



Rural Adolescents' and Caregivers' Perceptions of Family Functioning: Association with Depression

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Abstract

Purpose: We examined whether divergent views on family functioning among rural adolescents and their caregivers were associated with adolescents' depression, after controlling for age, gender, and race/ethnicity.

Methods: Data were collected in 2015 from 493 adolescents aged 13 - 19 years in grades 8-12 and 410 caregivers who lived in a rural county in the Southeastern United States. We distributed confidential questionnaires to sampled participants who completed them at home. We used a paired sample t-test to examine perceptions of family functioning among adolescents and caregivers. Linear and multiple regression analyses were conducted to examine whether different perceptions of family functioning among adolescents and their caregivers were associated with adolescents' depression, controlling for age, gender and race/ethnicity.

Results: Rural adolescents and their caregivers had significantly different perceptions of family functioning. Their divergent views were significantly associated with adolescents' depression when controlling for age, gender and race/ethnicity.

Research Implications: Findings of this study are important for clinical practice in rural areas, which should develop some sustainable surveillance mechanisms and run regular care campaigns to emphasize the importance of early identification of depressive symptoms and their systemic monitoring to improve adolescents' developmental trajectory and reduce the potential of disruption of adolescent-parent relationships within the family.

Keywords: *Rural Adolescents; Caregivers; Family Functioning; Depression; Parent-Adolescents Relationships*

Introduction

Adolescence, which is typically defined as the period of development between the ages 10-19 years (World Health Organization, 2018), represents a challenging transition from childhood to adulthood (Sawyer et al., 2018). It is characterized by rapid physical, cognitive, and psychological development of individuals (Erickson, 1963; Moshman, 2011). During this life phase, adolescents face new experiences, expand their exposure to social contexts, make increasingly individual decisions, and increase their social roles (De Los Reyes, & Ohannessian, 2016; Santrock, 2014; Sawyer et al., 2012; Smetana et al., 2006). As adolescents develop and negotiate their autonomy, their relationship with their parents changes (Marceau et al., 2015), while peer pressure increases over time and may expose them to different values. When these values do not fit with family expectations, then family conflict, tension and adolescent-parent disagreement increases (De Los Reyes et al., 2012; De Los Reyes, & Ohannessian, 2016; Smetana et al., 2006).

Family is an important social unit where adolescents grow and develop (Dai, & Wang, 2015; Human et al., 2016; Ogwo, 2013). This family environment influences adolescents' functioning (Gavazzi, 2011; Human et al., 2016), their mental health (Nasir et al., 2010; Restifo, & Bogels, 2008; Zarnaghash et al., 2013), behavior (Benson, & Buehler, 2012; Kim, & Kim, 2008; Owrangi et al., 2011) and emotions (Freed et al., 2016; Rawatlal et al., 2015). Several studies have indicated that adolescents and caregivers have different perceptions of family functioning (Nelemans et al., 2016; Ohannessian, & De Los Reyes, 2014; Ohannessian et al., 2016). They mostly relied on data collected from urban samples. Limited research conducted with rural multiple informants showed that adolescents and their caregivers do indeed respond to the family assessment device in similar ways (Sianko, & McDonell, 2020).

Researchers argue that closeness, interactions, and relationships that adolescents develop with their parents differ by gender and race/ethnicity (Cross et al., 2018; Marceau et al., 2015). Studies have shown that mother-son closeness decreases as adolescent sons seek more autonomy, while adolescent girls are encouraged to express more emotional support to the family (Cross et al., 2018). However, the existing literature on perceptions of family functioning is somewhat limited as it has been explored without addressing differences by gender (Ohannessian, & De Los Reyes, 2014) or race/ethnicity.

