

# Aggressive behaviour among students in secondary schools in Baghdad

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## ABSTRACT

**INTRODUCTION:** Secondary school stage is the most crucial period in formal education. Aggression is more consistent in middle-aged children and adolescents. In psychology, aggression is a destructive instinct and a response to frustration. While in biology, it is an internal power released by external stimuli. Aggression is divided into anger, verbal, physical, and hostility aggressions.

**OBJECTIVE:** To measure the prevalence of aggression types and their association with some demographic features among students of secondary schools in Baghdad's Al-Karkh-3<sup>rd</sup> and Al-Rasafa-1<sup>st</sup> Directorates of Education.

**METHODS:** A cross-section study with analytic elements was conducted on 854 secondary school students in Baghdad, Al-Rasafa 1<sup>st</sup>, and Al-Karkh 3<sup>rd</sup> Directorates of Education. A validated, self-administered questionnaire of aggression (AGQ) by Buss and Perry was used. We collected data from 6/11/2022 to 6/1/2023. We used a multistage sampling method to select the directorates, then stratification into two strata sectors and gender.

**RESULTS:** The response rate was 100%. Anger was reported in 37.8%, verbal in 24.5%, hostility in 22.6%, and physical in 21.3%. Significant associations were found between being male with verbal and physical aggression, age was significant with verbal aggression. Type of directorate associated significantly with physical aggression and hostility. The crowding index was found to be significantly associated with hostility.

**CONCLUSION:** Anger was the most common type of aggression. Verbal, physical, and hostility have shown a significant association with at least one demographic feature; however, anger did not show a statistical association with any demographic features that were studied.

**Key words:** Adolescents, aggression, Iraq.

## INTRODUCTION

Adolescence, 10 to 19 years of age, is a sensitive period of growth and development. It is the time to develop knowledge and skills and learn to manage emotions. Globally in 2022, there are 1.3 billion adolescents, making up 16 % of the world's population.<sup>[1]</sup> The majority are enrolled in lower and upper secondary education.<sup>[2]</sup> In Iraq in 2021, adolescence is 9419241 million representing 23% of the total population; 45% of them (4244299 million) are in secondary schools.<sup>[3]</sup>

Aggressive behaviour is a message and hos-

tile self-expression using force.<sup>[4]</sup> It is a problem that negatively impacts adolescents, mainly their development process.<sup>[5]</sup> The aggressive behaviours may be shown as verbal and physical aggression, failure to develop moral emotions such as empathy or love, unguilty feelings for their aggressive acts, lying, challenging others, and cruel and selfish social relationship.<sup>[6]</sup> Stress reaction is the most common pattern of response to aggression. It is associated with multiple psychosomatic disorders.<sup>[7]</sup> Anyone may feel aggressive occasionally, but pervasive or extreme aggression may indicate an underlying mental health condition.<sup>[8]</sup> Conduct disorder is the main category of aggressive behaviour. It

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is a common mental and behavioural problem among 4–10% of children and adolescents, especially boys.<sup>[9]</sup>

In the world, one in seven adolescents experiences a mental disorder, accounting for 13% of the global disease burden in this age group, including depression, anxiety and behavioural disorders.<sup>[3]</sup> In Iraq in 2018, a survey revealed that anxiety is the first rank mental disorder among adolescents making 14.9 % in those 10–14 years and 13.7% in those 15-17 years.<sup>[10]</sup> In Jiroft city, the largest city of Kerman province in Iran, a study in high schools conducted in 2015 revealed that lower parent education was associated with a higher level of aggression among students and that aggression increased with age.<sup>[11]</sup> In displaced Syrian adolescents aged 11 years and above enrolled in Beirut's public schools during 2017–2018, physical and verbal aggression scores were high.<sup>[12]</sup>

Studies to measure aggressive behaviours among secondary schools in Iraq are scarce. A cross-sectional study limited to a single district of Baghdad conducted in 2019 among adolescents in secondary schools has shown that non-physical aggression was the most common type reported in 76.4%, significantly more among males. Also, aggression negatively affected school achievement and increased absence from school, 86.9% and 88.2%, respectively.<sup>[13]</sup>

This study was designed to measure the scope of this problem in the whole city of Baghdad. It aimed at measuring the prevalence of aggression types among students of secondary schools in Baghdad's Al-Karkh- 3<sup>rd</sup> and Al-Rasafa- 1<sup>st</sup> Directorates of Education. Also, to find associations between different socio-demographic criteria of the participants and the aggression types.

