

Family cohesion and disruptive behavior among school adolescents: the mediating role of self-regulation

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ABSTRACT

Adolescents' disruptive behavior has become a global challenge. Even though the family environment has a considerable impact on adolescent disruptive behavior, this area has remained a blind spot in Ethiopian research. Hence, the present study was aimed at examining how family cohesion impacts adolescents' disruptive behavior using adolescents' self-regulation as a mediating variable. Data were collected from 304 adolescent students (155 males, 149 females) using 'the Problem Behavior Frequency Questionnaire', 'Family Cohesion Scale', and 'The adolescents' self-regulation inventory'. Correlational analysis, path analysis, and t-test were employed to examine relationships and differences. The statistical analysis yielded that disruptive behavior negatively correlated with family cohesion and self-regulation. However, the path analysis showed insignificant direct and indirect impacts of family cohesion on adolescents' disruptive behavior. This suggests that though family cohesion is vital in shielding adolescents from engaging in various disruptive behaviors, it may be ineffective if other family environment processes including family communication, control, and conflict resolution skills do not accompany it. Disruptive behavior among adolescents differed significantly by gender, with males more likely to engage in disruptive behavior than females.

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1. INTRODUCTION

Normative adolescent development does preclude the manifestation of some typical and unusual behaviors. However, these typical behaviors can sometimes evolve into more harmful, disruptive behaviors [1]. Different scholars describe these disruptive behaviors in different ways. For example, Schroeder and Boydston [2] characterized disruptive behaviors as a wide range of behaviors including disobedience, defiance, aggressive acts against self or others, drug use and abuse, stealing, lying, property destruction, and delinquency. In the same vein, according to Karimy *et al.* [3], disruptive behaviors in adolescents are characterized by defiance of authority figures, furious outbursts, lying, and stealing, among other behaviors. Similarly, Gadow *et al.* [4] described disruptive behaviors in adolescents as oppositional, aggressive, and rule-breaking behavior.

The risk of adolescents with disruptive behavior later in life includes dropping out of school [5]; difficulty of understanding and managing emotions [1]; developing antisocial personalities [6]; and, developing mental health and drug abuse problems [7]. It is also linked to criminal activity, imprisonment, the difficulty to forge and maintain meaningful relationships, social isolation, risky sexual behavior, and

learning difficulties [1], [8]. Disruptive behavior can be observed by adolescents of both gender [9], although the manner in which the two gender manifest it differs. Unlike adolescent boys who engage in aggression like physical assault, female adolescents engage in relational aggression, including threats of withdrawing acceptance or friendship, ostracizing, or spreading rumors [10]; lying/cheating, stealing, running away from home, swearing, truancy, alcohol or drug use [11].

The causes of disruptive behavior in adolescents are not completely understood as of yet [3], [12]. However, previous research conducted in this area considered dysfunctional family environments with less cohesion and more conflicting experience as a more likely candidate to contribute to the problem [13], [14]. The emotional ties that family members have to one another are what researchers refer to as family cohesion [15]–[19].

Numerous previous studies showed that low family cohesion is associated with different disruptive behaviors in adolescents. For example, in adolescents, low family cohesion is associated with more externalizing problems [20], [21]; aggression, depression, poor social adjustment [22]; feelings of loneliness, social anxiety, avoidance of social interaction, and interpersonal relationships [23]; smoking a cigarette [24]; internalizing problems [25]; associated with different problem behaviors in adolescents [26]. However, a cohesive family relationship can also protect adolescents from different disruptive behaviors. For instance, a cohesive family reduces substance abuse and delinquency in adolescents [27]–[29]; it is inversely related to psychological problems, defiant behavior, and heavy drinking in adolescents [30]. Despite these findings being important for highlighting the unique importance of family cohesion on adolescents' disruptive behavior, little is known about the mechanism through which family cohesion affects it. A number of studies conducted in Western countries have found a direct link between self-regulation and pro-social behavior in adolescents [31].

Self-regulation is an important attribute that prevents adolescents from engaging in disruptive behaviors [32]–[34]. Self-regulation is crucial for the growth of socio-emotional competence and has detrimental effects on adolescent development [35], [36]. For instance, when emotional regulation difficulties become externalized, they might show up as hostility and rule-breaking in settings such as schools and other social gatherings, with severe repercussions [37], [38].

