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Exploring the Multivariate Relationships between Adolescent Depression and Social Support, Religiosity, and Spirituality in a Faith-Based High School

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Abstract

Depression is one of the most common psychological disorders that affect adolescents. In this study, we investigated how depression in adolescents relates to social support, religiosity, and spirituality in multivariate analyses. We also investigated whether age, gender and ethnicity are predictors of depression among adolescents in a faith-based high school. We measured social support using the Child and Adolescent Social Support Scale (CASSS), religiosity with the Duke University Religion Index (DUREL); spirituality with the Spiritual Well-Being Scale (SWBS); and depression with the Center for Epidemiological Studies Depression Scale for Children (CES-DC). Results of the bivariate analyses showed a significant negative association between depression and social support, religiosity, and spirituality ($p < 0.05$). In the multiple regression analyses, religiosity was positively related to adolescent depression ($r = 0.121$, $p < 0.05$), while spirituality ($r = -0.548$, $p = 0.00$) was negatively related to depression in adolescents. The study found significant gender differences only in religiosity, while significant ethnic differences were only found in social support. Implications to education, practice, research and future directions of study are discussed.

Keywords

Social Support, Religiosity, Spirituality, Depression, Adolescents, Faith-Based

1. Introduction

Depression is one of the most common psychological disorders that affect adolescents [1] and remains a huge public health problem. With significant beha-

vioral, cognitive, and emotional impairment that accompany depression in adolescents [2] [3] [4], the problem cannot be ignored. Studies show that adolescent depression is prevalent in the United States [5] [6] and worldwide [7] [8]. Currently in the United States, about 11.4% of adolescents, an estimated 2.8 million adolescents had a major depressive episode during the past year [9]. About 8.2% of the adolescents who had a major depressive episode had severe difficulty completing school work, chores at home, and forming close relationships with friends and family [9]. Previous studies show that the occurrence of depression during adolescence not only increases the risk of future episodes in later life [5], but it is also associated with academic difficulties [6] [10], school dropout [11], antisocial behaviors [12] [13] [14], health risk behaviors such as smoking, violence, drug use, unprotected sex, drunk driving and driving without seatbelt [15] [16] [17], and suicide risk [18]. The risk of developing depression during adolescence increases with lack of self-esteem, stress, and social isolation [19] [20] [21]. With evidence of substantial health risks associated with depression, there is a need to explore how adolescent depression relates to combinations of factors that may protect the individual from depression.

A review of over 40 correlational articles found evidence that actual reception or perception of support is beneficial to individual's psychological well-being [22]. Previous studies show that perception or reception of support from family, friends, and teachers, prayer and participation in religious events, and having the calmness and harmony of mind that spirituality offers counter adolescent depression [6] [23] [24]. Therefore, protective measures such as social support, religiosity, and spirituality may be very important psychologically resources that adolescents can draw upon for better mental health. If so, these measures should also help adolescents deal with the emotional instability which characterizes adolescence.

Social support refers to an individual's perception or reception of emotional, informational, appraisal, and tangible support from people in their social network [25]. The relationship between adolescent depression and social support has been extensively investigated in empirical studies. Higher levels of friend support, family support, and overall emotional support have been consistently associated with lower odds of adolescent depression [21] [26] [27] [28]. Social relationships may promote well-being by enhancing an individual's feelings of predictability and stability, maintaining positive emotional states, promoting an individual's sense of purpose, belonging, and security and enhancing self-esteem through social recognition of self-worth [29]. Religiosity is an important psychological asset that adolescents can draw on for better mental health. Religiosity refers to an individual's religious affiliation and beliefs and the degree to which he/she prays and attends religious services [30]. Religious attendance, self-ranked religiousness and positive religious experience have been associated with lower depressive symptoms in adolescents [23] [31] [32]. However, intrinsic religiosity, private religious practices such as private prayer and reading spiritual books were not associated with depression in adolescents [26] [31] [33]. Spiri-

tuality is another significant resource adolescents can turn to during periods of psychological distress. Spirituality refers to the sense of well-being that arises from values such as compassion, love, forgiveness, and one's relationship with God, people, nature, and the meaning found in these relationships and life experiences [34] [35]. Studies have repeatedly demonstrated a negative association between depression and spirituality [36] [37]. The negative correlation found between spirituality and depression may be due to greater spiritual well-being which not only facilitates more positive and healthy personal and social behaviors, but provides a unifying framework that helps individuals cope with unexpected and difficult life situations [37]. Increased spirituality was correlated with lower levels of depression, whereas higher levels of religious importance were correlated with more depression in adolescents [24].

