

Challenges Affecting the Development of Communication and Language in Children in the West Bank: A cross sectional study from the Perspective of Parents

Jana Abu Ali

An-Najah National University

Malak Rabous

An-Najah National University

Taimaa Melhem

An-Najah National University

Aya Abu Mukh

An-Najah National University

Aseel Abed Anabousi

An-Najah National University

Dima Malhis

malhiss.dima@gmail.com

An-Najah National University

Hala Jarrar

An-Najah National University

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Abstract

Background

Early childhood is a crucial time for language and communication development. It supports social, emotional, and cognitive development. In the West Bank, long term political unrest with limited mobility and persistent socioeconomic stress restricts social interaction, healthcare access, and education. This subjects kids to psychological stress that might hinder communication and cognitive development. Parents in this situation encounter significant structural and psychological obstacles. This rises the need to investigate parental perspectives on children's language development.

Methodology

The current study was a descriptive cross-sectional study that examined the effects of the ongoing conflict on the development of language and communication among children in the West Bank. The study was done by using a structured online questionnaire to collect information from parents of children between the ages of 2 and 12 years. The study participants were recruited from different settings within the West Bank. A total of 510 parents participated in the study. Data was collected over a period of three weeks during the academic year 2024–2025.

Results

A total of 510 parents in the West Bank took part in the study. Statistically significant associations were found for conflict exposure and children's language, communication, and social interaction outcomes, with indirect exposure being more influential than direct exposure. Perceived impact was found to be higher for children with a normal developmental status, those in private or nursery schools, and those from urban or high-income families. Parental characteristics, such as older parental age, higher parental educational level, maternal employment, and unavailability of speech or psychological therapy, were also significant.

Conclusion

The results clearly show that the presence of conflict in the West Bank has a significant association with the disruption of children's language development, as reported by their parents. It is essential to note that the level of the effect is not only dependent on the presence of conflict but also on the family and socioeconomic factors. The indirect effects of conflict could be a risk factor for communication problems in children. These results clearly indicate the need for speech and mental health services for children exposed to conflict.

1 Background

Early childhood is an important period for the development of communication and language skills. It is the foundation for cognitive, social, and emotional development throughout the life of a child [1, 2]. The ability of a child to learn, develop interpersonal relationships, and be an active member of the community, is largely dependent on the acquisition of language skills during early childhood [3]. Children benefit the most from interactions with their classmates and caregivers during this period because it helps develop verbal and non-verbal communication skills. However, the development of these skills depends on a number of environmental, social, and economic factors that either facilitate or hinder the progress. It has been proven that high-stress situations hinder memory, attention, and executive functions, among other brain functions that play a crucial role in learning and communication [4].

The environment in which children live is particularly challenging in areas that have been affected by long-term war, such as the West Bank. Children who are exposed to armed conflict, whether directly or indirectly, suffer effects that last throughout their lives and beyond, even to future generations born after the conflict. There is little medical and public health research on the effects of conflict on children's physical health and development, despite the fact that this impact has been publicly documented in news articles and literature [5].

Numerous obstacles that prevent healthy growth are caused by complex political and socioeconomic instability. Prolonged political upheaval and limited freedom of movement on the West Bank restrict access to vital resources, including as secure recreational areas, healthcare, and education, all of which are critical for children's overall development [6]. Such blockades have consequences that extend beyond physical restrictions. The restriction of movement causes economic hardships that reduce family income and access to resources for development, health, and education. Children lack social opportunities for recreational play and socialization, which is crucial for the development of communication skills. The blockades also have psychological consequences. It has lead to an increased levels of stress, anxiety, and trauma among families as a result of prolonged exposure to violence and instability [7].

In other words, the children of Palestine are exposed to a great deal of trauma and stress. Developmental delays have been linked to these experiences, particularly when it comes to the child's language development and communication skills. A study has indicated that children from war environments are likely to experience developmental delays, particularly when it comes to their cognitive and linguistic development, because of the stress they are exposed to, lack of education, and lack of health care to help them with their developmental milestones [3].

In difficult circumstances, parental participation through play, stories, and interactions has been shown to have a positive influence on the communication skills of young children [8]. In difficult circumstances, parental participation through play, stories, and interactions has been shown to have a positive influence on the communication skills of young children [9]. However, there are challenges that parents in the West

Bank are likely to face since they are constrained by resources, travel, and psychological pressure, which may affect their ability to help their children improve their communication skills.

Language difficulties in childhood can have long-term consequences on socialization, educational success, and self-esteem. Moreover, language delays can impact cognitive development and lifelong learning because language is a basic tool for thinking and knowledge building [10]. This study is an attempt to gain an in-depth understanding of the challenges that affect the language and communication development of children in the West Bank by examining the parental point of view in this special socio-political context. Although previous studies have demonstrated the impact of violence on the psychological and educational development of children, there is still a critical gap in the literature regarding the impact of such events on the language and communication skills of children in the West Bank. It is suggested that the design of appropriate support systems can be based on the parents' perception of the challenges, which can give us critical insight into the developmental needs of the children in this context.

2 Methodology

2.1 Study Design and population

This study adopted a descriptive, cross-sectional design. The research relied on parental reports collected via a structured questionnaire. The study focused on parents residing in the West Bank who have children aged between 2 and 12 years. Parents who lived outside the West Bank during the past year, or those who had children with known developmental disorders unrelated to environmental stress (e.g. Autism spectrum Disorders), unless exacerbated by ongoing conflict, were excluded from the study.

A randomized sampling from cities, towns, villages, and refugee camps across the West Bank was employed to ensure representation from both high-conflict and relatively stable zones. Participants were recruited through community outreach efforts at local schools, health centers, and community organizations, flyer and brochure distribution during parent-teacher conferences, health appointments, and community events, or through Social media platforms such as WhatsApp, Facebook, and parenting groups, particularly due to movement restrictions imposed by checkpoints and security concerns.

To ensure accessibility, the questionnaire was administered online in April of the 2024–2025 academic year, and data was collected over a period of three weeks.

2.2 Sample size and calculation

The sample size was determined through the use of Raosoft software. Sample size was estimated on the basis of an estimated number of 1.55 million parents of children aged between 2 and 12 years in the West Bank. Using a confidence level of 95%, a margin of error of 5%, and a distribution of 50% for response, it was estimated that the sample size was to be a minimum of 385. However, a total of 510 participants were chosen to account for non-response and missing data.

