Adolescents' Behaviors in Connectedness Helps Reduce Bullying and Mental Health Issues

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Abstract

These days, we read innumerable news stories on an almost daily basis concerning trauma, bullying, cyberbullying, loneliness, and teen suicide. Many school-based preventative and positive youth development programs aim to strengthen the bonds between teenagers and their peers, families, and communities. Counselors, psychologists, and program reviewers for youth intervention are beginning to regard the development of connectivity as an essential outcome (Foster et al., 2017; Karcher & Sass, 2010). The purpose of the study is to investigate how important it is for teenagers to feel connected to others to lessen the number of bullying incidents and inadequate mental health indicators that are reported. The research uses a quantitative approach utilizing the 2021 Pennsylvania Youth Survey (PAYS)—data collected from 6th, 8th, 10th, and 12th-grade students. Family, community, and school connectivity had more protective variables in their lives in males than in females and others. However, peer connectedness was stronger among the females than the males and others. The protective factors of community, family, school, and individual/peer connectedness show significance in the most influential reported incidence of bullying and adverse mental health indicators (depression and sleep habits, suicide ideation, and stress).

Keywords: mobile learning, mLearning, on-the-go learning, bullying, victim, bystander, cyberbullying, loneliness, suicide ideation, suicide

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Introduction

Today, we see countless news articles about bullying, cyberbullying, loneliness, trauma, and suicide among our adolescents almost daily. Many school-based preventative and positive youth development initiatives aim to increase adolescents' connections to the community, school, families, and peers. Connectivity promotion is increasingly seen as an essential intervention result by counselors, psychologists, and reviewers of youth intervention programs (Foster et al., 2017; Karcher & Sass, 2010). According to the Foster et al. (2017) article, supporters of connectivity as a preventative framework propose that connections can contribute to a greater sense of belonging, a more extensive social network, active participation in one's community, improved perceptions of closeness and support, the supply of practical resources and health information, exposure to positive modeling, and mentorship. Other issues, such as fear, sadness, mental pain, belittlement, self-harm, armed violence, gang pressure, and a high rate of suicide, plague our youth (David-Ferdon et al., 2018; Foster et al., 2017; Gourneau, 2012; UNICEF, 2018). The research aims to explore the importance of adolescents' connectedness with others' likelihood to reduce reports of the prevalence of bullying and poor mental health indicators.

Literature Review

Reported increases in the incidence of mental health issues and bullying are global problems (Man et al., 2022). Determination of the importance of connectedness of social bonds on reports of bullying and adverse mental health is needed to identify opportunities for prevention efforts. These bonds can include peers, parents, families, teachers, schools, health, and community organizations, which can be approached holistically through reports of connectedness. We propose conducting a quantitative study with secondary data from the

Pennsylvania Youth Survey Report 2021. The study investigates the significance of adolescents' social connectivity in reducing bullying and poor mental health indicators.

Research Questions:

1. What elements of adolescents' behaviors in connectedness differ based on gender?

2. What elements of adolescents' behaviors in connectedness influence the prevalence of reports of being bullied?

3. What elements of adolescents' connectedness behaviors most influence reported incidence of negative mental health indicators?

What is Connectedness?

The degree to which individuals or groups are socially connected, interconnected, or share resources means connectedness (Foster et al., 2017; Karcher & Sass, 2010). School connectivity occurs when students believe that educators and classmates are interested in their learning and in them as individuals (Foster et al., 2017; Karcher & Sass, 2010). Schools can help the youth feel connected by playing an essential role in encouraging their health and development (American Psychological Association, 2014). Peer connectedness involves feeling cared for, supported, and included at school (Carter et al., 2015; Foster et al., 2017). Feeling loved, cared for, cherished, and respected by one's parents is defined as connectedness to parents and family (Foster et al., 2017; Mueller et al., 2011). When adolescents feel disconnected from any relationship, family, peers, or school, it creates another harmful indicator of loneliness. Loneliness is additionally linked to a lack of interpersonal abilities to fulfill the shifting expectations of teenagers in varied encounters (Cicognani et al., 2014, p. 416).

Adolescent Behaviors in Connectedness and Depression & Sleep Habits

Since the COVID-19 epidemic began, mental health markers such as depression have increased considerably. Although depression symptoms can be harmful at any age, depression in teens is especially problematic since it can lead to both contemporaneous and lifelong problems

(Carter et al., 2015; Mueller et al.,2011). According to Mueller et al. (2011) study, family relationships are essential to consider because previous research has shown that for adolescents, parental and family connectedness tends to predict overall healthy development due to the ongoing need for warmth and support during the tumultuous adolescent years.

However, according to Carter et al. (2015) research, adolescents who experience relationship difficulties or cannot connect with peers are at risk for various adverse outcomes, including poor academic achievement, depression, anxiety, and prolonged loneliness. Loneliness is a psychologically uncomfortable and stressful state that arises when a person's desired interpersonal relationships differ from those they believe they have (Carter et al., 2015).

Adolescent Behaviors in Connectedness and Suicide Ideation

When adolescents are connected and feel good about their family, school, and peer relationships, they do not feel isolated or alone. During the adolescent era, the likelihood of having suicidal thoughts skyrockets. Suicide is the second leading cause of teenage fatalities in the United States, according to the Centers for Disease Control and Prevention's youth risk behavior survey data and summary trend report: 2011-2021 (Ethier & Mermin, 2023). Suicidal ideation is abnormal and can indicate severe discomfort and mental health problems that require medical intervention.

