

ORIGINAL ARTICLE

The relation between aggression, hostility, anger, and behavioral problems among students in Minia City, Egypt: a cross-sectional comparative study

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Background

Aggression is defined as the delivery of an aversive stimulus from one person to another, with intent to harm and with an expectation of causing such harm, when the other person is motivated to escape or avoid the stimulus. Hostility is a more multifaceted construct involving affect and expressive behavior in addition to negative attitudes. Anger is a multidimensional construct consisting of physiological, cognitive, phenomenological, and behavioral variables.

Patients and Methods

A cross-sectional comparative study was performed in five schools in Minia City. A total of 285 students were recruited from governmental schools, 135 students were recruited from an experimental school, and 101 students were recruited from private schools.

Hostility was a significant predictor of verbal aggression. Although anger was a significant predictor of verbal aggression, behavioral problems were a significant predictor for verbal and physical aggression. Emotional problems were a significant predictor of relational and cyber bullying. Social problems were a significant predictor of verbal and physical bullying.

Conclusions

Different forms of aggression, hostility, and anger are prevalent among adolescent students in different schools and areas and in both sexes. Male sex, lower socioeconomic areas, governmental schools, and social difficulties were significantly correlated with most forms of aggression, hostility, and anger.

Keywords

Aggression, Anger, Behavioral problems, Hostility, Minia City, Egypt.

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INTRODUCTION

Aggression is defined as the delivery of an aversive stimulus from one person to another, with intent to harm and with an expectation of causing such harm, when the other person is motivated to escape or avoid the stimulus (Geen, 2001).

Various forms exist, including physical, verbal, and indirect aggression. Physical and verbal aggressions are readily observable behaviors (DiGiuseppe and Tafra, 2004).

Aggression has sometimes been divided into affective (or reactive) and instrumental aggression (Bushman and Anderson, 2001).

Affective aggression, as the name suggests, is aggression associated with negative affect (usually anger).

Instrumental aggression is typically goal driven and is relatively devoid of affect. However, the distinction is not entirely clear-cut, and as a result, some theorists have advocated abandoning the affective-instrumental distinction (Bushman and Anderson, 2001).

Previous research has proposed several types of aggressive behavior. The mostly used categories are physical, verbal, and indirect aggression (Haller, 2014).

Previous research has shown that aggression can be affected by many factors, such as sex (Giancola and Parrott, 2008) and exposure to violent media (Bushman, 1995). Several theories have been developed to integrate these factors and explain their relationships with one another (Giancola and Parrott, 2008).

Other faces of aggression include hostility and anger. The standard definition of hostility is often credited to Buss (1961), who regarded the construct as an attitude that involves a dislike and negative evaluation of others.

Barefoot and Lipkus (1994), view hostility as being a more multifaceted construct involving affect and expressive behavior in addition to negative attitudes. The central features distinctive to the hostility construct involve the cognitive variables of cynicism (believing that others are selfishly motivated), mistrust (an overgeneralization that others will be hurtful and intentionally provoking), and denigration (evaluating others as dishonest, ugly, mean, and nonsocial) (Miller *et al.*, 1996).

More current definitions regard anger as a multidimensional construct consisting of physiological (general sympathetic arousal and hormone/neurotransmitter function), cognitive (irrational beliefs, automatic thoughts, and inflammatory imagery), phenomenological (subjective awareness and labeling of angry feelings), and behavioral (facial expressions and verbal/behavioral anger expression strategies) variables (Kassinove and Sukhodolsky, 1995).

Researchers have considered anger and hostility as independent constructs, primarily for heuristic value and conceptual clarity. However, there are few data that support the notion that anger is indeed distinct from hostility, and future research needs to examine more explicitly any such distinctions (Deffenbacher *et al.*, 1994).

PATIENTS AND METHODS

Study design

This cross-sectional study was carried out on 521 students of both sexes in Minia City.

Setting of the study

The study was held in five schools in Minia City: two governmental schools, one experimental school, and two private schools. The governmental schools were in southern districts of Minia City. The experimental and the private schools were in northern districts of Minia City.

Patients

Sample selection

A written permission was taken from the Education Administration of Minia to carry out the study in selected schools of Minia City in the school year 2018/2019, provided that no invasive maneuvers would be done to the students. In each school, another permission was taken from the school headmaster. In cooperation with teachers and social workers in the school, all students in the second preparatory grade were explained the aim and nature of the study and the content of the questionnaires in details, and an oral consent was taken from them. All those who accepted to participate were recruited in the study.