## METHODS

**Setting and study design:** A cross-section study with analytic elements was conducted in Baghdad, the most populous city in the middle east with more than 8 million persons.<sup>[14]</sup> Ed-

ucation Directorates run schools in Baghdad, three in Al-Rasafa and three in Al-Karkh. For the sake of our study, we chose two education directorates from Baghdad, one from each side. We collected data from 6 November 2022 to 6 January 2023.

**Ethical consideration:** The Central ethical committee at the Ministry of Health has approved the study proposal. We took the agreement of the Al-Karkh 3<sup>rd</sup> and Al-Rasafa 1<sup>st</sup> Directorates of Education to conduct the study in their secondary schools. The aims of the study were explained to all participants, and we stressed that participation is voluntary without any consequences and that data are anonymous, confidential, and will not be used except for this study. Filling out and returning the form was considered an agreement for participation.

**Eligibility Criteria:** Inclusion Criteria: All students registered in the secondary schools of Baghdad Al-Karkh 3<sup>rd</sup>, and Al-Rasafa 1<sup>st</sup> Directorates were included in this study. Exclusion Criteria: Students registered in private schools were excluded from this study.

**Study population:** The population of our study were secondary school students in Al-Rasafa 1<sup>st</sup> and Al-Karkh 3<sup>rd</sup> Directorates of Education in Baghdad. Al-Karkh, 3<sup>rd</sup> Directorate of Education, includes 25539 students and Al-Rasafa, 1<sup>st</sup> includes 34634 students in the academic year 2022-2023.<sup>[15]</sup>

**Study sample size and sampling methods:** Sample Size at 95% confidence interval, 5% margin of error, a desired precision is 5%, and a probability assumed to be 50% (unknown prevalence)<sup>[16]</sup> was measured by the equation sample size

$$= Z^2 \times (p) \times (1-p) / d^2$$

Where: Z = Z value (1.96 for 95% confidence level), p = percentage picking a choice, d = margin of error (set at 5%). So, the minimum sample size required is:

$$= 1.96^2 \times (0.50) \times (1-0.50) / (0.05)^2 = 385$$

Adjustment of a sample size to non-response bias: Non-response bias = 1- (non-response rate anticipated) = 1-10 % = 0.9. The final sample size = the effective sample size / 0.9 =

426.6 ~ 427

We used multistage sampling to select the participants. First, the two education directorates, Al-Karkh-3<sup>rd</sup> and Al-Rasafa-1<sup>st</sup>, were conveniently chosen from the total six directorates. Figure 1 shows the multistage sampling method used to select 427 participants from each directorate of education, Al-Karkh 3<sup>rd</sup> and Al-Rasafa 1<sup>st</sup>, with stratification done for the sectors and the gender. We used a simple random technique to choose the sample within each stratum. We selected the schools from each sector, and the students from each school by simple random sampling as well.

**Variables:**

**A. Dependent Variables: Aggression:** Social psychologists define aggression as: ‘behaviour that is intended to harm another individual who does not wish to be’. It differs from violence, which refers to: ‘aggression that has extreme physical harm, such as injury or death’. Aggression is any behaviour directed toward another individual with a proximate (immediate) intent to cause harm. Damaging inanimate objects (e.g., kicking a wall, smashing plates, or pounding one’s fists on a table) is not considered aggression unless it is carried out with the intention of harming another person. Finally, the recipient of the harm must be motivated to avoid that harm. This condition excludes masochism, suicide, and assisted suicide from aggression.<sup>[17]</sup> we used these criteria to define aggression in this study. Aggression is classified into:

1. Physical aggression involves harming others physically—for instance, hitting or kicking.
2. Non-physical aggression: Aggression that does not involve physical harm, including verbal aggression (yelling, screaming, swearing, and name calling), hurting someone’s feelings and psychological state through verbal communication.<sup>[18]</sup>
3. Anger involved “physiological stimulation and preparation for aggression” and represented the emotional component of aggression. It is impulsive, hot, with only a small amount of forethought or intent, and that is determined primarily by impulsive emotions.
4. Hostile aggression aims at preventing somebody from achieving their goals rather than giving them active damage. It is a cognitive dimension of aggression, so it is planned, instrumental and cold, like malicious gossiping or rumour-spreading.<sup>[19]</sup>