So far most studies have focused on the bivariate relationship between adolescent depression and social support, religiosity, and spirituality. However, no study has yet explored multivariate relationships between depression and social support, religiosity, and spirituality during the period of adolescence in any setting and specifically in faith-based high schools. Since the teaching of religion is not allowed in public schools in the United States, faith-based schools therefore provide logical setting to explore how depression relates to the combinations of social support, religiosity, and spirituality during adolescence. Therefore, the primary objective of this study was to investigate how depression in adolescents relates to social support, religiosity, and spirituality in multivariate analyses and whether age, gender and ethnicity are predictors of depression among adolescents in a faith-based high school.

2. Methods

2.1. Participants

Participants were recruited upon study approval by Seton Hall University Institutional Review Board (IRB). The study was permitted by the Catholic Archdiocesan School Superintendent and the School Principal. A numerically coded eligibility form, parent solicitation letter, and parent/guardian consent form were mailed to parents/guardians of all students (N = 1569). A total of 512 packages were returned through postal mail and hand-delivery by students. Each student who received parental approval was given a package containing a numerically coded eligibility form, solicitation letter, and assent form through their homeroom teachers. Students were asked to drop off the completed package in a labeled box in the main office of the school within 24 hours. The list of students who agreed to participate in the study was checked against the list of consenting parent/guardian to ensure that each child's parent/guardian also gave consent. Students who assented were included as study participants. The secretary mailed copies of the signed documents to parent/guardian and also gave copies of the signed assent form to individual students before the study began. A convenience sample of 394 students from a population of 1569 in the faith-based high school participated in the study by completing the surveys that measure levels of de-

pressive symptoms, social support, religiosity, and spirituality.

2.2. Inclusion/Exclusion Criteria

The subjects included in this study were adolescents, ages 14 - 17 years old who had parental approval and who also assented to participate in the study. Exclusion criteria for the study required that individuals cannot be taking any medication with the exception of seasonal allergies, asthma, acne and/or antibiotics within the last thirty days, do not have prior history of diagnosis of a major depressive episode, and had not received any form of talk therapy from any of the following professionals: psychologist, counselor, psychiatrist, or psychoanalyst. The criteria for selecting adolescents' ages 14 - 17 years old was based on the findings that over 10% of adolescents aged 12 to 17 experience at least one major depressive episode during this period of their life [9]. The inclusion of non-depressed adolescents (adolescents not taking any antidepressant medication) was based on the exploratory and non-diagnostic nature of this study.

2.3. Depressive Symptoms Measure

The Center for Epidemiological Studies Depression Scale for Children (CES-DC) was used to measure the level of depressive symptoms in the participants. This 20-item self-administered scale measures the major components of depressive symptomatology including sadness or irritability, loss of interest, feelings of guilt and worthlessness, psychomotor retardation, loss of appetite, and sleep disturbance and does not include items that assess suicidal ideation to lessen any adverse outcome with children and adolescent samples. For each item, respondents were asked to indicate how frequently they experienced the symptom within the past week. Responses include: 0 = Not at all, 1 = A little, 2 = Some, 3 = A lot. Sample item includes: "I was bothered by things that usually don't bother me." The scores are summed up to provide total scores in the range from 0 to 60, with higher scores indicating higher frequency of depressive symptomatology. A cutoff score of 15 is suggestive of significant depression in adolescents [38]. The CES-DC is a valid measure of depressive symptoms in children aged 12 - 18 years old and its established internal consistency reliability ranges from 0.84 - 0.88 [38] [39].

2.4. Social Support Measure

Social Support was measured as an individual's perception or reception of support or help from parent(s), teachers, classmates, and close friends. This variable was measured using the Child and Adolescent Social Support Scale (CASSS) which is a 48-item multidimensional self-administered scale. Study participants were asked to respond to statements such as, "My parent(s) give me good advice," "My teacher(s) understands me," "My classmates ask me to join activities," and "My close friend understands my feelings" [25]. Respondents rated how often they receive the support/help described. The frequency ratings consist of a 6-point Likert scale from 1 (Never) to 6 (Always). Scores range from 48 - 288

with higher scores indicative of higher social support. The CASSS has good internal reliability which ranges from 0.89 - 0.97 for the total and subscale items and has been shown to be a valid measure of perceived social support for use with children and adolescents [25] [40].

2.5. Religiosity Measure

Religiosity was defined and measured as the frequency of involvement in religious activities, private prayer, religious belief, and experience and it was measured using the Duke University Religion Index (DUREL) [30]. The DUREL is a 5-item self-administered rating scale that measures the organizational, non-organizational, and intrinsic dimensions of religiosity. An example of the question that measures non-organizational religiosity is "How often do you spend time in private religious activities such as prayer, meditation, and Bible study?" (1 = never or rarely, 2 = a few times a year, 3 = a few times a month, 4 = once a week, 5 = more than once a week, 6 = more than once a day). Scores range from 5 - 27. High scores indicate greater religiosity. The DUREL has overall high test-retest reliability, high internal consistence (Cronbach's alpha's = 0.70 - 0.91) and high convergent validity with other measures of religiosity [30] [41].