2.3 Measures and data collection

The data was collected through the administration of a structured questionnaire, which was used to ensure consistency and completeness of the data collected. It was developed by the researchers after an extensive review of the literature on the effects of conflict on child development and language acquisition. It was also reviewed and validated by a panel of experts in the field of speech-language pathology and child development, ensuring relevance, clarity, and content validity (see Appendix 1).

The questionnaire was divided into four main parts. Part A was for Demographic Information, including the child's age, gender, type of school, birth order, developmental status, as well as parental background, including education, occupation, income level, etc. Part B was for Exposure to Conflict-Related Events. This part of the questionnaire focused on the child's direct and indirect exposure to conflict-related events, such as passing through checkpoints, incursions, arrests, loss of loved ones, witnessing violence, media exposure, etc. The questions under Section C, Perceived Impact on Language and Communication, asked parents to rate how much they perceived the conflict impacting their child's language ability. The domains included speech production, spontaneous expression, vocabulary, grammar, fluency, and social communication. The responses were recorded using a 4-point Likert scale ranging from Strongly Agree to Disagree, and Strongly Disagree. Section D was Parental Strategies. This section aimed to assess various strategies and mechanisms that parents employ to assist their children. These strategies included spending time on communication, seeking professional assistance, monitoring media exposure, and seeking alternative educational resources. The questionnaire took approximately 5–10 minutes to fill out. Considering security and travel restrictions in the West Bank, the questionnaire was also conducted online. This facilitated its availability to respondents from different geographical locations. Only one child was considered from each family, and the parent was asked to answer questions based on this child's behavior and communication.

Prior to participation in the study, respondents were informed of the purpose of the study, methods, risks, and benefits. Informed consent was obtained from all respondents electronically. Respondents were also informed of their right to withdraw from the study at any time without any consequences.

2.4 Data and statistical analysis

The data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 21. Descriptive statistics were employed to summarize the demographic information and the responses to the questionnaires. These include frequency, percentage, mean, and standard deviation, where appropriate. The Kolmogorov-Smirnov test was employed to test the normality of continuous outcome variables. The results showed that the data were not normally distributed. As a result, non-parametric tests were employed. The Mann-Whitney U-test was employed for comparing the outcome scores of two independent groups, while the Kruskal-Wallis test was employed when comparing the outcome scores of more than two groups. Chi-square (χ^2) tests were used to examine associations between categorical variables. All statistical tests were two-tailed, and a p-value of < 0.05 was considered statistically significant.

2.5 Ethical Considerations

The study protocol was approved by the Institutional Review Board (IRB) of An-Najah National University [IRB Reference #: Hsp. October. 2024/26]. The research adhered to the principles of the Declaration of Helsinki. The participants were informed about the purpose of the study, and written consent was obtained before their participation. The confidentiality and anonymity of all responses were guaranteed and strictly maintained throughout the research process.

3 Results

3.1 Demographic characteristics of children

About 510 parents participated in the study. 75% of them were mothers. Related to children’s demographic characteristics, about 20.8% were aged 4–5 years old; also 20.2% were aged 8–10 years old. About 60.8% were females; nearly 85% have normal development as reported by participated parents. Nearly one-third (33.9%) had three siblings, and nearly half (48.4%) attend public schools. More details are shown in Table 1.

Table 1
Demographic Characteristics of children (n = 510).

Variable	Frequency	Percent
Age of Child		
2–3 Years Old	80	15.7
4–5 Years Old	106	20.8
6–7 Years Old	87	17.1
8–10 Years Old	103	20.2
11–13 Years Old	68	13.3
14–15 Years Old	38	7.5
16 Years Old	28	5.5
Gender of Child		
Male	310	60.8
Female	200	39.2
Developmental Status		
Normal Development	433	84.9
Abnormal Development	77	15.1
Child order		
Youngest	164	32.2
Middle	174	34.1
Elder	172	33.7
Number of Siblings		
One	72	14.1
Two	130	25.5
Three	173	33.9
More than three	135	26.5
Schooling		
Nursery	30	5.9
Private School	62	12.2

Variable	Frequency	Percent
Age of Child		
Public School	247	48.4
Private Kindergarten	36	7.1
Public Kindergarten	64	12.5
None	71	13.9

3.2 Demographic characteristics of Parents

The findings of parents' demographic information indicated that 40.0% of participating dads were aged 36–45 years, 39.2% possessed a bachelor's degree, and 44.9% were employed. Concerning mothers, around 36.9% were aged 36–45 years, 37.3 percent had Secondary education or below, and 50.8% were unemployed. Approximately 70.4% of the participants said that they maintained a moderate-income level. Additional details are shown in Table 2. Regarding the characteristics of residence, approximately 40.6% of the respondents reside in urban areas, around 42.7% inhabit apartments, and a significant majority (81.4%) have relatives in the same nearby areas. Additional information can be found in Table 2.

Table 2
Demographic Characteristics of parents (n = 510).

Variable	Category	Fathers n (%)	Mothers n (%)
Age (years)	< 18	—	17 (3.3)
	19–25	50 (9.9)	100 (19.6)
	26–35	168 (33.1)	173 (33.9)
	36–45	203 (40.0)	188 (36.9)
	> 45	86 (17.0)	32 (6.3)
Education level	Secondary or less	168 (32.9)	190 (37.3)
	Diploma	77 (15.1)	102 (20.0)
	Bachelor	200 (39.2)	160 (31.4)
	Master	41 (8.0)	48 (9.4)
	PhD or higher	24 (4.7)	10 (2.0)
Employment status	Employed	229 (44.9)	151 (29.6)
	Freelance	219 (42.9)	100 (19.6)
	Unemployed	62 (12.2)	259 (50.8)
Monthly household income	Low	-	83 (16.4)
	Moderate	-	356 (70.4)
	High	-	67 (13.2)

Table 3
Effect of conflict on children (n = 510).