Inclusion criteria

The following were the inclusion criteria:

- (1) All students in second grade of preparatory school.
- (2) Both sexes.
- (3) No apparent physical disability or organ failure by history.
- (4) Students' oral consent to participate in this study.

Exclusion criteria

The following were the exclusion criteria:

- (1) Students with apparent physical disability and those with history of major organ failure.
- (2) Students refusing to participate in the study.

Sample design

In governmental schools, the total number of students was 350. Among them, 65 students were excluded (10 students were absent in days of carrying out the study, six students had apparent physical disabilities, 15 students refused to participate, and 34 students did not understand the questionnaire and made the same choice in all questions). The total number recruited students was 285.

In the experimental school, the total number of students was 158. Among them, 23 students were excluded (seven students were absent in days of carrying out the study, six students refused to participate, and 10 students did not understand the questionnaire and made the same choice in all questions). The total number of recruited students was 135.

In private schools, the total number of students was 111. Among them, 10 students were excluded (eight students were absent in days of carrying out the study and two students refused to participate). The total number of recruited students was 101.

Study tools

The aggression and hostility scale for adolescents (Abdelsameea, 2009)

It consists of four subscales measuring physical aggression, verbal aggression, hostility, and anger.

Each subscale comprised 14 items. Each item was answered on a five-point Likert scale (5=happens very often, 4=happens a lot, 3=happens sometimes, 2=happens rarely, and 1=never happens). A high score indicates a higher level of aggression, and a low score indicates a lower level. Scores 56–70 indicate severe level, 42–55 indicate moderate level, 28–41 indicate mild level, and scores below 28 indicate low level.

The strength and difficulties questionnaire (Goodman, 1997) (<http://www.sdqinfo.com>)

It is a brief behavioral screening questionnaire developed by a United Kingdom child psychiatrist Robert N. Goodman for children and young adolescents between

3 and 16 years of age (Goodman, 1997). It exists in several versions to meet the needs of researchers, clinicians, and educationalists. The scale takes about 10 min to complete. Answers were given based on child’s behavior over the last 6 months.

Scores are an indicator for child psychiatric health if normal, borderline, or abnormal. It consists of five subscales measuring social difficulties, emotional symptoms, hyperactivity, friendship problems, and behavioral (conduct) problems.

Each subscale comprises 5 items. Each item was answered on a three-point Likert scale (2=happens usually, 1=happens sometimes, and 0=never happens).

Data analysis

(1) Data analysis was done by the Statistical Package for the Social Sciences (SPSS) (IBM SPSS Statistics for Windows, Version 19.0., Released 2010; IBM Corp., Armonk, New York, USA).

(2) Descriptive statistics: frequencies and percentages were calculated for categorical variables, whereas means and SDs were calculated for continuous variables.

(3) Analytical statistics:

(a) *t* tests were used to compare the groups on continuous variables.

(b) χ^2 tests were used in comparing the two groups on categorical variables.

(c) Pearson correlations were used to assess the strength of association between two quantitative variables as well as to establish the relative predictive importance of the independent variables on the dependent variables. The correlation coefficient denoted symbolically as *r* defines the strength and direction of the linear relationship between two variables.

(d) *P* value denoted the level of significance:

P value more than 0.05: nonsignificant.

P value less than 0.05: significant.

P value less than 0.01: highly significant.

RESULTS

Tables 1–4 show the data of the recruited students. There was a statistically highly significant difference between males and females regarding scores of verbal aggressions (*P*=0.001) and physical aggression (*P*=0.001) (Table 5).

There was a statistically highly significant difference between students in the three different school types regarding scores of all the four domains of the aggression and hostility scale, with *P* value less than 0.001 for all domains (Table 6).

The mean total strength and difficulty score in males was 12.6±5.48, ranging from 7 to 32; the females had a comparable mean score of 12.36±5.41, ranging from 5 to 34.

There was a statistically highly significant difference between males and females regarding score of friendship, with *P* value of 0.009 (Table 7).

The mean total strength and difficulty questionnaire score in students in governmental schools was 14.85±5.39, ranging from 5 to 34; in the students in experimental school was 15.45±5.58, ranging from 7 to 34; and in the students in private school was 12.15±4.74, ranging from 7 to 28.

There was a statistically significant difference between students in different types of schools regarding scores of all domains of strength and difficulties questionnaire, with *P* value of 0.007 for social domain, *P* value of 0.005 for hyperactivity domain, *P* value of 0.006 for emotional domain, *P* value of 0.001 for behavioral domain, *P* value less than 0.001 for friendship domain, and *P* value less than 0.001 for total score (Table 8).