2.6. Spirituality Measure

Spirituality was measured using the Spiritual Well-Being Scale (SWBS) that contained self-belief statements about purpose and meaning in life, inner resources, unifying interconnectedness, and transcendence [34]. The SWBS is a 20 item rating scale that measures religious well-being (RWB) assessed by statement such as "I believe that God is concerned about my problems" and existential well-being (EWB) with statement such as "I believe there is some real purpose for my life." Items are rated and scored from 1 point to 6 points yielding a maximum possible score of 120, and a minimum possible score of 20. The SWBS has high internal reliability (Cronbach's alpha = 0.78 - 0.94), high test-retest reliability, correlates well with other measures of spirituality and valid for use with adolescents [34] [42].

2.7. Design and Statistical Analyses

The research design was cross-sectional, descriptive, and correlational. Descriptive statistics were used to summarize demographic characteristics of the sample. Spearman's rho correlation was used to determine the bivariate relationship between depression and social support, religiosity, and spirituality, whereas, multiple regression model was used to analyze the relationships between depression and social support, religiosity, and spirituality. Gender differences in depression, social support, religiosity and spirituality were analyzed using the Mann-Whitney U-test, while Kruskal-Wallis One-Way Analysis of Variance (ANOVA) by Ranks was used to analyze age and ethnic differences. All statistical analyses were conducted using Statistical Package for the Social Sciences (SPSS) Version 22.0.

3. Results

3.1. Demographics

The data collected were screened for missing responses and entered into the SPSS Version 22.0. A total of 394 students participated in the study and 57.4% were females while 42.6% were males. There were 29.4%, 22.1%, 23.1% and 25.4% of 17, 16, 15, and 14 year olds respectively that participated in the study. The majority of the participants were Caucasian 47.0%. Other ethnic groups include: Hispanic American (19.0%), Asian American (17.3%), African American/Black (12.7%), and other (4.1%). Results are shown in Table 1.

The median scores for depression and religiosity were lower for males compared to females, but spirituality median value was higher for males compared to females. The median for depression was higher for 14 year olds compared to the other age groups. There were higher median values for social support for adolescents ages 15 and 17, but spirituality scores were lower for the 17 year old adolescents. Median scores for depression and spirituality were higher for African American adolescents. Asian and African American adolescent participants had lower median value for social support compared to the other ethnic groups (Table 1 and Figures 1-3).

3.2. Bivariate Relationship between Adolescent Depression and Social Support, Religiosity, and Spirituality

One of the objectives of the study was to determine if a relationship exists between adolescent depression and social support, religiosity and spirituality in a faith-based high school. Spearman's correlation was used for the analyses and results of the correlational analyses are displayed in Table 2.

Table 1. Participant demographic characteristics.

Demographic Characteristics	n (%)	Depression	Social Support	Religiosity	Spirituality
		Median (IQR)	Median (IQR)	Median (IQR)	Median (IQR)
Gender					
Male	168 (42.6)	12.00 (11.0)	202.0 (49.0)	18.50 (6.0)	96.00 (20.0)
Female	226 (57.4)	13.00 (11.0)	202.0 (35.0)	19.00 (5.0)	93.00 (21.0)
Age					
14	100 (25.4)	14.50 (14.0)	201.00 (42.0)	18.50 (7.0)	95.50 (22.0)
15	91 (23.1)	13.0 (11.0)	205.00 (50.0)	19.00 (6.0)	95.00 (17.0)
16	87 (22.1)	12.0 (8.0)	200.00 (52.0)	19.00 (8.0)	96.00 (21.0)
17	116 (29.4)	12.0 (13.0)	204.50 (37.0)	18.00 (5.0)	93.00 (19.0)
Ethnicity					
African American	50 (12.7)	17.00 (11.0)	195.00 (106.0)	18.00 (6.0)	97.00 (22.0)
Asian American	68 (17.3)	13.50 (11.0)	187.50 (58.0)	19.00 (6.0)	94.00 (18.0)
Caucasian	185 (47.0)	12.00 (13.0)	210.00 (37.0)	18.00 (7.0)	96.00 (19.0)
Hispanic American	75 (19.0)	15.00 (10.0)	201.00 (35.0)	19.00 (7.0)	89.00 (27.0)
Other	16 (4.1)	18.50 (27.0)	205.00 (0.21)	19.00 (8.0)	92.00 (30.0)

IQR = Interquartile range.