Variable	Frequency	Percent
Has the child been directly or indirectly exposed to political, social, or economic conflicts?		
Yes, directly	178	34.9
Yes, indirectly (by following the news and being exposed to it in his environment)	202	39.6
No	130	25.5
Was the father's work affected by the circumstances surrounding the ongoing conflict in Palestine?		
Yes	375	73.5
No	135	26.5
Has your child received speech therapy in the last two years?		
Yes	117	22.9
No	393	76.8
Has your child received psychological treatment in the last two years?		
Yes	56	11.0
No	454	89.0
Has your financial situation been affected by the circumstances you're experiencing because of the ongoing conflict? Has this impacted on your inability to provide your child with the services he or she needs, such as speech therapy or psychological support?		
Yes	320	62.7
No	190	37.3

3.3 Effect of conflict on children

Concerning the impact of ongoing conflict on families and children, approximately 39.6% of parents indicated that their children were indirectly exposed to political, social, or economic conflicts (Table 4). Participants indicated that their children encountered primarily (59%) barriers and restrictions in the area, with repeated incursions following closely at 55.1% (Fig. 1). Upon inquiry regarding the child's language and communication aspects that were impacted, approximately 61.9% indicated that their children exhibited spontaneous speech, while social communication was reported by 58.1% (Fig. 2). A significant majority, specifically 73.5%, indicated that their work has been influenced by the conditions related to the ongoing conflict in Palestine.

Table (4): The impact of exposure to conflict on language and communication skills (n = 510).

Variable	Group	Median (Q1–Q3)	Mean rank	P value
Age of child	2–3 y	32.5 (27.25–41.75)	258.80	0.100
	4–5 y	28.0 (24.00–38.00)	221.05	
	6–7 y	32.0 (28.00–39.00)	246.87	
	8–10 y	34.0 (28.00–39.00)	268.40	
	11–13 y	32.0 (28.00–37.50)	266.69	
	14–15 y	34.5 (29.75–38.50)	295.54	
	16 y	33.0 (28.25–39.00)	274.32	
Gender of child	Male	32.0 (28.00–39.00)	253.05	0.639
	Female	33.0 (28.00–38.75)	259.29	
Developmental status	Normal	33.0 (28.00–39.50)	272.69	<0.001
	Abnormal	28.0 (18.00–33.00)	158.81	
Child order	Youngest	32.0 (28.00–40.00)	260.44	0.527
	Middle	33.0 (28.00–35.25)	245.28	
	Elder	32.0 (28.00–41.00)	261.13	
Number of siblings	One	33.0 (28.00–42.00)	277.53	0.028
	Two	29.5 (27.00–36.00)	226.80	
	Three	32.0 (28.00–38.00)	252.38	
	>3	34.0 (28.00–39.00)	275.39	

Schooling	Nursery	35.5 (28.00–49.00)	303.88	<0.001 ☐
	Private school	35.0 (28.00–40.00)	279.81	
	Public school	33.0 (28.00–39.00)	271.15	
	Private kindergarten	30.0 (28.00–36.00)	231.10	
	Public kindergarten	30.5 (27.25–36.00)	229.91	
	None	28.0 (23.00–35.00)	194.82	
Father age	<18 y	35.0 (14.00–NA)	220.83	<0.001 ☐
	19–25 y	28.0 (18.50–33.00)	155.36	
	26–35 y	28.0 (27.00–36.00)	228.77	
	36–45 y	34.0 (28.00–39.00)	269.11	
	>45 y	36.5 (32.00–41.25)	335.03	
Father education	Secondary or less	33.0 (28.00–39.00)	261.03	0.010 ☐
	Diploma	34.0 (28.50–42.00)	286.61	
	Bachelor	29.0 (28.00–36.00)	228.70	
	Master	35.0 (29.50–39.00)	288.27	
	PhD+	35.0 (30.50–37.75)	284.33	
Father employment	Employ	30.0 (28.00–40.00)	246.85	0.051☐
	Freelance	34.0 (28.00–39.00)	272.43	
	Unemployed	32.5 (24.50–36.00)	227.62	
Mother age	<18 y	28.0 (18.00–28.50)	149.91	<0.001 ☐

	19–25 y	28.0 (25.25–36.00)	214.78	
	26–35 y	28.0 (26.00–37.50)	230.70	
	36–45 y	35.0 (30.00–39.00)	294.95	
	>45 y	37.0 (32.00–40.75)	341.13	
Mother education	Secondary or less	29.5 (27.75–36.25)	230.74	0.025 
	Diploma	33.0 (28.00–42.00)	264.58	
	Bachelor	33.0 (28.00–40.00)	272.08	
	Master	35.0 (29.25–37.50)	288.30	
	PhD+	31.0 (18.50–36.75)	210.55	
Mother employment	Employ	33.0 (28.00–41.00)	271.54	0.001 
	Freelance	35.0 (30.00–39.75)	291.16	
	Unemployed	30.0 (28.00–37.00)	232.38	
Area of residence	Village	34.0 (29.00–40.00)	286.16	<0.001 
	Refugee camp	28.0 (23.00–28.00)	145.52	
	City	34.0 (28.00–41.00)	286.03	
Type of residence	Apartment	28.0 (28.00–36.00)	230.08	<0.001 
	Family house	33.0 (27.00–36.00)	249.43	
	Own house	34.0 (28.00–41.00)	293.76	
Monthly income	Low	27.0 (20.00–28.00)	140.42	<0.001 

	Moderate	34.0 (28.00–39.00)	273.52	
	High	33.0 (28.00–41.00)	287.22	
Relatives in same living area	Yes	33.0 (28.00–40.00)	273.23	<0.001 ⊠
	No	28.0 (22.00–35.00)	178.04	
Child exposed to conflicts	Yes, directly	28.0 (23.75–29.50)	162.80	<0.001 ⊠
	Yes, indirectly	34.0 (28.00–40.00)	278.00	
	No	38.0 (33.00–47.00)	347.47	
Speech therapy	Yes	28.0 (22.50–35.00)	180.50	<0.001 ⊠
	No	34.0 (28.00–40.00)	277.83	
Psychological treatment	Yes	31.0 (28.00–34.75)	208.75	0.012 ⊠
	No	33.0 (28.00–39.00)	261.27	
Financial situation affected	Yes	28.0 (26.00–34.00)	196.42	<0.001 ⊠
	No	39.0 (33.00–42.25)	355.00	
Father's work affected	Yes	29.0 (27.00–35.00)	220.69	<0.001 ⊠
	No	39.0 (33.00–42.00)	352.20	

⊠Significant associations are indicated in bold at a significance level of $p < 0.05$.