Depression in Adolescence

Even though it is argued, that adolescence represents a healthy age group (Surya Prabha et al., 2017), depression is common among adolescents and represents a serious public health concern worldwide (WHO, 2012). Depression is a mental health disorder caused by a complex combination of social, biological, and psychological factors (Bailey et al., 2019; Wartberg et al., 2018; WHO, 2018). Its incidence sharply rises during the transition from childhood into adolescence (Merikangas et al., 2010; Nalugya-Sserunjogi et al., 2016). This multifactorial proportionally increases with age as individuals move from childhood into adolescence and includes all people regardless of their background, gender, and race/ethnicity (Bailey et al., 2019). Worldwide statistics on adolescents' depression do not show uniform international trends (Wartberg et al., 2018). For instance, the assessment of depression trends among adolescents in Canada during the period 2000-2014 showed that the prevalence of depressive symptoms did not change over the past 15 years (Wiens et al., 2017). However, the assessment of depression trends among adolescents in the United States shows that the prevalence of depressive symptoms is on the rise (Mojtabai et al., 2016). Using data from the 2017 National Survey on Drug Use and Health, Twenge et al (2019) found that major depressive episodes among American adolescents aged 12-17 years increased from 8.7% in 2005 to 13.2% in 2017. This increase was higher among adolescent girls, increasing from 13.1% in 2005 to 19.9% in 2017. During the period 2011-2017, the incidence of depression increased with age respectively, from 4.16% to 6.73% for adolescents aged 12-13 years and from 8.68% to 12.42% for those aged 18-19 years. The prevalence of depression in the United States was

higher among white adolescents followed by Hispanic/Latino and Black or African Americans (Substance Abuse and Mental Health Services Administration [SAMHSA], 2018).

Although depression may express itself in different ways, the main symptoms of a depressive episode in adolescence include low mood, lack of interest, loss of joyfulness, lack of energy, and increased fatigability (Mokdad et al., 2016; Sabaté et al., 2013; SAMHSA, 2018). Studies have shown that depressive symptoms co-occur with low self-esteem (Derdikman-Eiron et al., 2011; Tripković et al., 2015), suicidal ideation and attempts (Lipschitz et al., 2012; Mokdad et al., 2016), and with various physical and psychiatric co-morbidities including anxiety and attention deficit hyperactivity disorder (Black et al., 2012; Sabaté et al., 2013; Sandal et al., 2017; Weller et al., 2018).

Depression in adolescence is of paramount importance because it has significant consequences for social, psychological and academic functioning of adolescents, including substance abuse (Cherif et al., 2012; SAMHSA, 2018), social difficulties, and poor social wellbeing (Sijtsema et al., 2014). Depression is more common among females (Black et al., 2012; Savioja et al., 2015; Surya Prabha et al., 2017), adolescents aged 13-18 years than those younger than 13 years old (Sabaté et al., 2013; SAMHSA, 2018; Wichstrøm et al., 2012), adolescents with a family history of depression (Kendall et al., 2010; Bodner et al., 2018), those with a negative body image, and adolescents with poor school performance (Wartberg et al., 2018). Various adverse experiences and family processes contribute to the development of this internalized problem (Bodner et al., 2018; Rawatlal et al., 2015). Some scholars have argued that divergent views about family functioning among adolescents and their caregivers might be an important factor in youth depression (Bodner et al., 2018; Ohannessian et al., 2016).

Previous research suggests that life in rural areas exposes adolescents to various health disadvantages, including high rate of injuries, high rates of chronic diseases, and poor medical service that may lead to depression and social isolation (Fontanella et al., 2015). However, depression among rural adolescents is under-researched (Black et al., 2012; Smokowski et al., 2013). Moreover, to date research on rural adolescents' and caregivers' perceptions of family functioning and possible associations with adolescent depression is very limited (Sianko et al., 2019). Therefore, this study is intended to address this gap.

Family Functioning and Its Association with Adolescents' Depression

The family is a dynamic social structure where adolescents develop, look for more freedom, seek more opportunities to participate in decision-making, and renegotiate their autonomy (Noller, & Atkin, 2014). The Family System Theory views family as an organized, dynamic and living whole composed of individuals who are interdependent and reciprocally affect each other (Noller, & Atkin, 2014). This emotional unit is influenced by various circumstances that operate inside and outside its membership, shaping its members and the family as the whole system (Hafner 2014; Kitzman-Ulrich et al., 2010). Family functioning refers to the characteristics of the family unit, its structural and organizational properties, the nature of interactions between family members, and reactions to them (Atkin et al., 2015; Winek, 2010).

