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A Comprehensive Analysis of Educational Interventions for Autism Spectrum Disorder in Pakistan

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ABSTRACT

Education systems across the globe face unique issues and possibilities about autism spectrum disorder (ASD). Hence, in a mixed socio-cultural context of Pakistan, where special education is still in its emergent phase, the delivery of effective data–driven services for children with ASD is indeed a challenge. This paper provides a comprehensive overview of the existing state of educational interventions for ASD in Pakistan. First, it is based on the sociocultural context and cultural beliefs and stigma surrounding people's lives. It goes on to methodically detail interventions for both conventional and unconventional therapy, as well as covers the relatively new use of ABA and TEACCH programs. Scratch beneath the surface, and Pakistan's school system reveals a whole range of shortfalls in policy, teacher training, and resources. It also addresses the key role of the family, including its various loads and potential for elevation. Based on these analyses, the paper proposes an overarching plan that includes public awareness, policy transformation, broadening professional development, and integrating technology, as well as extending inclusive education. The final point to be emphasized is that, while daunting, a multi-label solution involving government intervention, professionalism of the experts, and participation of the community can help the realization of an eco-structure in which Pakistani children who have ASD could learn/work/live/and play and flourish to become more than they are.

1. Introduction

Autism Spectrum Disorder (ASD) is a heterogeneous neurodevelopmental disorder defined by persistent deficits in social communication and interaction as well as the development of restricted, repetitive patterns of behavior, interests, or activities (American Psychiatric Association, 2013). Global prevalence of ASD has increased substantially over the previous decades, and current estimations are that it impacts around 1 in 100 children globally (Zeidan et al., 2022). Considering that no national epidemiological data is available for Pakistan, based on regional studies and clinical observations, there appears to be a relatively large (and steadily increasing) population of children challenged with autism in Pakistan, possibly numbering in the millions if extrapolating from global prevalence figures (Rahbar et al., 2011).

Evidence-based practices (EBP), Applied Behavior Analysis (ABA), the TEACCH program, and social skills training were developed through years of research for instructing children with ASD in high-income countries. (Wong et al., 2015). Nevertheless, multiple barriers hinder the effectiveness of implementation of these interventions in low- and middle-income countries (LMICs), including Pakistan. Various contextual factors affect the schooling of children with disabilities in Pakistan, which include, but are not limited to, limited economic resources, a low number of professionally qualified special educators, historical attitudes regarding disability within cultural and religious systems of belief, and a policy framework that does not always have a focus on ASD (Imran et al., 2011).

The purpose of this article is to examine the existing status of autism educational interventions/programs in Pakistan. It will track the course from diagnosis to classroom, examining the effectiveness of various interventions and their availability. Through the eyes of all stakeholders - government hospitals and schools, those professionals involved, and most importantly, families – this article hopes to uncover where one part of our system has been let down, propose a full, culturally appropriate long-term path forward. We hope to go beyond the grievances and instead pave a way for how such a system should work effectively and inclusively, serving all children with autism in Pakistan.

2. Understanding the Pakistani Context

There can be no proper analysis of educational interventions without an accepted description of the environment, and what it is not. The religious-cultural scarred picture of ASD in countries like Pakistan seems to be buried under a tripod of hegemony, which consists of culture, Islamic norms, and an ailing health cum diagnostic network.

2.1 Cultural Perceptions and Stigma

For a large section of Pakistani society, disability is seen differently – it is not considered through a neurodevelopmental or medical lens but rather a socio-cultural and religious lens. Misunderstandings regarding the origins of ASD include:

- **Spiritual Causes:** Beliefs in evil eye (*nazar*), jinn possession, or divine punishment for past sins are prevalent (Gona et al., 2020). Relatives, being people of faith, attribute the symptoms to supernatural forces rather than medical ailments; this means that families often turn to spiritual healers (pirs, maulvis) rather than doctors.
- **Parental Blame:** Mothers may be blamed for their child's condition, facing social and immense psychological stress (Samiullah, 2016).
- **Stigma and Shame:** Diagnosis of ASD is often perceived to be a source of family shame (sharam), which results in the withdrawal and separation of the child and mother within the home. This social stigmatization is a significant barrier to early identification. Families may opt to postpone or refuse seeking a diagnosis due to fear of societal stigma. Unfortunately, this “culture

of hiding" is not without costs for young children in terms of getting critical early educational services (Khan et al., 2022).

