

# The Role of Parental Depression on Adolescent Depression in Indonesia

## Abstract

**Introduction:** Depression is one form of common mental disorder that significantly impacts adolescents. The emotional well-being of parents and family can directly influence adolescents' mental states. This study aimed to assess the association between parental depression and adolescents aged 15–19 years. **Methods:** This study utilized data from the third, fourth, and fifth cycles of the Indonesian Family Life Survey (IFLS) conducted jointly by Research and Development Corporation and Universitas Gadjah Mada. Adolescent depression was assessed using the Center for Epidemiologic Studies Depression-10, in which IFLS-5 (2014) data were analyzed. At the same time, parental depression was measured using data from IFLS-4 (2007) and IFLS-5 (2014). The study sample consisted of adolescents living with their parents, and 1104 adolescents were involved in the analysis. A multivariate logistic regression model of potentially contributing factors was employed to analyze the role of parental depression in adolescent depression. **Results:** A substantial portion of adolescents (21.2%) reported experiencing depression, with a higher prevalence observed among girls (25.3%). Adolescents were more likely to experience depression if their parents also reported depressive symptoms. According to 2014 data, as many as 25.4% of adolescents with mothers experiencing depression also reported feeling depressed. Meanwhile, 28.1% of adolescents experienced depression at the same time that their fathers felt depressed. Parental depression affected adolescent depression and had a significant and greater effect on female adolescents. **Conclusion:** This study revealed a strong association between parental depression and adolescent depression in Indonesia. The results underscore the importance of family-based interventions to reduce the adverse effects of depression on adolescents.

**Keywords:** *Adolescents, depression symptoms, Indonesian survey, maternal, paternal*

## Introduction

Depression is a common mental disorder and the main contributor to disability across all age groups worldwide.<sup>[1]</sup> The onset of depression is common in the adolescent period.<sup>[2]</sup> In Indonesia, data on adolescent mental disorders were presented in the 2015 Global School Health Survey conducted by the Indonesian Ministry of Health, which involved junior and senior high school students. The survey found that 44.54% of the students felt lonely, 40.75% felt anxious, and 7.33% had suicidal intentions.<sup>[3]</sup> Furthermore, the 2007 National Health Survey in Indonesia reported a 7.7% prevalence of mental disorders among students.<sup>[4]</sup> Another study in three regions in Indonesia demonstrated that 3.2% of adolescents aged 15–25 years had attempted suicide.<sup>[5]</sup>

Indonesia is estimated to experience a demographic bonus between 2020 and

2030, resulting in a lower dependency ratio, where every 100 productive-aged people will support 53 people outside the productive age. This means that current adolescents will become the working-age adult population supporting the nonproductive people.<sup>[6]</sup> Therefore, investing in the physical and mental well-being of adolescents is important for future human development.

Adolescence is a critical phase of development during which children transition into adults. In this stage, adolescents experience a rapid hormonal, physical, psychological, and social change.<sup>[7]</sup> Depression in adolescence can stem from various factors. A few main factors proven to have a strong relationship with adolescent depression include a history of parental depression and exposure to social and psychological problems.<sup>[8]</sup> The family factor is still essential, alongside peer relationships. Children whose parents have mental illness are at risk of developing

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similar conditions. A previous report further elaborated that half of all children who accessed psychiatric health care had parents with a history of mental illness.<sup>[9]</sup> Typically, parental mental illness significantly affects their children through a direct or indirect mechanism. A direct mechanism includes inherited genetic factors or prenatal conditions. Meanwhile, an indirect mechanism deals with the effects of the parenting model.<sup>[10]</sup>

Models of youth depression based on diathesis–stress believe that when a young individual is confronted with a difficult life event, existing cognitive and affective vulnerabilities can lead to depressive episodes.<sup>[11]</sup> Furthermore, contextual circumstances that may have contributed to the onset of parental depression, such as financial difficulties or marital instability, may increase children of depressed parents (as compared to healthy controls) more likely to experience negative life events.<sup>[12]</sup>

Studies on parents' mental health and its relationship with their children's mental health are more common in other countries but are still very limited in Indonesia, especially those based on longitudinal data, including paternal mental health. This study aimed to assess the relationship between parental depression and adolescent depression in Indonesia based on Indonesian Family Life Survey (IFLS) data collected in 2000, 2007, and 2014. Parental depression is a state where parents experience depressive disorder when their children are in childhood (7–13 years old) and adolescence (15–19 years old).

