Contribution of Teacher – Student Relationship and Self Regulation as a Mediator to Student's Risk Behavior

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ABSTRACT: The research background highlights the increasing number of adolescents exposed to risk behaviors both in school environments and in society at large. This phenomenon is worsening. Thus, this study aims to examine whether the theoretical model of adolescent risk behavior aligns with empirical conditions in society. Additionally, the study examines the influence of variables within the model. The model is derived from Bronfenbrenner's ecological system theory (1994). This research was conducted using a quantitative approach with a correlational study design involving 628 adolescents aged 15-17 years from various demographic backgrounds, utilizing cluster sampling. Data collection was carried out using Google Forms. The study employs the adapted Teacher-Student Relationship Scale, Self-Regulation Scale, and Risk Behavior Scale, all validated through Confirmatory Factor Analysis, with analysis conducted using Structural Equation Modeling (SEM). The findings of this study conclude that environmental factors, specifically teacher-student relationships, have a significant influence on adolescent risk behavior and self-regulation. However, self-regulation does not have a significant influence on adolescent risk behavior. Furthermore, the teacher-student relationship does not have a meaningful influence on adolescent risk behavior through self-regulation as a mediator.

INTRODUCTION

Risk behavior is behavior that brings undesirable consequences and causes disadvantage or danger either to oneself or others. This behavior is directly or indirectly detrimental to health, well-being, and the completion of normal development. This broad definition causes the scope of risk-taking behavior to be very wide-ranging. Nowadays, the scope of risk behavior has narrowed to the risk behavior framework established by the US Centers for Disease Control and Prevention (CDC) based on the results of the US Youth Risk Behavior Survey, which is carried out periodically and extensively with in-depth surveys (Kann et al., 2018; J Jonetta Mpofu et al., 2023; Jonetta J. Mpofu et al., 2023). Meanwhile, in Indonesia, the reference for risk behavior categorization is based on the results of the Indonesian Demographic and Health Survey (SDKI), which is conducted periodically by the Ministry of Health of the Republic of Indonesia, the Central Bureau of Statistics Indonesia, the National Population and Family Planning Board (BKKBN), and the National Narcotics Agency (BNN).

The framework built by the US Youth Risk Behavior Survey by the CDC, the Indonesian Demographic and Health Survey (SDKI), and the BNN has the same categorization: the consumption of alcoholic beverages (alcohol or adulterants), Narcotics, Psychotropics, and other Addictive

Substances (NAPZA), and unhealthy premarital sexual behavior. This is supported by various other research findings. Therefore, the dimensions that will be used as research constructs in this study are alcohol drinking behavior, consumption behavior of narcotics, psychotropics, and other dangerous substances (NAPZA), and premarital sexual behavior.

In Indonesia, the average age of first drug use is 16 years, with the lowest age being 10 years and the highest being 27 years. The prevalence of drug use among teenagers increased from 1.10% to 1.96% in rural areas and decreased from 2.30% to 1.93% in urban areas. Overall, the average prevalence continues to increase from 1.8% to 1.98%. Meanwhile, based on the Indonesian Reproductive Health Survey (SDKI), which is carried out every ten years, the 2017 survey showed that the percentage of women who first consumed alcohol under the age of 14 increased from 10% (2007 SDKI) to 17% (2017 SDKI). Likewise, for men, the percentage increased from 9% (2007 SDKI) to 11% (2017 SDKI). Quantitatively, 41.2% of school-age adolescents had engaged in sexual relations, 30.1% had sexual relations in the three months before the survey, and 11.5% had sexual relations with four or more people. National and regional surveys in several countries for secondary school and early college students also show that the majority of teenagers have had intensive sexual experiences. In Malaysia, 13% of 1,139 students (15-20 years old) surveyed in 2010 reported having premarital sexual activities. A national survey of 144,000 high school and college students in China reported that 5% and 11%, respectively, had premarital sexual activities, and 12% of Myanmar teenagers had experienced sexual risk. These findings confirm that risk behavior is closely related to teenagers (Hale & Viner, 2016; Klein-Hessling et al., 2010; Narcotics, 2022; Silmi et al., 2020).

The factors of adolescent risk behavior can be analyzed from the perspective of the contextual environment. Ecological theory states that children's behavior is strongly influenced by the environmental layers surrounding them. These layers start with the microsystem, which has a high and direct intensity of interaction with children, including parents, peers, school, and peers. This is followed by the mesosystem layer, the exosystem layer, the macrosystem, and finally the chronosystem, which has almost no direct interaction with individuals (Bronfenbrenner, 1994; Johnson, 2010; Mujahidah, 2015).

