Post Traumatic Stress Disorder, Autism and Oral Health (misdiagnosis, comorbidity, and maternal PTSD)- the impact of ongoing conflicts and stressful events on autistic children and their families – 2019

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Abstract

The Syrian conflict, which began in 2011, has had devastating effects on the country's infrastructure, particularly in the health and education sectors, leaving vulnerable populations such as children with autism spectrum disorder (ASD) and their families at heightened risk. This study investigates the intersection of ASD and Post-Traumatic Stress Disorder (PTSD) in the context of ongoing conflict, focusing on misdiagnosis, comorbidity, and the impact of maternal PTSD on children with autism. A randomized sample of 57 children (aged 1–12 years) from refugee camps, NGOs, and psychological aid centers in Damascus and its suburbs was analyzed. Semi-structured interviews, clinical histories, and PTSD screenings were conducted for both children and their mothers.

Key findings reveal significant misdiagnosis among the study participants, with only 2 out of 28 uncertain cases definitively identified as typical ASD. Among the 31 children with confirmed ASD, 11 (35.5%) exhibited clear PTSD symptoms, with a notable gender disparity (only 1 female). Additionally, 70% of children aged 1–6 years had mothers diagnosed with maternal PTSD, none of whom received adequate treatment. The study highlights a potential link between maternal PTSD and the development of ASD in offspring, as well as the cyclical relationship between maternal mental health and child development.

The results underscore the urgent need for improved diagnostic tools, integrated treatment approaches, and maternal mental health support in conflict zones. The study calls for increased collaboration between researchers, healthcare providers, and policymakers to address the unique challenges faced by children with autism and their families in crisis settings. By raising awareness of the intersection of autism and trauma, this research aims to motivate national and international organizations to take action to support these vulnerable populations.

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Introduction and Literature Review

The Syrian conflict, which began in 2011, has had profound and far-reaching consequences on the country's social, economic, and health infrastructures. Among the most vulnerable populations affected by this crisis are children with autism spectrum disorder (ASD) and their families. The war has not only disrupted essential services such as healthcare and education but has also introduced new challenges, including the rise of Post-Traumatic Stress Disorder (PTSD) among children and their caregivers. This article explores the intersection of ASD and PTSD, focusing on the misdiagnosis of these conditions, their comorbidity, and the impact of maternal PTSD on children with autism (1–5).

Autism Spectrum Disorder is a neurodevelopmental condition characterized by difficulties in social interaction, communication, and restricted or repetitive behaviors. According to the Centers for Disease Control and Prevention, approximately 1 in 59 children are diagnosed with ASD, and up to 70% of these children will experience comorbid psychiatric disorders (6–13). Among these comorbidities, PTSD is particularly concerning, especially in conflict zones like Syria. PTSD typically develops after exposure to traumatic or life-threatening events, and children with autism are more reactive to stressful events, making them particularly susceptible to this condition (14–17).

The relationship between ASD and PTSD is complex and multifaceted. Research indicates that some symptoms of PTSD, such as repetitive behaviors, social interaction difficulties, and sensory sensitivities, overlap with those of autism. This overlap can lead to misdiagnosis or underdiagnosis of PTSD in autistic children (18–30). Furthermore, the lack of specialized tools for screening and treating PTSD in individuals with autism complicates the situation. As one expert noted, "How do you treat PTSD in people with autism? No one knows" (31–33)

In addition to the direct impact of trauma on children, maternal PTSD has emerged as a significant factor in the development and exacerbation of ASD symptoms in offspring (34,34,35). Maternal stress during pregnancy has been linked to adverse outcomes in children, including an increased risk of neurodevelopmental disorders such as autism. Moreover, the challenges of raising a child with autism in a conflict zone can further exacerbate PTSD symptoms in mothers, creating a cyclical relationship between maternal mental health and child development (36–41).

The Syrian context adds another layer of complexity to this issue. Before the conflict, the fields of child psychiatry, autism, and learning disabilities in Syria were already facing significant gaps in classification, specialist personnel, prevalence data, and educational services. The war has exacerbated these gaps, pushing the system into what can be described as a "red zone" for the survival and well-being of children with autism and their families (42–49). The ongoing conflict has also introduced new challenges, such as displacement, dangerous living conditions, and insufficient support from international NGOs, further complicating the lives of these vulnerable populations (50–54).