## Methods

### Study design and setting

We conducted a time series using secondary data from the publicly available IFLS. The IFLS was initiated in 1993. It continued to collect data in 1997, 2000, 2007, and 2014. The survey was conducted in 13 selected provinces in Indonesia.

### Participants

The respondents of IFLS were individuals (all age groups) in households in the selected provinces. In the first IFLS, the total number of respondents interviewed was 7225 out of 33,081 household members. These households and individuals were followed continuously until the IFLS-5 surveys were conducted from September 2014 to August 2015. There was an increase in the number of households and individuals because many household members got married and formed their households, so the total number of respondents (all age groups) reached 50,148 from 16,204 households.<sup>[13]</sup>

### Study size and sampling procedure

The sample of this study was adolescents aged 15–19 years in 2014 who were born between 1995 and 2000. The number of adolescents 15–19 years old who were successfully

interviewed in IFLS-5 was 3758.<sup>[13]</sup> According to the 2014 data, each adolescent was matched with the 2007 and 2000 data, as well as parents' data. The final data became materials for three-period longitudinal data on Indonesian family life. The inclusion criteria are adolescents who lived with their parents in one household during data collection in 2007 (when the child was 7–13 years old) and 2014 (when the child was 15–19 years old). They were considered the samples of this analysis. Given the possibility of missing data caused by the population dynamics within these three periods, this survey sampled adolescents in the age group of 15–19 years with complete data in all variables for the analysis. As many as 1104 subjects fulfilled the inclusion criteria and had complete data in all variables in 3 waves of data collection.

## Variables, measurement, and quantitative

### Adolescent variables

The survey was conducted through structured interviews by trained enumerators. The primary dependent variable for this study was adolescent depression that occurred in 2014. Data related to depression were collected using the Center for Epidemiologic Studies Depression-10 (CESD-10) instrument from Book 3B section KP (mental health). The CESD-10 instrument was validated in 1998 with confirmatory analysis, which shows that the instrument is still valid and suitable for Indonesian culture.<sup>[14]</sup> The CESD-10 questionnaire was distributed to adolescents aged 15 years and above. The questionnaire consists of 10 questions about how respondents felt or perceived their condition in the past week. Each item had four answer options: (1) rarely or none ( $\leq 1$  day), (2) sometimes (1–2 days), (3) occasionally (3–4 days), and (4) often (5–7 days). Each answer was scored according to the CES-D instrument manual. For questions 5 and 8, responses to the first option (rarely or none) were worth the highest possible score (3 points). Meanwhile, for the rest of the items, the highest score (3 points) was given to the response in the fourth option (most of the time). Scores of each item were added up and categorized as experiencing depression if the sum of scores was equal to 10 or more.<sup>[15,16]</sup> The CES-D was administered to respondents in Indonesian, as are all instruments in the IFLS, and the internal consistency of Cronbach's alpha was 0.76. Moreover, based on the fit of the proposed model test, item discrimination, reliability estimation, measurement precision, and different item functions, this scale has good psychometric qualities for detecting depression symptoms in the Indonesian population.<sup>[13,17,18]</sup>

Demographic variables were collected from 2000, 2007, and 2014 IFLS data. In 2000, information about the variables was collected based on the number of infants in one household (1 and >1 children) and the number of adults ( $\geq 20$  years) in the household (2, 3–4, and >4 people). In 2007, the demographic variable took in the

number of adults ( $\geq 20$  years) in the household (2, 3–4, and  $>4$  people). Variables in 2014 consisted of adolescent sex, age (17–19 years and 15–16 years); body mass index of adolescents (low or normal ( $<25$  kg/m<sup>2</sup>), overweight (25 kg/m<sup>2</sup>  $<$  BMI  $<30$  kg/m<sup>2</sup>) and obesity ( $\geq 30$  kg/m<sup>2</sup>); a chronic illness that has been suffered according to a diagnosis by health professionals (such as hypertension, diabetes, tuberculosis, asthma, other lungs, heart or liver disease, stroke, cancer, prostate, kidney, or digestive problems); adolescent's activities (attending schools/not and employed/unemployed), and the number of adults in the household (2, 3–4, and  $>4$  people).