The McMaster Model of Family Functioning that is based on the Family System Theory assumes that the main function of the family system is to create an appropriate environment for its members that promotes their psychological, biological, and social development through completing several tasks including problem-solving, behavior control, exchange of information, affective involvement, roles and affective responsiveness (Miller et al., 2000). This model views each part of the family as being interconnected with every other. Thus, none of the components can be understood in isolation. It underscores the fact that family structure, organization and interactions shape the behavior of all its members (Miller et al., 2000; Pereira et al., 2015). Scholars' attention has been focused on the quality of family functioning because it matters for adolescents' mental health and their subjective wellbeing

(Davids et al., 2016; Nasir et al., 2010; Pereira et al., 2015; Rawatlal et al., 2015). Studies have distinguished healthy family functioning from poor family functioning. Healthy family functioning consists of a supportive family environment where its members have warm, constructive and respectful relations based on well-defined roles, are emotionally mature, and have autonomy to effectively cope with changes (Alderfer et al., 2008; Compton, & Hoffman, 2012).

Research has shown that healthy family functioning is positively correlated with adolescents' autonomy (Mulyati, & Martiastuti, 2018), their resilience (von Soest et al., 2010), improved communication skills (Atar et al., 2016), and protection from being involved in sexually risky behaviors (Córdova et al., 2011) and substance abuse (Kelley et al., 2011; Kopak et al., 2012). Conversely, poor family functioning consists of an unsupportive and uncomfortable family environment that lacks friendly communications, suffers from high levels of conflict, and shows disorganization and poor behavioral control (Alderfer et al., 2008; Fleming, 2015). Research has shown that poor family functioning is associated with family crises, inconsistent discipline, adolescents' adjustment problems (Mackova et al., 2019), depressive symptoms and anxiety of adolescents (Jozefiak, & Wallander, 2015; Yap et al., 2014), emotional isolation and insufficiency (Kapci, & Hamamci, 2010), low self-esteem (Mandara, & Murray, 2000; Phillips, 2012), and low life satisfaction of adolescents (Butler, 2015).

Adolescents' and Parents' Perceptions of Family Functioning

Scholars argue that self-reports of multiple informants (primarily adolescents and their parents) are important to assess family functioning (De Los Reyes, & Ohannessian, 2016). The convergence or divergence of their perceptions may affect an adolescent's development (Human et al., 2016) and their morbidity (Bodner et al., 2018). The convergence of the scores of the adolescents and their parents on family functioning denotes a common understanding of family dynamics (De Los Reyes et al., 2013) which, in turn, can lead to low levels of adolescent' maladjustment, depression (Laird, & De Los Reyes, 2013), and behavior problems (Reynolds et al., 2011). On the other hand, researchers also found that adolescents and caregivers have different perceptions about family functioning. In their two-wave longitudinal study with 497 ethnic Dutch adolescents, their 497 mothers and 446 fathers, Nelemans et al. (2016) found that adolescents assigned lower scores to their self-reported perceptions on family functioning than their parents did. This finding was also reported in other studies (Ohannessian, & De Los Reyes, 2014; Ohannessian et al., 2016; Sianko, & Meçe et al., 2019; Stuart, & Jose, 2012). However, limited research with rural adolescents and their caregivers tried to examine whether they responded to the same construct when family functioning was measured. Findings provided evidence that the short version of the family functioning measure could be used across different populations and at different time periods (Sianko, & McDonell, 2020). Nevertheless, few studies included participants from rural areas (Sianko et al., 2019; Sianko, & Meçe et al., 2019).

Researchers usually face difficulties interpreting discrepant estimates of adolescents' and caregivers' reports on family functioning. Previous research has revealed a low-to-moderate correspondence of adolescents' and caregivers' views (De Los Reyes, & Ohannessian, 2016). Scholars tried to explain this discrepancy with stage-environment fit theory (Eccles et al., 1993) that assumes the optimal development of young adolescents occurs when there is a good stage-environment fit between the adolescents' increasing desires for autonomy and their views about the opportunities for independence outside home provided by their parents. The mismatch between adolescents' desire for autonomy and their perceptions about available opportunities provided by their parents for outdoor independence causes strained relationships and adolescents fare poorly in the family (Eccles et al., 1993). Previous research found that divergent perceptions of family functioning are associated with adolescents' depressive symptoms (Reynolds et al., 2011), suicidal ideation (Lipschitz et al., 2012), emotional detachment from the family (De Los Reyes, & Ohannessian, 2016), and maladaptive adolescent adjustment (Goodman et al., 2010). However, none of these studies sampled rural adolescents. Therefore, the association between

rural adolescents' and caregivers' perceptions on family functioning and rural adolescents' depression is under-studied.