The Kuramoto-Crawford et al. (2017) study indicated that adolescents in two-parent households who reported high parent-child connectedness (PCC) with their mothers and fathers during adolescence were at a lower risk for reporting suicidal ideation during adolescence, which was also seen in young adulthood (Kuramoto-Crawford et al., 2017). Hence, the research done by Foster et al. (2017) supports the study by Kuramoto-Crawford et al. (2017), where youth who have a close relationship with their parents are less susceptible to suicide.

Adolescents Connectedness and Bullying and Cyberbullying

Bullying is common among adolescents all over the world. According to UNICEF research from 2018, more than one-third of students aged 13 to 15 worldwide have experienced various forms of bullying (UNICEF, 2018; Man et al., 2022). Both bullying and cyberbullying can lead to poor mental health indicators. Bullying is "any unwanted aggressive behavior(s) by another young person or group of young people who are not siblings or current dating partners, involving an observed or perceived power imbalance, which is repeated several times or is extremely likely to be repeated" (Foster et al., 2017; Lucas-Molina et al., 2021; Man et al., 2022). Cyberbullying is similar to bullying, except it is online through information and communication technologies (ICTs) such as mobile phones, email, social media networks, blogs, web pages, and chats (Lucas-Molina et al., 2021; McLoughlin et al., 2019).

The Lucas-Molina et al. (2021) study looks at the links between individual levels of bullying and cyberbullying and three adjustment outcomes (suicidal behavior, depressive symptoms, and self-esteem), as well as the moderating role of student connectedness at school. The study included 1,774 students aged 14-18 years, 53.7% female, from 31 secondary schools in Spain. The findings of traditional victimization and cyber victimization, as well as cyberbullying, were connected to suicidal behavior and sadness but not to self-esteem. The study by Forest et al. (2017) concurs that bullying and cyberbullying are related to poor mental health indicators like emotional problems (depression, suicide ideation, and social anxiety), behavior problems (non-suicidal self-injury (NSSI), sexual intercourse, alcohol, and substance use), and adaptive functioning (self-esteem). However, this study does not examine behavior problems like non-suicidal self-injury (NSSI), sexual intercourse, alcohol, and substance use. Both studies found substantial correlations between adolescents' levels of connectedness, especially with parents and schools.

Adolescent Behaviors in Connectedness and Stress

Adolescents today face many stressful and traumatic experiences, especially with armed violence, physical fighting in schools more than ever, or someone close who dies. Foster et al. (2017) investigated the research hypothesis that lower rates of emotional and behavioral disorders would be connected with family, school, and community. The findings showed that youth who felt more connected to their school reported decreased depressive symptoms, suicidal ideation, anxiety about social situations, sexual behavior, improved self-esteem, and more adaptive use of leisure time (Foster et al., 2017). Another source of stress for youth includes a genetic tendency to suicidal behavior and social circumstances or emotional stress linked with experiencing a family member attempting suicide (Kuramoto-Crawford et al., 2017). However, the study shows that parent-child connectedness (PCC) is an intervention to reduce suicide ideation and depressive symptoms (Kuramoto-Crawford et al., 2017).

In contrast to Foster et al. (2017), school connectivity was a strong independent predictor of lowering various emotional difficulties. School and parent-family connectedness were significant independent factors linked with lower depression scores in the regression model. However, school and community were critical, independent factors associated with lower anxiety scores. Girls reported significantly higher levels of depressive symptoms, suicidal thoughts, and social anxiety than boys, according to the study. Concerningly, young people with depression are typically hesitant to seek care, and those with severe depressive symptoms are less likely than their peers with milder depression symptoms to seek help from anyone. Furthermore, depending on their perception of social support, teenagers are more likely to seek help from friends or family rather than official agencies (Foster et al., 2017).

Methods

Participants

The PAYS was administered to over 1,072 schools within 66 Pennsylvania counties with parental approval and support. Initially, The Pennsylvania Youth Survey for the fall of 2021 drew in 261,685 students from public and private schools around the State. Two hundred forty-six thousand eighty-one (249,312) surveys were included in the final local-level reports after eliminating odd-grade and invalid/dishonest responses. The participants comprised 62,052 sixth graders, 72,076 eighth graders, 61,993 tenth graders, and 50,191 twelfth graders. The student information was coded for confidentiality and anonymity, and secondary data was publicly available from the Pennsylvania Government website. The research will use 20 items from the 242 questionnaires corresponding to four aspects of participants' replies on different scales.

Instrument

In collaboration with the Pennsylvania State University and Bach Harrison, L.L.C., the Pennsylvania Department of Education, the Pennsylvania Department of Drug and Alcohol Services, and the Pennsylvania Commission on Crime and Delinquency, they coordinated the 2021 Pennsylvania Youth Survey (PAYS)**.** The PAYS instrument will utilize 20 items from the PAYS 242 questionnaire survey concerning Bullying, Suicide Ideation, Depression, and Sleep Habits. There will be two items (X2rc): "Grade," (X5recode) "Gender" of demographic information. Three behavioral elements (F4drecodeLR) "Attempted," (A14recode) "Feel Safe School," and (F5recode) "Close Person Died," were removed from Factor1, Factor2, and Factor4 to improve the internal consistency reliabilities of the four sub-scales to give us 15 remaining items. See below:

- Factor1, Depression & Sleep Habits, consists of the items –
  (C4recode, C6recode, C7recode, C5recode, D8recode, D9recode, F4arecode). *See Appendix A.*

- Factor2, Suicide Ideation, consists of items – (F4brecode, F4crecode, F4drecode, E6frecode). *See Appendix A.*

- Factor3, Bullying, consists of the items – (F1drecode and F1arecode). *See Appendix A.*

- Factor4, Stress, consists of the items – (B24Brecode and B24Arecode). See *Appendix A.*

According to the Pennsylvania Youth Survey State Report 2021, the protective factors (Community, School, Family, and Peer) will be used to show how connectedness significantly reduces depression and sleep habits, suicide ideation, bullying, and stress. See *Appendix B.* Protective factors positively influence and function as a safeguard against the negative influence of risk, lowering the likelihood of teenagers engaging in harmful behaviors (*Pennsylvania Youth Survey State Report*, 2021).