### Parental variables

The main independent variable in this study was parental depression. Data on parental depression were obtained from IFLS-4 and IFLS-5, collected in 2007 (when their child was in childhood) and 2014 (when their child was in adolescence), with CESD-10 instruments. Based on these surveys, the data were categorized into (1) normal (if respondents have never had depression either during childhood or during adolescence), (2) depression when their child was in childhood (IFLS-4), and (3) depression when their child was in adolescence (IFLS-5). This study also composited both father and mother depression. When both father and mother did not experience depression, parents' mental health was categorized as normal. Besides, when at least one of the parents experienced depression in 2007 or 2014, they were categorized as experiencing depression. Parental characteristics were the mother and father's age ( $\leq 35$  years, 36–45 years, 46–55 years, and  $\geq 56$  years) and the mother's and father's activities (employed/unemployed).

### Bias

The IFLS data for the same individual are available at many points in time (five). Individual and family mobility (possible residence move) might lead to selection bias. However, the field team's commitment to finding these individuals, which results in a consistently high response rate, contributes significantly to the quality of data in longitudinal surveys by lowering the likelihood of bias owing to nonrandom attrition in studies employing such data. Repeated interviews may generate bias in respondents' answers to the same questions. Symptoms of depression were assessed based on the respondent's state of mind during the data-collection period. Even if it is asked repeatedly over a 5-year period, there is no concern about answer bias. As a step to minimize bias, depressive symptoms were analyzed by controlling for various other suspected confounding variables.

### Statistical analysis

Bivariate analysis was carried out to evaluate the association between adolescent depression and its characteristics, as well as the relationship between adolescent depression and parental depression. Furthermore, a multivariate logistical

regression calculated the risk of the main independent variable toward the dependent variable controlled by the characteristic variables. An interaction test was conducted between the main explanatory variable and the covariate variable, which had a significant relationship with the primary dependent variable. The final analysis was done using logistic regression to identify any differences in adolescent depression based on gender. All analyses used version 15 of Stata (Stata Corp, College Station, TX, USA), with a confidence interval (CI) of 95% and a significance level of 5%.

### Ethical consideration

The IFLS and all its data collection procedures have been approved by the Institutional Review Boards' review by the Research and Development Corporation in America (ethical clearance number for IFLS5: s0064-06-01-CR01) and Universitas Gadjah Mada in Indonesia.

### Results

Table 1 shows the frequency distribution of adolescent depression according to its characteristics. The number of male respondents was greater than that of female respondents. The distribution was almost equal in all age groups. Almost one-fifth suffered from a chronic disease (18.3%). A large percentage of adolescents attended schools (71.0%). About half lived in urban areas (59.6%). The percentage of depressed adolescents was around 21.2%, in which females were higher (25.3%) than males (17.4%).

Around one-fifth of the adolescents suffered from depression (21.2%). For mothers, the figure is higher, with one-fifth of mothers experiencing depression when their children were in childhood (5.2%) or adolescence (16.0%). Depression in fathers was nearly one-fifth when their children were in childhood (4.7%) or adolescence (13.9%). Overall, 34.5% of parents experienced depression, according to the IFLS, in two cycles (2007 and 2014). The percentage of depression was higher in adolescents whose mother or father suffered from depression at the same time when they were in adolescence (2014). Table 2 demonstrates that according to the 2007 IFLS data, having a mother with depression at the time the child is in childhood, the percentage of adolescent girls who experience depression is much higher (42.9%) than adolescent boys (11.1%). When a child reaches adolescence, maternal depression is more common in depressed female adolescent (27.7%) than in depressed male (23.4%). Moreover, associated with depression in fathers, according to the 2007 IFLS data, having a father with depression when the child is in childhood, the percentage of adolescent girls who experienced depression was slightly higher (25.9%) than adolescent boys (24.0%). When a child reaches adolescence, paternal depression is substantially higher in depressed female adolescent (37.3%) than in depressed male adolescent (19.2%).

