

Autism spectrum disorder related to unwarranted paracetamol use in pregnancy

Asmat Zehra, Gul-e-Zehra, Hina Altaf

Madam, there has been a rapid increase in self-medication with over-the-counter (OTC) drugs, mostly paracetamol, by pregnant women lately.^{1,2} Its rampant use is due to easy availability and cost-effectiveness. Pregnant women mostly self-medicate for nausea, vomiting, backache and fever. A study from Pakistan reported OTC drug use by 37.9% of pregnant women, whereas 77.4% of them were unaware of its indications, dosages and potential hazards. Their use of OTC drugs was based on the experience or recommendations of relatives and pharmacists.¹ This unchecked use of paracetamol can be dangerous in pregnancy because its metabolites cross the placenta and blood-brain barrier of the foetus readily and pose significant risk to the normal neurodevelopment of the foetus, by interfering with the immunologic development of the brain.² Analysis of the previously published literature brought up 29 studies assessing the relationship of paracetamol use with neurodevelopmental disorders (NDD); 26 reported a positive association between them. Autism spectrum disorder (ASD), an NDD that causes problems in behaviour, communication and social interaction, was one of the primary disorders noted.² Some studies have also linked ASD with perinatal and postnatal paracetamol use in children. For instance, a study conducted in the US suggests a 40% increased risk of ASD with paracetamol use in postnatal period, especially in male children.³

In Pakistan, about 350,000 children are reported to have ASD.⁴ However, a much larger percentage of individuals is undiagnosed. A major reason behind this is the lack of awareness and, thus, a poor help-seeking attitude of the population. Many believe it to be God's test or caused by supernatural possessions and thus seek help from "spiritual healers" rather than from medical professionals.⁵

In addition to this, medical training institutions do not

.....
4th Year MBBS Students, Dow Medical College, Karachi, Pakistan.

Correspondence: Gul-e-Zehra. Email: gulezehra6@gmail.com

DOI: <https://doi.org/10.47391/JPMA.6267>

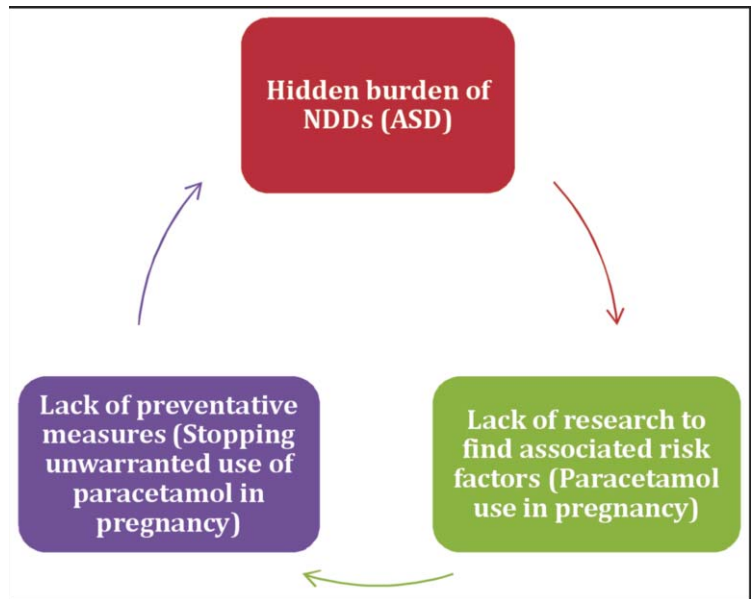


Figure-1: ASD cycle - how a hidden burden of ASD causes lack of research in the area and thus causes lack of preventative measures.

emphasise on the study of disabilities, producing doctors without adequate knowledge to diagnose and manage NDDs. In a study conducted in Karachi, only 44.6%⁶ of the general practitioners were even aware of the disorder. Moreover, there are only four CPSP recognized child & adolescent psychiatrists in Pakistan. Due to these factors, ASD is not recognized as significant a health burden as it should be. Therefore minimal research is done to find out the associations and risk factors e.g. unwarranted use of OTC drugs in pregnancy. This leads to a lack of preventative measures that further feeds into the vicious cycle, illustrated in Figure-1.

To conclude, we aim to emphasize that ASD is a growing yet masked burden to society, with unchecked paracetamol use in pregnancy being its risk factor. Early recognition of ASD is therefore, vital. Psychiatric training in Pakistan is necessary at undergraduate and postgraduate levels to make sure doctors are trained in recognise NDDs. Research work should be encouraged at all levels. General public should be encouraged to consult doctors if they suspect some issue in their child's behaviour. It is

suggested that greater percentage of health care expenditure by the government should be devoted to mental health. Combined efforts of the public, doctors and government can help us find out the actual disease load and its associated factors to be eliminated at root level.

Disclaimer: None.

Conflict of Interest: None.

Funding Disclosure: None.

References

1. Bohio R, Brohi ZP, Bohio F. Utilization of over the counter medication among pregnant women; a cross-sectional study conducted at Isra University Hospital, Hyderabad. *J Pak Med Assoc* 2016;66:68-71.
 2. Bauer AZ, Swan SH, Kriebel D, Liew Z, Taylor HS, Bornehag CG, et al. Paracetamol use during pregnancy - a call for precautionary action. *Nat Rev Endocrinol* 2021;17:757-66. doi: 10.1038/s41574-021-00553-7.
 3. Bittker SS, Bell KR. Postnatal Acetaminophen and Potential Risk of Autism Spectrum Disorder among Males. *Behav Sci (Basel)* 2020;10:26. doi: 10.3390/bs10010026.
 4. Staff Reporter. The Nation. 350,000 children suffer from autism in Pakistan. News Release. The Nation's Media Center. [Online] 2012 [Cited 2022 January 03]. Available from URL: <https://nation.com.pk/31-Mar-2012/350-000-children-suffer-from-autism-in-pakistan>
 5. Ansari I. Mental Health Pakistan: Optimizing Brains. *Int J Emerg Ment Health* 2015;17:288.
 6. Rahbar MH, Ibrahim K, Assassi P. Knowledge and attitude of general practitioners regarding autism in Karachi, Pakistan. *J Autism Dev Disord* 2011;41:465-74. doi: 10.1007/s10803-010-1068-x.
-