Table 2. Bivariate correlations between social support, religiosity, spirituality and adolescent depression in a faith-based high school (N = 394).

Correlations			
Depressive symptoms	Social support	Religiosity	Spirituality
r	−0.127**	−0.201**	−0.492**
p (1-tailed)	0.006	0.00	0.00
N	394	394	394

**Correlation is significant at the 0.01 level (1-tailed).

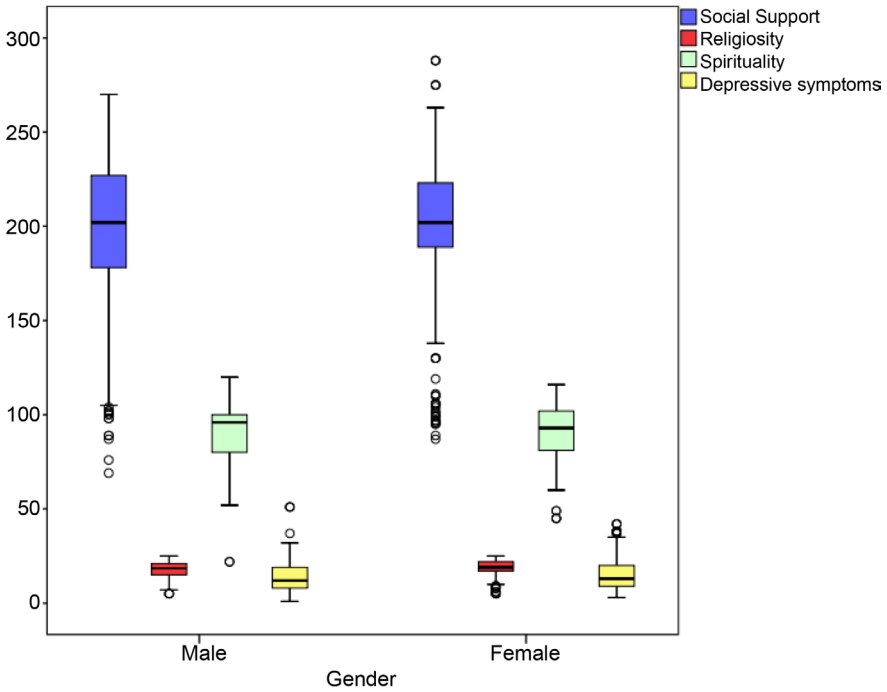

Figure 1. Median scores for depression, social support, religiosity and spirituality for males and females. Religiosity scores were higher among females and there are also less variability in social support among the females, although outliers exist for both males and females in all measured indicators.

Results of the analyses presented in Table 2 show a significant negative bivariate correlation between social support and depression ($r = -0.127$, $p < 0.05$), religiosity and depression ($r = -0.201$, $p < 0.05$), and spirituality and depression ($r = -0.492$, $p < 0.05$) among adolescents who attend a faith-based high school. Spirituality was moderately correlated with adolescent depression compared to social support and religiosity.

3.3. Multivariate Relationships between Adolescent Depression and Social Support, Religiosity, and Spirituality

The primary objective of the present study was to examine whether adolescent depression was related to combinations of social support, religiosity, and spirituality in a faith-based high school and, if so, the amount of variance in depression