This study aims to shed light on the critical intersection of ASD and PTSD in the context of the Syrian conflict. By examining the prevalence of PTSD among autistic children, the impact of maternal PTSD, and the challenges of misdiagnosis, this research seeks to raise awareness of the unique struggles faced by these children and their families (55–58). Furthermore, it calls for increased collaboration between researchers, national and international organizations, and policymakers to address these issues and provide much-needed support to this vulnerable population (59–64).

The following sections will detail the methodology used in this study, present the findings, and discuss their implications for both clinical practice and policy. By highlighting the intersection of autism and trauma, this research hopes to contribute to a broader understanding of the challenges faced by children with ASD in conflict zones and to motivate action to improve their lives (65–72).

Impact on Oral Health in Children with ASD and PTSD

Children with ASD often face significant challenges in maintaining oral hygiene. Sensory sensitivities, behavioral issues, and communication barriers make routine dental care difficult, even under normal circumstances. In conflict settings, such as those examined in this study, these challenges are further exacerbated by trauma, displacement, and limited access to healthcare services.

Barriers to Oral Hygiene

Children with ASD frequently experience heightened sensitivity to textures, tastes, and physical sensations. This can lead to an aversion to toothbrushes, toothpaste, or the physical act of brushing, resulting in poor oral hygiene habits. In children with comorbid PTSD, these aversions may be intensified due to heightened anxiety, hypervigilance, and behavioral disturbances. The combination of ASD and PTSD can create a compounding effect, making it even more difficult for caregivers to establish and maintain effective oral hygiene routines.

Behavioural and Self-Injurious Patterns

Another significant factor affecting oral health is the increased prevalence of self-injurious behavior (SIB) among children with ASD, which can be further triggered by PTSD. Behaviors such as teeth grinding (bruxism), cheek biting, or head banging can lead to dental trauma, fractured teeth, soft tissue injuries, and long-term oral damage. The study observed that children exposed to ongoing conflict displayed elevated rates of bruxism and SIB, contributing to worsened dental outcomes.

Maternal PTSD and Oral Care Neglect

Maternal PTSD emerged as a critical factor influencing oral health outcomes. Mothers experiencing severe psychological distress may face challenges in maintaining daily care routines, including their children's oral hygiene. The study highlighted that 70% of mothers of children aged 1–6 years exhibited PTSD symptoms. This mental health burden, coupled with displacement, poverty, and lack of access to health care, may result in unintentional neglect of oral care. Children in these situations are less likely to receive preventive dental care, contributing to untreated caries, periodontal diseases, and dental trauma (73).

Limited Access to Dental Care in Conflict Zones

The Syrian conflict has decimated healthcare infrastructure, including dental services. Refugee camps and war-affected regions often lack specialized pediatric dentists, let alone those trained to handle children with neurodevelopmental disorders and trauma histories. As a result, children with ASD and PTSD face prolonged periods without dental intervention, allowing minor issues to escalate into severe conditions requiring invasive treatments (74).

Recommendations for Integrated Oral and Mental Health Care

To address these challenges, a multidisciplinary approach is essential. This includes:

Training for Dental Professionals: Pediatric dentists, especially those working in conflict zones, should receive specialized training in trauma-informed care and behavioral management techniques for children with ASD and PTSD.

Parental Support and Education: Programs aimed at supporting mothers and caregivers should include oral hygiene education, stress management strategies, and guidance on maintaining dental routines despite environmental challenges.

Mobile and Community-Based Dental Services: In regions where dental clinics are inaccessible, mobile dental units equipped for children with special needs can provide preventive and emergency care.

Collaboration with Mental Health Providers: Integrated care models combining dental professionals and mental health experts can improve both oral and overall health outcomes. For instance, behavioral therapists can assist in desensitizing children to dental procedures, while dentists trained in recognizing signs of trauma can tailor their approach to avoid retraumatization.

Preventive Measures: Providing fluoride varnishes, dental sealants, and other protective treatments in community settings can help reduce the risk of dental caries in children who face barriers to regular dental visits.