**Table 1: Adolescent depression characteristics**

Adolescent characteristics	Total sample	Adolescent depression	P value
All	1104 (100.0)	234 (21.2)	
Gender			
Male	575 (52.1)	100 (17.4)	0.001
Female	529 (47.9)	134 (25.3)	
Age			
17–19 years old	522 (47.3)	106 (20.3)	0.494
15–16 years old	582 (52.7)	128 (22.0)	
Suffering from chronic disease			
No	902 (81.7)	177 (19.6)	0.007
Yes	202 (18.3)	57 (28.2)	
BMI category			
Low or normal	1005 (91.0)	217 (21.6)	0.553
Overweight	68 (6.2)	11 (16.2)	
Obese	31 (2.8)	6 (19.4)	
Activity			
School	784 (71.0)	160 (20.3)	0.244
Employed	164 (14.9)	33 (20.1)	
Not in school/employed	156 (14.1)	41 (26.3)	
Marriage status			
Never married	1066 (96.6)	228 (21.4)	0.407
Have/is married	38 (3.4)	6 (15.8)	
Parent characteristics			
Age of mother (years)			
≤35	96 (8.7)	23 (24.0)	0.616
36–45	579 (52.4)	114 (19.7)	
46–55	382 (34.6)	87 (22.8)	
≥56	47 (4.3)	10 (21.3)	
Age of father (years)			
≤45	385 (34.9)	77 (20.0)	0.166
46–55	546 (49.5)	111 (20.3)	
≥56	173 (15.7)	46 (25.6)	
Mother's occupation			
Employed	572 (51.8)	121 (21.2)	0.972
Unemployed	532 (48.2)	113 (21.2)	
Father's occupation			
Employed	979 (88.7)	206 (21.0)	0.726
Unemployed	125 (11.3)	28 (22.4)	
Household characteristics			
Number of infants in household <sup>a</sup>			
1	848 (76.8)	182 (21.5)	0.693
>1	256 (23.2)	52 (20.3)	
Number of adults <sup>b</sup>			
2	741 (67.2)	147 (19.8)	0.277
3–4	327 (29.6)	79 (24.2)	
>4	35 (3.2)	7 (20.0)	
Number of adults <sup>c</sup>			
2	285 (25.8)	56 (19.6)	0.170
3–4	433 (39.2)	84 (19.4)	
>4	386 (35.0)	94 (24.4)	
Residence			
Rural	446 (40.4)	88 (19.7)	0.327
Urban	658 (59.6)	146 (22.2)	

<sup>a</sup>Infancy period, <sup>b</sup>Childhood period, <sup>c</sup>Adolescence period.

BMI: Body mass index

A significant relationship exists between paternal depression and adolescent depression. Table 2 shows that the prevalence of depression was higher in adolescents whose parents experienced depression when they were in childhood or adolescence (25.2%). Overall, the relationship between adolescent depression and parental depression was significant ( $P = 0.018$ ). The proportion of adolescents suffering from depression was higher when their parents also suffered from depression. Specifically, paternal depression had a significant relationship with adolescent depression ( $P = 0.053$ ).

In the multivariate logistical regression [Table 3], the results show depression in adolescents would be more frequent when their father also experienced depression at the same time (odds ratio [OR] = 1.61; 95% CI = [1.08–2.41]). This result is somewhat different from the case of maternal depression. In other words, the overall risk of depression in adolescents was slightly lower when adolescent depression was simultaneously observed in their mothers (OR = 1.40; 95% CI = [0.95–2.06]).

The multivariate logistic regression analysis reveals a different pattern between parental and maternal depression based on gender. Depressed mothers, when their child was in childhood, were twice as likely to increase the risk of depression in female adolescents (OR = 2.59; 95% CI = [1.02–6.60]) compared to female adolescents whose mothers did not experience symptoms of depression. Paternal depression shows almost the same results as maternal depression. This, in particular, increases the risk of depression in females only but in the adolescence period (OR = 2.08; 95% CI = [1.20–3.61]).