It is very important to examine how the direct interaction of the adolescent's environment influences their behavior, including aspects of school and the interactions that occur within it. Moreover, studying children's relationships with adults other than their parents is crucial in understanding children's socio-emotional development. Good relationships foster good socio-emotional development, and vice versa. Thus, the relationship between students and their teachers plays a significant role in shaping their mentality and behavior.

The model of the student's ecological environment, which includes teacher-student relations in the microsystem, has also been specifically conceptualized. This model states that teacher-student relationships require (a) features of the two individuals themselves, such as character, gender, and age, (b) participation of each individual in the relationship, (c) the process of information exchange as relationship partners, and (d) external influences from the system in which the relationship takes place. Pianta (1999) states that positive teacher-student relationships are crucial for children and adolescents to learn and develop well. In contrast, negative relationships between teachers and students can increase internalization and externalization problems in children.

The findings mentioned above clearly describe how essential the teacher-student relationship is as a protective factor against risk behavior, even in Western cultural settings. Similarly, in Eastern cultural settings such as several Asian countries with backgrounds similar to Indonesia, there are similar tendencies. In China, for example, a recent study of 6,919 students stated that teacher-student relationships have a protective effect against the development of externalizing problem behaviors. Teacher-student relationships can indirectly affect externalizing problem behaviors through the chain of mediation of peer relationships and mental health. Moreover, student connectedness to their school has a moderate protective impact on all health risk domains.

Separately, school connectedness significantly impacts preventing narcotics use, violence, mental health issues, sexual health issues, and other related behaviors. This provides strong evidence that school connectedness has the potential to prevent and mitigate multiple health risks during adolescence (Rose et al., 2022).

This empirical evidence shows the strong influence of the contextual environment on adolescent risk behavior. The contextual environment in this concept consists of the microsystem, which includes parents, peers, school, and teachers; the mesosystem, which connects the structures within the microsystem itself; the exosystem, which includes industry, media, neighborhood, local policy, and so forth; and the macrosystem, which consists of values, culture, customs, and government laws. It is necessary to use these as predictor variables of adolescent risk behavior.

On the other hand, various literatures do not refuse that behavior is also influenced by internal driving factors. One of the internal factors that is widely associated with behavior is self-regulation which is popularized trough Albert Bandura's Social Cognitive Theory. Self-Regulation is self's ability to monitor and control behavior, emotions or thoughts and change them to the demands of the situation (Goleman, 2009) based on social norms and regulations as well as long-term interests. Self-regulation is a very important element in behavior. In the context of risk behavior towards addictive substances self-regulation is often used as a bulwark to control behavior using illegal drugs to produce positive outcomes in the long term. Furthermore, the late children phase show behavior *Conduct disorder* and experiencing difficulties in social relationships are children who have problems with self-regulation. In other words, children and adolescents who have low self-regulation are at high risk of using alcohol and illegal drugs. Other research also confirms that self-regulation in adolescents is a long-term predictor for someone in deciding whether engage or not of risk sexual behavior. The relationship between self-regulation and risk sexual behavior is also significant even when the influence of peers and other demographic factors is controlled. Self-regulation functions as an additional risk and protective factor in the dual risk behavior model (Lengua, 2002).

Self-regulation is also considered effective as a mediator variable related to behavior, both behavior that conforms to norms and does not. Self-regulation is primarily an aspect of effective emotional regulation as a mediator variable between parenting style and risk behavior in *left-behind children*. The use of elf-regulation as a mediator in experimental research concluded that increasing self-regulation for just one month was effective in mediating the relationship between risk behavior before the intervention and risk behavior 6 months post-intervention.

So, it can be concluded that Bronfenbrenner's ecological theory cannot stand alone to explain adolescent risk behavior. Personal factors will ultimately also become determinants and motivating and protective factors for adolescent risk behavior. Self-regulation seems to be the final filter and fortress in determining whether adolescent will conduct risk behavior or not.

At least 3 (three) points distinguish this research than other. *Firstly,* this research is an answer to a research gap in previous research. In common, this research type is limited to the interests of relevant government institutions, such as the National Narcotics Agency (BNN) and the Department of Health and the National Population and Family Planning Berau (BKKBN). Unfortunately, it is only limited to demographic surveys and risk behavior trends themselves. It is almost rare to find in-depth research related to this problem, such as to find out the determinants of adolescent risk behavior in Indonesia. *Second,* this research examines whether internal factors can strengthen the influence of the proposed exogenous variables or not. The strong hypothesis stated that adolescent self-regulation is a safety brake for risk behavior has become the basis for modifying Bronfernbrenner's theory with other relevant theories. By modifying Bronfenbenner's ecological theory, it is expected that this research can depict real conditions of risk behavior, the teacher-student relationships and how self-regulation plays its role as a driver and protect adolescent from risk behavior themselves. *Third,* almost all research related to risk behavior was conducted in big cities in Indonesia. As a result, the recommendations from the research results are less applicable for the same cases that occur in

small cities. Meanwhile, its behavioral symptoms have improved greatly. In this regard this research is positioned.