Challenges faced by Rural Adolescents

The adolescent population represents 13% of the U.S. total population, of which 14.3% live in rural areas (Bolin et al., 2015). Studies have documented that rural areas are medically underserved while adolescents' health choices are limited due to the lack of positive role models within the family and community to discuss various mental and sexual health issues, which would help them obtain realistic health information (Miller et al., 2018). Poor mental health indicators, including depression, are higher in rural versus urban communities (Center for Behavioral Health Statistics and Quality, 2018; Fontanella et al., 2015; Meit et al., 2014; Smokowski et al., 2013). The literature also suggests that high levels of poverty and deprivation (Bolin et al., 2015; Morton et al., 2018), family structure and instability (Conger, 2011), social isolation and weak social support networks (Fontanella et al., 2015), lower educational attainment compared to their urban peers (Bolin et al., 2015), and lack of access to specialized health services (Black et al., 2012; Erwin et al., 2010; Meit et al., 2014) are likely to perpetuate adolescents' feelings of uselessness, depression, and suicide.

Rural adolescents have higher suicide rates (Fontanella et al., 2015), experience more stress than adolescents in urban areas, report lower wellbeing (The U.S. Department of Health and Human Services, 2015; Yeresyan, & Lohaus, 2014), and are more likely to abuse substances than their urban peers (Monnat, & Rigg, 2015). In their study with 4,321 adolescents from grades 6 through 8 who lived in two rural counties in the U.S, Smokowski et al. (2013) found that being female, poor family relationships, and negative relationships increased the probability of depressive symptoms reported by rural adolescents. However, there are few studies on the assessment of the association between rural adolescents and caregivers' perceptions of family functioning with adolescents' depression (Sianko et al., 2019).

Limited research has examined the association of rural adolescents' depression with the demographic variables of age and gender. Mixed findings were found with regard to depression and age of adolescents (Ajaero et al., 2018; Butler, 2015; Chakraborty et al., 2016) while depression among rural female adolescents was higher than among rural male adolescents (Black et al., 2012; Chakraborty et al., 2016; Smokowski et al., 2013; Surya Prabha et al., 2017). Association of adolescents' depression with race/ethnicity was documented in several studies conducted in the US which concluded that depression is highest among white adolescents, Hispanic and those who report being of mixed race (Center for Behavioral Health Statistics and Quality, 2018; Mojtabai et al., 2016; SAMHSA, 2018). Studies on depression among rural adolescents of different races/ethnicities are lacking in the literature.

In summary, the review of the literature demonstrated that little is known about the association between adolescents' and caregivers' perceptions on family functioning and adolescents' depression. Since most of the studies relied on one perspective only (i.e., adolescents' view only or caregivers' view only), limited research examined similarities and differences in their views based on rural samples (Sianko, & McDonnell, 2020). Insufficient studies have assessed family functioning based on the views of adolescents and caregivers from urban areas in relation to adolescents' internalizing problems including depression.

The Present Study

The present study examined whether different perceptions of family functioning among rural adolescents and their caregivers were associated with adolescents' depression, controlling for age, gender, and race/ethnicity. We analyzed data from a study on adolescents dating violence conducted in 2015, in a rural county in the Southeastern U.S. The present study addressed the following research questions: (a) Do rural adolescents and their caregivers have different perceptions on family functioning? And, if so, (b)

Are different perceptions of family functioning among rural adolescents and their caregivers associated with adolescents' depression, after controlling for age, gender, and race/ethnicity?

Based on literature that has found discrepancies in adolescents' and caregivers' perceptions of family functioning in non-rural samples, we stated the first hypothesis that rural adolescents and their caregivers would have significantly different perceptions of family functioning. Based on research in non-rural populations, we stated the second hypothesis that different perceptions of family functioning among rural adolescents and their caregivers would also be associated with rural adolescents' depression. There is scant research on depression among rural adolescents by race/ethnicity, and limited studies were found to examine different perceptions of family functioning among rural adolescents and their caregivers on adolescents' depression (Sianko, & Kunkel et al., 2019). Therefore, our third hypothesis was that the discrepancy score of perceptions of family functioning among rural adolescents and their caregivers would be associated with rural adolescents' depression when controlling for age, gender, and race/ethnicity.