There is a negative correlation between the score of social domains of strength and difficulty questionnaire on one hand and all domains of aggression and hostility scale for adolescents on the other hand and a positive correlation between the scores of hyperactive domain and emotional domain of the strength and difficulty questionnaire on one hand and all domains of aggression and hostility questionnaire for adolescents on the other hand. All these correlations were statistically highly significant, with *P* value less than 0.001 (Table 9).

There was a positive correlation between the scores of behavioral domains, friendship domain, and total score of the strength and difficulty questionnaire on one hand and all domains of aggression and hostility questionnaire for adolescents on the other hand. All these correlations were statistically highly significant, with *P* value less than 0.001.

Table 1: Sociodemographic data of the sample:

	Frequency (N=521)	Percentage
Sex		
Males	252	48.4
Females	269	51.6
School area		
Northern	236	45.3
Southern	285	54.7
School type		
Governmental	285	54.7
Experimental	135	25.9
Private	101	19.4

Table 2: Prevalence of aggression among the whole sample according to aggression and hostility scale:

Test	Minimal [n (%)]	Mild [n (%)]	Moderate [n (%)]	Severe [n (%)]
Verbal aggression	252(48.4)	198(38)	56(10.7)	15(2.8)
Physical aggression	333(63.9)	142(27.3)	38(7.3)	8(1.5)
Hostility	244(46.8)	165(31.7)	98(18.8)	14(2.7)
Anger	240(46.1)	171(32.8)	98(18.8)	12(2.3)

Table 3: Results of the strength and difficulty questionnaire among the whole sample:

Test	Normal [n (%)]	Borderline [n (%)]	Abnormal [n (%)]
Social problems	361(69.3)	54(10.4)	106(20.3)
Hyperactivity problems	438(84.1)	36(6.9)	47(9)
Emotional problems	451(86.6)	24(4.6)	46(8.8)
Behavioral problems	421(80.8)	50(9.6)	50(9.6)
Friendship problems	425(81.6)	47(9)	49(9.4)
Total score	394(75.6)	67(12.9)	60(11.5)

Table 4: Sex differences in different types of aggression:

Test	Males	Females	t test	P value
Verbal aggression				
Range	14–68	14–59	3.358	0.001**
Mean±SD	29.15±14.64	25.03±13.40		
Physical aggression				
Range	14–62	14–59	3.413	0.001**
Mean±SD	25.47±13.16	21.63±12.54		
Hostility				
Range	14–65	14–59	1.125	0.261
Mean±SD	28.68±13.67	27.27±14.89		
Anger				
Range	14–66	14–58	1.789	0.074
Mean±SD	28.47±13.94	26.14±15.68		

*Significant difference at P value less than 0.05. **Highly significant difference at P value less than 0.01.

Table 5: Results of aggression and hostility scale regarding types of school:

Test	Governmental	Experimental	Private	F	P value
Verbal aggression					
Range	14–68	14–59	14–59	53.4	<0.001**
Mean±SD	30.95±12.98	25.03±14.55	18.6±12.55		
Physical aggression					
Range	14–59	14–62	14–45	66.3	<0.001**
Mean±SD	27.46±12.38	21.61±12.39	14.78±10.42		
Hostility					
Range	14–65	14–64	14–44	73.4	<0.001**
Mean±SD	32.53±13.13	24.67±14.72	19.41±11.73		
Anger					
Range	14–66	14–61	14–59	73.5	<0.001**
Mean±SD	32.04±13.39	24.09±15.33	18.05±12.87		

*Significant difference at P value less than 0.05. **Highly significant difference at P value less than 0.01.

Table 6: Sex differences in strength and difficulties questionnaire subscales:

Test	Males	Females	t test	P value
Social				
Range	0-9	0-9	0.385	0.700
Mean±SD	5.90±1.94	5.83±2.18		
Hyperactivity				
Range	0-8	0-8	1.45	0.145
Mean±SD	2.48±2.28	2.19±2.13		
Emotional				
Range	0-8	0-8	0.960	0.337
Mean±SD	2.40±2.26	2.22±1.98		
Behavioral				
Range	0-8	0-8	1.020	0.308
Mean±SD	2.06±2.25	1.88±1.67		
Friendship				
Range	0-8	0-10	-2.632	0.009**
Mean±SD	1.78±1.90	2.26±2.23		
Total				
Range	7-32	5-34	0.504	0.614
Mean±SD	12.6±5.48	12.36±5.41		

*Significant difference at P value less than 0.05. **Highly significant difference at P value less than 0.01.