METHODS
Design
The research design used is correlational field research with a quantitative approach. This design views that every reality, symptom, phenomenon can be classified, tends to be permanent, concrete, observable, measurable, and has a cause-and-effect relationship. Therefore, before the research is carried out, the researcher arranges and designs in detail the research steps and procedures and cannot be changed during the research.

Ethical Compliance
Approval to conduct this research was obtained from the Educational Psychology Study Program, State University of Malang. Respondents also signed the informed consent for asking permission from the school and also from the respondents.

Dependent Measures
The scale used was in english while the respondents is indonesian native speakers. Those, the adaptation process is compulsary. The method of adaptation used is bac to back translation. The adaptation procedures used are: (1) translating the original test into bahasa indonesia which is carried out by researcher and educational psychology professor in State University of Malang, (2) synthesizing the translated instrument. From the two translations, the similarities and differences were then looked for until finally an agreed translation was obtained, (3) back translation into the original language. The results of the back translation are then compared with the original scale, (4) discussion with experts involving 12 experts and is assessed in the Aiken test which will be explained in another part of this article, and (5) the qualitative item tries out. If there are no more misunderstandings, the nest step is checking the validity and reliability of the instrument itself

The Teacher-Student Relationship Scale used to measure children's and teachers' perceptions of their relationship.This scale commonly used to predict student's behavior, academic achievement and relationship quality (J. Guo et al., 2015a). This instrument was first compiled by Robert C. Pianta (1994) and widely known for calculating the quality of teacher-student relationships. This scale also showed equally good results in validity and reliability tests on students in Turkey (Ogelman & Seven, 2014) and in China (J. Guo et al., 2015b). The teacher–student relationship scale items can be represented very well through the following four aspects, namely: (1) Closeness measures the level of openness, warmth and security in the teacher-student relationship felt by the students, (2) Conflictual Management measures the extent to which a student overcomes teacher-student interactions which are sometimes on the negative spectrum, full of conflict (discordant), unpredictable, and unpleasant, (3) Support measures the extent to which children feel supported by teachers in academic and non-academic activities, and (4) Satisfaction in relationship measures the extent to which students feel happy, enjoy and want to maintain their relationship with their teacher. The Teacher-Student Relations Scale contains 44 question items consisting of 4 dimensions with 11 indicators.

Another scale used for this reseach is The Self-Regulation Scale. This scaleis adapted from the adolescent self-regulatory inventory created by Moilanen, K.L (2006) which still has a very high level of validity. This scale is used to measure how adolescents function their self-regulation in managing responses and expressions to any situations around them. The Self-Regulation Scale has 3 dimensions with 10 indicators. The dimensions are: (1) motor responses measures the ability to control physical reactiion to negative stimuli, stability in completing tasks and ability to control physical expression of emotions, (2) verbal responses measures the ability to control verbal reactiion to negative stimuli,

ability to restrain verbal expression of emotions and ability to talk calmly in conflictual situation, and (3) emotional responses measures the ability to delay the expression of negative emotions, the ability of carry out work plans in all emotional conditions and the emotional stability when provoked and easy to calm down

Despite of those scales, this research also used Adolescent Risk Behaviour Scale to measure risk behavior conducted by the respondents This scale was adapted from High Risk Behavior Inventory (HRBI) which was developed by Irish (2011). As explained previously, research on behavior will examine when the behavior started, the frequency of doing the behavior, the quantity level of the behavior and the repetition tendencies. Thus, there are 4 dimensions with 13 indicators and 44 items.

Content Validity and Reliability

The question items have been examined using Aiken test by 12 expert panels to ensure the content validity. The result shows that the lowest limit tolerated in the test was 0.78 with $p<0.05$. For this reason, item values below 0.78 are discarded.

Table 1. Content Validity Calculation Results

Scale	Aiken V Index	P<0.05	Conclusion	
			Before the Aiken Test	After the Aiken Test
Teacher – Student Relations	0.806-0.94	0.7 8	44	35
Self Regulation	0.806-0.94	0.7 8	35	28
Risk Behavior	0.806-0.91	0.7 8	44	30

Then a reliability test was carried out on each variable. Testing of measuring instruments was carried out on 260 Vocational High School students but after cleaning up samples that had not been orderly in filling out the instruments, 253 were processed. The following table explains the reliability coefficient and item discrimination power of each scale used in this research.