Methods

Participants

We used data collected in 2015 from 493 adolescents and their caregivers who lived in a rural county in the Southeastern U.S. and who participated in Wave 4 of the Teen Dating Violence Study (Sianko, & Kunkel et al., 2019). Since some of the caregivers had more than one child, the sample size for the caregivers in Wave 4 was 410 and the sample size of adolescents is 493. As showed in Table 1, adolescents ranged in age from 13-19 years all attended public schools (grades 8-12). The sample was primarily male (54%), and nearly half identified themselves as Black (49.8%).

Table 1. Socio-demographic Characteristics of the Rural Adolescents

Characteristics	<i>n</i>	%
Gender		
Female	227	46.0
Male	266	54.0
Ethnicity		
Black	245	49.8
White	188	38.2
Hispanic and other	59	12.0
Age		
13	22	4.5
14	68	13.8
15	107	21.7
16	122	24.7
17	105	21.3
18	57	11.6
19	12	2.4
Grade		
8 th	3	0.6
9 th	104	21.2
10 th	123	25.1
11 th	107	21.8
12 th	102	20.8
Does not apply	51	10.4
Living arrangements		

Single parent household	214	43.4
Two parent household	228	46.2
Grandparent household	29	5.9
Other	17	3.4

Note. N = 493

As in Table 2, the majority of the caregivers who responded to survey questions were female (92.1%). Almost half of them were married (48.4%) and self-identified as black (49.0%). More than one fourth of the sampled caregivers had a high school diploma (28.2%), and about half of them worked full-time (50.5%) and reported a low income.

Table 2. Socio-demographic Characteristics of the Caregivers

Characteristics	n	%
Gender		
Female	374	92.1
Male	32	7.9
Ethnicity		
Black	241	49.0
White	224	45.5
Hispanic and other	27	5.5
Marital status		
Married	238	48.4
Separated, divorced, widowed	148	30.1
Never married	106	21.5
Education		
Less than high school	84	17.0
High school or GED	139	28.2
Some vocational/technical or college	97	19.7
Vocational/technical or AA degree	97	19.7
Bachelor degree	47	9.5
Grad or professional degree	29	5.9
Employment		
Full time	248	50.5
Part time	66	13.4
Looking, laid off, in search/training, something else	97	19.8
Keeping house	80	16.3
Income		
Less than 10k	79	19.5
10,001 to 20k	88	21.7
20,001 to 40k	95	23.5
40,001 to 70k	87	21.5
More than 70k	56	13.8

Note. N = 410

Procedures

Study participants were selected through a population proportional to size sampling procedure, which is mostly applied in the conditions of a finite population within the context of a single-stage sampling. Approval was obtained from both the Institutional Review Board and the local school district.

An invitation letter was prepared and mailed to parents of 2,508 students from grades 6 through 12 inviting them to participate in this study. In total, 1,296 responded (51.7% response rate) of which 642 (about 25.6%) indicated agreement to participate in the study. Invitations and fliers were distributed to recruit adolescents and their caregivers. Other local connections with youth community organizations were also used to recruit other participants for the study. Preliminary permission and consent were obtained from each study participant. Data were collected from trained data collectors who administered paper-and-pencil surveys to participants. Adolescents and their caregivers who participated in the study received gift cards as an incentive for participating in the study.

Measures

Family Functioning. We measured family functioning, which represented the independent variable, through six positive items of the General Functioning sub-scale of the McMaster Family Assessment Device (FAD) (De Haan et al., 2015). This short version includes the following items: “In time of crisis we can turn to each other for support,” “Individuals are accepted for what they are,” “We can express feelings to each other,” “We feel accepted for what we are,” “We are able to make decisions about how to solve problems,” and “We confide in each other.” Responses were on a 4-point scale ranging from 1 = *strongly disagree* to 4 = *strongly agree*. Previous studies have documented good internal consistency and validity of the short version of this scale (De Haan et al., 2015; Staccini et al., 2015). We found a strong internal consistency of FAD for both adolescents ($\alpha = .80$) and their caregivers ($\alpha = .79$). We computed separately the mean score and standard deviation of the scale for adolescents and their caregivers. The mean score and the standard deviation for adolescents were $M = 3.12$ and $SD = .63$, while for caregivers were $M = 3.29$ and $SD = .50$.