Table 7: Comparison between strength and difficulties questionnaire subscales in different school types:

Test	Governmental	Experimental	Private	F	P value
Social					
Range	0-9	1-9	4-8	5.0	0.007**
Mean±SD	5.61±2.46	6.11±1.71	6.25±.912		
Hyperactivity					
Range	0-8	0-8	0-7	5.3	0.005**
Mean±SD	2.43±2.33	2.56±2.07	1.70±1.86		
Emotional					
Range	0-8	1-8	0-8	5.1	0.006**
Mean±SD	2.38±2.30	2.58±1.83	1.73±1.81		
Behavioral					
Range	0-8	0-7	0-5	6.9	0.001**
Mean±SD	2.14±2.20	2.06±1.65	1.32±1.44		
Friendship					
Range	0-10	0-7	0-8	12.0	<0.001**
Mean±SD	2.33±2.29	2.06±1.65	1.16±1.58		
Total					
Range	5-34	7-34	7-28	12.4	<0.001**
Mean±SD	14.85±5.39	12.41±5.58	12.15±4.74		

**P value less than 0.01=highly significant.

Table 8: Correlation between aggression and social, hyperactivity, and emotional subscales of strength and difficulties questionnaire:

Test	Social SD		Hyperactive SD		Emotional SD	
	r	P	r	P	r	P
Verbal aggression	-0.534	<0.001**	0.595	<0.001**	0.601	<0.001**
Physical aggression	-0.530	<0.001**	0.594	<0.001**	0.611	<0.001**
Hostility	-0.577	<0.001**	0.608	<0.001**	0.556	<0.001**
Anger	-0.542	<0.001**	0.570	<0.001**	0.540	<0.001**

*Significant difference at P value less than 0.05. **Highly significant difference at P value less than 0.01.

Table 9: Correlation between aggression and behavioral, friendship, and total subscales of strength and difficulties questionnaire:

Test	Behavioral SD		Friendship SD		Total SD	
	r	P	r	P	r	P
Verbal aggression	0.620	<0.001**	0.562	<0.001**	0.714	<0.001**
Physical aggression	0.594	<0.001**	0.620	<0.001**	0.730	<0.001**
Hostility	0.557	<0.001**	0.580	<0.001**	0.669	<0.001**
Anger	0.538	<0.001**	0.544	<0.001**	0.641	<0.001**

*Significant difference at P value less than 0.05. **Highly significant difference at P value less than 0.01.

DISCUSSION

Discussion of sociodemographic data of the studied groups

Among a total of 521 recruited students, males represented 48.4% of the sample, whereas females represented 51.6% of the sample. Students from schools in Northern areas in Minia City (experimental and private schools) represented 45.3% of the sample, whereas those from southern areas (governmental schools) were 54.7% of the sample. More than half of the sample (54.7%) were students from governmental schools, students from experimental schools represented 25.9% of the sample, and the rest of the sample (19.4%) were students from private schools.

Aggression among the whole sample according to aggression and hostility scale

Our study found that 48.4% (n=252) of the student has minimal level of verbal aggression, 38% (n=198) of the students has mild level, 10.7% (n=56) had moderate level, and 2.8% (n=15) had severe levels. Regarding physical aggression, 63.9% (n=333) of the students had minimal level, 27.3% (n=142) of the students has mild level, 7.3% (n=38) had moderate level, and 1.5% (n=8) had severe levels. Among the whole sample, 46.8% (n=244) of the student had minimal level of hostility, 31.7% (n=165) of the students had mild level, 18.8% (n=98) had moderate level, and 2.7% (n=14) had severe levels. Regarding anger, 46.1% (n=240) of the student had minimal level, 32.8% (n=171) of students had mild level, 18.8% (n=98) had moderate level, and 2.3% (n=12) had severe levels.

This is comparable to previous Egyptian studies. Elmasry et al., (2016) in Sharqiyah governorate found that physical aggression was severe in 0.7% of the sample,

moderate in 8.5%, mild in 39.2%, and minimal in 51.7%. Regarding verbal aggression, it was severe in 0.5% of the sample, moderate in 8.0%, mild in 40.5%, and minimal in 51.1% of the sample.

Studies in other countries found wide variability in the prevalence rates of school aggression (Fekkes et al., 2005). For example, a study conducted in China found that the aggression rates in a school-based sample were 24.4% for verbal type and 27.9% for physical type (Tang et al., 2013).