Table 2. Reliability Values and Discrimination Power of Scale Items

Scale	Alpha-Cronbach	Item Discrimination Power
Teacher-Student Relations	0, 8 66	0.399 – 0.721
Self Regulation	0, 8 91	0.497 – 0.724
Risk Behavior	0.985	0,776 – 0,950

The table shows that the reliability coefficients for the four scales range from 0.866-0.985. Therefore, the reliability of the four scales in this study is considered to have met the requirements for the reliability of a good measuring instrument. Meanwhile, the discrimination power value of items on the four scales used in this study ranged from 0.39 - 0.95.

The next step is testing construct validity. Construct validity will measure the extent to which the items compiled accurately reflect the theoretical latent construct. In this research, convergent validity and discriminant validity were tested through calculating factor loadings so that construct validity was measured through confirmatory factor analysis. *(Confirmatory Factor Analysis)*.

Construct validity of the Teacher-Student Relationship Scale

The fit of model test show that the Teacher-Student Relationship scale measurement model is fit p value = 0.028, GFI = 0.970 (≥ 0.90); AGFI = 0.936 (0.80), CFI = 0.984 (≥ 0.90), TLI = 0.972 (≥ 0.90) and RMSEA = 0.052 (≤ 0.08). Therefore, it can be concluded that the measurement model for this construct has empirical conditions. After selecting items which a factor loading value above 0.4 and did not have *cross loading* with other items, 9 items remained out of 15 items. The Closeness of relkationship aspect is represented by GS1 and GS2, Conflict Management is represented by GS4 and

GS5, Psychological support is represented by GS7 and GS11 and Satisfaction in Relationships is represented by GS13, GS15 and GS16.
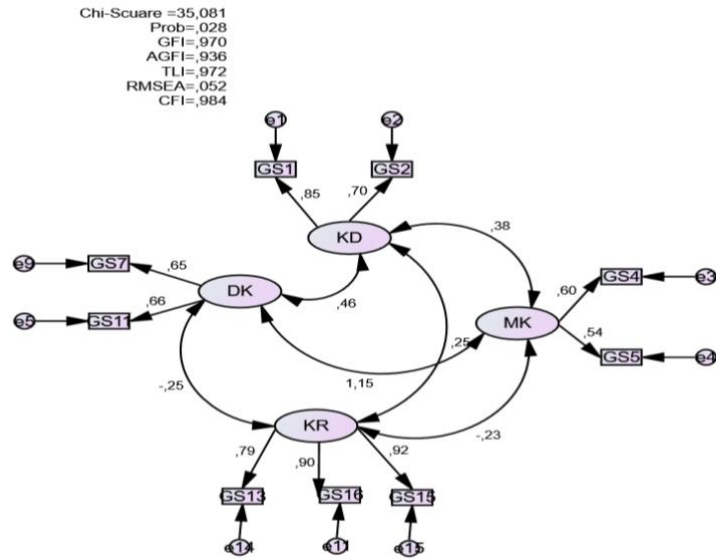

Figure. 1 Confirmatory Factor Analysis (CFA) Results of the Teacher-student Relationship Scale

Construct validity of the Self-Regulation Scale

The parameter value for the fit of model shows that the Self-Regulation scale measurement model is fit with p value = 0.000, GFI = 0.930 (≥ 0.90) ; AGFI = 0.87 9 (≥ 0.80), T L I = 0.9 14 (≥ 0.9 0) and CFI = 0.9 39 (≥ 0.9 0). It can be concluded that this construct measurement model is in accordance with empirical conditions. Total of 10 items out of 11 met the requirements for factor loadings above 0.4 and met the goodness of fit criteria. The motor response aspect is represented by items RD1 and RD2, the verbal response aspect is represented by items RD3, RD4, RD5 and RD6, and emotional responses are represented by items RD7, RD8, RD10 and RD11.
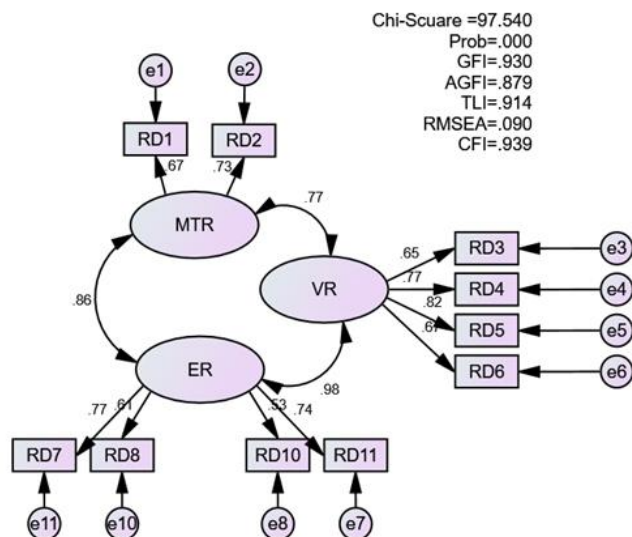