By recognizing the intersection between oral health, autism, and trauma, this expanded framework aims to ensure that children with ASD and PTSD receive comprehensive, compassionate care. Addressing their oral health needs is not merely a matter of dental care—it is a critical component of improving their overall well-being and quality of life in conflict-affected environments (75–79).

Materials and Methods

Study Design and Sample

This study employed an initial randomized design to investigate the prevalence of PTSD among children with ASD in the context of the Syrian conflict. The sample consisted of 57 children, including 29 typically diagnosed autistic children, recruited from various refugee camps, non-governmental organizations (NGOs), and psychological aid centers in Damascus and its suburbs. The age range of the participants was 1 to 12 years, with 8 females and 49 males included in the study.

Data Collection

Data were collected through semi-structured interviews with the children and their families, following a thorough review of their medical records. A detailed clinical history, including pregnancy history, was obtained for all participating mothers. The study also involved screening for PTSD symptoms in both the children and their parents using standardized tools and clinical observations.

Inclusion Criteria

- Children aged 1 to 12 years with a diagnosis of ASD or suspected autism.
- Families residing in refugee camps or receiving support from NGOs in Damascus and surrounding areas.
- Mothers are willing to provide detailed pregnancy and clinical histories.

Exclusion Criteria

- Children with severe physical disabilities or other neurological conditions unrelated to autism.
- Families are unwilling to participate in the study or provide consent.

Ethical Considerations

The study was conducted by ethical guidelines for research involving vulnerable populations. Informed consent was obtained from all participating families, and confidentiality was maintained throughout the research process.

It is a fact that in Syria there is no ethical research structure, although many efforts have been made over the last few years to create some ethical regulations that are highly sensitive about the cultural, traditional, and religious considerations; but the actuality of the absence of a real ethical system that can match the universal criteria as well as the uniqueness of the society is the present situation. Therefore, the research approval has been made through NGO and aid centers in law and by their regulations and criteria in monitoring and supervising their patients (which the sample is taken from).

Results

Misdiagnosis and Comorbidity

The study revealed significant misdiagnosis among the 28 uncertain cases. Only 2 cases were definitively identified as typical ASD, while the remaining 26 cases exhibited a range of conditions, including speech problems, PTSD, autistic features, and social

impairments (Tables 2 and 3). This highlights the challenges of accurately diagnosing ASD and PTSD in conflict-affected populations.

PTSD Prevalence in ASD Children

Out of the 31 children with a confirmed ASD diagnosis, 11 (35.5%) exhibited clear symptoms of PTSD. Notably, only 1 of these children was female, suggesting a potential gender disparity in the manifestation of PTSD among autistic children (Table 4).

Maternal PTSD and Its Impact

Among the children aged 1 to 6 years (13 cases, 4 of whom were verbal), 9 (70%) had mothers who experienced terrifying events during pregnancy and were subsequently diagnosed with maternal PTSD (Table 5). None of these children or their mothers received sufficient treatment for PTSD, underscoring the lack of mental health support available in conflict zones.

Link Between Maternal PTSD and ASD

The study found significant evidence of a potential link between maternal PTSD and the development of ASD in their children. Additionally, there was evidence of ongoing PTSD and related stress and mood disorders among the mothers of autistic children, suggesting a cyclical relationship between maternal mental health and child development (Table 6).

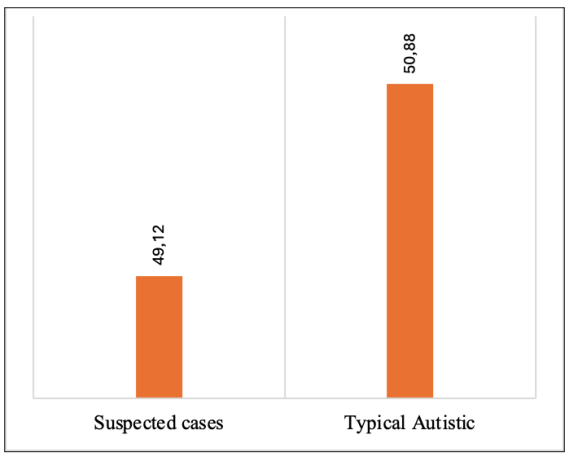
Graphical Representation of Findings

The study included several graphical representations of the data, including:

- Percentage of Affected Children in the Study Sample: A pie chart illustrating the distribution of PTSD symptoms among the study participants (Table 1).