Data Analysis

Procedures

Content Validity / Reliability Analysis of Scale Items

The PAYS secondary data was downloaded from the Pennsylvania government website using an SPSS script and transformed into IBM SPSS software for analysis. The number of items used in the data analysis will be 17 PAYS items, two demographics, and the remaining 15 questionnaire items for the factor loadings extraction. The descriptive data are shown in Table 1 for the survey collected data of the Pennsylvania Youth Survey (PAYS) from the state report 2021. The 15 items were re-coded due to different scales throughout the questionnaire survey, and system and user-defined missing values are treated as missing. Statistics are based on circumstances with no missing values for any variable. The item that received the most agreement was (D8recode) "Sleep hours," while (B24Brecode) "Skipped Meal" received the least backing.

Descriptive Statistics on Scale Items

Table 1

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Skipped Meal	210649	.00	1.00	.0493	.21655
Food Ran Out	211957	.00	1.00	.0964	.29508
Plan suicide	200424	.00	1.00	.1494	.35651
Self Harm	203118	.00	1.00	.1797	.38397
Seriously considered	201347	.00	1.00	.1872	.39010
Attempts	203057	.00	4.00	.1933	.63312
Bullied	206497	.00	2.00	.2936	.55978
Stopped activities	202323	.00	1.00	.3099	.46246
Cyberbullied	206751	.00	3.00	.5950	.84114
Not worth it	214891	.00	3.00	.8883	1.01135
Failure	214104	.00	3.00	.8932	1.00336
No good	214667	.00	3.00	1.1181	1.05773
Sad most days	215117	.00	3.00	1.2031	1.07100
Tired Sleep	206025	.00	2.00	1.2464	.56983
Sleep hours	206706	.00	6.00	2.9017	1.50960
Valid N (listwise)	158205				

Reliability Analysis on Scale Items

The options scale was used to analyze the scale items, *followed by a reliability analysis* using the IBM SPSS program. According to DeVellis & Thorpe (2021), p. 130, the scale had a respectable level of reliability and obtained a Cronbach's Alpha dependability value =.73, as shown in Table 2. The item-total statistics output from SPSS, Table 3, shows that deleting items like "Feel Safe School," "Sleep Hours," and "Close Person Died" would improve Cronbach's Alpha.

Table 2

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.734	.817	17

Table 3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Sad most days	11.4371	23.091	.721	.678	.668
Not worth it	11.7443	23.140	.772	.756	.663
No good	11.5150	22.884	.755	.764	.663
Failure	11.7331	23.379	.747	.750	.667
Cyberbullied	12.0454	27.168	.437	.423	.710
Bullied	12.3418	28.777	.436	.408	.716
Stopped activities	12.3127	28.366	.623	.488	.707
Seriously considered	12.4326	28.952	.603	.588	.712
Plan suicide	12.4725	29.462	.532	.518	.718
Attempts	12.4346	28.352	.442	.355	.713
Feel Safe School	10.5665	33.964	-.322	.169	.779
Food Ran Out	12.5310	30.684	.277	.349	.730
Skipped Meal	12.5735	31.001	.252	.344	.732
Sleep hours	9.7337	35.890	-.363	.224	.841
Tired Sleep	11.3669	29.544	.289	.241	.725
Self Harm	12.4414	29.082	.583	.420	.714
Close person died	12.2478	30.654	.141	.034	.735

Construct Validity / Factor Analysis

The procedure to analyze the scale items was the option of *Dimension Reduction* and then *Factor* using the IBM SPSS program. The analysis of the PAYS instrument is shown in Table 4 by the KMO and Bartlett's test to analyze the proportion of variance. The overall KMO measure for factor analysis is .91, indicating good sampling adequacy. Bartlett's Test of Sphericity is considered statistically significant, with a $p<.001$, indicating a strong correlation in the PAYs data. Next, the scree plot analysis depicts four factors showing a positive variance that is more significant than the eigenvalue one in the initial solution. See Figure 1. In the Table of Factor Extractions, 67% of the total variance for the four factors is about the same as the initial solution. See Table 5.

In the Table of Rotated Component Matrix, scaling to three and four factors generated near the same results. The Sleep Habits items were rotated with Depression items in both factor

scaling methods. However, executing with three factors, item (A14recode) "Feel Safe School" was below .5 at .43 in Factor2 loadings, and element (F5recode) "Close Person Died" was below .5 at .29 in Factor 3 loadings were removed. See Table 6. The four sub-scales show that the internal reliability consistencies for Factor1 are very good, and Factor3 & 4 are respectable (DeVellis & Thorpe, 2021, p. 130). However, Factor2 is undesirable at .60, but the items are acceptable according to the DeVellis Alpha guidelines (DeVellis & Thorpe, 2021, p. 130). See Table 7.