2.2 Religious Interpretations and Fatalism

The prevalent Islam belief in Pakistan has a strong influence on attitudes to disability. While Islamic theology underscores compassion, care, and PWDs' rights, fatalist (kismet, taqdeer) interpretations can become sanctioned.

This is a status that may be seen as "audience" for the will of God, and can activate social network walled gardens, but, at the same time, support passivity and reduced intense education or therapy involvement; this latter could even represent rebellion to a divine decision (Gona et al., 2020). The question is how to engage such systems of belief respectfully, possibly through partnership with progressive religious leaders who can claim intervention as a religious obligation to seek care and alleviate suffering.

2.3 The Diagnostic Dilemma

Pakistan has an extreme paucity of child psychiatrists, developmental pediatricians, and clinical psychologists. Most consultants reside in major cities (e.g., Karachi, Lahore, Islamabad), leaving the rural and semi-urban populations underserved (Imran et al., 2011). The diagnostic process is often:

Untitled: Too late, as everyone cannot afford a professional who knows about ADHD diagnosis and treatment, will be behind on the timeline 6GÇô8 weeks? Age-appropriate, or AAG, kids are born at an optimal time to be diagnosed between 2 and 3 years.

Poor: Clinical judgment is used without the age-standardized application of diagnostic tools such as the Autism Diagnostic Observation Schedule (ADOS) and Childhood Autism Rating Scale-Revised (CARS), and therefore has also been limited by cost, in terms of both test administration time and the number of measures.

Complicated by this, for instance, is the fact that quite a few children with ASD, as noted in Guideline 5 Screening, Review and Improvement, have co-morbidities, such as those of Njoki, Osebekwa, and Kamau, which pose barriers to early identification. Moreover, Children in Kenya with intellectual disability, epilepsy, or ADHD might complicate identification and intervention planning in resource-limited environments (Rahbar et al.,2011).

The confusing diagnostic should also mean that a child can be diagnosed at a relatively late stage of the intervention, when early help may have provided sufficient interventions.

3 Educational Interventions in Practice Spectrum

The intervention landscape for ASD in Pakistan is a patchwork of approaches reflecting international models and homegrown, alternative approaches. They are wildly inconsistent in terms of access to and quality of care for different physical, social, and economic situations.

3.1 Traditional and Alternative Therapies

cultural beliefs. The conditions impacting the initial treatment preference of families with RAS differ from those for the non-RAS group. An alternative is to patient choice preferences were not directly that in this study.

• **Faith Healing:** Visits to shrines and healers are frequent with rituals, amulets or tweeze, and holy water pani para. They offer families a piece of mind but do not treat the core symptoms of ASD nor provide access to appropriate age schooling.

• **Unverified biomedical intervention:** The use of special diets, vitamin supplements, and heavy metal chelation is attempted by some caregivers based on poorly described or anecdotal evidence rather than robust scientific findings (Ahmad, 2018).

The continued existence of these alternatives highlights the dire need for more widely available, affordable, and culturally relevant evidence-based information.

3.2 Emergence of Evidence-Based Practices

In recent years, there has been a slow but steady growth in the application of internationally recognized evidence-based practices, primarily in private centers in major cities.

3.2.1 Applied Behavior Analysis (ABA)

ABA is a scientific discipline that applies learning theory to change socially significant behavior. Its principles are used to teach new skills (e.g., communication, social interaction) and reduce challenging behaviors (e.g., aggression, self-injury).

- **Application in Pakistan:** ABA is increasingly recognized as a gold-standard intervention. Centers in urban areas offer ABA-based therapy, often in a one-on-one format. However, its implementation faces hurdles:
  - **Cost:** Intensive ABA therapy is expensive, placing it out of reach for most Pakistani families.
  - **Workforce Shortage:** There is a severe shortage of Board-Certified Behavior Analysts (BCBAs) and trained therapists. Most practitioners learn through workshops and on-the-job training rather than through formal, accredited university programs (Khan & Hoda, 2020).
  - **Cultural Adaptation:** Directly importing Western ABA protocols without considering local social norms, language, and family structures can reduce their effectiveness. For example, teaching "eye contact" must be balanced with cultural norms around modesty.

3.2.2 The TEACCH Model

Structured teaching is highlighted in the Treatment and Education of Autistic and related Communication-handicapped Children (TEACCH) approach. It relies on the structuring of physical space, schedules visually presented, work systems, and activity organization to create a predictable environment for autistic individuals (Mesibov et al., 2005).