⊠Mann–Whitney U test.

⊠Kruskal–Wallis test

3.4 The impact of exposure to conflict on language, communication skills, and social interaction

Non-parametric analyses were conducted to examine associations between participant characteristics and the two outcomes: (1) the impact of exposure to conflict on children’s language and communication skills, (2) the impact of barriers and restrictions on children’s engagement in social interactions, as is illustrated by tables 4 & 5.

Table (5): *The impact of exposure to conflict on social interaction (n = 510).*

Variable	Category	Median (Q1–Q3)	Mean rank	P value
Age of child	2–3 years	15.5 (14.0–19.0)	279.68	0.313
	4–5 years	14.0 (11.0–16.0)	227.55	
	6–7 years	14.0 (11.0–18.0)	249.28	
	8–10 years	15.0 (14.0–17.5)	261.31	
	11–13 years	14.5 (14.0–17.0)	255.42	
	14–15 years	15.5 (13.0–16.0)	267.36	
	16 years	15.0 (14.0–17.0)	274.29	
Gender	Male	14.0 (13.0–17.0)	250.19	0.307
	Female	15.0 (13.0–18.0)	263.74	
Developmental status	Normal	15.0 (14.0–18.0)	268.57	<0.001
	Abnormal	14.0 (10.0–15.0)	182.01	
Child order	Youngest	15.5 (12.0–20.0)	280.06	<0.001
	Middle	14.0 (12.0–16.0)	218.54	
	Elder	15.0 (14.0–19.0)	269.47	
Number of siblings	One	15.0 (14.0–19.0)	286.06	0.005
	Two	14.0 (12.0–16.0)	234.95	
	Three	14.0 (12.0–16.0)	237.44	
	>3	16.0 (14.0–18.0)	282.13	
Schooling	Nursery	16.5 (14.0–22.0)	311.98	0.023
	Private school	16.0 (14.0–18.0)	283.38	
	Public school	15.0 (13.0–18.0)	258.52	
	Private kindergarten	14.5 (13.0–17.5)	250.21	
	Public kindergarten	14.0 (11.0–16.5)	237.38	
	None	14.0 (11.0–16.0)	215.81	
Father age	<18 years	16.0 (11.5–16.0)	224.50	<0.001
	19–25 years	14.0 (12.0–16.0)	204.07	
	26–35 years	14.0 (12.5–17.0)	239.81	
	36–45 years	15.0 (11.0–16.0)	241.11	

	>45 years	18.0 (15.0–20.0)	351.10	
Father education	≤Secondary	15.0 (13.0–18.0)	266.90	0.002 ⊠
	Diploma	16.0 (13.0–18.0)	277.12	
	Bachelor	14.0 (12.0–16.0)	223.90	
	Master	16.0 (14.0–17.0)	296.00	
	PhD+	16.0 (14.0–19.0)	300.52	
Father employment	Employed	14.0 (13.0–18.0)	256.75	0.798⊠
	Freelance	15.0 (13.0–17.5)	257.49	
	Unemployed	15.0 (12.0–17.0)	243.84	
Mother age	<18 years	14.0 (10.0–14.0)	167.82	<0.001 ⊠
	19–25 years	14.0 (14.0–16.0)	244.21	
	26–35 years	14.0 (12.0–17.0)	235.18	
	36–45 years	15.0 (12.0–18.0)	270.51	
	>45 years	17.5 (16.0–20.0)	359.06	
Mother education	≤Secondary	14.0 (11.0–17.0)	229.09	0.005 ⊠
	Diploma	15.0 (12.0–17.0)	250.88	
	Bachelor	15.0 (14.0–19.0)	272.50	
	Master	16.0 (14.0–18.0)	306.19	
	PhD+	16.5 (11.0–19.0)	289.05	
Mother employment	Employed	15.0 (14.0–20.0)	283.58	0.009 ⊠
	Freelance	15.0 (14.0–16.0)	258.63	
	Unemployed	14.0 (12.0–17.0)	237.92	
Area of residence	Village	15.0 (12.5–17.0)	258.04	<0.001 ⊠
	Refugee camp	14.0 (11.0–14.0)	168.49	
	City	16.0 (14.0–20.0)	299.80	
Type of residence	Apartment	14.0 (11.0–15.0)	210.65	<0.001 ⊠
	Family house	15.0 (11.0–16.5)	241.71	
	Own house	17.0 (14.0–20.0)	325.37	
Monthly income	Low	14.0 (9.5–14.0)	174.97	<0.001 ⊠

	Moderate	15.0 (14.0–17.5)	261.91	
	High	17.0 (14.0–20.0)	306.11	
Relatives nearby	Yes	15.0 (13.5–18.0)	267.83	<0.001 ⊠
	No	14.0 (11.0–16.0)	201.62	
Exposure to conflict	Direct	14.0 (11.0–14.0)	189.88	<0.001 ⊠
	Indirect	15.0 (11.0–17.0)	245.65	
	None	18.0 (15.0–21.0)	360.65	
Father's work affected	Yes	14.0 (11.0–16.0)	221.25	<0.001 ⊠
	No	17.0 (15.0–21.0)	350.64	
Speech therapy	Yes	14.0 (11.0–16.0)	212.16	<0.001 ⊠
	No	15.0 (14.0–18.0)	268.40	
Psychological treatment	Yes	14.0 (12.5–16.5)	231.41	0.191⊠
	No	15.0 (13.0–18.0)	258.47	
Financial situation affected	Yes	14.0 (11.0–15.5)	201.10	<0.001 ⊠
	No	17.0 (15.0–21.0)	347.13	

⊠Significant associations are indicated in bold at a significance level of $p < 0.05$.

⊠Mann–Whitney U test.

⊠Kruskal–Wallis test

The mean score of the impact of exposure to conflict on language and communication skills was 32.70 ± 9.40 out of 60. While The mean score of the impact of barriers and restrictions on *child's engagement in social interactions* was 15.17 ± 4.72 out of 28. The lower score reflects lower impact barriers and restrictions.

3.4.1 Child Characteristics

For both outcomes, child age and gender were not significantly associated with impact scores (all $p > 0.05$), indicating that the extent to which conflict-related conditions affected children's language, communication, and social interaction did not differ meaningfully across age groups or between males and females.