Table 4

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.908
Bartlett's Test of Sphericity	Approx. Chi-Square	1389339.091
	df	105
	Sig.	<.001

Figure 1

Scree Plot
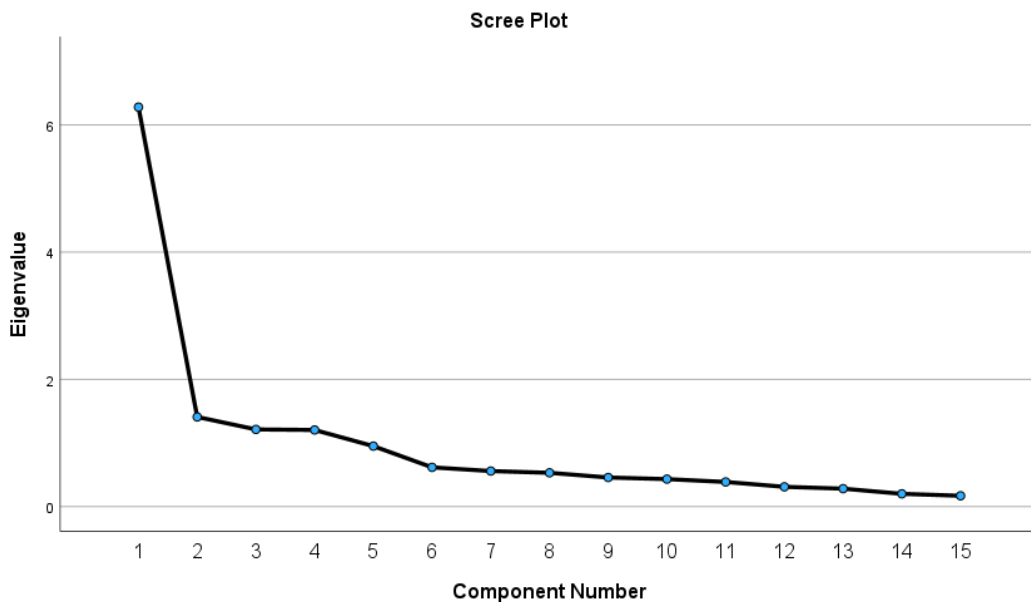
Table 5

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.280	41.863	41.863	3.473	23.151	23.151
2	1.409	9.393	51.256	3.215	21.431	44.582
3	1.213	8.085	59.342	1.848	12.317	56.899
4	1.204	8.028	67.369	1.571	10.471	67.369
5	.950	6.336	73.706			
6	.617	4.111	77.816			
7	.558	3.722	81.538			
8	.531	3.540	85.078			
9	.457	3.047	88.125			
10	.432	2.878	91.002			
11	.387	2.580	93.583			
12	.311	2.071	95.653			
13	.282	1.878	97.532			
14	.200	1.337	98.868			
15	.170	1.132	100.000			

Extraction Method: Principal Component Analysis.

Table 6

Rotated Component Matrix[a]

	Component			
	1	2	3	4
No good	.744	.365	.269	
Sad most days	.734	.344	.273	
Failure	.723	.408	.246	
Not worth it	.698	.486	.230	
Tired Sleep	.661			
Sleep hours	-.602			-.143
Stopped activities	.535	.480	.189	
Plan suicide	.184	.818		
Seriously considered	.277	.806		
Attempts		.747	.115	.151
Self Harm	.316	.611	.237	
Bullied		.173	.857	
Cyberbullied	.180	.134	.848	
Skipped Meal	.100	.132		.867
Food Ran Out	.138	.103	.109	.851

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Table 7

Internal Consistency Reliabilities of Four Sub-Scales of the PAYS

| Adolescents' social connections would be likely to lower reports of the prevalence of Bullying and indications of poor mental health.	Cronbach's Alpha	Items
Factor1, Depression & Sleep Habits	.80	7
Factor2, Suicide Ideation	.60	4
Factor3, Bullying	.72	2
Factor4, Stress	.70	2

Construct Validity / High Order Analysis

The high-order analysis of the four sub-scales represents the high order of the factors. In the Table of Factor Extractions, 100% of the total variance for the four factors is about the same as the initial solution. See Table 8. The high order of the factors is seen in Figure 2 by Factor3 being high on the 2.0 at.97 on the scree plot. Factor4 is the highest at.99 at the second point, Factor1 at 92, and Factor2 at 91. See Table 9. The eigenvalue is not significant in the high-order analysis.

Table 8

Total Variance Explained

	Initial Eigenvalues			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.153	53.833	53.833	1.015	25.384	25.384
2	.837	20.913	74.746	1.010	25.238	50.622
3	.667	16.683	91.429	.992	24.796	75.417
4	.343	8.571	100.000	.983	24.583	100.000

Extraction Method: Principal Component Analysis.

Figure 2

Scree Plot
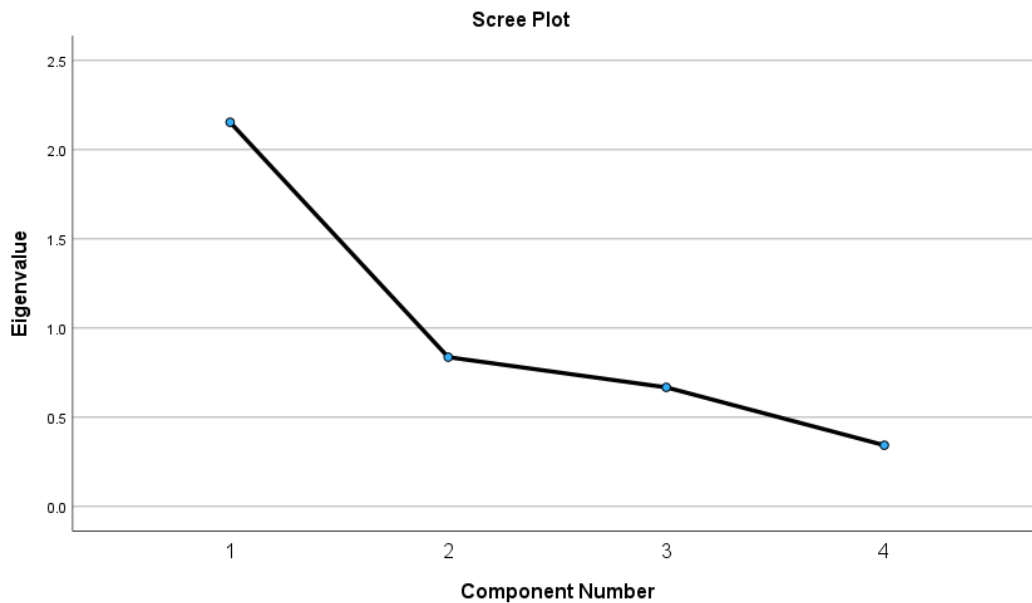
Table 9

Rotated Component Matrix[a]