Self-regulation and family cohesion are favorably connected. Higher levels of positive affect, connection, and constructive interactions among family members have been shown to be predictive of future self-regulation or changes in self-regulation through time [39]. On the other hand, poor family interaction and communication are inversely correlated with self-regulation in adolescents [40]. As such, the goal of the present study was to examine whether self-regulation or the ability to manage one's thoughts, feelings, and actions [41], mediates the relationship between family cohesion and disruptive behavior among adolescents.

Adolescents aged 10 to 19 years are estimated to make up 26% of Ethiopia's population [42]. The rise in the number of adolescents coupled with life challenges (such as poverty, unemployment, conflict, recurrent droughts, wars, and an increasing number of divorces) can result in increases in family dysfunction, which may result in an increase in various problematic behaviors among adolescents, including disruptive behavior. In line with this, Ryan, Claessens, and Markowitz [43] revealed that low-income families have low emotional resources which may impede parent-child interactions as well as child well-being, ultimately leading to problem behaviors in children and adolescents. Adolescents in the Harari regional state seem to be in a similar predicament.

Although disruptive behaviors among adolescents are across Ethiopia [44]–[48], there are circumstances that make disruptive behaviors among adolescents in Harari regional state more likely. Unlike other regions in Ethiopia, it is a normal practice in the Harari region to consume an addictive substance (Khat) on a regular basis regardless of gender, age, marital and academic status, religious background, or other factors. Yet, it is well established that parents with a history of substance use are likely to have children with different problem behaviors [49]. Parents with substance use and abusive histories are likely to have dysfunctional families; unfortunately, some adolescents in the region are prone to be raised in families that may predispose them to such behavior.

Despite the fact that this area deserves researchers' attention, no studies have been conducted so far to examine the influence of family cohesion on adolescents' disruptive behaviors in Ethiopian contexts, particularly Harari regional states, by using adolescents' self-regulation behaviors as a mediating variable. Hence, this research was conceived to address this gap by asking the following guiding questions: i) Is there a significant relationship between family cohesion, adolescent self-regulation, and disruptive behaviors in adolescents?; ii) Does family cohesion have a significant and direct effect on adolescents' disruptive behaviors?; iii) Does self-regulation have a significant mediating effect on the relationship between family cohesion and adolescents' disruptive behaviors?; iv) Is there a significant gender difference in adolescents' disruptive behavior?

2. RESEARCH METHOD

2.1. Research design

A correlational research design was used to address the objectives of the study. The design was chosen to investigate the relationships between predictor and criterion variables. With the use of this design, it is possible to measure, characterize, and explain the relationship between two or more sets of scores or variables.

2.2. Study area

The Harari regional state, Ethiopia is where the study was carried out. One of Ethiopia's oldest and most well-known cities, Harar is situated in the eastern portion of the Ethiopian Highlands. It is situated 522 kilometers to the east of Addis Ababa, the capital of Ethiopia. The elevation of Harar is 1,885 meters above sea level. A total of 183,344 populations are residing in the area as of right now. Orthodox Christianity, which is practiced by about 27% of the city's population, is followed by Islam, which is followed by the majority of the population (69%) in the city. The region is a host of different ethnic groups including, Oromo, Amhara, Harari, Gurage, and others. There were 12.5% of children under the age of 18 live either with only one parent or alone because of parental loss [42]. Furthermore, 10.15% of marriage ends in divorce. Unemployment and illiteracy are also commonly reported challenges in the region [42]. Chat (also known as Khat), a cash crop product, is the primary source of income for many urban inhabitants.

2.3. Participants of the study

Participants of the present study were drawn from two randomly selected senior secondary schools in Harari Regional State. One school was from a government school (i.e., Shekib Senior Secondary School) and the other was from a privately owned senior secondary school (i.e., Save our souls also known as SOS Academy). Belay and Abdinasir formula [50] for the non- single population was used to determine the study's sample size. According to Belay and Abdinasir [50], the sample size (n) is the function of the factors (X_i) and categories (C_k) that are involved in the research, so that a minimum of 10 observations are needed for each category of a factor $n = (C_{f1} \times C_{f2} \times C_{f3} \times \dots \times C_{fn})$. Where, n =sample, C_{f1} =the number of categories of factor 1, C_{f2} =the number of categories of factor 2, C_{f3} =the number of categories of factor 3, and C_{fn} =the number of categories of factor n .