In contrast, developmental status was significantly associated with both outcomes ($p < 0.001$). Children with normal developmental status had higher median scores and mean ranks for both outcomes

compared to children with abnormal developmental status, suggesting that the impact of conflict exposure and restrictions is greater for children without pre-existing developmental conditions.

3.4.2 Family Structure and Sibling Composition

Family structure variables showed differential relationships with the outcomes. Birth order was significantly related to the impact of barriers and restrictions on children's engagement in social interactions ($p < 0.001$). The results showed that the youngest and eldest children had higher median scores than the middle-order children. There was no significant relationship between birth order and the impact of exposure to conflict on children's language and communication skills ($p = 0.527$).

The number of siblings was significantly related to the two outcomes. Children with one sibling and those with more than three siblings had higher median scores for the impact of conflict on children's language and communication skills ($p = 0.028$) and the impact of barriers and restrictions on social interactions ($p = 0.005$).

3.4.3 Educational Context

Significant differences were recorded across the schooling categories for both outcomes. Children from nursery and private schools showed higher median scores and mean ranks compared to children from public schools, kindergartens, and those not attending any formal education (impact of conflict on language and communication skills: $p < 0.001$; impact of barriers and restrictions on social interaction: $p = 0.023$).

3.4.4 Parental Characteristics

Parental age demonstrated a consistent gradient across both outcomes. Older paternal and maternal age were associated with significantly higher impact scores for both language/communication and social interaction outcomes (all $p < 0.001$), with the highest median scores observed among children whose parents were older than 45 years.

Similarly, parental education level was significantly associated with both outcomes. Higher levels of father's and mother's education, particularly attainment of a master's degree or higher, were associated with higher median scores for the impact of conflict on language and communication skills and for the impact of barriers and restrictions on social interaction (father's education: $p = 0.010$ and $p = 0.002$; mother's education: $p = 0.025$ and $p = 0.005$, respectively).

Parental employment status showed outcome-specific patterns. Father's employment status was not significantly associated with the impact of barriers and restrictions on social interaction ($p = 0.798$) and showed a borderline association with the impact of conflict on language and communication skills ($p = 0.051$). In contrast, mother's employment status was significantly associated with both outcomes, with higher impact scores observed among children of employed or freelance mothers compared with those of unemployed mothers (impact on language and communication: $p = 0.001$; impact on social interaction: $p = 0.009$).

3.4.5 Socioeconomic and Residential Context

Significant and strong relationships were found for area of residence, type of residence, and household income levels in both outcomes. Children from city areas, living in owned residences, and from moderate and high household income levels had significantly higher median scores and mean ranks than children from refugee camps, apartments, and low household income levels (all $p < 0.001$).

The presence of relatives in the same living area was also found to have significant relationships with higher impact scores in language/communication and social interaction outcomes ($p < 0.001$), highlighting the importance of the household environment in children’s experiences with conflict-related conditions.

3.4.6 Conflict Exposure and Its Consequences

Children who were directly exposed to conflict had lower median scores than children who were indirectly exposed or not exposed, and children who had no reported exposure had the highest impact scores for both the impact of conflict on language and communication skills and the impact of barriers and restrictions on social interaction. (all $p < 0.001$).

Similarly, children whose father’s work or household financial situation had been affected by conflict demonstrated significantly lower median scores for both outcomes compared with children from families not economically affected (all $p < 0.001$).

3.4.7 Access to Support Services

Children who had received speech therapy within the past two years exhibited significantly lower median scores and mean ranks for both outcomes ($p < 0.001$), indicating a lower perceived impact of conflict exposure and related barriers on language, communication, and social interaction at the time of assessment, while receipt of psychological treatment was associated with a lower perceived impact of conflict exposure on language and communication skills ($p = 0.012$) but showed no significant association with the perceived impact of barriers and restrictions on social interaction ($p = 0.191$).

3.5 Strategies used by parents

In relation to the strategies employed by parents to assist their children, approximately 76.3% aim to create opportunities for their children to interact and play with nearby peers. This involvement in recreational activities is meant to improve their social skills and create a comfortable environment for them. In addition, 76.3% of the parents involved indicated that they try to spend time every day engaging in conversations with their children with the aim of improving their communication skills. More information on this is found in table 6.

Table (6): Strategies used as reported by participated parents (n = 510).

Strategies	Strongly Agree n (%)	Agree n (%)	Disagree n (%)	Strongly Disagree n (%)
I try to set aside time every day to talk with my child to enhance his communication skills	227 (44.5)	162 (31.8)	103 (20.2)	18 (3.5)
I rely on alternative means (such as home games) to make up for the lack of educational activities	183 (35.9)	192 (37.6)	119 (23.3)	16 (3.1)
I rely on video games on screens to make up for the lack of educational activities	166 (32.5)	144 (28.2)	165 (32.4)	35 (6.9)
I deal with my child calmly and provide him with an encouraging and safe environment that enhances his self-confidence and encourages him to express himself freely	193 (37.8)	176 (34.5)	105 (20.6)	36 (7.1)
Seek help from a school counselor or other relevant authorities	83 (16.3)	114 (22.4)	208 (40.8)	105 (20.6)
I monitor the media content (such as TV or the internet) my child is exposed to ensure they are exposed to positive and inspiring content.	204 (40)	168 (32.9)	113 (22.2)	25 (4.9)
I talk to my child, explain the situation to him, and answer his questions	188 (36.9)	182 (35.7)	123 (24.1)	17 (3.3)
I try to spend more time with him at home than before to compensate for his lack of social interaction	184 (36.1)	174 (34.1)	123 (24.1)	29 (5.7)
I seek to provide opportunities for my child to interact and play with his nearby peers, to engage with them in recreational activities that enhance his social skills and provide him with a comfortable and supportive environment	215 (42.2)	174 (34.1)	107 (21)	14 (2.7)

4 Discussion

4.1 Developmental Status

In comparison to the children with atypical development, the children with normal developmental patterns showed a greater degree of influence on the capabilities of language and communication skills, along with their social interaction skills. This may be due to the differences in the developmental patterns and the baseline communication environments. The disruptions in the environments, such as the disruptions in the school, the reduction in peer interactions, the stress experienced by the parents, and the instability caused by the conflict, may have a greater impact on the development patterns of the typically developing children, who depend on a stable social environment for the development of their language skills [11, 12]. Children with atypical developments, on the other hand, may already be living in more controlled, restricted, or therapeutic communication environments, which could minimize the

effects of further environmental disruptions in unstable times. Additionally, parents of children with developmental disorders may have different views on the way their children develop, which could also play a role in the way they perceive the effects of prolonged stress.