	Component			
	1	2	3	4
Factor3	.967		.161	.176
Factor4		.985	.110	.101
Factor1	.180	.129	.918	.327
Factor2	.201	.119	.332	.914

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Construct Validity / Hierarchial Clustering Analysis

The procedure to analyze the scale items was to classify them and then use the

hierarchical *cluster* using the IBM SPSS program. Hierarchical clustering analysis is a method

that identifies how to build a hierarchy of clusters or categories. According to Dunn-Rankin et

al., it could be nonmetric clustering method similarities, or the distances are either measured to

the closest member in a cluster or the farthest member in a group (Dunn-Rankin et al., 2014. p.

134). We will utilize the four sub-scales, Factor1, Factor2, Factor3, and Factor4.

In Figure 3, the visual view of the Dendrogram establishes a distance matrix of objects

closer in the distance with successive combining techniques as clusters are formed (Dunn-Rankin

et al., 2014. p. 121). The method executed between-groups linkage. The next step was measuring

with an interval of Squared Euclidean distance and clustering variables with standardization of Z

scores. The distance between Factor1 (Depression and Sleep Habits) and Factor2 (Suicide

Ideation) is the closest in association and aligned to the High Order Analysis. Factor3 (Bullying)

and Factor4 (Stress) are the farthest distance in an association and aligned to the High Order

Analysis. See Figure 3 and Table 6 above.

Figure 3

Dendrogram using Average Linkage (Between Groups)
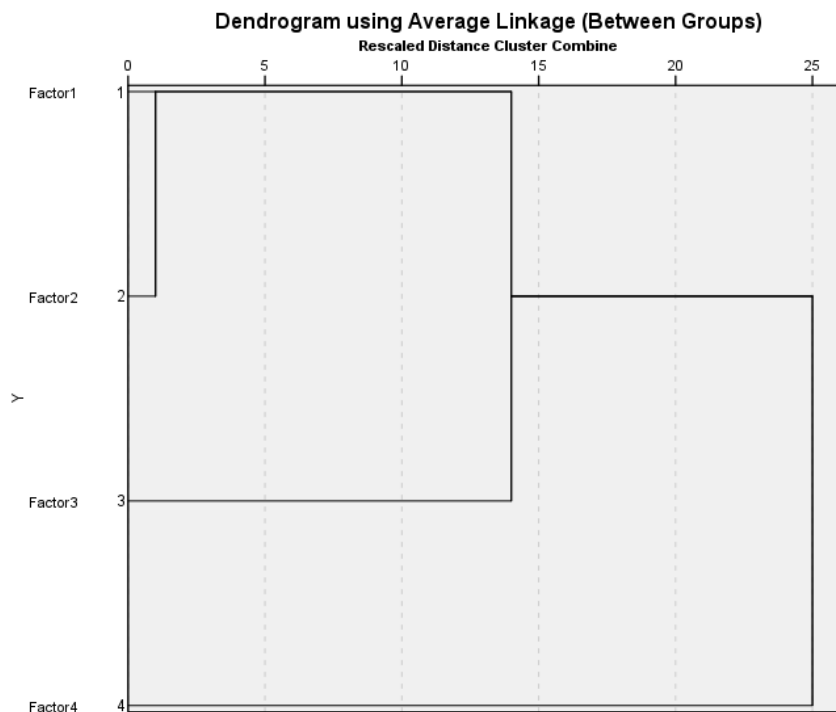
In Figure 4, the visual view of the Dendrogram shows that all items, instead of the four

sub-scale factors, utilize the same method in Figure 1. The Factor1 sub-scale shows that items

(C4recode, C6recode, C7recode, C5recode, F4arecode) are closely related in the association.

However, items (D8recode) from Factor1 were the farthest in cluster 2 in the association

compared to the factor analysis. The item (D9recode) from Factor1 is closely associated with

(F1arecode, F1drecode, B24Arecode, B24Brecode). This association is depicted differently from

the factor analysis, showing that the item "Tired Sleep" is more associated with the items

"Bullying" and Stress" from Factor3 & 4 than Factor 1(Depression & Sleep Habits) compared to

the factor analysis. Factor2 Suicide Ideation items (F4brecode, F4crecode, F4drecode,

E6frecode) cluster closely related. Factor3, bullying items (F1drecode and F1arecode), and

Factor4, Stress items (B24Brecode and B24Arecode), align close in the association as depicted

on the Dendrogram. See Figure 4. However, additional data partitioning may be required to

investigate the four sub-scale associations more thoroughly than the factor analysis.