### Discussion

This study reveals that 21.1% of adolescents have experienced depression, consistent with findings from prior research in West China, where 23.9% of children reported depression.<sup>[19]</sup> Adolescence, particularly the middle to late stages, emerges as a period highly susceptible to depression across genders. This susceptibility is underscored by higher depression scores among those aged 16–20 years and the incidence of new depression cases in both boys and girls aged 15–18 years.<sup>[20]</sup>

This study elucidates the role of parental depression in adolescent depression, with parental depression contributing to decreased emotional support and fostering negative self-perceptions and worldviews in offspring, thereby augmenting susceptibility to depressive symptoms.<sup>[21]</sup> Adolescents with depressed parents often perceive low monitoring and high rejection from their parents.<sup>[20]</sup> The occurrence of parental depression and adolescent depression may stem from a deficiency in positive parenting practices and an increase in unwarranted hostile parenting behaviors. Positive parenting, characterized by family warmth, positively influences

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**Table 2: Adolescent depression according to gender and parental depression**

State of depression	Total	Depression adolescent					
		All		Male		Female	
		n (%)	P	n (%)	P	n (%)	P
Maternal depression							
Normal	870 (78.8)	176 (20.2)	0.291	74 (16.6)	0.171	102 (24.0)	0.132
Depression <sup>a</sup>	57 (5.2)	13 (22.8)		4 (11.1)		9 (42.9)	
Depression <sup>b</sup>	177 (16.0)	45 (25.4)		22 (23.4)		23 (27.7)	
Paternal depression							
Normal	899 (81.4)	178 (19.8)	0.053	79 (16.7)	0.582	99 (23.2)	0.034
Depression <sup>a</sup>	52 (4.7)	13 (25.0)		6 (24.0)		7 (25.9)	
Depression <sup>b</sup>	153 (13.9)	43 (28.1)		15 (19.2)		28 (37.3)	
Parent depression							
Normal	723 (65.5)	138 (19.1)	0.018	61 (16.2)	0.290	77 (22.2)	0.025
Depression <sup>c</sup>	381 (34.5)	96 (25.2)		39 (19.7)		57 (31.2)	

<sup>a</sup>Parent depression when their child was in childhood, <sup>b</sup>Parent depression when their child in adolescence, <sup>c</sup>At least one parent experienced depression when their child in childhood or adolescence

**Table 3: Logistic regression of parental depression toward adolescent depression according to gender**

State of depression	All, AOR (95% CI)		AOR (95% CI); Gender			
			Male		Female	
Maternal depression						
Normal	1		1		1	
Depression <sup>a</sup>	1.21	0.62–2.32	0.51	0.17–1.54	2.59**	1.02–6.60
Depression <sup>b</sup>	1.40	0.95–2.06	1.60	0.91–2.82	1.22	0.70–2.10
Paternal depression						
Normal	1		1		1	
Depression <sup>a</sup>	1.40	0.72–2.73	1.50	0.54–4.13	1.40	0.56–3.52
Depression <sup>b</sup>	1.61**	1.08–2.41	1.21	0.64–2.30	2.08**	1.20–3.61
Parental depression						
Normal	1		1		1	
Depression <sup>c</sup>	1.45**	1.07–1.97	1.25	0.78–1.99	1.67**	1.09–2.55

\*\*P<0.05, <sup>a</sup>Parent depression when their child in childhood, <sup>b</sup>Parent depression when their child in adolescence, <sup>c</sup>At least one parent experiencing depression when their child in childhood or adolescence. The model was adjusted with adolescent characteristics (gender, age, chronic illness, activity, Body mass index, and marriage status), parent’s characteristics (age and activity), and household characteristics (number of infants, number of adults, and residence). AOR: Adjusted odds ratio, CI: Confidence interval

children by enhancing self-esteem, support and affection, household stability, and a nurturing home environment. Conversely, hostile parenting behaviors, such as violence and lack of warmth, have adverse effects, leading to emotional instability and discouragement.<sup>[22]</sup>