Accordingly, a total of 325 students participated in the study, of whom 252 (129 male and 123 female) were from the Shekib Senior Secondary School and 73 (37 male and 36 female) were from SOS Academy. The sample size of the participants selected from each school was determined based on the respective schools' total number of students. However, of the 325 students surveyed, 21 either did not return the questionnaire or responded incorrectly or inappropriately. Therefore, the data analysis was based on 304 respondents, of whom 155 were male and 149 were female.

2.4. Instruments of data collection

A self-report instrument was used to collect data on four important issues. Part one dealt with Participants' demographic information (Part I). Part two dealt with Problem Behavior Frequency Scale (PBFS) that used to measure disruptive behavior in adolescents (Part II). Part three dealt with Family Cohesion scale (Part III) that was employed to measure family relationship, and the final section (Part IV) was sacrificed for Self-Regulation Inventory- used to measure self-regulation behaviors in adolescents.

2.4.1. Disruptive behaviors in adolescents

To measure adolescents' disruptive behaviors, PBFS was employed. The scale contains 26 items that cover four general areas of problem behaviors in adolescents, namely: i) physical aggression; ii) nonphysical/relational aggression; iii) delinquent behavior; and iv) drug use. Responses were based on a 6-point scale: 1 (never) to and 6 (20 times or more). Higher scores indicate more involvement in disruptive problem behaviors. Sample items of the scale are: threatening a teacher, spreading a rumor, being suspended from school for bad behavior, damaging school or other property that did not belong to you, smoked cigarettes. The number of items and alpha coefficients for the (PBFS-26) subscales are as: drug use dimension (6 items and $\alpha=0.87$); for the physical aggressiveness dimension (7 items and $\alpha=0.85$); for non-physical/ relational aggression (7 items and $\alpha=.85$); for delinquent behavior dimension (6 items and $\alpha =.79$). Further, regarding factor structure of the scale a reasonable model fit results were reported, such as Comparative Fit Index (CFI)=0.93 [30].

2.4.2. The family cohesion scale

The measure was adapted from the Brief Family Relationship Scale. There were eight components on the scale used to gauge family cohesiveness. Participants are needed to rate how much they agree with each of the statements on a scale using a 5-point Likert scale. A high score on the scale indicates greater

interactions and bonds among family members and vice versa. “There is a feeling of oneness in our family,” is an example item on the scale. High internal consistency Cronbach alpha ($=0.92$) was reported with reference to the scale's internal consistency [51].

2.4.3. Adolescents self-regulatory inventory (ASRI)

The adolescents self-regulatory inventory (ASRI) was originally developed by [39] to measure adolescents' self-regulation. The 27 items on the scale are divided into two factors: short-term self-regulation and long-term self-regulation, each comprising 13 and 14 items, respectively. Sample items of the scale are: “I forget about whatever else I need to do when I am doing something really fun”; “I can calm myself down when I am excited or all wound up”; “If I really want something, I have to have it right away”. On a scale of 1 (not at all true for me) to 5 (really true for me), respondents are asked to rate how true each statement is for them. Greater self-regulatory behavior is indicated by higher ASRI scores and vice versa. Regarding the scale's internal consistency, Cronbach's alpha coefficients of .80 for the overall scale, .70 for short-term self-regulation, and .82 for long-term self-regulation have been reported, respectively [39].

2.5. Pilot study

There were five subject-matter experts checked the content and face validity of the scale. After reviewing the instrument's relevance, appropriateness, clarity, and conceptual scope, they endorsed the scale for use. Once the scales were modified as per expert comments, the scales were then translated to the native languages (Amharic and Afan Oromo). Data collected from the participants were analyzed using Cronbach alpha internal consistency reliability followed by exploratory and confirmatory factor analysis. Exploratory factor analysis made for the problem behavior frequency scale, seven items with low loading effect and cross loading on more than one factor were removed such that for physical aggression dimension=5 items ($\alpha=.807$); for relational aggression=4 items ($\alpha=.803$); for delinquency dimension=4 items ($\alpha=.724$); and drug use dimension=6 items ($\alpha=.77$) were obtained respectively. Confirmatory factor analysis was used to examine the model fit, Minimum Discrepancy Function (CMIN)=431.03, CMIN/DF Minimum Discrepancy Function by Degrees of Freedom divided (CMIN/DF)=2.95, Comparative fit index (CFI)=.901, and root mean square error of approximation (RMSEA)=0.080.