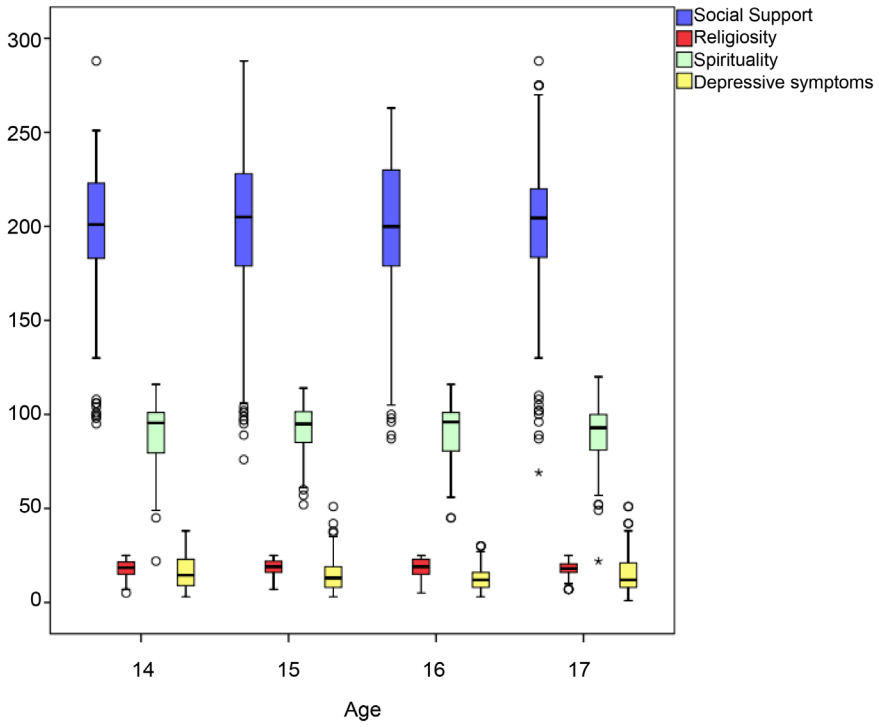

Figure 2. Median scores for depression, social support, religiosity and spirituality for the different age groups. Most 16 year olds have lower levels of depression compared to the other age groups. There were extreme scores in most of the measured indicators.

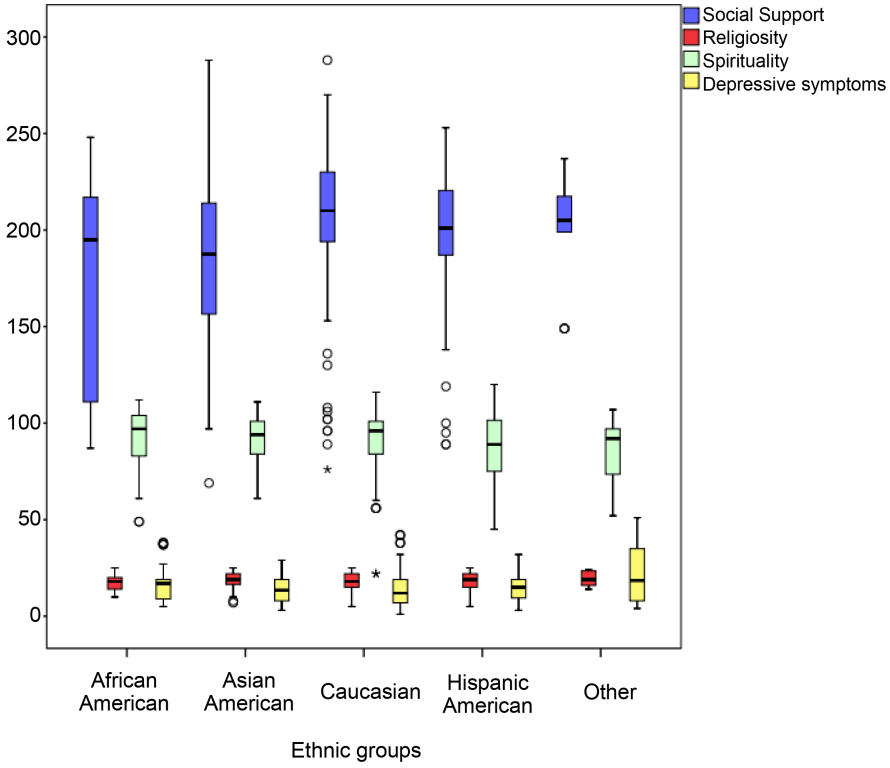

Figure 3. Median scores for depression, social support, religiosity and spirituality for the different ethnic groups. African American and Asian American adolescents have much lower levels of social support compared to the other ethnic groups.

that can be accounted for by the relationships. Variables were entered into a multiple regression model using the block entry method. The results are displayed in Table 3. In Step 1 of the regression analyses, demographic variables (age, gender, and ethnicity) known to correlate with depression were entered. Results of the analyses showed that age, gender, and ethnicity were not significant predictors of depression. Social support and religiosity were entered in step 2 to assess their contribution to depression (see Table 3). Only ethnicity ($r = -0.110$, $p < 0.05$) and religiosity ($r = -0.184$, $p < 0.00$) were significant contributors to the model and they accounted for 5.3% of the variance in depression ($p < 0.00$). Social support did not significantly contribute to the model ($r = -0.066$). The partial correlation output showed an $r = -0.01$, $p = 0.441$ for social support while controlling for the confounding effects of religiosity and spirituality (table not shown). Social support and spirituality were added in Step 3 of the regression model and spirituality was the only variable that significantly contributed to the model ($r = -0.477$) explaining an additional 23.9% of the variance in depression ($p = 0.00$). A partial correlation output indicated an $r = -0.465$, $p = 0.00$ for spirituality, while controlling for the influence of social support and religiosity.