4.2 Presence of Relatives in the Same Living Area

Interestingly, our study showed that where the family was close to their near relatives, the impact was significantly greater in terms of language and communication and social interaction than where they were not. This emphasizes the role of extended family proximity as a double-edged factor. It can provide emotional support, as most developmental models see close family networks as a potential protective resource, as proposed in the stress-buffering hypothesis, where social support buffers the impact of stress on caregivers [13]. However, it can also increase shared stress among children and their caregivers. Even in the presence of available support, families may be subjected to shared threat inspections, frightening news, and discussions among groups of families who live close by. This could potentially increase caregiving stress and reduce the quality of responsive, child-centered talk.

4.3 Impact of Father's Work Status

Our findings revealed a statistically significant relationship between the disruption of fathers' employment due to conflict and children's communication outcomes. However, an interesting finding was that children whose fathers were not affected economically showed higher impact on communication and social interaction. According to the work-family conflict literature, fathers experiencing higher levels of strain in balancing work and family demands can exhibit work-family conflict that can spill over to less optimal father-child interaction, resulting in reduced levels of communicative responsiveness to children, which has been linked to poorer child developmental and emotional outcomes [14].

Together, these models propose that employment stability does not necessarily lead to communicative advantage, but rather, the consistency and emotional tone of father-child interactions appear to be critical.

4.4 Access to Speech Therapy and psychological treatment

There was a significant difference in terms of access to speech therapy and psychological treatment. It was observed that children without access to such therapy experienced more adverse effects. This is supported by considerable evidence that suggests that access to such therapy is one of the most significant factors that protect the communication development of children, particularly under adverse circumstances. It has been observed that children benefit considerably in terms of improvement in communication development, particularly when they are subjected to such therapy. It is significant to note that the literature suggests that such therapy is only effective when it is continued for long periods of time. It is only then that such therapy is likely to be effective. It is suggested that such therapy is not only corrective in nature but is also likely to function as a resilience-enhancing factor that helps to

protect the adverse effects of environmental factors on the communication development of children [15, 16]. Psychological treatment, may also act as a resilience-building buffer for communication. Lack of access may leave children more exposed to the communicative consequences of chronic stress and emotional dysregulation.

4.5 Financial Stability and Its Impact

There was a very strong association found between family financial stability and the effect of conflict on children's communication and social interactions, paradoxically with higher levels of communicative effects reported in children from financially stable families. This is in line with the findings from the developmental and socioeconomic studies that have found financial stability to be generally related to a language-rich environment, well-structured routines, and high expectations regarding educational and developmental continuity; therefore, sudden breaks in these conditions may lead to more pronounced effects on language and communication functioning. Children brought up in economically disadvantaged environments, on the other hand, are generally subjected to chronic stress and environmental unpredictability, which may help develop effective coping mechanisms and resilience that can mitigate the effects of additional external stressors such as conflict [17, 18].

4.6 Gender

No statistically significant relationship was found between gender and the effect of conflict on language development and social interaction. The findings of the study indicate that the common effects of conflict, such as fear, insecurity, and disruption of routine, may equally impact boys and girls, thus masking any gender-based developmental differences in the use of language.

4.7 Mother's Age

A statistically significant difference was found in relation to maternal age with children of mothers > 45 years most affected and those of mothers < 18 years least affected. Rather than implying that maternal age itself causes differences in communication or social interaction, a more defensible interpretation is that maternal age may be acting as a proxy for caregiving context, particularly parenting stress and the quality of day-to-day interaction that supports language. Evidence shows that maternal sensitivity and maternal language input in infancy uniquely predict later child language, even when maternal age is statistically controlled, highlighting that interaction quality is a stronger and more direct pathway than age alone. In addition, research on parental age and wellbeing reports that older parents can experience greater parenting stress, which may plausibly reduce emotional and interactional resources in demanding environments. Taken together, these findings suggest that maternal-age pattern observed in our data is best understood through differences in parenting stress and interaction quality under adversity, rather than maternal age per se [19, 20].

4.8 Mother's Education Level and Employment status

Statistically significant differences were observed based on maternal education level and employment status. Greater communicative and social interaction impact seen among children of mothers holding a

master's degree and the least impact among those of mothers with doctoral degrees, with the children of employed mothers showing higher levels of impact with regard to communicative and social interaction. Research suggests that maternal education affects children's language development mainly through everyday interactions, such as the richness of language input, cognitive stimulation, and parenting practices, rather than education level itself. While higher education often supports more language-rich environments, it may also bring increased expectations and work-related stress, particularly in unstable settings, which can limit consistent, high-quality communication at home. In contrast, the level of educational attainment that mothers receive in a doctoral program may provide more autonomy and access to resources that enable mothers to maintain stable and supportive interactional routines [3, 21]. Studies on work-family dynamics also revealed that the impact of the employment of the mothers on the child's development is not as important as the stability of the employment status of the mother. For example, the children of mothers who were involved in freelance work were more adversely affected compared to the children of mothers with stable employment status. However, while the benefits of the stable employment status of the mothers can be seen with regard to the child's vulnerability to communication disorders, the negative impact of the stress of the work can also be seen with regard to the quality of the communicative interaction with the child [22].

4.9 Household Income

Children from high-income families showed more impact than children from low-income families. In general, socioeconomic factors are positively correlated with language development in stable environments. However, developmental theory suggests that these positive effects are heavily dependent on the regular availability of structured routines, enriched environments, and predictable social and educational opportunities. Abrupt cessation of these environmental factors may cause a more significant functional decline in children from high-income families due to the extreme contrast in pre- and post-conflict environments. This is supported by evidence suggesting that developmental outcomes are not only dependent on resource availability but also on the extent of environmental change and unpredictability [23, 24].

4.10 Area of Residence

In our study, children in refugee camps were the least affected, while children in villages and cities were more affected. This finding is in line with the study of Said and Hadi [25], who proposed that the prolonged experience of adversity in the refugee context promotes adaptability and emotional resilience. On the other hand, children in more structured settings are subjected to sudden changes that disrupt their optimal developmental context.