Category	Count	%
Typical autistic	29	50.88
Suspected cases	28	49.12
Total	57	100.00

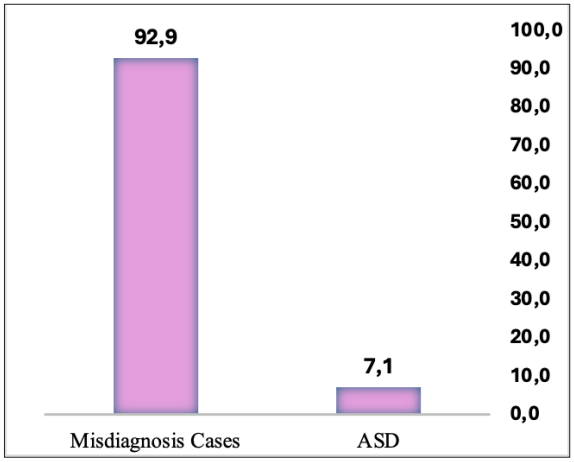
Table 1. Percentage of affected children in the study sample



- Misdiagnosis Cases: Bar graphs showing the breakdown of misdiagnosed cases and their associated conditions

Category	Count	%
ASD	2	7.1
Misdiagnosis cases	26	92.9
Total	28	100.0

Table 2. Misdiagnosis cases in comparison with confirmed ASD cases



Category	Count	%
speech problems	5	19.2
PTSD	13	50.0
Autistic features and Social impairment	8	30.8
Total	26	100.0

- Typical Autistic Children with PTSD: A visual representation of the overlap between ASD and PTSD diagnoses.

Category	Count	%
ASD children with clear PTSD symptoms	11	35.5
ASD children without any PTSD symptoms	20	64.5
Total	31	100.0

- Maternal PTSD: Charts depicting the prevalence of maternal PTSD and its correlation with ASD in offspring.

Category	Count	%
Mother diagnosed with PTSD	9	69.2
Mother did not experience any traumatic event	4	30.8
Total	13	100.0

Category	Count	%
Typical ASD with PTSD symptoms and maternal PTSD	2	15.4
Typical ASD without PTSD symptoms and with maternal PTSD	7	53.8
Typical ASD without PTSD symptoms and without maternal PTSD	4	30.8
Total	13	100.0