Figure 2. Results of Confirmatory Factor Analysis (CFA) of the Self-Regulation Scale

Contruct Validity of the Adolescent Risk Behavior Scale

Parameter value for the fit of model shows that the measurement model for this scale is fit. P value = 0.000, GFI = 0.9 45 (≥ 0.90); AGFI = 0.911 (≥ 0.80), TLI = 0.979 (≥ 0.90), CFI = 0.98 (≥ 0.90) ;

and RMSEA = 0.06 9 (≤ 0.08). The next step is selecting items that have a factor loading value above 0.4 and do not have *cross loading* with other items. This process left 11 items out of the 16 items. The aspect of drinking alcohol is represented by PB1 and PB2, the use of narcotics and other addictive substances (NAPZA) is represented by PB4, PB5, PB6 and PB8 and the aspect of pre-marital sexual behavior is represented by PB11, PB13, PB14, PB15 and PB16
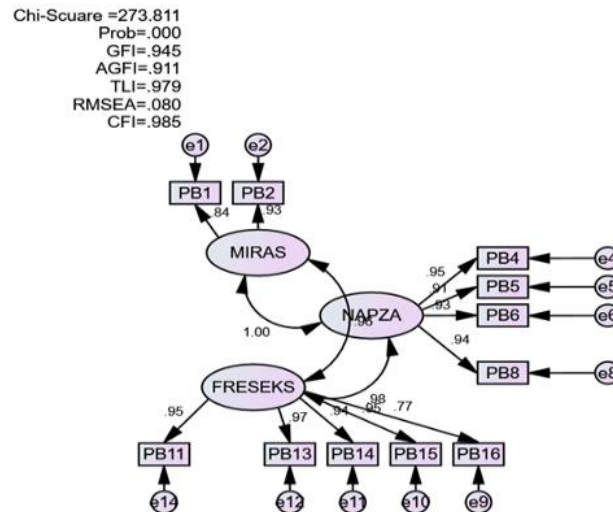

Figure 3. Confirmatory Factor Analysis (CFA) Results of the Adolescent Risk Behavior Scale.

Participants and Procedure

The population were cross-gender adolescent aged 15-17 years who were attending public high school. The population attended the same school for at least the last year before the survey was conducted. This is necessary considering that one of the variables measured is the teacher-student relationship. This research uses a probability sampling approach with a cluster sampling method because the objects to be studied or data sources are very broad (Gall et al., 2003).

Data Analysis

This research was conducted to test the influence between variables using Structural Equation Model (SEM) techniques. The data collected was processed using descriptive analysis and inferential analysis. Inferential analysis techniques that empowered Structural Equation Model are using AMOS Ver 24. This analysis has two important parts, namely the measurement model using Confirmatory Analysis –that has been explained before-and the Structural Model using regression modeling and Structural Equation Model (SEM) analysis.

Tabel 3. Goodness of Fit (Hair et al., 2019)

Category	Fit Parameter	Criteria
Absolute Fit	Chi Square P- Value	≥0.05
	Goodness of Fit Indexes (GFI)	≥0.90
	Root Mean Square Error of Approximation (RMSEA)	≥0.08
	Normed Fit Indexes (NFI)	≥0.90
	Incremental Fit Indexes (IFI)	≥0.90
Incremental Fit	Comparative Fit Index (CFI)	≥0.90
	Tucker-Lewis index (TLI)	≥0.90
	Adjusted Goodness of Fit Index (AGFI)	≥0.90
Parsimonious Fit	Parsimonious Normal Fit Index (PNFI)	0,60 − 0.90

Before proceeding to data analysis, the researcher carried out the following procedure: (1) Editing which aims to check the data completeness, identify errors and check readability, (2) Coding

is carried out by assigning numbers to respondents' answers. The codes are 5 for strongly agree, 4 for agree, 3 for undecided, 2 for disagree and 1 for strongly disagree. The coding is for favorable question items. Meanwhile, for unfavorable questions, coding is done the other way around, (3) Inputing data, and (4) Data Cleaning to minimize several errors, for example errors when data input process or broken data.