Figure 4

Dendrogram using Average Linkage (Between Groups)
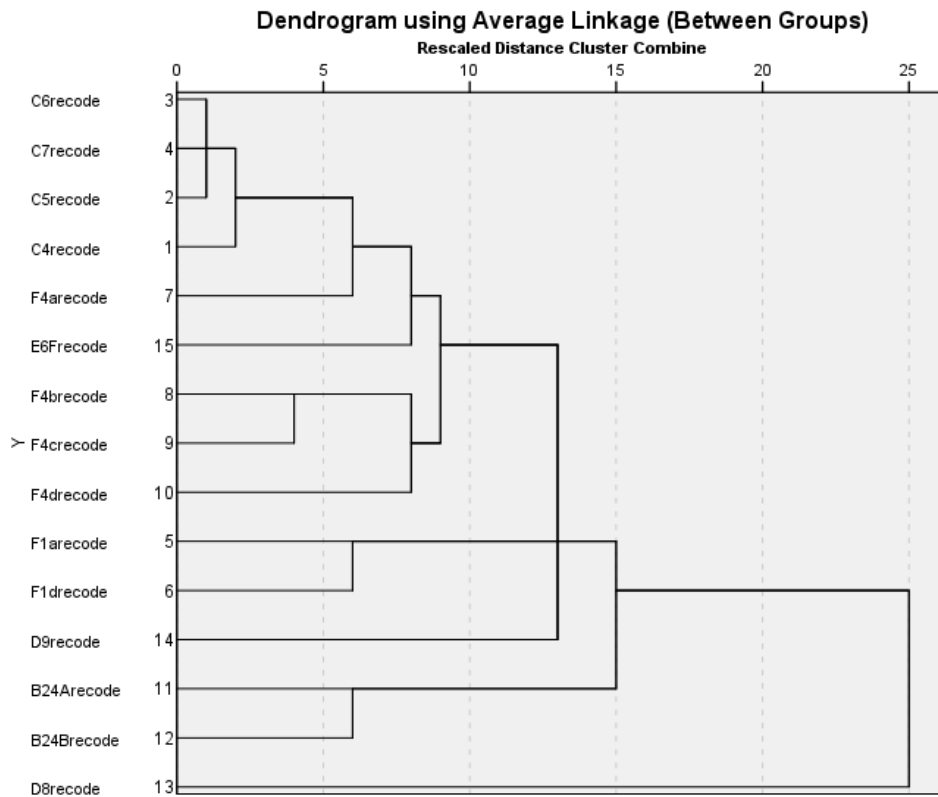
Construct Validity / Multidimensional Scaling Analysis

Using multidimensional scaling (MDS), it is possible to see how similar the individual examples in a dataset are to one another. MDS attempts to provide a picture of the similarities between objects by mapping their distances. The pairwise "distances" between a group of items or people are converted into a configuration of points mapped onto an abstract Cartesian space using MDS. (Dunn-Rankin et al., 2014. p. 175) In MDS, the default setting for distance is Euclidean distance. MDS can make the optimal decision based on the discrepancies between the actual lengths and their anticipated values. Stress is the terminology for this measure.

The two-dimensional solution using the procedure ALSCAL (Euclidean distance, interval measures) accounted for 83% (RSQ = .82816) of the distances between the 15 survey items. The Euclidean distance model shows each stimulus representing a point; their distances correspond to dissimilarities. In Figure 5 below, Factor1, Depression & Sleep Habits items (C4recode, C6recode, C7recode, C5recode, D9recode, F4arecode) are close in the distance except element D8recode is the farthest away in Figure 5. Hence, we may need to do further analysis to investigate this outlier. This view correlates to the picture in the Dendrogram in Figure 4 of the hierarchical cluster analysis. Additionally, item D9recode is closer to Factor 3 Bullying (F1drecode and F1arecode), as shown in Figure 5, like the view in the Dendrogram in Figure 4. There is a correlation between the closeness of the items for Factor 2 (F4brecode, F4crecode, F4drecode, and E6frecode), Factor 3 (F1drecode and F1arecode), and Factor 4 (B24Brecode and B24Arecode). All three factors aligned with the factor analysis rotation in Table 6.

Figure 5
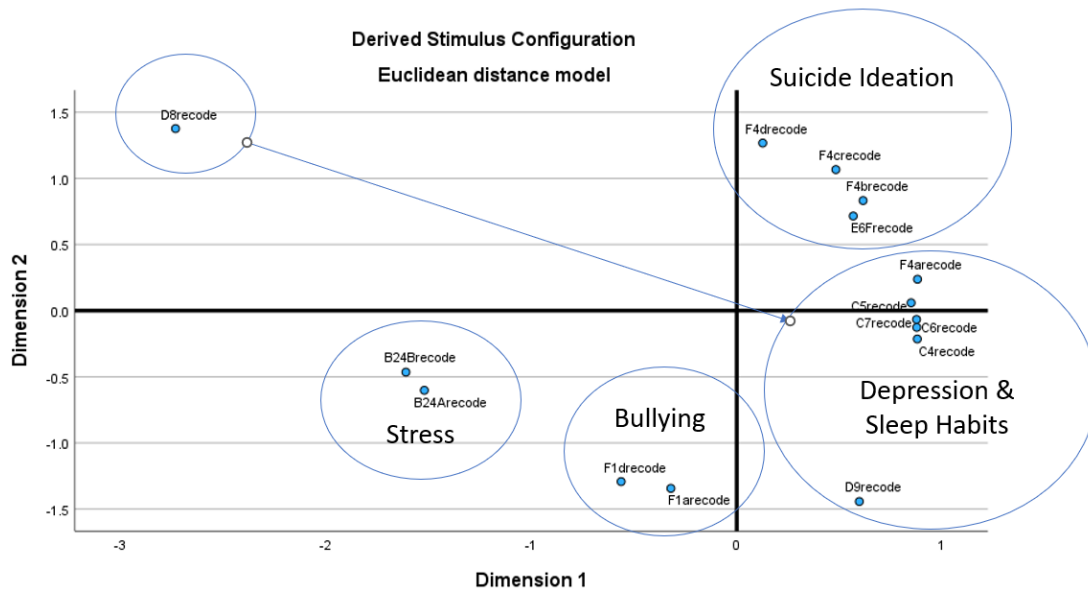
Content Validity / Reliability Analysis of Protective Factors

The options scale was used to analyze the scale items, *followed by a reliability analysis*

using the IBM SPSS program. According to DeVellis & Thorpe (2021), p. 130, the scale had a

respectable level of reliability and obtained a Cronbach's Alpha dependability value =.73, as

shown in Table 10.