**B. Independent Variables:** Independent variables used in this study are age, gender, directorates where the school belongs and socioeconomic status. Socioeconomic status was measured indirectly by the crowding index. The crowding index is defined as the number of persons living in the dwelling divided by the number of its rooms. Overcrowding is considered when two persons over nine years of age, not husband and wife, of the opposite sex are obliged to sleep in the same room.<sup>[20]</sup>

**Research Tool used to measure aggression:**

The tool used is a Buss-Perry Aggression Questionnaire (AGQ) developed by Arnold Buss and Mark Perry (1992). Our questionnaire form consists of two parts. The first part included demographic section. The second included Buss-Perry Aggression Questionnaire (AGQ). We chose the Arabic version of the AGQ.<sup>[21]</sup> It was translated, validated, and tested for reliability by Mu’taz Said Abdullah, Saleh Abu Aba’a, King Saud University, and Imam Mohammad ibn Saud Islamic University in 1995. The internal consistency of Cronbach’s Alpha is 0.791.<sup>[22]</sup>

AGQ composes of a 29-item scale measured on a 5-point Likert scale for the four types of aggression; physical in 9 items, verbal in 6 items,

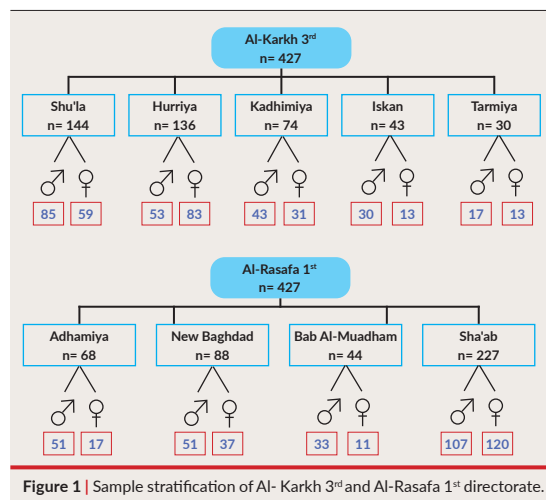


Figure 1 | Sample stratification of Al- Karkh 3<sup>rd</sup> and Al-Rasafa 1<sup>st</sup> directorate.

anger in 6 items and hostility in 8 items. (table 1).

All items are positive for aggression except the 4<sup>th</sup>, and 19<sup>th</sup> items. So, reversed scores for the last two items were considered in the analysis stage.<sup>[21]</sup>

Aggression type	Items correspond to each dimension	Total
Physical	3, 4, 10, 17, 21, 23, 24, 26, 29	9
Verbal	5, 6, 7, 13, 15, 20	6
Anger	8, 9, 14, 19, 25, 28	6
Hostility	1, 2, 11, 12, 16, 18, 22, 27	8

The cutoff of the severity of the types of aggression according to the AGQ is seen in table 2.

**Statistical analysis:** We used Statistical Package for Social Sciences (SPSS) version 25 software for data entry and statistical analysis. Data were shown in tables as frequencies and percentages. We used chi-square to test the

Aggression type	High	Moderate	Low
Physical	≤ 2.59	2.60 – 3.39	≥ 3.40 - ≤5
Verbal			
Anger			
Hostility			

statistical significance. The P-value is considered significant if it is ≤ 0.05, and ≤ 0.001 is considered highly significant.

## RESULTS

The response rate of each directorate was 100%. The distribution of main demographic criteria of the study sample showed in table 3. The predominant participants were those ages 16 years, male, and living in a low crowding index, 296 (34.7%), 464 (54.3%), and 785 (91.9%), respectively. Table 3 shows the types of aggression and the severity of each type. The high level was in anger reported in 323 (37.8%) students, verbal in 209 (24.5%), hostility in 193 (22.6%), and physical in 182 (21.3%), table 4.