After conducting the mentioned procedures, the next stage is Analyzing data using a Structural Equation Model (SEM) with AMOS 24 program. Regarding model testing, to state the fit of model, it is necessary to test goodness of fit with several parameters as in the table 3. A model will be declared fit if at least one of the suitability measurement parameters has been met. The model suitability test will be much better if it can meet more than one fit measure

RESULTS AND DISCUSSION
Results
Direct Influence

There are 3 combinations of relationships or direct influences between exogenous variables on endogenous variables. They are the influence of teacher-student relationships (GS) on self-regulation (RD), the influence of teacher-student relationships (GS) on adolescent risk behavior (PB), and the influence of self-regulation (RD) on adolescent risk behavior (PB).

Table 4. Results of Direct Effect Analysis of Exogenous Variables on Endogenous

Directions		Reg. Weight	Standardized Reg. Weight	SE	CR	P
Teacher-Student Relations	Self-Regulation	0.101	0.220	0.021	4,694	***
Teacher-Student Relations	Adolescent Risk Behavior	-0.064	-0.129	0.027	-2,423	0.015
Self-Regulation	Adolescent Risk Behavior	-0.092	-0.084	0.086	-1,038	0.299

Statistical analysis shows the influence of teacher-student relationships towards self-regulation produces a p-value of 0.000, (p-value < level of significance (alpha (α) = 5%), while analysis of the relationship between teacher-student relationship and adolescent risk behavior produces a p-value of 0.015 (p-value < level of significance (alpha (α) = 5%). It means that there is a significant direct influence between the teacher-student relationship (GS) on self-regulation (RD) and the teacher-student relationship (GS) on adolescent risk behavior (PB). In other side, the analysis results of self-regulation (RD) on adolescent risk behavior (PB) produces a p-value of 0.299, (p -value < level of significance (alpha (α) = 5%). This means that there is no significant direct influence of self-regulation (RD) on adolescent risk behavior (PB). Thus it can be concluded that the hypothesis is rejected.

Indirect Influence

Indirect influence of teacher - student relationships on adolescent risk behavior through self-regulation produces a coefficient of -0.009. Sobel test is used to examine the strength of the indirect influence from exogenous variables to endogenous variables through mediator variables by calculating the standard error of the indirect effect coefficient and calculating the statistical z value of the moderating influence.

The influence significancy of exogenous variables on endogenous variables in the indirect effects relationship is examined by looking at the z-value probability from the Sobel Test results. The p value < 0.05 shows that there is a significant influence while p > 0.05 shows the influence is not significant. The results of the indirect influence hypothesis test can be seen in table 6.

The table above shows that p value is greater than 0.05 (p<0.05), so the hypothesis is rejected. Thus, it can be concluded that Self-regulation has an insignificant mediating effect on the contribution of teacher - student relationship to adolescent risk behavior.

Table 5. Coefficient Values of Direct and Indirect Effects of Exogenous on Endogenous

Exogenous	Mediation	Endogenous	Direct Coefficient	Indirect Coefficient
Self-Regulation		Risk Behavior	-0.092	
Teacher-Student Relations		Self=Regulation	-0.101	
Teacher-Student Relations		Risk Behavior	-0.064	
Teacher-Student Relations	Self=Regulation	Risk Behavior		-0.009

Table 6. Mediation Test Results with Sobel Test

Exogenous	Mediation	Endogenous	Sobel Test	SE	P	Conclusion
Teacher-Student Relationship	Self-Regulation	Adolescent Risk Behaviour	-1.55	0.11	0.06	Not significant

Discussion

Direct Influence

This research analysis shows that there is a significant influence of teacher-student relationships on self - regulation with a positive correlation. It means that the closer the relationship between the teacher and the student, the higher the self-regulation that the student has. In contrast, if the relationship of teachers and students gets worse, the adolescent's self-regulation will also decrease.

It is consistent with research by Acar et al. (2019) in a multi-cultural setting which states that the quality of teacher -student relationships influence students ' self -regulation abilities. In the context of United States' students, the the most dominant influencer aspect is conflict management between teachers and students. Meanwhile, in the context of Turkey's students, the aspect of teacher - student closeness dominates its influence on self-. Research from Shahmohammadi (2014) also revealed that relationships based on mutual acceptance and building a sense of comfort between teachers and students, mutual respect and acceptance, supportiveness and positive emotional relationships from teachers towards students lead to increased regulatory behavior of students themselves. This means that the aspects of teacher - student relations proposed in this research generally have a significant influence on the level of self-regulation.

