

Prosocial Behavior and Psychological Difficulties as Predictors of Depressive Symptoms in Adolescents: A Cross-Sectional Study

Estin Yuliastuti¹ and Nurul Istiqomah²

^{1,2}Bachelor of Nursing Program, Faculty of Health Sciences, Universitas Muhammadiyah PKU Surakarta, Surakarta City, Indonesia



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Corresponding author

Estin Yuliastuti*

Faculty of Health Sciences, Universitas Muhammadiyah PKU Surakarta
Jl. Tulang Bawang Sel. No.26, Kadipiro, Kec. Banjarsari, Kota Surakarta, Jawa Tengah 57136
Phone : (0271) 734955
e-mail: estin.yuli@gmail.com

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Abstract

Background: Adolescence is a crucial transitional period marked by significant changes and increased vulnerability to mental health problems, including depression.

Objective: This study aimed to examine the relationship between prosocial behavior and psychological difficulties with depressive symptoms in adolescents.

Methods: A quantitative correlational study with a cross-sectional approach was conducted among 155 adolescents aged 12–18 from a public senior high school in Surakarta, Indonesia. Data were collected using the Strengths and Difficulties Questionnaire (SDQ) and the Patient Health Questionnaire-9 (PHQ-9), and analyzed using Spearman's correlation.

Results: There was a strong positive correlation between psychological difficulties and depressive symptoms ($r=0.656$, $p<0.001$), while prosocial behavior was also significantly associated but with a weaker correlation ($r=0.168$, $p=0.037$).

Conclusion: Psychological difficulties are more strongly associated with depressive symptoms than prosocial behavior. These findings highlight the importance of interventions that address both risk factors and strengths.

Keywords: Adolescents, depressive symptoms, prosocial behavior, psychological difficulties

INTRODUCTION

Adolescence is a crucial transitional period marked by significant changes in physical, cognitive, emotional, and social development (1). On one hand, this phase is vital for identity formation and the development of self-potential,

including prosocial behavior, which is essential for social adaptation and well-being. Prosocial behavior encompasses voluntary actions aimed at benefiting others, such as helping, sharing, or showing empathy (2). On the other hand, adolescents also face various unique challenges, ranging from academic pressure, social

adaptation, to hormonal changes, which can increase their vulnerability to psychological difficulties (3).

Unfortunately, these numerous challenges and pressures often lead to an increase in mental health problems among adolescents. Global data indicates that depression is one of the most common and debilitating disorders (4). In Indonesia, the prevalence of depression in the 15-24 age group was recorded at 6.2% (5). Furthermore, the recent Indonesia-National Adolescent Mental Health Survey (I-NAMHS) 2022 reported that one in three adolescents (34.9% or equivalent to 15.5 million adolescents) experienced mental health problems in the last 12 months (6,7). Specifically in Central Java, the prevalence of emotional mental disorders in individuals aged 15 years and above (which includes symptoms of depression and anxiety) according to Riskesdas 2018 was 9.8% (5). Depressive symptoms in adolescents not only affect mood but can also severely impact academic performance, interpersonal relationships, risky behaviors, and overall quality of life. If left unaddressed, depression in adolescence can persist into adulthood and increase the risk of long-term mental health issues (8).

Understanding the relationship between Psychological Strengths and Difficulties and Depressive Symptoms is critically important for prevention and intervention efforts. Prosocial behavior can act as a protective factor, helping adolescents build positive social relationships, boost self-esteem, and develop effective coping mechanisms, thereby reducing the risk of developing or worsening depressive symptoms (9). Conversely, psychological difficulties such as emotional problems, conduct problems, hyperactivity, or peer problems can be strong predictors for the development of depressive symptoms (10).

Various studies affirm the complexity of adolescent mental health, indicating that prosocial behavior serves as a significant protective factor while psychological difficulties are strong predictors of depressive symptoms. Specifically, a meta-analysis by Memmott-Elison et al. and a scoping review by Hirani et al. consistently link higher prosocial behavior with reduced internalizing problems (including depression) and enhanced mental well-being (11,12). Conversely, the study by Gonçalves et al. directly demonstrates that difficulties in

emotion regulation predict a more severe trajectory of depressive symptoms throughout adolescence (13). While primarily focused on externalizing issues, Kim et al.'s findings also suggest that various psychological difficulties contribute to adolescent problem behaviors, which frequently co-occur with internalizing challenges like depression (14). Collectively, these results highlight that understanding the dynamic interplay between prosocial strengths and existing psychological difficulties is essential for identifying and addressing the risk of depression in adolescent populations.