Adolescent girls have a higher susceptibility than boys to depression. Biological factors such as sex hormones are thought to contribute to the relationship between depression and certain phases of a woman’s reproductive life.<sup>[23]</sup> Recent research has elucidated the potential effects of female hormones and stress on depression development in adolescence, revealing that girls who mature early exhibit higher rates of depression.<sup>[24,25]</sup> Some studies assume hormonal effects interacting with adverse environmental experiences such as sexual harassment, family disharmony, poor body image, and adjustment in peer relationships as moderating effects have an impact on girls’ mental health.<sup>[24,26]</sup>

This study highlights the significant impact of maternal depression on adolescent depression, particularly during the childhood years of adolescent girls (aged 7–13 years). In a study, maternal depression when children aged 4–8 years predicted depression for girls but not for boys.<sup>[20]</sup> In a cohort study involving 816 mothers and their children, it was discovered that adolescents at the age of 15 years were twice as likely to experience depression if their mothers reported major depression lasting at least 1 month or a mild depressive episode lasting at least a year when the children were 10 years old.<sup>[27]</sup>

This study also highlights the significance of paternal depression in adolescent girls. While maternal depression predominantly affects adolescents during childhood, paternal depression during adolescence (aged 15–19 years) plays a more substantial role in influencing adolescent depression. This aligns with the idea of maternal influence being prominent in childhood, while paternal

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psychopathology may have a greater adverse effect on depression and anxiety during adolescence.<sup>[21]</sup> Furthermore, fathers experiencing depression are more susceptible to acting out negative behavior toward their children, such as violence, thus directly affecting their children's mental state.<sup>[28]</sup>

A study in Iowa of 451 female adolescents, averaging 13.2 years old, found that paternal depression significantly predicted depression, particularly in adolescents lacking a close bond with their fathers, supporting prior research linking higher depression rates among female adolescents to interpersonal factors such as low emotional attachment to fathers.<sup>[29]</sup> Culturally, these results underscore gender role dynamics, where men are typically prioritized, potentially leaving women feeling marginalized and experiencing self-blame, hopelessness, and negative emotions.<sup>[30]</sup>

### Limitations

While the study addresses adolescents residing with their parents, limitations exist due to the unavailability of additional control variables such as stressful life events, parenting style, peer interactions, support systems, bullying, depression stigma, and substance use in the IFLS dataset. Furthermore, research on parental mental health, particularly among fathers in Indonesia, remains scarce, thus constraining the discussion to cultural contexts.

### Conclusion

This study highlights a higher prevalence of depression among female adolescents, with both maternal and paternal depression influencing adolescent mental health. Maternal depression during childhood appears to have a slightly stronger impact than paternal depression during adolescence. Early detection of adolescent mental health issues is crucial, with schools and primary health-care services being key avenues for intervention. Professional treatment is vital in preventing and managing parental depression. In Indonesia, leveraging collective values and community support can help mitigate the impact of parental depression on adolescents. Teachers, school counselors, and supportive peers also play critical roles in providing mental health support within the school environment, where adolescents spend significant time. Mental health interventions for adolescents commonly focus on the school setting, where they spend most of their time. These comprehensive interventions involve the roles of the school community, including teachers, school personnel, students, and parents. The intervention should also take into consideration the parent's contribution and roles in the adolescents' mental health. Therefore, it will need more specific evidence to measure the relationship between parents' mental health and adolescent's mental health.

### Authors' contributions

RM and IYS were responsible for the conception of this study. RM, IYS, DS, and I were responsible for the methods development. RM analyzed the data. RM, IYS, ASP, I, S, NS, DL, O were substantial contributors in interpreting the data, and writing the manuscript. All authors read and approved the final manuscript.

### Data availability statement

All data reported in this manuscript is publicly available from the RAND corporation website: <https://www.rand.org/well-being/social-and-behavioralpolicy/data/FLS/IFLS.html>. Additionally, the data can be made available upon request by contacting the corresponding author.

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### Conflicts of interest

There are no conflicts of interest.

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