Depression. We measured the dependent variable, youth depression, by using the Center for Epidemiological Studies Depression (CES-D) self-reported scale for research in the general population (Devins, & Orme, 1985). Individual scale questions indicated how often respondents experienced each item of the scale during the past week. This Likert-type scale includes eight items (“I was bothered by things that usually don’t bother me,” “I felt depressed,” “I felt hopeful about the future,” “My sleep was restless,” “I was happy,” “I felt alone,” “I enjoyed life,” and “I felt sad”). Responses were on a 4-point scale, 1 = *none of the time*, 4 = *all of the time*. We found good internal consistency for this scale ($\alpha = .80$). We calculated the mean score and standard deviation of the scale, $M = 1.80$ and $SD = .57$.

Control Variables. We included three demographic variables as control variables: age, gender, and race/ethnicity. Age was measured as a continuous variable which was further collapsed *13 -16 years old = 0*, *17-19 years old = 1*. Gender was a categorical variable measured with two response categories *male = 0*, *female = 1*. Ethnicity/race was measured as a categorical variable, which was collapsed into three categories *Black = 1*, *White = 2*, and *Hispanic and other minorities = 3*.

Data Analysis

We conducted all analyses using the Statistical Package for the Social Sciences (SPSS) version 22. Data were initially inspected for missing values, outliers and meeting of assumptions. Their screening showed that missing values were less than five percent so listwise deletion approach was applied (Enders, 2010; Kang, 2013). We ran univariate analyses to explore the distribution patterns of the study variables.

Data analysis included three steps. In the first step, we explored whether there was any difference in perceptions of family functioning among rural adolescents and their caregivers using a paired samples t-test (Tabachnick, & Fidell, 2013). In the second step, we investigated the association between perceptions of family functioning and adolescents’ depression. We conducted correlation analyses and three individual linear regressions to assess the associations between adolescents’ perceptions of family

functioning and their depression, caregivers' perceptions of family functioning and adolescents' depression, and the difference of their perceptions of family functioning on adolescents' depression (Cohen et al., 2003). We calculated the discrepancy score as a mean difference between caregivers' self-reported scores and adolescents' self-reported scores ($M = .17, SD = .80$). In the third step, we conducted a two-step multiple regression analysis (Darren, & Paul, 2012) to examine whether different perceptions of family functioning among adolescents and their caregivers (represented by the discrepancy score) were associated with depression, when controlling for age, gender, and race/ethnicity. Race/ethnicity variable was dummy coded.

Results

To address the first research question (Do rural adolescents and their caregivers have different perceptions on family functioning?), we conducted a paired samples t-test. Results showed that caregivers' scores ($M = 3.29, SD = .50$) were different from adolescents' scores ($M = 3.12, SD = .65$). A repeated measures t-test revealed that this discrepancy was statistically significant $t(407) = 4.34, p < .05$. On average, caregivers' self-reported scores on family functioning were .17 points higher than the scores of adolescents (95% CI [.095, .25]).

To address the second research question (Are different perceptions of family functioning among rural adolescents and their caregivers associated with adolescents' depression, controlling for age, gender, and race/ethnicity?) we conducted correlation analyses to examine the association between perceptions of family functioning and adolescents' depression. We found that: (a) there was a significant negative correlation ($r = -.37, p < .001$) between adolescents' perceptions of family functioning and their depression; (b) there was a non-significant correlation ($r = -.05, NS$) between caregivers' perceptions of family functioning and adolescents' depression; and (c) there was a significant positive correlation ($r = .25, p < .001$) between different perceptions of family functioning among adolescents and their caregivers (i.e., the discrepancy score) and adolescents' depression.

We conducted individual regression analyses and results presented in Table 3 indicated that: (a) adolescents' perceptions of family functioning were associated with their depression ($R^2 = .14, F(1, 489) = 79.03, p < .001$); (b) caregivers' perceptions of family functioning were not associated with adolescents' depression ($R^2 = .00, F(1, 408) = 1.07, p > .001$); and (c) different perceptions of family functioning among rural adolescents and their caregivers were associated with adolescents' depression ($R^2 = .06, F(1, 406) = 27.76, p < .001$).

Table 3. Linear Regressions assessing the Association between Perceptions of Family Functioning among Rural Adolescents and their Caregivers and Adolescents' Depression

Variable	Depression			
	Unstandardized Coefficients	Standardized Coefficients	F	p
	B	β		
FAD				
Adolescents	-.338	-.373	79.028	.000
Caregivers	-.059	-.051	1.074	.301
Caregivers	.182	.253	27.26	.000
Difference FAD				

Note. Dependent variable: Depression

Correlation analyses showed that there was a positive and significant correlation between depression and gender ($r = .12, p < .01$), there was a negative but not significant correlation between age

and depression ($r = -.05, NS$) and a positive but not significant correlation between ethnicity and depression ($r = .05, NS$). We ran partial correlation analysis which revealed that when controlling for age, gender, and race/ethnicity, the correlation between different perceptions of family functioning (the difference score) and rural adolescents' depression was weak and significant ($r = .248, p < .001$).