However, despite this strong foundational evidence, a comprehensive understanding of how psychological strengths and difficulties collectively influence the depressive symptoms in adolescent populations remains limited. Many studies tend to analyze risk and protective factors separately or have not holistically investigated how these two dimensions interact. This integrated approach is crucial for gaining a more accurate picture of adolescents' risk and resilience profiles. This gap hinders the development of more targeted and effective mental health intervention programs that consider both adolescents' strengths and vulnerabilities simultaneously.

Adolescents face developmental changes and stressors that can trigger psychological issues. In Indonesia, adolescent mental health problems remain a growing concern. This study offers a novel perspective by integrating prosocial behavior and psychological difficulties using two validated tools (SDQ and PHQ-9), and focuses on a contextually relevant Indonesian adolescent sample. While prior studies often examine either protective or risk factors, this research addresses both in tandem, contributing a more integrated mental health profiling that could enhance early intervention in schools.

This study aimed to address this gap by comprehensively investigating the relationship between prosocial behavior and psychological difficulties with depressive symptoms in adolescents. The findings of this research are expected to provide a better understanding of adolescents' mental health profiles, identify relevant risk and protective factors, and serve as a basis for developing more comprehensive and preventive mental health intervention programs. This research will also enrich the scientific literature related to the biopsychosocial model of depression in adolescents, by highlighting the

dynamic role of prosocial behavior and psychological difficulties in the context of depressive symptoms.

METHODS

Study Design

This study employed a quantitative correlational design with a cross-sectional approach.

Sample

Purposive sampling was used to select 155 adolescents from a public senior high school in Surakarta, with data collection conducted on January 2–3, 2024. The criteria for selecting the sample are as follows: respondents must be adolescents aged between 12 and 18 years, respondents must express a willingness to take part in the study voluntarily and must have obtained permission from both their school and their parents to participate as respondents.

The sample size was estimated based on Cohen's (1992) guidelines for correlation studies, targeting a medium effect size ($r = 0.3$), with $\alpha = 0.05$ and power = 0.80, requiring a minimum of 85 participants. A total of 155 adolescents were recruited to ensure adequate statistical power and account for potential nonresponse or incomplete data.

Instruments

Data were collected using questionnaires. Prosocial behavior and psychological difficulties were measured using the Strengths and Difficulties Questionnaire (SDQ) by Goodman in 1996, while symptoms of depression were assessed using the Patient Health Questionnaire-9 (PHQ-9) by Spitzer, William & Kroenke in 1990. The validity and reliability of the SDQ have been tested by Oktaviana and Wimbarwati, with a Kaiser-Meyer-Olkin (KMO) value of 0.776 and a Cronbach's Alpha of 0.773 (15). Additionally,

the PHQ-9 has been validated by Dian et al., showing a correlation coefficient (r) of 0.527 and a Cronbach's Alpha of 0.885. These results indicate that both questionnaires are valid and reliable instruments (16).

Data Collection

Participants completed the questionnaires via Google Forms in the classroom after giving informed consent, which took approximately 30 minutes.

To address the potential for bias in self-reported data collected in a classroom setting, several measures were implemented. Participants were assured of anonymity and confidentiality, instructions were clearly delivered, and no teachers or authority figures were present during data collection to minimize social desirability bias. Participation was entirely voluntary and completed independently using personal devices.

Data Analysis

Data were described using frequencies and percentages. The Spearman correlation test was conducted to examine the relationship between prosocial behavior and psychological difficulties with depression among adolescents.

Ethical Considerations

This study was approved by the institutional ethics committee of ITS PKU Muhammadiyah Surakarta (Ref. No: 177/LPPM/ITS.PKU/VIII/2022).

RESULTS

Demographic characteristics

A total of 155 adolescents participated in this study. The demographic variables included age, gender, and family income.

Table 1. Distribution of adolescents by age (n = 155)

Characteristic	Mean	SD	Min-Max
Age	15.46	0.56	14-17

As shown in Table 1, the mean age of adolescents was 15.46 years, with ages ranging from 14 to 17 years.