Table 3. Misdiagnosis cases with associated conditions

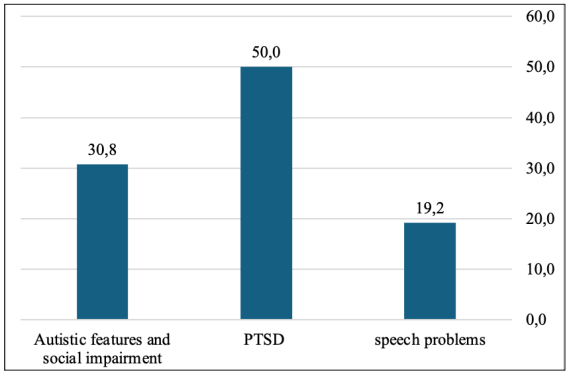


Table 4. percentage of typical autistic children with PTSD

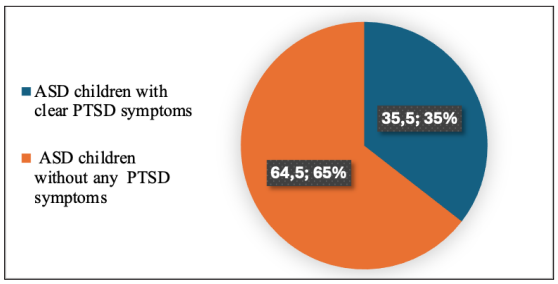


Table 5. Maternal PTSD; the prevalence of maternal PTSD in study samples

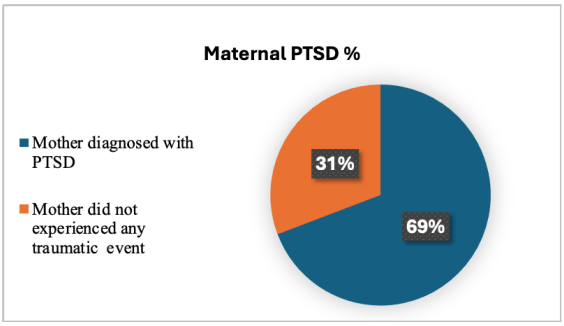
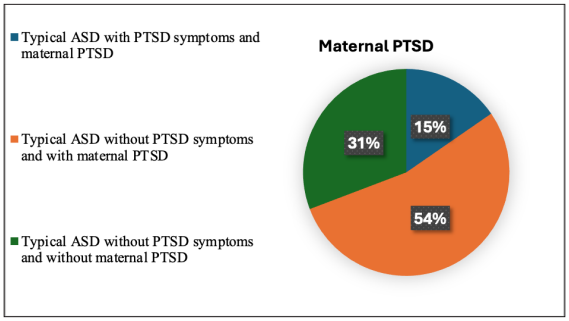


Table 6. Maternal PTSD and its correlation with ASD in offspring



Discussion

Key Findings

The findings of this study highlight the profound impact of the Syrian conflict on children with autism and their families. The high prevalence of PTSD among autistic children (35.5%) underscores the vulnerability of this population to trauma. Additionally, the significant overlap between ASD and PTSD symptoms complicates diagnosis and treatment, particularly in resource-limited settings (65,80–90).

The study also sheds light on the role of maternal PTSD in the development of ASD in children. The high percentage of mothers with PTSD (70%) among children aged 1 to 6 years suggests that maternal stress during pregnancy may be a contributing factor to the onset of autism. Furthermore, the lack of adequate treatment for both children and their mothers highlights the urgent need for mental health interventions in conflict zones (88,91–95).

Implications for Clinical Practice

The findings have several implications for clinical practice:

1. Improved Diagnostic Tools: There is a need for more accurate tools to differentiate between ASD and PTSD, particularly in conflict-affected populations.
2. Integrated Treatment Approaches: Treatment plans for autistic children in conflict zones should address both ASD and PTSD, taking into account the unique challenges faced by this population.
3. Maternal Mental Health Support: Interventions should focus on providing mental health support to mothers, as maternal PTSD may have long-term effects on child development (96–100, 103, 104).

Policy Recommendations

The study calls for increased collaboration between national and international organizations to address the needs of children with autism and their families in conflict zones. Specific recommendations include (58,101,102):

- Increased Funding for Mental Health Services: Allocating resources to provide PTSD treatment for both children and their mothers.
- Training for Healthcare Providers: Equipping healthcare providers with the skills to diagnose and treat ASD and PTSD in conflict-affected populations.
- Awareness Campaigns: Raising awareness about the intersection of autism and trauma to reduce stigma and promote early intervention.

- The challenges in maintaining oral hygiene among children with ASD in conflict zones, exacerbated by sensory sensitivities, behavioural issues and maternal PTSD, highlight the need for integrated dental and mental health care approaches.

Limitations

While this study provides valuable insights, it has several limitations. The sample size was relatively small, and the study was conducted in a specific geographic area, which may limit the generalizability of the findings. Additionally, the reliance on self-reported data from mothers may introduce bias.

Conclusion

This study highlights the critical intersection of autism and trauma in the context of the Syrian conflict. The high prevalence of PTSD among autistic children, the challenges of misdiagnosis, and the impact of maternal PTSD underscore the urgent need for targeted interventions in conflict-affected populations. By raising awareness of these issues, this research aims to motivate national and international organizations to take action to support vulnerable children and their families.

Future research should focus on larger, more diverse samples to validate these findings and explore potential interventions. Additionally, longitudinal studies are needed to better understand the long-term effects of maternal PTSD on child development. Addressing the oral health needs of children with ASD in conflict areas requires a collaborative effort between dental professionals and mental health providers to ensure trauma-sensitive care. Ultimately, addressing the needs of children with autism in conflict zones requires a coordinated effort from researchers, healthcare providers, and policymakers to ensure that these vulnerable populations receive the support they need to thrive.

Abbreviations

ASD: Autism Spectrum Disorder
NGOs: non-governmental organizations
PTSD: Post-Traumatic Stress Disorder
SIB: self-injurious behavior

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