• **Application in Pakistan:** TEACCH is visual and structured, which makes it easy to implement, uses readily available materials, and low cost. Some special needs schools and education centers do introduce TEACCH in their classrooms. Individualized workstations with visual schedules can be helpful for these kids, to help them understand the routine and do work on their own (and in a room where it is likely there are only two teachers in the classroom of 30 kids, which becomes essential). It is an approach, not a whole-school focus, so much as a kind of patchwork.

3.2.3 Speech-Language and Occupational Therapy

These related services are crucial components of a comprehensive educational program for ASD.

- **Speech-Language Therapy (SLT):** Focuses on improving communication, whether through spoken language, sign language, or Augmentative and Alternative Communication (AAC) devices. The use of the Picture Exchange Communication System (PECS) is a common and effective low-tech AAC strategy used in Pakistan (Khalid et al., 2020).
- **Occupational Therapy (OT):** Aims to improve sensory integration, motor skills, and activities of daily living (ADLs). OTs often work on sensory sensitivities (e.g., to sound or touch) that can be significant barriers to learning.

Like other specialists, speech-language pathologists and occupational therapists are concentrated in urban areas, and their services are often financially inaccessible for many.

3.3 The Role of Special Schools and Centers

An increasing number of private autism-specific schools are also available. Clinics are the primary source of rehabilitative intervention for those who manage to reach them. These are mostly a blend of those methods mentioned above. However, they fall along a broad spectrum regarding the quality, regulation, and expense of their services. The abstraction of a uniform

national curriculum for ASD, such as the one issued by the Directorate General of Special Education with respect to intellectual disabilities, again resulted in diversity of programs offered at every center, and thus consistency was not achieved.

4. The Pakistani School System and ASD

The formal education system in Pakistan is ill-equipped to support students with ASD, reflecting a broader neglect of special education needs.

4.1 Policy and Legislative Framework

Pakistan is a signatory to international treaties such as the UNCRPD. In-house legislation like the National Policy for Persons with Disabilities (2002) and the Islamabad Capital Territory Rights of Persons with Disability Act (2020) also exists. However, these laws often lack:

• **Specificity:** They rarely spell out "ASD" and categorize it under such broad terms as "mental disability."

• **The flow is from policy to enforcement gap:** There is a vast divide between policy and practice. Inclusion mandates are not tied to monetary resources, teacher preparation, and accountability (Malik, 2019).

• **National Scope:** Because provinces control education, policies are not applied uniformly across the country.

4.2 The Reality of Mainstream Inclusion

'Inclusive Education,' i.e., the education of children with disabilities - including those with autism in regular classrooms, a dream far-fetched for all we know, children with ASD (refer to note#1 above) in Pakistan. General education teachers are not trained in differentiated instruction and the behavior associated with ASD. Classes are large, infrastructure is weak, and the curriculum is inflexible, exam-oriented. The child with ASD in this context is perceived as deviant and s/he faces the risk of expulsion, harassment, or neglect (Shah, 2017). Without a structure of support, IEPs, and teacher support, inclusion is just placement without the necessary service, which will be detrimental for everyone.

4.3 The Critical Shortage of Trained Educators

Undoubtedly, the most profound bottleneck in delivering applied education to children with ASD must surely be the pool of trained professionals.

• **Pre-Service Training:** College and university-prep programs for special education commonly offer a general overview of ASD and do not focus attention on ABA or TEACCH.

• **In-Service Training:** There are a few professional development opportunities for in-service teachers. Workshops tend to be short and costly, rather than components of a sustained career development pathway.

• **Burnout and Attrition:** Working with ASD children is draining. Training, support, and the lack of income contribute to teacher burnout, which is rampant with high attrition rates that lead to a vicious cycle of inexperience.

The Family: The Primary Educators

When there is no strong state-supported system, the family in general and the mother in particular bear the responsibility of education and care of a child with ASD.

5.1 Role of the Mother and Psychological Impact

Mothers generally become primary caregivers, service system navigators, and de facto therapists. This is a heavy mental price to pay, bringing along with it high stress, anxiety, depression, and social dislocation (Khan et al., 2022). You are worn out from constantly having to advocate for your child against a system that is not as supportive, in the end, and it leads you to feel more hopeless.

5.2 Parent Training and Empowerment

Recognizing the central role of family, parent-mediated interventions are one of the most promising and cost-effective ways to scale services in LMICs such as Pakistan. Training parents in basic principles of behavior, communication strategies, and daily living skills positions them as active agents in their child's development. Pakistan has seen a range of parent-training interventions, and the research has shown that even a few sessions are sufficient to lead to significant reductions in problem behaviors and improvements in child communication. The Autism Resource Centre has been a pioneer in this format.