The first step of the multiple regression analysis presented in Table 4 revealed that the model was not statistically significant when three variables (age, gender, and race/ethnicity) were entered into the model. These control variables accounted for 3.9% of the variance in adolescents' depression, $F(5, 402) = 3.25, p > .001$. With the entry of the different perceptions of the family functioning score in the second step, results presented in Table 4 showed that the model was statistically significant, $F(6, 401) = 7.55, p < .001$. It explained 10.1% of the variation in adolescents' depression. Thus, the second model explained the outcome variable. It showed that female gender ($\beta = .13, p < .05$), race/ethnicity self-identified as black ($\beta = -.96, p < .05$) and self-identified as white ($\beta = -.98, p < .05$), and different perceptions of family functioning ($\beta = .25, p < .05$) made a significant contribution to the model. The model was not significant for youth who self-identified as Hispanic and other minorities ($\beta = -.56, p > .05$) and age ($\beta = -.03, p > .05$).

Table 4. A Two-step Multiple Regression Analyses

	<i>R</i>	<i>R</i> ²	<i>R</i> ² Change	<i>B</i>	<i>SE</i>	β	<i>t</i>
Step 1	.197	.039	.039				
Age				-.047	.060	-.039	-.787
Gender				.139	.057	.120	2.419
Ethnicity							
Black				-1.408	.572	-1.221	-2.462
White				-1.452	.572	-1.224	-2.537
Hispanic and other				-1.276	.577	-.706	-2.212
Step 2	.319	.101	.063				
Age				-.033	.058	-.027	-.565
Gender				.150	.056	.130	2.701*
Ethnicity							
Black				-1.106	.557	-.959	-1.988*
White				-1.158	.557	-.976	-2.079*
Hispanic and other				-.944	.562	-.522	-1.679
Difference FAD score				.182	.034	.253	5.287*

* $p < .05$

Discussion

This study examined whether rural adolescents and their caregivers had different perceptions of family functioning and whether these discrepant views were significantly associated with adolescents' depression when controlled for age, gender and race/ethnicity in a sample of adolescents and their caregivers from a rural county in the Southeastern U.S. We found that the first hypothesis was supported. This is consistent with the findings of other studies (primarily in non-rural settings) that found divergent views of family functioning among adolescents and caregivers (Lipschitz et al., 2012; Ohannessian, & De Los Reyes, 2012; Reynolds et al., 2011; Stuart, & Jose, 2012).

We found that, on average, caregivers self-reported scores were .17 points higher than the scores of adolescents. Previous studies have commonly found that caregivers have higher self-reported scores on family functioning than their adolescents ranging, from low to moderate levels of agreement (De Los Reyes, & Kazdin, 2005; De Los Reyes, & Ohannessian, 2016). One possible explanation is that because caregivers set rules within the family, they are interested in maintaining its stability. Caregivers may also

rate family functioning more positively because they would see a negative rating as critical of their parenting. On the other hand, adolescents who are not always happy with these rules try to negotiate them with their caregivers to obtain greater autonomy (Svetina et al., 2011). Our findings might also be explained with the stage-environment fit theory, whose proponents argue that different perceptions of family functioning among adolescents and their caregivers result from the mismatch between adolescents' desires for independence and the opportunities they obtain from their caregivers in control and participation in rule-making within the home (Eccles et al., 1993).

Consistent with previous research, we found that the second hypothesis was also supported. Specifically, different perceptions of family functioning among adolescents and their caregivers were associated with adolescents' depression (Laird, & De Los Reyes, 2013; Reynolds et al., 2011). We found that there was a statistically significant correlation between different perceptions of family functioning among adolescents and their caregivers (the discrepancy score) and adolescents' depression, while regression analysis found that different perceptions of family functioning among rural adolescents and their caregivers were associated with adolescents' depression.