Table 10.

Reliability Statistics

Cronbach's Alpha	N of Items
.729	8

Criterion-Related Validity

One-way ANOVA analysis of variance descriptives of elements of adolescents' behaviors in connectedness differs based on gender.

The Compare means proportions and one-way ANOVA options generated the analysis of variance. Table 11 depicts a one-way ANOVA analysis of variance. (X5recode) "Gender" as the independent variable. *See Appendix A.* The dependent list includes protective factors (community, school, family, and peer). *See Appendix B.* The most significant number of participants were male. *See Appendix B.* The elements were more substantial among males (means =.63, .65 & .49) than the females (means =.59, .56 & .50) and others (means =.31, .28 & .26) for family connectedness. Community connectedness males (mean =.39) had more protective factors operating in their lives than the females (mean =.38) and others (mean =.18). School connectedness males (means =.43 & .53) were more substantial than the females (means =.45 & .50) and others (means =.31). However, peer connectedness the females (means =.33 &.57) were more substantial than the males (means =.31 & .52) and others (means =.16 & .31).

Table 11

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Protective score - Family opportunities for involvement scale	Other	7136	.3084	.46188	.00547	.2977	.3192	.00	1.00
	Female	103860	.5912	.49161	.00153	.5883	.5942	.00	1.00
	Male	106837	.6337	.48181	.00147	.6308	.6365	.00	1.00
	Total	217833	.6028	.48932	.00105	.6007	.6048	.00	1.00
Protective score - School opportunity for involvement scale	Other	7004	.3043	.46012	.00550	.2935	.3150	.00	1.00
	Female	100994	.4502	.49752	.00157	.4472	.4533	.00	1.00
	Male	103920	.4267	.49459	.00153	.4236	.4297	.00	1.00
	Total	211918	.4339	.49561	.00108	.4317	.4360	.00	1.00
Protective score - Family attachment scale	Other	7093	.2782	.44813	.00532	.2677	.2886	.00	1.00
	Female	103097	.5612	.49624	.00155	.5582	.5643	.00	1.00
	Male	106076	.6503	.47687	.00146	.6475	.6532	.00	1.00
	Total	216266	.5957	.49076	.00106	.5936	.5977	.00	1.00
Protective score - Community rewards for involvement scale	Other	6996	.1817	.38560	.00461	.1726	.1907	.00	1.00
	Female	100891	.3785	.48502	.00153	.3755	.3815	.00	1.00
	Male	103562	.3869	.48704	.00151	.3839	.3899	.00	1.00
	Total	211449	.3761	.48441	.00105	.3740	.3782	.00	1.00
Protective score - Family rewards for involvement scale	Other	7105	.2566	.43678	.00518	.2464	.2667	.00	1.00
	Female	103517	.5434	.49811	.00155	.5404	.5465	.00	1.00
	Male	106280	.6198	.48545	.00149	.6168	.6227	.00	1.00
	Total	216902	.5714	.49487	.00106	.5694	.5735	.00	1.00
Protective score - School rewards for prosocial involvement	Other	6975	.3289	.46984	.00563	.3179	.3399	.00	1.00
	Female	101130	.4951	.49998	.00157	.4920	.4982	.00	1.00
	Male	103920	.5316	.49900	.00155	.5285	.5346	.00	1.00
	Total	212025	.5075	.49994	.00109	.5054	.5096	.00	1.00
Protective score - Peer-individual religiosity scale	Other	7090	.1583	.36500	.00433	.1498	.1667	.00	1.00
	Female	100925	.3321	.47096	.00148	.3292	.3350	.00	1.00
	Male	103301	.3132	.46380	.00144	.3104	.3160	.00	1.00
	Total	211316	.3170	.46531	.00101	.3150	.3190	.00	1.00
Protective score - Peer-individual belief in moral order scale	Other	6941	.3077	.46159	.00554	.2969	.3186	.00	1.00
	Female	99798	.5711	.49493	.00157	.5680	.5741	.00	1.00
	Male	101672	.5199	.49960	.00157	.5169	.5230	.00	1.00
	Total	208411	.5374	.49860	.00109	.5352	.5395	.00	1.00

One-way ANOVA analysis variance elements of adolescents' behaviors in connectedness influence the prevalence of reports of being bullied.

The data analysis depicts a One-Way ANOVA that the protective factors community, family, school, and individual/peer connectedness show significance in the prevalence of reports of Factor3 (Bullying) is influenced by connection ($p < 0.05$). To pinpoint where the significant differences are in relationship to the four sub-groups, a Post Hoc Test needs to be generated.

One-Way ANOVA analysis variance elements of adolescents' connectedness behaviors most influences reported incidence of negative mental health indicators.

The data analysis depicts a One-Way ANOVA that the protective factors of community, family, school, and individual/peer connectedness show significance in the prevalence of reports of Factor1 (Depression & Sleep Habits), Factor2 (Suicide Ideation), and Factor 4 (Stress) is influenced by connection ($p < 0.05$). To pinpoint where the significant differences are in relationship to the four sub-groups, a Post Hoc Test needs to be generated.