In Step 4, religiosity and spirituality measures were added to determine the amount of variance in depression that can be accounted for by the variables. Results showed that religiosity ($r = 0.121$, $p < 0.05$) and spirituality ($r = -0.548$, $p = 0.00$) were both significant contributors to the model and they explained 24.9% of the variance. Higher religiosity did not correlate with lower depression; rather, it was related to higher depression when entered with spirituality. The partial correlation output confirmed the significant positive relationship between religiosity and depression $r = 0.125$, $p = 0.01$, while controlling for the confounding effects of social support and spirituality. In the final model, social support, religiosity and spirituality measures were entered in Step 5 to determine the amount of variance in depression that can be accounted for by the three variables. The final model was significant ($p < 0.01$), although the amount of variance did not change from what was obtained in Step 4. Social support still did not make any significant contribution to the variance in depression. The only two significant predictors in the final model were religiosity ($r = 0.121$, $p < 0.05$) and spirituality ($r = -0.548$, $p = 0.00$), indicating that spirituality may be a more important predictor of good mental health than religiosity and social support for adolescents (Table 3).

3.4. Gender, Age, and Ethnic Differences in Depression, Social Support, Religiosity, and Spirituality among Adolescents in a Faith-Based High School

Gender differences in depression, social support, religiosity, spirituality scores were analyzed using Mann Whitney U test. Results of the Mann Whitney U test showed statistically significant gender differences in religiosity ($p = 0.04$). Mean rank for males was 184, while the mean rank for females was 207. However, there were no statistically significant gender differences in perceived social support, spirituality and depression among the adolescents in the faith-based high

school (Table 4).

Age differences in social support, religiosity, spirituality, and depression were analyzed using Kruskal-Wallis one way analysis of variance by ranks. Results of the H test indicated no statistically significant differences in perceived social support, religiosity, spirituality and depression ($p > 0.05$) among the different age groups (Table not shown). Further analyses using the Kruskal-Wallis one way analysis of variance by ranks showed statistical significant ethnic differences only in perceived social support (see Table 5).

In order to determine if specific ethnic groups were different from each other in social support, Mann Whitney U-test was used for pairwise comparisons. To control for increased risk of Type 1 error, a *Bonferroni* correction was applied. Ten pairwise comparisons were conducted (see Table 6).

Only the comparisons between African American and Caucasian students

Table 3. Multiple linear regression models correlating combinations of supportive measures (social support, religiosity, spirituality), and adolescent depression in a faith-based high school (n = 394).

Variables	Depressive Symptoms				
	Step 1	Step 2	Step 3	Step 4	Step 5
Age	−0.047	−0.049	−0.041	−0.038	−0.038
Gender	0.058	0.080	0.076	0.066	0.066
Ethnicity	0.090	0.110*	0.040	0.026	0.029
Social Support	−0.066		−0.012		−0.014
Religiosity		−0.184**		0.121*	0.121*
Spirituality			−0.477**	−0.548**	−0.546**
R	0.113	0.230	0.489	0.499	0.499
R^2	0.013	0.053**	0.239**	0.249**	0.249**

Standardized β weights are reported at each step to evaluate any changes in weights with the inclusion of additional predictors. *p < 0.05 (2 tail). **p < 0.01 (2 tail).

Table 4. Differences in social support, religiosity, spirituality and depression between male and female adolescents (n = 394).

Gender		n	*Mean Rank*	*p*
Social Support	M	168	194	0.59
	F	226	200	
Religiosity	M	168	184	0.04*
	F	226	207	
Spirituality	M	168	195	0.68
	F	226	199	
Depression	M	168	191	0.33
	F	226	202	

*p < 0.05 (two tailed test).

Table 5. Differences in social support, religiosity, spirituality and depression among the ethnic groups (n = 394).

Ethnic group	N	*Mean Rank*	*p*
Social African A.	50	149.93	
Support Asian A.	68	155.60	
Caucasian	185	225.83	0.00*
Hispanic	75	195.31	
Other	16	206.97	
Religiosity African A.	50	173.79	
Asian A.	68	219.49	
Caucasian	185	190.39	0.17
Hispanic	75	207.45	
Other	16	213.78	
Spirituality African A.	50	211.26	
Asian A.	68	201.17	
Caucasian	185	204.99	0.19
Hispanic	75	173.56	
Other	16	164.47	
Depression African A.	50	218.54	
Asian A.	68	192.68	
Caucasian	185	184.93	0.14
Hispanic	75	209.80	
Other	16	239.94	

*$p < 0.05$ (two tailed test).

(mean difference = −34.80, p = 0.00) and Asian American and Caucasian students (mean difference = −25.07, p = 0.00) were significant, revealing that Caucasian students perceived significantly higher social support than both African American and Asian American students.