Following factor analysis made with family cohesion scale a Cronbach alpha ($\alpha=.94$), CMIN=371.5, CMIN/DF=2.8, CFI=.942, and RMSEA=0.07 were reported, respectively. Like other scales used in the study, the Self-regulation scale was subjected to Exploratory factor analysis to which it has maintained the two original dimensions of the scale with Cronbach alpha coefficient for short-term self-regulation (7 items; $\alpha=.825$) and long-term self-regulation (12 items; $\alpha=.95$) respectively. Confirmatory factor analysis was also made to examine the fitness of the model obtained through exploratory factor analysis such that the obtained result was fit; CMIN=439.73, CMIN/DF= 2.95, CFI=.925, and RMSEA=0.080, respectively.

2.6. Procedures

Since English is a foreign language to high school students, they could find it challenging to understand the meaning of the survey questionnaire as needed. Therefore, the questionnaires were translated into Amharic and Afan Oromo by language experts before being used to collect data. After all the participants were in their respective classrooms, the researchers introduced themselves to the participants. The purpose of the study was then explained to the students in order to secure their consent to take part in it. Following the acquisition of the students' consent to participate in the study, a mutually convenient time for the students to complete the survey questionnaire was established. Then, survey questionnaire was administered and collected back accordingly.

2.7. Data analysis

Data cleaning was done after the data were gathered, coded, and encoded into the SPSS Window, version 24. Missing and incomplete responses were eliminated, and the data were then prepared for further analysis. The Pearson product-moment correlation coefficient was used to examine the correlations between the study's variables. To test the adequacy of the hypothesized model, a structural equation modeling (SEM) which allows for statistical analyses to account for measurement errors in latent variables was used [52]. To determine whether there is a statistically significant gender difference in adolescents' disruptive behavior, perceived family cohesion, and self-regulation, an independent t-test was used.

2.8. Ethical considerations

The ethics committees of the respective high schools reviewed the instruments of data collection and approved to conduct of the study. Additionally, participants were made aware that their participation was optional and that they might end the data collection process at any time. In order to safeguard their

anonymity, participants were also told not to write their names on the questionnaires. Moreover, participants were also guaranteed that the information collected from them would be used solely for this study and that the information they submit will not be shared with anybody.

3. RESULTS AND DISCUSSION

3.1. Results

3.1.1. Socio-demographics

A total of 304 (male=155 and female=149) adolescents participated in the study. While 29.6% of respondents come from non-intact homes, around 70.4% of respondents were raised in intact families. Participants in the study ranged in grade level from 9th to 20th. In terms of their age range, they are within the age bracket of 14 to 20.

3.1.2. Descriptive summary of the study variables

Descriptive statistics (mean and standard deviation) were used to produce summary statistics for the study variables. The prevalence of disruptive behaviors is higher among male adolescents ($M=15.34$) than female adolescents ($M=11.68$). There were no evident gender differences among adolescents when it comes to perceived family cohesion. Self-regulation is lower among male adolescents (mean=58.14) than among female adolescents (mean=63.05) as presented in Table 1.

Table 1. Summary of the mean and standard deviation of study variables

	Gender	Disruptive behavior	Cohesion	Self-regulation
Female	Mean	11.68	35.62	63.05
	N	149	149	149
	Standard deviations (SD)	7.960	6.224	15.900
Male	Mean	15.34	34.44	58.14
	N	155	155	155
	SD	12.984	7.945	17.1
Total	Mean	13.55	35.02	62.38
	N	304	304	304
	SD	10.953	7.166	16.006

3.1.3. Levels of the study variables (disruptive behavior, family cohesion, and self-regulation)

The mean is used to categorize the sample and determine the number of cases scored above the mean in order to determine the degree of family cohesion, disruptive behavior, and self-regulation of adolescents in the research area. As shown in Table 2, out of the total 304 respondents, 197 (64.8%) consider their particular family environments as highly cohesive. While the majority of respondents reported modest levels of disruptive behavior, 123 respondents (40.46%) reported relatively high levels. A considerable number of respondents, 141 (46.36%), reported having a high level of self-regulation, while many reported having a low level of it.

