

Prevalence of stammering among internally displaced population in North Waziristan agency

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Abstract

Background: Stammering is a dysfluency disorder that is common in children exposed to stressful conditions. Displacement from home is one such situation. There is a large internally displaced population in Pakistan.

Aims: To determine the prevalence of stammering among children of internally displaced persons (IDPs) in North Waziristan Agency, Pakistan.

Methods: This cross-sectional survey included 400 Pushto-speaking children of IDPs, aged 5–18 years enrolled from schools in North Waziristan Agency, from July 2017 to July 2018. The Fluency Rating Scale was used for speech assessment. Data were analysed by SPSS version 20.

Results: The prevalence of stammering was 11%, with moderate stammering being more prevalent. Five (5.6%) girls and 39 (12.5%) boys were identified with stammering.

Conclusions: Stammering is highly prevalent among IDPs.

Keywords: disasters, internally displaced persons, prevalence, stammering, speech disorders.

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Introduction

Stammering/stuttering is a speech disorder in which speech may become dysfluent and its time pattern may be affected (1). Stammering is characterized by repetitions, pauses, unnecessary production of vowels and unintentional breaks, spasms and emotional swings during speech production, making it unintelligible. Thus, people with stammering face significant problems in communicating during routine interactions (2).

Stammering can occur at any age (1), although it typically starts in preschool years, suggesting that factors during child development are involved. Usually, both genetic and environmental factors are incriminated, with genetic factors such as dopamine imbalance (1) interacting with environmental factors. The latter include family, learning and socioeconomic conditions, which all may be psychological causes of stammering (3). Children are more prone to stressful situations, and develop anxiety in situations such as parental conflict, displacement from home, and separation from siblings. Furnham and Davis concluded that “social and emotional factors appear to be crucial to the onset and maintenance of stuttering” (4). Children with anxiety or those who are prone to situations like social anxiety, where they are evaluated by others; or children with separation anxiety or generalized anxiety disorder may have dysfluent speech with panic. These anxiety situations are all present in displacement situations.

Cohen noted that internally displaced persons (IDPs) are: “Persons or groups of persons who have been forced or obliged to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized state border” (5). According to Peek, in disaster situations, populations face psychological stress or trauma, with children being more prone to developing psychological problems (6). Children who are experiencing psychological stress, such as inappropriate family attitudes, children with broken families, moving from one place to another, loss of a beloved one or even a pet, family vacations, or conflict among siblings may develop stammering (7). According to Yairi and Ambrose, the impact of race, ethnic origin, culture, bilingualism, and socioeconomic status on the incidence/prevalence of stammering remains uncertain (8). Ajdacic-Gross et al. reported that there was no overwhelmingly strong risk factor for stammering (9).

There is a large internally displaced population in Pakistan because of terrorism and counter-terrorism activities, which may have resulted in an increase in emotional, psychological and communication disorders, such as speech disorders, especially stammering. To the best of our knowledge, there has been no study from this part of the world on this important health issue. Therefore, the current study was designed to determine the prevalence of stammering in IDPs in North Waziristan Agency, Pakistan. This study is important since such large numbers of IDPs are rarely seen in any part of the world. Our results are important for rehabilitation by early identification, thus leading to timely intervention and resource allocation in such locations.

Methods

This was a cross-sectional survey carried out to determine the prevalence of stammering among children of IDPs attending schools in North Waziristan Agency. The study comprised 400 children

of registered IDPs whose native language was Pushto. There were 312 (78%) boys and 88 (22%) girls with a male to female ratio of 3.54: 1, aged 5–18 years (Figure 1). They were enrolled through convenience sampling after obtaining consent for inclusion in the study. Children with other disabilities were excluded. The study was conducted over a period of 1 year from July 2017 to July 2018.

The Fluency Severity Rating Scale was administered in one-to-one sessions to investigate the prevalence of stammering among IDPs, and a score of < 4 was considered normal, whereas scores of 4, 5–6 and 7–9 were labelled mild, moderate and severe stammering, respectively.

Data were collected, coded and analysed with SPSS version 20. Variables studied included sex, age group and stammering severity, and were presented by absolute and relative frequency and P values were calculated.

Results

There was a high prevalence of stammering among children of IDPs ($n = 44$, 11%). The prevalence was 12.5% ($n = 39$) among boys, compared with 5.6% ($n = 5$) among girls (Figure 1), with a male to female ratio of 7.8: 1. As regards the severity of stammering, moderate stammering was predominant in boys (69.23%), followed by severe stammering (20.51%), while in girls, moderate stammering predominated with a relative frequency of 80%, followed by mild stammering (20%), with no case of severe stammering; however, the sex difference was not significant ($P = 0.17$) (Table 1).

The study population was divided into 2 age groups. The prevalence of stammering in age group 5–11 years was 10.49% (28 affected cases out of 269), while in the age group 12–18 years, prevalence was 12.03% (16 affected cases out of 133) (Figure 2). As regards severity, moderate stammering predominated in both groups, with a relative frequency of 71.43% in the 5–11 years age group and 68.75% in the 12–18 years age group. The difference between age groups and severity of stammering was not significant ($P = 0.62$) (Table 1).

Discussion

In the present study the prevalence of stammering among children of IDPs was 11% (44 children) with a higher prevalence among boys of 12.5% ($n = 39$) compared with girls (5.6%; $n = 5$), with a male to female ratio of 7.8: 1.