4. Discussion

4.1. Major Findings of the Study

The primary objective of this study was to examine how adolescent depression relates to combinations of social support, religiosity, and spirituality in a faith-based high school. This study was based on the notion that having broad supportive relationships promote an individual's sense of purpose, belonging, security, self-esteem, and overall well-being [29]. Consistent with previous studies [21] [23] [24], the present study found weak to moderate, but significant bivariate correlations between depression and social support, religiosity, and spirituality; an indication that social support, frequent participation in religious activities, and spiritual interconnectedness are good for mental and emotional well-being of adolescents. Yet, in some other studies, some aspects of religiosity such as private religious practices were not associated with depression in adolescents [26] [31] [33].

In the multiple regression analyses, social support did not significantly contribute to the model when entered with religiosity and spirituality. This finding

Table 6. Mann whitney u-test for multiple comparisons using *bonferroni* correction (n = 394).

(I) Ethnic group	(J) Ethnic group	Mean Difference (I-J)	Std. Error	Sig.
African American	Asian American	−9.73	7.66	1.000
	Caucasian	−34.80*	6.56	0.00
	Hispanic American	−25.83	7.51	0.00
	Other	−28.79	11.81	0.15
Asian American	African American	9.73	7.66	1.00
	Caucasian	−25.07*	5.83	0.00
	Hispanic American	−16.09	6.89	0.19
	Other	−19.06	11.43	0.96
Caucasian	African American	34.80*	6.56	0.00
	Asian American	25.07*	5.83	0.00
	Hispanic American	8.97	5.63	1.00
	Other	6.01	10.72	1.00
Hispanic American	African American	25.83	7.51	0.00
	Asian American	16.09	6.89	0.19
	Caucasian	−8.97	5.63	1.00
	Other	−2.97	11.33	1.00
Other	African American	28.79	11.81	0.15
	Asian American	19.06	11.43	0.96
	Caucasian	−6.01	10.72	1.00
	Hispanic American	2.97	11.33	1.00

*The mean difference is significant at the 0.005 level (two tailed test).

suggests that the emotional, informational, appraisal and tangible support received from family, teachers, classmates, and close friends may not adequately protect adolescents from poor psychological outcome such as depression. In steps 4 and 5 of the model, the combination of religiosity and spirituality was found to be important predictors of depression among adolescents, but each related to depression in the opposite direction. Spirituality was negatively related to adolescent depression, while religiosity was positively related to it. Together, both variables explained 24.9% of the variance in depression. It was surprising to find that higher religiosity predicted higher levels of adolescent depression. Although this finding was unexpected, similar results were obtained in a different study that investigated the impact of adolescent spirituality on depressive symptoms and health risk behaviors [24]. The study found that religiosity had a positive relationship with depression when combined with spirituality. Religiosity explained just 1% of the variance, whereas when combined with spirituality they explained 36% of the variance in adolescent depression [24]. It is possible that social support and the different aspects of religion does not help adolescents

adequately address the questions of meaning, purpose, and sense of direction which they try to figure out during this period of emotional turmoil which characterizes adolescence. Consistent with the findings of this study, a different study carried out with terminally ill patients found that religiosity was positively associated with depression when entered with spirituality in a multivariate analyses [43]. According to the authors, individuals with strong religious beliefs may not want to accept or express the anger they feel towards their God in their stressful life situations, so the resulting conflict adds to the psychological and physiological problems they are already experiencing. Given the challenges of maturing physically, cognitively, and psychologically, religious activities and belief may not provide adolescents with the resources they need to discover who they are, what they are about, and where they are heading to in life [44], but may add to the crises.

On the other hand, spirituality turned out to be the most important significant predictor of depression ($\beta = -0.548$, $p < 0.01$). The moderate negative correlation found between spirituality and depression could be due to life satisfaction, peace, hope, and comfort derived from the interconnectedness with the higher power, other people, places, and things. Spirituality may counter stress and prevent depression by weakening its impact and providing individuals with personal meaning and social and inner resources they can call on in stressful situations [45] [46]. The process of making and finding meaning in life may be one mechanism that links spirituality to less depression since finding meaning in life leads to hope, and the feeling of being valued in relationships promotes one's dignity [45] [47] [48]. While not everyone is religious, everyone who searches for ultimate or transcendent meaning has spirituality. This search for meaning can be expressed in religious practices, in one's relationship with a higher being, nature, music, art, philosophical beliefs, or relationship with family and friends [47]. The consistent negative correlation between spirituality and depression was also supported in a different study of primary care outpatients [49]. Finally, the present study showed that the role of social support and religiosity in reducing depression among adolescents may not be as important as spirituality since the development of meaning and purpose in one's life helps to promote resiliency and a sense of direction and purpose.