Table 2. Levels of disruptive behavior, family cohesion, and self-regulation

Variables	No	No of cases	No of items	Min	Max	Mean	SD	Percent
Cohesion	304	197	8	8	40	35	7.1	64.8%
Disruptive behavior	304	123	19	0	76	13.55	10.5	40.46%
Self-regulation	304	141	19	26	95	62.38	16.01	46.36%

Note: The total number of respondents who scored above the mean is implied by the number of cases. Percentage implies the proportion of the sample that scores above the mean on the variables

3.1.4. Gender by the study variables (disruptive behavior, family cohesion, and self-regulation)

To determine whether there is a statistically significant gender difference among adolescents in disruptive behavior, family cohesion, and self-regulation, an independent t-test was conducted. The gender difference in their participation in different disruptive behaviors was statistically significant, as indicated in Table 3 ($t=2.94$, $P<.003$). This suggests that male adolescents ($M=15.34$) are more likely than female adolescents ($M=11.68$) to engage in disruptive behavior. There was no statistically significant gender difference in perceived family cohesion ($t=1.43$, $P>0.05$). A statistically significant difference in self-regulation in adolescents was observed ($t=-2.54$, $P<0.05$).

Table 3. Independent sample t-test result of gender difference in adolescents' disruptive behavior, perceived family cohesion, and self-regulation

Variable	Gender	N	Mean	SD	t-value	Df	p-value
Disruptive behavior	Male	155	15.34	7.9	-2.94	302	.003
	Female	149	11.68	6.3			
Family cohesion	Male	155	34.44	7.9	1.43	302	.152
	Female	149	35.62	6.22			
Self-regulation	Male	155	58.14	17.1	-2.54	302	.011
	Female	149	63.05	15.9			

3.1.5. Correlation among the variables of interest

Pearson product-moment correlation coefficient was employed to examine the relationship among variables of interest. Accordingly, a statistically significant correlation between gender and disruptive behavior was revealed ($r=.167$, $P<0.001$), as shown in Table 4, suggesting that the likelihood of male adolescents engaging in various disruptive behaviors is higher than that of female adolescents. The result revealed a statistically significant negative relationship between adolescent disruptive behavior and family cohesion ($r=.115$, $P<0.05$). This suggests that when family cohesion improves, adolescents' disruptive behavior diminishes. In the same line, self-regulation and disruptive behavior in adolescents have a statistically significant and negative association ($r=-0.345$, $P<0.001$). This suggests that adolescents with stronger self-control are less prone to engage in various disruptive behaviors. Family cohesion and self-regulation were shown to be statistically significantly correlated, as were gender and self-regulation.

Table 4. Zero-order correlation coefficients among major variables of the study (n=304)

Variables	Gender	Disruptive behavior	Family cohesion	Self-regulation
Gender (Male=1, Female=0)	1			
Disruptive behavior	0.167**	1		
Family cohesion	0.082	-0.115*	1	
Self-regulation	0.41**	-0.345**	0.21**	1

**Correlation is significant at the 0.01 level (2-tailed).

3.1.6. The mediating role of self-regulation

To examine whether self-regulation mediates the relationship between family cohesion and disruptive behavior in adolescents, a mediational analysis was made. As shown in Table 5, although a statistically significant and negative relationship between family cohesion and disruptive behavior in adolescents was found (Table 4), the reported total effect ($=-0.095$, $p>.001$), direct effect ($=-0.070$, $p>.001$), and indirect effect ($=-0.025$, $p>.001$) were all insignificant. This implies that, though family cohesion is important in shielding adolescents from engaging in different disruptive behavior, family cohesion alone is insufficient to shield adolescents from engaging in various disruptive behaviors when it is not accompanied by other family environment processes such as communication and conflict resolution skills. In fact, self-regulation is found to directly affect disruptive behavior in adolescents ($\beta=-.340$, $p<.001$). Hence, self-regulation does not mediate the relationship between family cohesion and disruptive behavior in adolescents.