Likewise, teacher-student relationships have a significant influence on adolescent risk behavior with a negative correlation pattern. Thus, if the teachers and students realtionsfip better, the level of risk behavior became lower. This is in accordance with previous research which states that students who have poor relationships with teachers will have a fairly high tendency for risk behavior, especially in the behavior of consuming alcohol and illegal drugs.

Confirming the results of this research, Walker and Graham (2021) revealed that the teacher-student relationship quality has a very strong influence on behavioral and social adjustment (Walker & Graham, 2021) In their research, Walker and Graham used three dimensions of the quality of teacher - student relationships, first is the dimension of closeness between teachers and students, second is conflictual relationship problem solving and third is a feeling of dependence each other.

In contrast of the previous variable, self-regulation was not significant in influencing adolescent risk behavior. It surprising enough because it I contradictive with the findings of several previous studies which stated that self-regulation is a protective factor of pre-marital sexual behavior, protective factor of the multiple risk behavior model (Eisenberg et al., 2005; Lengua, 2002) and use of alcohol and illegal drugs and low achievement in school.

However, the results of this research analysis are in line with research conducted by Roos & Witkiewitz (2018) which concluded that the role of self-regulation as a mechanism of behavior change (MOBC) for adolescents who are addicted to illegal drugs is less consistent. Therefore, Roos and Witkiewitz (2018) proposed a contextual model of self-regulation for the process of behavior change mechanisms. This model emphasizes the role of various aspects of self-regulation that depend on contextual factors and the wider individual context.

This finding seems to strengthen the perspective of socio-ecological theory, which states that behavior is explained in a comprehensive system. Furthermore, the dominant factors explaining system is external factors that consist of microsystem, macrosystem and mesosystem and other environmental systems. Therefore, internal psychological factors are considered not strong enough in developing behavioral control, including risk behavior. Strengthening this statement, another perspective revealed that adolescence is an unstable period. As consequence, self-regulation becomes less meaningful as a protective factor for adolescent risk behavior. It must stand together with other stronger factors. For example, with external factors such as parent-child factors, peers, community and others (Bozzini et al., 2021; Ciranka & van den Bos, 2021; Crone & van Duijvenvoorde, 2021; Indraswari & Shaluhiyah, 2022; Shaluhiyah et al., 2020b; Wahdini et al., 2021).

Apart from that, the social-neuroscience theory perspective conveys that risk taking in adolescence daily lives, including in behavior, increases during the transition from childhood to adolescence. It occurred as the result of changes in the socio-emotional system in brain structure during puberty (Steinberg, 2008). The changes lead to increased reward-seeking driven by dramatic remodeling of the brain's dopaminergic system. Meanwhile, Steinberg (2008) also stated that the increase of risk taking between childhood and adolescence is mainly caused by the increasing of sensation-seeking associated with changes in dopaminergic activity patterns during puberty.

Strengthening this perspective, Duell (2016) examined the dual system model and concluded that the increase of adolescent risk behavior is caused by an imbalance between the maturity of the brain system that functions as a processing center for reward seeking and another system that responsible for cognitive control. The reward seeking center matures in early adolescence while cognitive control does not mature until early adulthood yet(Duell et al., 2016; L. Steinberg et al., 2017). As a result, adolescences experience increased sensitivity to rewards that drives them to sensation-seeking behavior before they have matured self-regulatory capacities. Thus, self-regulation does not have a significant effect on adolescent risk behavior.

It was further explained that in the perspective of dual system models initiated by Steinberg (2008) or imbalance maturation, the behavior of middle and late adolescents is often described as the result of a developmental asynchrony between an easily aroused reward-seeking system, which fosters the adolescence tendency to seek sensations (sensation-seeking), and an inmature self-regulation system. As consequences, the ability of adolescents to resist the tendency to behave at risk is limited. Some researchers deliniate this imbalance as starting a car engine without a properly functioning braking system. Consistent with the conclusions of the dual systems model, sensation-seeking tendencies increase between preadolescence and late adolescence that peaking at age 19 and decreasing thereafter.

Cultural perspective review stated that reward-seeking can predict the risk-taking in adolescents, but self-regulation is not strong enough in predicting adolescent risk-taking in Asian countries. In contrast, both reward-seeking and self-regulation are quite strong in predicting risk - taking in Western countries. The reward-seeking effect on risk taking is stronger in countries with low Gross Domestic Product (GDP). On the other hand, in countries with high Gross Domestic Product (GDP), high self-regulation is associated with lower risk taking, including risk behavior (Duell & Steinberg, 2019). On the other hand, culture itself varies greatly so that the forms of self-regulatory expression will also vary greatly (Collins et al., 2014). So that, the finding of this result is not a thunderstruck anymore.