Our findings are important because limited research was found on the association of different views of family functioning among caregivers and adolescents with adolescents' depression in rural areas. Moreover, existing literature highlights the importance of a healthy family functioning on overall development, functioning and mental health of adolescents (Atar et al., 2016; Davids et al., 2016). Taking into consideration the strong connection between poor family functioning and adolescents' depression (Jozefiak, & Wallander, 2015), our findings have implications for family and health practitioners. They emphasize the need for cost-effective coordinated responses with regard to early identification and implementation of effective family-based interventions to improve family functioning, which, in turn, will reduce adolescents' depression.

Our third and final hypothesis was also supported. Different perceptions of family functioning among rural adolescents and their caregivers were associated with adolescents' depression when controlling for demographic variables (age, gender, and race/ethnicity). Consistent with previous research which found higher depression rates reported by rural girls compared to rural boys (Black et al., 2012; Chakraborty et al., 2016; Smokowski et al., 2013; Susya Prabha et al., 2017), we found that the β coefficient for girls indicated that their scores were, on average, .15 higher than boys' scores. A possible explanation for higher rates of depressive symptoms among female versus male adolescents is related to different expectations that caregivers have for adolescent boys versus adolescent girls. They tend to be more tolerant and encourage more autonomy for boys than for girls. Therefore, family pressure on adolescent girls is higher than on adolescent boys (Ohannessian et al., 2000).

On the other hand, our findings showed that depressive symptoms did not increase with age, which confirms findings of other studies (see Butler [2015] for alternative findings). We found that age was not significantly associated with depression and did not make any significant contribution to the model. Nevertheless, more research is needed to understand the prevalence of depressive symptoms by age group among rural adolescents.

Our findings showed that race/ethnicity was not significantly associated with depression in this sample of rural adolescents. Nevertheless, youth who self-identified as Black and White made a significant contribution to the model versus those who self-identified as Hispanic and other. These findings partially substantiated previous research conducted with data from urban and national samples (Mojtabai et al., 2016; SAMHSA, 2018; Twenge et al., 2019) which found higher depressive symptoms rates among Hispanic and mixed races. One possible explanation for our findings could be the fact that our sample was under-represented by Hispanic and other minority groups (about 12% of the sample size) compared to those who self-identified as Black (about 49.8% of the sample size) and White (about 38.2% of the sample size).

Although our study found some evidence supporting the proposed hypotheses, it also has some methodological limitations. First, our study lacked a well-balanced representation of male versus female caregivers. It mostly included female caregivers' self-reported views on family functioning (92.1% of the sample size) compared to male caregivers (7.9% of the sample size). Concern about limited and insufficient reflection of the male caregivers' views on family functioning has been raised in previous research (Svetina et al., 2011). Therefore, future research should examine samples that are more heterogeneous where male and female caregivers are well-represented to better examine the association of their self-reported views on family functioning with rural adolescents' depression. Second, as previously noted, different racial/ethnic groups were not equally represented among sampled participants. Third, our study was not based on medically confirmed depressive symptoms but on self-reported symptoms. Scholars argue that self-reported data have some limitations in terms of qualitative assessment or limited opportunity for external validation (Nelemans et al., 2016). This might have influenced participants' subjectivity in reporting their depressive symptoms. Fourth, most of the sampled participants came from low-income groups characterized by low educational attainment of their caregivers. Low heterogeneity of the sample emphasizes the need to interpret its results with caution. Future research needs to clarify the findings of the present study in order to generalize them or replicate in other settings.

Nevertheless, our findings are important as they filled several gaps in the literature. First, they confirmed that even in rural areas adolescents and caregivers have different perceptions of family functioning. Second, they revealed that different perceptions of family functioning among rural adolescents and their caregivers were associated with adolescents' depression after controlling for age, gender, and race/ethnicity. Since prevalence of depressive symptoms among rural adolescents from various minority groups is lacking, future research should further investigate depression among minority adolescent populations. Future studies also should be expanded to control for other variables, including family structure. Finally, our findings have implications for a range of actors including caregivers, practitioners, school personnel, and policymakers, who have a vital interest in strong families in their communities and societies. Schools and community organizations should play a more active role to design and offer specific programs for parents to improve their parenting skills and promote positive relations. Professional local organizations and institutions that run various psycho-education programs and offer support to adolescents should also assist their parents to cope with their family problems including adolescents' depression. Collaborative work to build a family-friendly culture that nurtures and strengthens family functioning is needed. This, in turn, will contribute to the healthy development of adolescents.

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