Table 5. Meditation analysis

	Unstandardized estimation	Standardized estimation	P-value
Total effect	-.146	-.095	.113
Direct effect	-.108	-.070	.177
Indirect effect	-.038	-.025	.161
Self-regulation → disruptive behavior	-.232	-.340	.001

3.2. Discussion

Family cohesion (emotional ties between family members) is undeniably significant in protecting adolescents from indulging in various disruptive behaviors. Increasing family cohesion can reduce adolescents' engagement in various disruptive behaviors, as evidenced by the statistically significant negative relationship between family cohesion and disruptive behavior in adolescents. Contrary to our expectation, meditation analysis, which models and explicitly controls measurement errors and prediction errors in structural equation modeling, did not reveal a direct or indirect effect of family cohesion on adolescents' disruptive behavior when self-regulation was included as a mediating variable. This could be explained as that while family cohesion or emotional connection among family members can protect adolescents from

engaging in various disruptive behaviors, family cohesion or emotional connection among family members alone does not foster a quality of controlling once wild behavior and interest that pushes adolescents to engage in various problem behaviors.

In the same vein, previous research studies suggested that both high family cohesion (enmeshed) and extremely low family cohesion (disengaged) are hazardous for individuals and relationship development in the long run. For example, according to Barber and Buehler [51], enmeshment (a strong emotional attachment between family members that is not accompanied by control, demand, or accountability) has associated with a variety of disruptive behaviors in adolescents. In support of this notion, Marsiglia *et al.* [53] stated that contrary to the widely accepted idea that high family cohesion is associated with positive behaviors in adolescents, in some cultures, high cohesion is viewed as a barrier to independence, particularly among adolescents that could trigger them to participate in different problem behaviors. In the same vein, Baumrind [54] claimed that in families where parents rarely control their children's behavior and place little demands on them, but allow their children to enjoy everything on the other hand, their children will struggle to develop self-control skills, which may lead them to engage in a variety of problem behaviors. Though self-regulation alone was found significant in influencing adolescents' disruptive problem behaviors, in the present study, self-regulation is not significant in mediating the relationship between family cohesion and disruptive behavior in adolescents. Therefore, self-regulation does not explain the relationship between the independent variable (family cohesion) and the dependent variable (adolescent disruptive behavior).

Male adolescents were shown to be more involved in disruptive behavior than their female adolescent counterparts, which supports the generally held belief that male adolescents are more engaged in disruptive behaviors than their female adolescent counterparts. In support of this finding, the abundance of research in this area asserted that male adolescents are more involved in disruptive behavior than their female counterparts. For instance, males are more likely than females to offend at every age [55], male engage in more overtly aggressive behavior than female of their age [56], male bully more often than female [57], male engage in more aggressive and antisocial behaviors as adolescents [58], beginning in childhood and continuing into adulthood, male engage in more criminal and disruptive activities than females of their counterparts [59]. In a similar vein, male were more than twice as likely as female to engage in disruptive behaviors [60]. Different explanations have been forwarded for this gender difference in disruptive behaviors. For instance, in family socialization practices, mothers pushed their daughters more than their sons to act pro-socially and care about others and the female were rewarded more for their shyness than the male [49]. On the other hand, adolescent male violent and disruptive behaviors are likewise linked to elevated testosterone levels in male [59].

4. CONCLUSION

Though family cohesion is important in protecting adolescents from engaging in various disruptive behaviors, family cohesion alone is insufficient to protect adolescents from engaging in various disruptive behaviors when it is not accompanied by other family environment processes including communication, conflict resolution skills, and the like. Hence, other family environment processes should be considered when examining predisposing and protecting factors for disruptive behavior in adolescents. Male adolescents are more likely than their female counterparts to engage in disruptive behavior. There are a variety of challenges that could result from this problem later in life, including dropping out of school; not being able to understand emotions; developing an antisocial personality; substance abuse, and mental health problems. Hence, intensive training and orientation that involve adolescents and their parents should be organized by the concerned bodies such that it is possible to minimize disruptive behaviors in adolescents. Because self-regulation is so important for preventing adolescents from engaging in various disruptive behaviors, life skill training focusing on fostering self-control abilities should be organized for the study area's adolescents.

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