childbearing incentives and mother's self-efficacy may be due to the fact that childbearing incentives are not yet applied well in our society and it has not yet reached the basic belief that it can be effective. It should also take a period of time to be effective on the mother's self-efficacy, or be influenced by it. On the other hand, before the incentives to have children due to population increase are influenced by maternal self-efficacy, it can be influenced by other causes, especially the economic issues of the society. It is important to mention that the studied mothers did not have high self-efficacy. Counseling programs are effective in changing women's attitude towards childbearing (28).

One of the limitations of the present study was that the research was conducted only on women and that their husbands did not participate in this research. The results of our study indicated that there was a statistically significant positive relationship between the incentives to have children with the age of marriage, the desired number of children, and the time of the first desired child after marriage, after adjusting for other variables, while there was a significant inverse relationship with the duration of marriage; that is, the shorter the duration of marriage, the higher the attitude towards childbearing incentives. It is suggested that a study be conducted to investigate the self-efficacy of the mother and the incentives for having children in both husband and wife.

## Acknowledgment

We hereby acknowledge all the officials of Babol University of Medical Sciences and all the women who participated in the study.



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