Variable	Frequency	Percent	
Age in years	16	296	34.7
	17	190	22.2
	18	295	34.5
	> 18	73	8.5
Gender	Male	464	54.3
	Female	390	45.7
Directorate	Al-Karkh 3 <sup>rd</sup>	427	50.0
	Al-Rasafa 1 <sup>st</sup>	427	50.0
Crowd Index	Crowded	69	8.1
	Not Crowded	785	91.9

Being male and registered in Al-Rasafa 1<sup>st</sup> directorate were associated with having high physical aggression with p values of 0.0001 and 0.034, respectively. Again, being male and 18 years of age were significantly associated with high levels of verbal aggression with p values of 0.05 and 0.017. Significant association did not present between socio-demographic criteria and high category level of anger aggression. We found that Al-Rasafa 1<sup>st</sup> directorate and crowding index were significant with high category level of hostility aggression, table 5.

## DISCUSSION

Globally, deaths among adolescents aged 15 to 19 years accounted for 43% of all deaths in those aged 5 to 24 years. According to the WHO, the main causes of death were violence and its propagative factors like aggression.<sup>23</sup>

In our study and using the Buss-Perry Ag-

Variable	Frequency	Percent	
Physical	High	182	21.3
	Moderate	408	47.8
	Low	264	30.9
Verbal	High	209	24.5
	Moderate	295	34.5
	Low	350	41.0
Anger	High	323	37.8
	Moderate	183	21.4
	Low	348	40.7
Hostility	High	193	22.6
	Moderate	358	41.9
	Low	303	35.5

Variable	High level of physical aggression			High level of verbal aggression			High level of anger			High level of hostility			
	No.	%	P value	No.	%	P value	No.	%	P value	No.	%	P value	
Age in years	16	57	31.3	0.164	66	31.6	0.05	94	29.1	0.202	57	29.5	0.135
	17	39	21.4		49	23.4		76	23.5		46	23.8	
	18	70	38.5		79	37.8		121	37.5		77	39.9	
	> 18	16	8.8		15	7.2		32	9.9		13	6.7	
Gender	Male	110	60.4	0.0001	117	56.0	0.017	169	52.3	0.265	110	57.0	0.532
	Female	72	39.6		92	44.0		154	47.7		83	43.0	
Directorate	Al-Karkh 3 <sup>rd</sup>	83	45.6	0.034	90	43.1	0.067	157	48.6	0.817	82	42.5	0.032
	Al-Rasafa 1 <sup>st</sup>	99	54.4		119	56.9		166	51.4		111	57.5	
Crowd Index	Crowded	14	7.7	0.602	21	10.0	0.414	23	7.1	0.673	23	11.9	0.045
	Not Crowded	168	92.3		188	90.0		300	92.9		170	88.1	

gression Questionnaire, 37.8 % of participants had high level of anger, 24.5 % verbal, 22.6 % hostility, and 21.3% physical aggression. These prevalences are logical, as anger is the emotional dimension of aggression that is more easily triggered, followed by verbal or hostile aggressions. Verbal aggression is an expression of anger that could be defensive and instantaneous. At the same time, hostility is cognitive and needs more time than verbal aggression because it needs situational evaluation.<sup>[24]</sup> After the failure of reappraisal of the situation cognitively in the form of hostility catharsis of anger aided by suppression of defence mechanism, physical expression is the substitution. Physical aggression needs more body power, and using muscles carries worse consequences.<sup>[25]</sup>

Physical, verbal, and hostility aggressions have shown a statistically significant association with gender and directorate, gender and age, and directorate and crowding index, respectively. While non of the demographic criteria measured in our study showed a statistical significance with anger. **Table 6**

**1. Gender has a statistically significant association with physical and verbal aggression:** Being a boy has a statistically significant association with physical and verbal aggressions. This may be attributed to hormonal effects, personality differences or social nurturing. It has been stated that girls may get faster neurobehavioral

Dependent variables	Independent variables
Physical aggression	Gender, Directorate
Verbal aggression	Gender, Age
Hostility aggression	Directorate, Crowding Index

maturation, especially of the frontal lobe—which mediates inhibitory control for aggression. Boys are more engaged in plays with rudeness and aggressive physical actions; in addition, gender separation makes males more liable to be in touch with more aggressive groups. Lastly, a parental culture supports aggression in sons but not daughters.<sup>[26]</sup> These findings are similar to the Omani study on students of both gender and age ranging from 6 to 16 years, where boys were more verbally and physically aggressive than girls.<sup>[27]</sup>