4.11 Type of Residence

Regarding the type of housing, there were also some differences. Children living in private homes were the most affected, and those living in apartments were the least. It seems that children living in private homes might be more adversely affected because of the disruption of their routine and sense of

security. Apartments may offer some social interactions that could help build group resilience and ensure a stable language environment.

4.12 Direct vs. Indirect Exposure to Conflict

A highly significant relationship was noted between the types of conflict exposure and its effect on the children's communication skills, with children indirectly exposed to conflict showing a greater negative effect than those who were directly exposed. This is supported by trauma research that suggests that chronic or indirect exposure to trauma can have a cumulative effect on the child's psychological well-being, affecting emotional regulation, attention, and expressive communication skills [26]. In this regard, it has been noted that direct exposure is often marked by particular traumatic events that may provoke protective reactions from caregivers, schools, or healthcare systems. Conversely, indirect exposure often occurs in the absence of apparent injury or crisis, thus limiting protective reactions. The prolonged effects of ambiguity and threat have been noted as sustaining high levels of stress in children, which may subtly impair communication and interaction. Thus, although it can be noted that the more negative impact of trauma on indirectly exposed children may be ascribed to the prolonged effects of unresolved stress and ambiguity, rather than the severity of a traumatic event, indirect exposure appears as a particularly insidious risk factor in communication development in a conflict setting.

4.13 Recommendations

1. Educational and healthcare institutions should prioritize early screening and intervention services among children of Palestine.
2. Educational programs may be implemented to educate parents on how to promote communication and language skills among children through a supportive home environment.
3. Educators and policymakers may work to create a school environment that addresses the needs and concerns of children from war-torn areas to promote a supportive and inclusive learning environment.

4.14 Limitations

Despite its contributions, the study has several limitations that should be taken into consideration. First, the study was conducted in a specific region in the West Bank, and thus, the findings may not be fully generalizable to all children in other regions. Second, the data were collected using parental reports, which may have limitations in terms of bias arising from the parents' perception, awareness, and social desirability. Third, the study is cross-sectional, which is not suitable for casual relationship. Fourth, the study did not include direct clinical evaluations of the children's language and communication skills which would be more objective to evaluate the effect of conflict on the children's development.

Conclusion

This study aims to investigate the effect of political, social, and economic conflicts on the development of language and communication skills among Palestinian children in the West Bank. The study was

conducted among 510 participants based on parental reports. A significant number of children experienced direct or indirect exposure to conflict-related events. The parents reported that the children showed noticeable difficulties in spontaneous speech. The study found significant associations between conflict exposure and several child and family variables, including developmental status, number of siblings, school type, and educational level of the parents. The study suggests that there is a need for speech and mental health support services for children in conflict-affected and resource-limited areas.

Abbreviations

CI

Confidence Interval

IRB

Institutional Review Board

IQR

Interquartile Range (Q1–Q3)

SD

Standard Deviation

SES

Socioeconomic Status

SLP

Speech–Language Pathologist / Speech–Language Pathology

Declarations

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Data availability

The datasets used and/or analyzed during the current investigation are accessible from the corresponding authors upon reasonable request due to privacy considerations.

Authors contributions

H.J. conceived and planned the research, developed the study idea

J.A, M.A, A.A, A.A, collected the data conducted the analyses, and wrote an original draft for the manuscript. Additionally, **D.M.** made substantial contributions to the literature search and interpretation.

D.M. revised the manuscript for intellectual enhancement, led the data analyses, and contributed to the finalizing manuscript writing. All authors reviewed and endorsed the final manuscript.

Ethics approval and consent to participate

An-Najah National University Institutional Review Board (IRB) approved the study protocol All participants gave their affirmative consent. It is guaranteed that the data collected was used only for research and that it will be kept private for the duration of this study. Participants were told about the privacy precautions and given the assurance that their information would be kept private and used only for research.

The IRB of An-Najah National University waived the requirement for written informed permission and simply required verbal informed consent because our study did not collect identifiable information and posed little risk to participants.

Every method carried out in research involving human subjects complied with the 1964 Helsinki Declaration and its subsequent amendments or similar ethical standards, as well as the institutional and/or national research committee's ethical requirements.

Consent for publication

Not applicable

Competing interests

There are no competing interests disclosed by the authors.