Table 2. Distribution of adolescents by gender and family income (n = 155)

Characteristics	Frequency (f)	Percentage (%)
Gender		
Male	69	45.5
Female	86	55.5
Family income		
Above city minimum wage	127	81.9
Below city minimum wage	28	18.1

As presented in Table 2, the majority of adolescents were female (55.5%). In terms of family income, most adolescents (81.9%) came from families earning above the city minimum wage.

The relationship between psychological strengths and difficulties and depressive symptoms

Table 3 presents the relationship between psychological strengths and difficulties and depressive symptoms among adolescents.

Table 3. The relationship between prosocial behavior and psychological difficulties with depressive symptoms in adolescents (n = 155)

SDQ Subscale	Depression (PHQ-9)					p-value	r
	Minimal	Mild	Moderate	Moderately Severe	Severe		
Prosocial Behavior							
Normal	30	55	35	11	4	0.037	0.168
Borderline	2	5	7	1	0		
Abnormal	0	1	1	2	1		
Psychological Difficulties							
Normal	32	45	14	1	0	0.000	0.656
Borderline	0	10	15	2	0		
Abnormal	0	6	14	11	5		

Note:

- "Normal," "Borderline," and "Abnormal" refer to SDQ standard cutoffs.
- "Minimal," "Mild," "Moderate," "Moderately Severe," and "Severe" refer to PHQ-9 standard cutoffs

As shown in Table 3, a pattern emerged indicating that adolescents with abnormal psychological difficulties tended to experience higher levels of depressive symptoms. The Spearman correlation analysis showed a significant relationship between psychological difficulties and depressive symptoms, with a p-value of 0.000 ($p < 0.05$) and a strong positive correlation ($r = 0.656$). This suggests that the greater the psychological difficulties, the more severe the depressive symptoms.

In contrast, the relationship between psychological strengths and depressive symptoms was statistically significant but weak, with a p-value of 0.037 and a correlation coefficient (r) of 0.168, indicating a weaker association. These findings support the conclusion that psychological difficulties are

strongly associated with depressive symptoms in adolescents, while psychological strengths show a weaker, yet significant, correlation.

DISCUSSION

This study found a significant positive correlation between psychological difficulties and depressive symptoms among adolescents, indicating that higher levels of psychological difficulties are associated with more severe depressive symptoms. In contrast, prosocial behavior also showed a significant but weaker association, suggesting that while both dimensions are relevant, psychological difficulties are a stronger predictor of adolescent depression. Although the correlation between prosocial behavior and depressive symptoms

was weak, it was statistically significant. This suggests that even subtle strengths in social functioning may play a role in buffering psychological distress, particularly within collectivist cultures where helping behaviors are socially embedded and often underrecognized as individual strengths. These findings emphasize the need for targeted interventions that prioritize identifying and addressing psychological difficulties.

A more comprehensive insight is gained by examining the constituent elements of the Strengths and Difficulties Questionnaire. This instrument evaluates five distinct dimensions: four domains pertaining to difficulties, namely emotional problems, conduct problems, hyperactivity/inattention, and peer relationship problems; and a single domain focusing on strengths, specifically prosocial behavior (17).

Emotional problems, encompassing anxiety, sadness, fear, and tearfulness, closely mirror depressive symptomatology. Adolescents scoring high in this subscale are prone to prolonged internalization of negative emotions, which, if unmanaged, can develop into serious mood disorders including clinical depression (18,19). Conduct problems, characterized by aggressive and oppositional behaviors, often serve as outward expressions of unaddressed emotional distress. These behaviors often trigger social conflicts, which can lower self-esteem and heighten feelings of helplessness, thus worsening depressive symptoms (20,21).

Hyperactivity and inattention contribute additional risk factors by disrupting concentration, increasing impulsivity, and fostering restlessness. These difficulties not only impair academic performance but also strain social interactions, leading to chronic stress and frustration that may precipitate depressive episodes (22). Peer relationship problems are particularly salient during adolescence, a developmental stage when social acceptance and group identity are paramount. Experiences of loneliness, rejection, or bullying can cause significant emotional distress, fostering withdrawal, feelings of worthlessness, and loss of interest, all core features of depression (23–28).

On the other hand, prosocial behavior reflecting empathy, caring, and willingness to help others, functions as a protective factor that fosters positive social connections and enhances

resilience. However, the current findings indicate that despite its protective role, prosocial behavior has a relatively modest effect in mitigating depressive symptoms compared to the pronounced impact of psychological difficulties. This suggests that psychological strengths alone are insufficient to counterbalance the detrimental effects of substantial psychological challenges (29–32).