**2. The age has a statistically significant association with verbal aggression:** Multiple pieces of evidence suggest that getting older favour the use of aggression that involves no risk to health i.e., verbal over physical.<sup>[28]</sup> A study in Zagazig Center in Egypt schools throughout the academic year 2014–2015 on a sample of 574 students of both sexes aged 13–18 years has stated that the risk factors for verbal and physical aggression were male sex and age greater than 15 years.<sup>[29]</sup>

**3. Association of the Directorate of Education, Al-Rasafa 1st, with Physical and hostility aggressions:**

**4. Crowding index: overcrowding was significant, with hostility:**

Paragraph 3 and 4 will be discussed together, but firstly we want to highlight that anger was the commonest type of aggression recorded in our sample; however, no statistically significant associations were found with any demographic features that were studied in our research. Psychologists insist that the leading cause of aggression is frustration, and

frustration develops anger which is the main stimulus for aggression. Anger is a hot and emotional feeling related to a heated moment. It can involve any demographic feature to a similar extent; thus, our study found no significant statistical associations between anger and any demographic characteristics. The aftercoming aggression types may be either a hot response – behavioural, like physical aggression or a cold one – cognitive, like hostility. The latter two types of aggressions will appear in various degrees enough in specific situations to produce a significant association with variables like place setting (the directorates) and further from anger.<sup>[25]</sup>

We found that physical and hostility aggressions are associated with being a student in the schools of Al-Rasafa 1<sup>st</sup> directorate. Overcrowding at the school level puts tremendous pressure on its infrastructures and the atmosphere of education, affecting the psychology of the teachers and the students alike.<sup>[30]</sup> The average number of students per school in Al-Rasafa 1<sup>st</sup> directorate of education is 845, compared to 709 in Al-Karkh, 3<sup>rd</sup> directorate.<sup>[15]</sup> And this apparent difference may explain why Al-Rasafa students tend to have more physical and hostility aggressions.

We calculated the crowding index as an indirect indicator of the students' socioeconomic status. Unlike crowding at schools, the crowding index at home has associated with hostility but not physical aggression. Explanation here may be difficult. The physiological difference between physical and hostility aggressions where physical aggression is an instantaneous fight-or-flight reaction compared to hostility which is more stable, cognitively related and time-consuming, may explain the difference; also, the sampling technique may play another role. The effect of the crowding index is mediated by satisfaction and needs time. The perception of crowding is a cognitive process related to dissatisfaction and leads to feelings (cognitive evaluation) of disappointment and hostility (cognitive dimension of aggression).<sup>[31]</sup>

On the other hand, it has been found that lead polluted the Baghdad environment with more concentration in Al-Rasafa.<sup>[32]</sup> Many stud-

ies found an association between aggression and environmental factors like lead concentration in the air. In 2013, the U.S. Environmental Protection Agency (EPA) Integrated Science Assessment (ISA) on lead (Pb) concluded that there is evidence "sufficient to conclude that a causal relationship between lead exposure and conduct disorders in children and young adults."<sup>[33]</sup>

A similar result was obtained in a study conducted in Yozgat province of Turkey during 2017- 2018 school year. Result showed a statistically significant association among high school students with physical aggression and hostility. Male students' level of aggression was higher compared to females when it comes to physical aggression, and a relation between students aged 16 and 18 years old with the verbal aggression and anger.<sup>[34]</sup>

**Limitations of study:** The study is cross-sectional that lacks a causality assessment. Using only a self-administered questionnaire is a limitation because it lacks the evaluation from family, peers and teachers. Also, it lacks the importance of other types of assessment, like interviews with students.

## CONCLUSION

We found that anger is the most prevalent type of aggression among student of secondary schools of Al-Rasafa 1<sup>st</sup> and Al-Karkh 3<sup>rd</sup> directorate of education in Baghdad; however, anger did not show statistical significant association with any demographic features of the sample. Being male was associated with high level of physical and verbal aggressions. Student of Al-Rasafa 1<sup>st</sup> directorate of education have a high level of physical and hostility aggressions. Students of 18 years have a significant association with verbal aggression and lastly, students of families with high crowding index have a high level of hostility.

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**Abbreviations list:** Buss-Perry Aggression Questionnaire (AGQ), Environmental Protection Agency (EPA), Integrated Science Assessment (ISA), Lead (Pb), Statistical Package for Social Sciences (SPSS), World Health Organization (WHO).

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