Strength and difficulty questionnaire discussion

Regarding strength and difficulties questionnaire, the present study found that 75.6% of students had normal total scores, 12.9% had borderline scores, and 11.5% had abnormal scores, with the highest prevalence of borderline and abnormal scores in the social problem domain (12.9 and 11.5%, respectively) followed by behavioral problems and friendship problems.

This is consistency with established rules of classifying abnormality into three categories based on statistical thresholds ('normal' 80%, 'borderline' 10%, and 'abnormal' 10%) (Goodman et al., 1998).

Our study agreed with various epidemiological studies that have identified psychopathological abnormalities in ~10–20% of children and adolescents (Hölling et al., 2014).

Our results were slightly higher than those of Thabet et al., (2000), who found 5.3% in total difficulties among Gaza Strip students aged 16 years. This may be attributed to variation of instruments and sampling framework, for example, Thabet et al., (2000) pointed to the higher socioeconomic areas involved in their study.

The current study found that social problems were the most frequent, as 20.3% had abnormal scores, followed by behavioral, friendship, hyperactivity, and emotional

problems, as 9.6, 9.4, 9, and 8.8%, respectively, had abnormal scores.

Comparison between different study groups

Regarding sex, the current study found that males had a statistically significant higher mean scores than females in physical and verbal aggression, that is, males were involved in more severe forms of physical and verbal aggressive behaviors. Males also had higher scores (although not statistically significant) in hostility and anger.

Regarding school type, our study found that students from governmental schools had a significantly higher mean than those from experimental and private schools and that those from private in all forms of aggression. Governmental school was a significant predictive factor of all forms of aggression.

Correlation between different aggression forms with strength and difficulties questionnaire subscales, anger and hostility

Our results found that there is a negative correlation between the score of social domains of strength and difficulty questionnaire on one hand and all domains of aggression and hostility scale for adolescents on the other hand and a positive correlation between the scores of hyperactive domain and emotional domain of the strength and difficulty questionnaire on one hand and all domains of aggression and hostility questionnaire for adolescents on the other hand. All these correlations were statistically highly significant, with *P* value less than 0.001.

Hostility was a significant predictor of verbal aggression. We agreed with Felsten (1996) and Whalen *et al.*, (2010), who found that hostility was associated with stress vulnerability, poor coping, and with externalizing behaviors such as arguing, and aggression.

This can be attributed to that hostility is defined as having negative beliefs and suspicion about others, such as mistrust, so it is characterized by negative affect toward others, as stated by Johnson (1990).

In addition, hostility is related to internalizing behaviors such as withdrawal, anxiety, and depression (Hampson *et al.*, 2007), so depressed adolescents are at heightened risk for hostility and aggressive behavior because they attend selectively to the most negative features of events (Shapiro *et al.*, 1995).

Anger was a significant predictor of physical aggression and verbal bullying, as reported by Košir *et al.*, (2019), who found that students with higher levels of self-reported anger internalization and externalization reported higher levels of victimization.

Crick and Dodge (1994) discussed that victims have cognitive bias; they interpret ambiguous situations as hostile. Their anger follows from holding others responsible for negative actions against them (Camodeca *et al.*, 2002).

CONCLUSION

(1) Different forms of aggression, hostility, and anger are prevalent among adolescent students in different school types and areas and in both sexes.

(2) Male sex, lower socioeconomic areas, governmental schools, and social difficulties were significantly correlated with most forms of aggression, hostility, and anger.

(3) Private schools in higher socioeconomic and lower scores of social difficulties were significantly correlated with lower rates of different forms of aggression, hostility, and anger.

Recommendations

Recommendations based on the results of current study

(1) There should be focus on social and mental difficulties and problems of the students, as they are a very predicting factor for aggression and aggression, hostility, and anger behaviors.

(2) Efforts should be done to increase awareness of the phenomenon of aggression, hostility, and anger in the schools.

Recommendations for future research

(1) Rural areas should be included to detect the difference between urban and rural environments and its effect on students' behaviors.

(2) Further studies are needed to assess the effect of aggressive behaviors on bystanders.

Limitations of the study

From the aforementioned discussion of the methodology and the results, we can conclude the following limitations of the present study:

(1) The use of only self-reported questionnaires to assess school bullying and aggression and strength and difficulties.

(2) The tool used for detecting bullying and aggression perpetrator only and no tool was used for assessing the victim.

(3) No direct comparison with rural students was done.

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CONFLICTS OF INTEREST

There are no conflicts of interest.

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