A literature search did not reveal any studies on prevalence of stammering among IDPs; however, the prevalence in the current study was higher (11%) than that found in different studies in non-IDP populations in the Islamic Republic of Iran, which showed a prevalence of 0.72–1.5% (10–12), and a

study on 10 425 children, aged 5–12 years reported a prevalence of only 0.33% (13). The high prevalence of stammering in the current study could be attributed to adverse social and emotional factors due to the displacement situation that this population faced. According to Furnham et al., social and emotional factors appear to be crucial to the onset and maintenance of stammering (4). Also, in a local study in Lahore, Pakistan, involving children aged 5–17 years with speech disorders, prevalence of stammering was 24%; however, this cannot be taken as a high prevalence of stammering because the sample population had speech disorders (14).

In the current study there was a high prevalence of stammering in boys, with a male to female ratio of 7.8: 1. Although most studies have reported higher prevalence of stammering in boys than girls, in contrast to our study, the male to female ratio was lower, ranging from 2.1: 1 to 2.8: 1 in studies from the Islamic Republic of Iran (11,12), Pakistan (14) and Brazil (15).

Adriaenssens et al. found that severe stammering has a negative influence on adolescents' social acceptance, competence at school, formation of close friendships, and self-esteem (16). In the current study, among the 44 children with stammering, 8 (18.18%) had severe stammering, 31 (70.46%) moderate stammering and 5 (11.36%) mild stammering. O'Brian et al. noted a significant negative correlation between achievement of the highest educational levels and stammering severity (17).

In our study, the prevalence of stammering was 10.49% (n = 28) for children aged 5–11 years and 12.03% (n = 16) for those aged 12–18 years. These findings are higher than those reported by Keating et al. in a study in Australia of 12 388 children, aged 0–14 years (18). They found a maximum prevalence of 6.5% in boys aged 5 years and 1.8% in girls aged 3–4 years, with overall prevalence of 1.7% in children aged 0–14 years. We studied children aged 5–14 years. Also, Yairi and Ambrose (2) noted that risk of stuttering onset has usually passed by age 5 years, which is earlier than previously thought. De Oliveira et al. reported a high risk of developmental familial stammering at age 3–11 years (15).

Conclusions

Stammering was highly prevalent in children of IDPs in North Waziristan Agency, Pakistan, who were traumatized and living under stressful conditions. Although both sexes were affected, the prevalence in boys was higher than in girls.

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Table 1. Severity of stammering according to age group and sex (n = 44)

Variable		Stammering severity						Total		χ^2
		Severe		Moderate		Mild				
		n	%	n	%	n	%	n	%	
Sex	Male	8	20.51	27	69.23	4	10.26	39	88.64	$c^2(3) = 5.01$ P = 0.17
	Female	0	00.00	4	80.00	1	20.00	5	11.36	
	Total	8	18.18	31	70.46	5	11.36	44	100	
Age group, yr	5–11	4	14.28	20	71.43	4	14.29	28	63.64	$c^2(3) = 1.74$ P = 0.62
	12–18	4	25.00	11	68.75	1	6.25	16	36.36	
	Total	8	18.18	31	70.46	5	11.36	44	100	

Figure 1. Gender distribution of study population (n = 400)

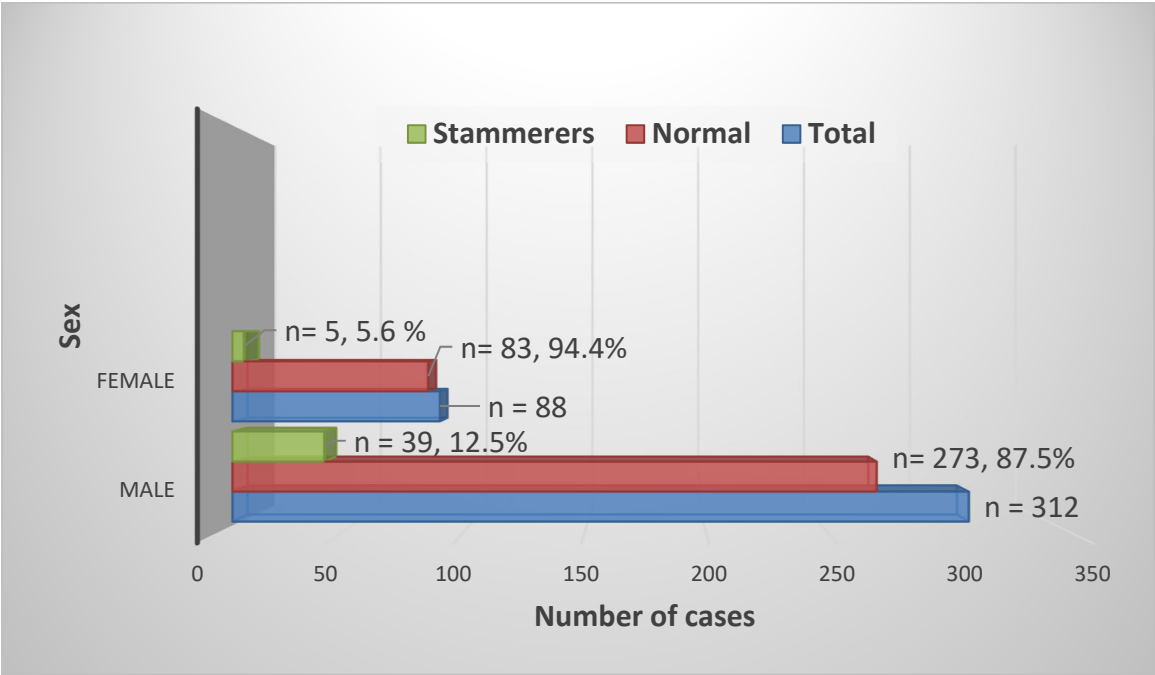


Figure 2. Age group distribution of study population (n = 400)