Theoretically, these findings align with Resilience Theory, which posits that resilience emerges from the dynamic interplay between risk and protective factors (33). Adolescents experiencing high psychological difficulties tend to have lower resilience due to deficits in emotional regulation, social skills, or environmental support, making them more susceptible to emotional distress and depression (34–36). Complementarily, Cognitive-Behavioral Theory (CBT) explains that negative thought patterns and dysfunctional beliefs are central to the development of psychological disorders like depression (37–40). Adolescents struggling with emotional and social difficulties may internalize negative self-perceptions and hopelessness about the future, reinforcing depressive symptoms. While psychological strengths may foster more adaptive thinking, their protective effect is limited without addressing underlying psychological difficulties (41–43).

Furthermore, Erik Erikson's psychosocial development theory, particularly the stage of Identity vs. Role Confusion, offers a developmental context for interpreting these results. Adolescence is a critical period for identity formation through exploration of social roles and personal values. Successful navigation of this stage results in a coherent and confident sense of self, whereas failure leads to role confusion and psychological instability. The difficulty components of the Strengths and Difficulties Questionnaire specifically emotional problems, conduct issues, hyperactivity, and peer relationship challenges can be conceptualized as developmental impediments that disrupt this identity formation process. For example, intense emotional difficulties may impair adolescents' capacity for self-recognition and acceptance, while behavioral problems and social conflicts can undermine the development of a stable identity. Moreover, poor peer relationships can cause social isolation, exacerbating feelings of alienation, diminishing

self-worth, and increasing depression risk (44,45).

Conversely, prosocial behavior, which reflects psychological strengths, supports the development of positive social relationships and the formation of an adaptive identity. Empathy and social sensitivity enhance meaningful social experiences and increase resilience to psychological stress. However, these strengths need to be supported by active management of psychological difficulties in order to function optimally in preventing depression (46).

These findings emphasize the importance of comprehensive interventions that not only bolster adolescents' psychological strengths but also proactively identify and address psychological difficulties, especially emotional and social challenges. Integrating resilience-based approaches with cognitive-behavioral therapy and social-emotional skills development within school or community programs may better support adolescents in navigating the identity crisis of adolescence, thereby reducing depression risk and promoting holistic psychosocial well-being.

In summary, this study confirms that psychological difficulties—particularly emotional, behavioral, and social problems—are strongly associated with depressive symptoms among adolescents. Although prosocial behavior plays a protective role, its impact appears modest, possibly due to cultural norms that frame helping behavior as a social expectation rather than a personal strength. The study's novelty lies in its contextual focus on Indonesian adolescents and the integration of both risk and protective factors, offering a more balanced perspective on youth mental health and informing targeted school-based interventions.

Study Limitations and Implications

This study was limited by its sample, which came from only one school in Surakarta and used non-random sampling. Future research should expand to multiple schools or regions to enhance generalizability. Interventions should prioritize both psychological support and social-emotional learning to reduce depressive symptoms.

CONCLUSION

This study clearly demonstrates that psychological difficulties are a strong

predictor of depressive symptoms in adolescents, with a substantial positive correlation. This means that the higher the level of psychological difficulties experienced by adolescents, such as emotional problems, conduct problems, hyperactivity/inattention, and peer relationship problems, the more likely they are to experience more severe depressive symptoms. Although psychological strengths, particularly prosocial behavior, also showed a significant relationship with depressive symptoms, its effect was relatively weak compared to the impact of psychological difficulties.

These findings underscore the importance of a holistic approach in understanding and addressing adolescent mental health. Prevention and treatment interventions for depression in adolescents should focus not only on developing adaptive strengths but, more crucially, on the early identification and effective management of various psychological difficulties. Addressing emotional and social problems, which often underlie psychological difficulties, is key to reducing adolescents' vulnerability to depression.

Schools and community-based programs are encouraged to implement preventive mental health initiatives that address both risk and protective factors, such as screening for psychological difficulties and fostering prosocial behavior through peer mentoring and social-emotional learning.

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Author Contributions

The first author designed the study, collected data, analyzed the results, and drafted the manuscript. The second author contributed to the study design. All authors reviewed and approved the final version.

Conflict Of Interest Disclosure

The authors declare no conflicts of interest related to this study.

Data Availability Statement

The data supporting this study's findings are available from the corresponding author upon reasonable request.

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