4.2. Other Findings of the Study

The present study did not find statistically significant gender differences in depression, social support, and spirituality among the adolescent participants consistent with previous works [50] [51]. The lack of significant gender differences in depression found in the present study contrasts previous works which reported that adolescent females had significantly higher depression scores than males [5] [6] [7] [52] [53]. However, these studies were either conducted using community samples or in public school settings. Conversely, the present study was carried out in a faith-based setting. It is possible that adolescent males and females in this large faith-based high school are exposed to the environment that

promotes a sense of belonging and connectedness and activities that help them cope with daily life stressors thus buffering them from depression.

Furthermore, the study only found significant gender differences in religiosity. Females in this study had greater levels of engagement in religious activities than males. Significant gender differences in religiosity were also reported in other studies [31] [36], whereas a different study did not find statistically significant gender differences in religiosity [32]. In addition, there were no age differences in depression, social support, religiosity, and spirituality. The lack of age differences found in this study was supported in a previous study [5], whereas other studies found that depressive symptoms increase with age [20] [28]. This lack of age differences in all four measures found in the present study suggests that adolescent males and females at different grade levels may be similar in their perception of social support, religious beliefs and engagement, and spiritual, emotional and mental well-being.

Significant ethnic differences were not found in religiosity, spirituality and depression, but ethnic differences were found in social support. Caucasian students perceived significantly higher social support than African American and Asian American students consistent with a previous work [25]. The significantly low social support reported by Asian American students in this study may be due to the fact that most of them did not live with their parents, but a guardian (School demographic data, 2011) so they may not be experiencing the parental love, care, and support they need. The African American participants in the study reported low social support which may be attributed to the fact that most of them in the school come from a single parent/guardian homes (School demographic data, 2011).

5. Conclusions

This research is the first of its kind to be conducted in a faith-based high school. It is also the first to explore how adolescent depression relates to social support, religiosity, and spirituality in multivariate analyses. The finding of the study supports the notion that being in a broad range of supportive relationships protects an individual from the negative health outcome; depression. The findings that religiosity and spirituality relate to depression in opposite direction may suggest to researchers in this area to go beyond exploring just the bidirectional relationship between adolescent depression and social support, religiosity, and spirituality to exploring multivariate relationships between adolescent depression and the different protective measures. Combining social support, religiosity, and spirituality not only revealed how much each predicted depression, but also the direction of the relationship. One striking contribution of this study is the importance of spirituality over religiosity and social support in buffering depression in adolescents. It is likely that spiritual individuals are able to draw their strength from within themselves and thus feel in control of both themselves and situations in which they find themselves. With the rise in suicides and mental

health issues among adolescents in the United States, the results of this study suggest the need to develop programs that encourage youths to address questions of meaning, value, and relationships in their lives. This study has particular relevance to faith-based schools as it suggests the need for faith-based school administrators and educators to explore and implement activities and programs that can engage students in various spiritual practices. If spirituality is related to lower depression in adolescents, then educators should encourage students to engage in activities that can help them find meaning and sense of purpose in life.

The study has some limitations. First, a convenience sample of 394 students from a population of 1569 in the faith-based high school who participated in the study is a little low; therefore the findings may only be generalized to similar settings and population. Second, depressive symptoms measure was detected by self-administered scale measure. It is better to test the depressive symptoms by professionals. Third, the use of cross-sectional design makes it difficult to determine causal relationships between the variables, but it provides a baseline in considering the relationship between adolescent depression and combinations of protective measures in other faith-based schools and community setting. Finally, psychosocial variables such as family structure, physical exercise etc. known to relate to depression in adolescents were not assessed. Including these variables in the study would have broadened our understanding of the factors that relate to depression in adolescents. Despite the limitations inherent in the study, the research findings could be used as a point of reference for future studies that will explore the multivariate relationships between adolescent depression and social support, religiosity, and spirituality. Therefore, future researchers should replicate the present study in different faith-based high schools or even at the college level to see if their findings will add evidence to the results of the present study. If possible, the methodology could be modified by collecting data longitudinally as this could provide a clearer understanding of the relationships between the variables. Furthermore, instead of using summed Likert score, researchers could investigate how the different dimensions of social support (parents, teachers, classmates, and close friends) religiosity (organizational, non-organizational, and intrinsic) and spirituality (existential and religious well-being) relate to depression. Assessing the relationship between depression and the various dimensions of the measures may produce a different outcome. Finally, the continuing efforts to expand the knowledge about adolescent depression and social support, religiosity, and spirituality are obviously supported by this study.

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Competing Interests

The authors declare no competing interests.

Authors' Contributions

Angela U. Ekwonye: design, data collection, statistical analyses and manuscript review. Terrence Cahill: design, statistical analyses and manuscript review. Deborah DeLuca & Lee Cabell: design and statistical analyses.

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