5.3 Socioeconomic Disparities

A second, simple dividing line lies in economic class, which also determines what the family's interventions will be. Parents with money can hire private specialists, therapists, and schools, and indeed, some of the parents do so, often traveling abroad for training for their children. For all this, studies show, not even middle-class families can pay for private care, and the studies for a lack of substitutable comparison-group treatments, let alone the countless low-income families, do not do so. Instead, people with low incomes choose between quack "alternative" treatments or having nobody at home to keep their kids moving on. The remarkable spread in family intervention, then, is a further copy of the extraordinary economic distinction in the country.

6. A Framework for the Future: Recommendations and Strategies

Education of children with ASD in Pakistan: A multidimensional, systemic approach that is ambitious yet realistic.

6.1 Building Awareness and Combating Stigma

The first is a culturally appropriate, nationwide awareness campaign.

Mass media: Didactic approach. The mass media, including Urdu and regional language TV, radio, and social media, will be utilized as a means of disseminating accurate information about ASD.

Community mobilization: Working with local community leaders (ulema) to deliver sermons(kutbas) which reframe disability in the context of enablement and the added value of support and inclusion.

Success Stories: Stories of people with ASD and their families who have achieved success, shedding off negative perceptions to give hope.

6.2 Strengthening Policy and Infrastructure

It would be great to have some evidence of the extent to which the government's "concern turns into any kind of action."

Autism-specific Legislation: Promote and defend laws in your state that specify "autism" as a condition for which evidence-based, effective educational services are required.

Budgeting: Planned amounts from the national education and provincial budgets for training, support of resourcing, and model schools of inclusion.

National registry: There is a Thirst for a national database that will use the true prevalence and unmet needs of the ASD population so that we can implement evidence-based policies.

6.3 Building Professional Capacity

Human capital, in the form of educated, healthy young people, is, after all, the best long-term investment.

- **University Programs:** Create and accredit master's and Ph.D. programs in the study of ASD, ABA, and related fields at public universities.
- **National training modules:** Establish a national specialized graduate certification program for autism specialists and teachers.

- **Further Stakeholder Involvement and Support:** Ensure continued (teacher provision) oversight of ongoing teacher-based instruction support to prevent burnout/temporalization/and dilution of intervention.

6.4 Leveraging Technology and Innovation

Technology can act as a bridge over geography and resource disparities.

- **Telehealth:** Using video conferencing for remote diagnosis, consultation, and parent training, especially for families in rural areas (Shire et al., 2020).
- **Mobile Health (mHealth):** Developing smartphone apps in local languages that provide parents with information, strategies, and tools for tracking their child's progress.
- **Low-Cost Resources:** Promoting the creation and use of low-cost, locally sourced teaching materials.

6.5 Promoting Sustainable and Inclusive Models

Mixed School-Clinic Model: Develop school/parent and practitioner training facilities.

Community-Based Rehabilitation (CBR): ASD intervention delivered using conventional primary care and local community services.

Olmstead: A Dangerous Interpretation. Michelle Fine. December 1, 2000. What was required instead, the Court found in Olmstead, were parallel programs of inclusion support, services and supports for a person's care plan that are based, i.e. not in settings focused on evening hours and bedtime routines or on moving individuals out of segregated facilities with no other service related-reason", two different types: moving people from segregation to community-integrated, recovery-focused settings, or supporting greater ability to self-direct at home.

7. Conclusion

Autism Spectrum Disorder and the Successful Experience of Schooling in Pakistan: a Battle to Catch-up! It is a path traveled down by decades of stigma and entrenched health systems, too few trained providers, and policymakers not yet keeping up with what the crisis requires. Our current system is "a tale of two realities," a minority who can access private, high-quality intervention, and the majority dependent on finding their own way in what has grown to be a desert of support.

However, with every crisis, a door of opportunity opens as well. Awareness among the Urban community and entrepreneurs has been a good source, and relatives of members already work with good resilience; NGOs worked in this fashion. It is all those answers, combined: public education, smart policy, professional development, helpful technology, and family empowerment. They demand a "whole-of-society" response that transcends government and involves the private sector, civil society, and the international community.

What is more, helping to educate kids with autism is not only charity; it is also, quite literally, a good investment. It is an investment in human capital, in social justice, and in a country's future. It would open the vault of promises to millions and help build the fairer, more inclusive society we desire for everyone. It is an ambitious goal, but there is no price tag for its priceless dividend: a future in which nobody gets left behind simply because they are neurodiverse.

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