Results

The following statistical findings were analyzed from the data analysis using IBM SPSS on the PAYS secondary data. There were 47% female, 50% male, and 3% other who did not identify as male or female who responded. *See Appendix B.* The most significant number of participants were male. The grade levels were 25.2% 6th grade, 29.3% 8th grade, 25.2% 10th grade, and 20.4% 12th grade, comprising the total survey respondents. *See Appendix B.* Family, community, and school connectivity had more protective variables in their lives in males than in females and others. However, peer connectedness was stronger among the females than the males and others. The protective factors of community, family, school, and individual/peer connectedness show significance in the most influential reported incidence of bullying and adverse mental health indicators (depression & sleep habits, suicide ideation, and stress).

Discussion

The findings of most research studies according to a preventative framework, connections can contribute to a stronger sense of belonging, a wider network of friends, active participation in one's community, improved perceptions of closeness and support, practical resources and health information, exposure to positive modeling, and mentorship (Carter et al., 2015; Foster et al., 2017; Karcher & Sass, 2010; Mueller et al., 2011). Interventions dealing with burdensomeness, hopelessness, and connectivity may be especially beneficial in lessening the frequency of suicide that occurs nearby, i.e., on the same day (Czyz et al., 2018). Several studies discussed another emotional problem with adolescents that may need more research: loneliness, which can help reduce this adverse outcome through peers, family, and school connectedness. (Carter et al., 2015; Mueller et al., 2011). Traditional and cyberbullying are associated with poor mental health outcomes and peer connectivity has recently been found to be a potential protective element in these relationships (Lucas-Molina et al., 2021).

Limitations and Future Research

There were some limitations with the PAYS secondary data that involved re-coding due to the analysis of an honest response, and various sections of the PAYS questionnaire were not consistent in the construct of the questions and the scale it used to measure. Reporting biases by adolescents could have preferences if they do not contribute correct information on the variables of bullying, cyberbullying, depression, Stress, sleep habits, and suicide ideation. Another limitation in the research on the protector factors was peer connectedness, where each item was factored differently during the factor loadings no matter how you factored it, and community was a factor with school protective factors. Future research could examine various sub-groups within the adolescent population, investigate other risk factors, and determine how connectedness from peers, parents/family, school, and community could positively affect adjustment outcomes.

Conclusion

This research study adds to the inadequate knowledge of the protective role of school capabilities in reducing the effect of bullying and cyberbullying on mental health outcomes. Indeed, our findings could contribute to promoting the development of preventative efforts. One key finding of parent-child connectedness is critical to reducing suicide ideation among our youth. Hence, additional research can be focused on this topic. These findings underline the potential protective impact of schools and the need to develop strong relationships and foster an environment of support and coherence as a critical component. Furthermore, our findings demonstrate that a sense of social belonging is essential for building a safe and healthy school environment.

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Appendix A

PAYS Survey Scale Items

PAYS Re-code	Label	PAYS Survey Question
X2rc	Grade	What grade are you in?
X5recode	Gender	Are you?
C4recode	Sad most days	I felt depressed or sad MOST days in the past 12 months.
C5recode	Not worth it	Sometimes, I think that life is not worth it.
C6recode	No good	At times, I think I am no good at all.
C7recode	Failure	All in all, I am inclined to think that I am a failure.
F1arecode	Cyberbullied	During the past 12 months, have you been bullied through texting and/or social media?
F1drecode	Bullied	Please state whether you have been bullied during the past 12 months.
F4arecode	Stopped activities	Did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities?
F4brecode	Seriously considered	Did you ever seriously consider attempting suicide?
F4crecode	Plan suicide	Did you make a plan about how you would attempt suicide?
F4drecode	Attempts	How many times did you actually attempt suicide?
*F4drecodeLR	~~Attempted~~	~~If you attempted suicide during the past 12 months, did any attempt result in an injury, poisoning or overdose that had to be treated by a doctor or nurse?~~
*A14recode	~~Feel Safe School~~	~~I feel safe at my school.~~
B24Arecode	Food Ran Out	Worried that food at home would run out before family got money to buy more.
B24Brecode	Skipped Meal	Skipped a meal because family didn't have enough money to buy food.
D8recode	Sleep hours	On average, sleeping less than 7 hours a night on school nights.
D9recode	Tired Sleep	Felt tired or sleepy during the day "every day" or "several times" during the past two weeks.
E6Frecode	Self Harm	How many times in the past 12 months have you done anything to harm yourself (such as cutting, scraping, burning) as a way to relieve difficult feelings, or to communicate emotions that may be difficult to express verbally?
*F5recode	~~Close person died~~	~~In the past 12 months, have any of your friends or family members close to you died?~~

*Note: Three items were removed to enhance the internal reliability consistencies of the sub-scales.

Appendix B

Protective Factors

Community Protective Factor	Label
Protective score – Community rewards for involvement scale	Rewards for Prosocial Involvement
Family Protective Factors	**Label**
Protective score – Family attachment scale	Family attachment
Protective score – Family opportunities for involvement scale	Opportunities for Prosocial Involvement
Protective score – Family rewards for involvement scale	Rewards for Prosocial Involvement
School Protective Factors	**Label**
Protective score – School opportunity for involvement scale	Opportunities for Prosocial Involvement
Protective score – School rewards for prosocial involvement	Rewards for Prosocial Involvement
Individual/Peer Protective Factors	**Label**
Protective score – Peer-individual religiosity scale	Religiosity
Protective score – Peer-individual belief in moral order scale	Belief In The Moral Order

Demographics

Table 12

Gender

		N	%
Other		7947	3.2%
Female		114831	46.6%
Male		121909	49.5%
Missing	System	1625	0.7%

Table 13

Grade

	N	%
Grade6	62052	25.2%
Grade8	72076	29.3%
Grade10	61993	25.2%
Grade12	50191	20.4%