Indirect Influence

The results finding stated the influence of teacher - student relationships on adolescent risk behavior through self-regulation was not significant. It means that self-regulation is not effective in mediating the influence of teacher-student relationships on adolescent risk behavior. This finding is paradoxical with the results of the descriptive analysis which states that the level of respondents'

self-regulation is in a fairly high range. So, the initial assumption is that self-regulation will effectively mediate the influence of all exogenous variables on endogenous variables.

There are several analyzes that can be proposed regarding this matter, *firstly* because the direct influence of the teacher-student relationship variable on risk behavior itself is relatively small, although significant. This is in accordance with the finding that the teacher-student relationship is an important but not exclusive relationship. It means that this relationship does not stand alone but the result of the child's relationship with other adult's reflection. Thus, the role of teacher-student relationships in internal psychological development such as self-regulation is not an exclusive factor. Apart from that, the small coefficient value of the teacher- student relationships can be attributed to the formation of teacher-student relationships itself. This relationship formed from no-durable attachments which commonly referred as ad-hoc attachments. It contradicts with the character of attachment between parents and children which originates from comprehensive attachment. Because of that, teachers cannot completely replace the role of parents in school. So it is not surprising that the coefficient value is quite small. Second analysis is that the direct influence of self-regulation on reducing risk behavior worsens the first condition. As has been explained before, the influence of teacher- hild relationship on self-regulation has a small coefficient even though it is significant. So it is very unlikely that self-regulation will be effective in mediating the influence of teacher-student relationships on adolescent risk behavior. It is in accordance with another research stated that the significance of self-regulation is inconsistent in its role in the mechanism of behavior change (MOBC). Furthermore, this research claimed that self-regulation will play an effective role in the behavior change mechanism if it is accompanied by other stronger factors.

Implications

Implications from this finding are very widespread, especially in school environments, counselors and teachers. Therefore, this research suggests that teachers can improve their relationships with students by building the personal closeness, minimize the potential of conflict, provide high levels of support and strive for satisfaction in relationships.

Stakeholders in schools, especially school principals, are also expected to be able to formulate policies that lead to risk free behavior, such as emphasizing that smoking is prohibited, limiting interactions with the opposite sex and taking firm action against students who consume alcohol and illegal drugs, budgeting for an integrated intervention program. It is deemed necessary for guidance and counseling teachers to develop risk behavior prevention programs either conventionally or using other methods by using the results of this research analysis as a baseline.

Limitations and Strengths

This study has several methodological weaknesses that may affect the generalizability of these findings. First, this study developing an instrument to explore teacher - student relationships, self-regulation and risk behavior of adolescents using *self-* report. Although for the purposes of this research it is very sufficient, it is deemed necessary for future researchers to improve it in order to obtain more in-depth data.

Second, respondents tend to have concerns about instruments that assess their negative behavior. As consequences, the respondent has a bias potential and do not fully reflect actual conditions. However, in this study, precautions have been taken precisely in such a way that this condition does not have a major impact on the quality of respondents' answers. For example, by including informed consent as an introduction to the instrument that explains the confidentiality of respondents' answers and designing it in anonymous form. So, respondent's data cannot be detected through the survey sheet. It is expected that no faking good tendencies of respondents.

CONCLUSION

The finding shows that teacher-student relationship is a factor that influences self-regulation. This means that if students have a good relationship with the teacher through aspects of personal closeness, Low levels of conflict, high levels of support and strengthening the satisfaction relationships will have a positive influence on students' self-regulation. Teacher-student relationships also have a significant influence on adolescent risk behavior with a negative correlation pattern. It means that the better the relationship between teachers and students, the lower the level of risk behavior. It can be concluded that students who perceive their relationship with teachers positively through personal closeness, low levels of conflict, high support and satisfaction in relationships tend not to engage in risk behavior. In contrast, self-regulation has no effect on adolescent risk behavior. This means that partially, the influence of self-regulation on adolescent risk behavior is less significant. Thus, the persona context offered in this research is less meaningful. Meanwhile, the results of indirect analysis of teacher-student relationships on risk behavior through self-regulation show that teacher-student relationships have no influence on adolescent risk behavior through self-regulation. It means that self-regulation is not effective in mediating the influence of teacher - student relationships on adolescent risk behavior.

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All authors have read and approved the final version of the manuscript.

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