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Figures

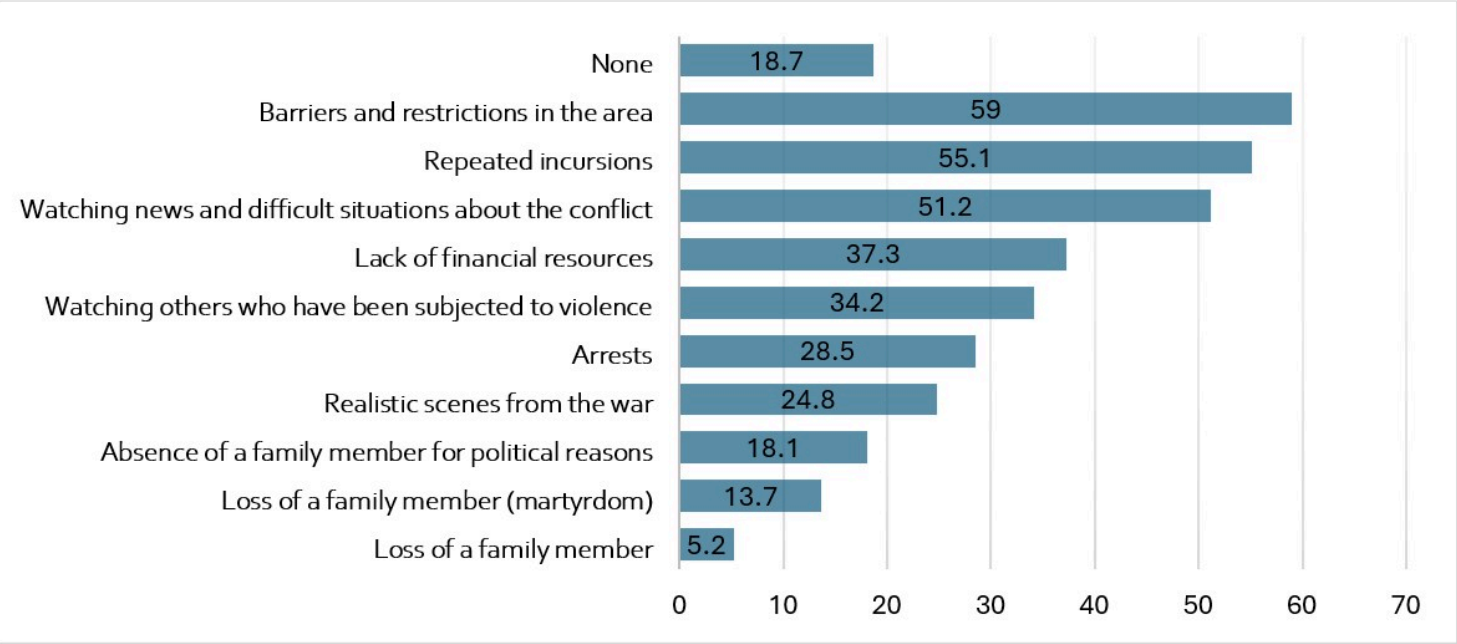


Figure 1

Facets of exposing to political, social, or economic conflicts experienced by children.

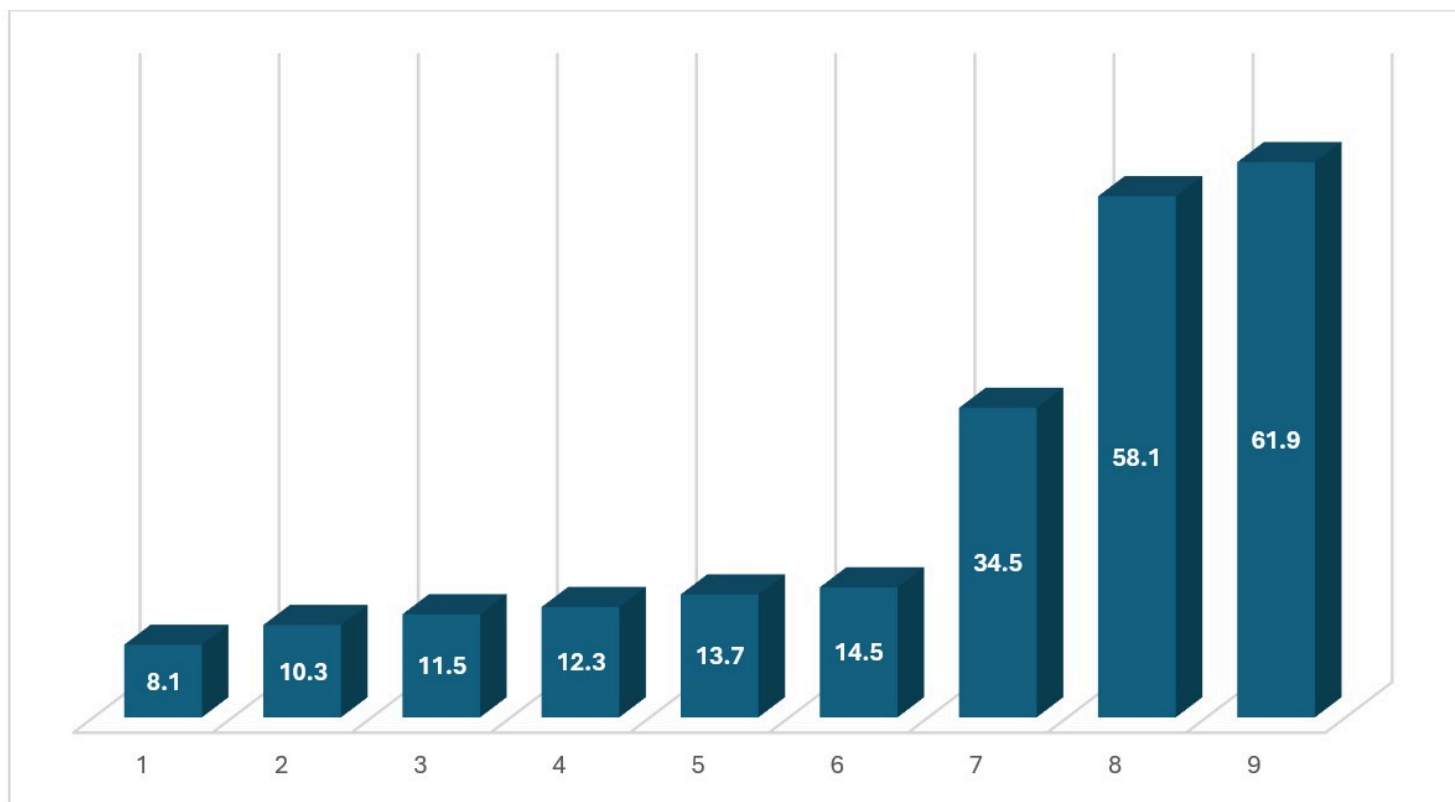


Figure 2

Aspect of the child's language and communication that was affected

Indicators:

1. I have not noticed any impact on my child's language and communication – My child does not have any difficulties with pronunciation, speaking, understanding, or social communication, and his language development is age-appropriate.
2. Reading skills - the child's ability to read and understand texts. Example: If the child has difficulty reading stories or understanding the meanings of words.
3. Beginning to speak and language development - the child's ability to begin speaking and develop his vocabulary. Example: If the child is late in saying his first words compared to his peers.
4. Spontaneous language development in proportion to the child's age - the extent to which the child's language skills develop according to the developmental stages appropriate to his age. Example: If the child is of primary school age and has not achieved basic language skills such as forming simple sentences.
5. Use of grammatically correct language - the child's ability to form grammatically correct sentences. Example: If the child uses incomplete sentences or obvious grammatical errors in his speech.

6. Articulation - the child's ability to produce sounds correctly. For example, if a child has difficulty pronouncing certain letters, such as "r" or "q," which affects the clarity of their speech.
7. Verbal fluency - the child's ability to speak easily and smoothly without hesitation (stuttering). Example: If the child stutters or pauses a lot while speaking, which affects his ability to communicate effectively.
8. Social communication - a child's ability to interact with others and understand social cues. For example, if a child has difficulty playing with peers or does not understand facial expressions.
9. Spontaneous speech - speaking freely and without hesitation in everyday situations. Example: If a child avoids participating in conversations or responds.

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