

## Identification of Potential Risk factors in Pediatric Population of Federally Administered Tribal Areas (FATA) of Khyber Pakhtunkhwa, Pakistan

Ume Kalsoom Afridi<sup>1</sup>, Saima Perveen<sup>2</sup>, Jehanzeb Khalil<sup>2</sup>, Sulaiman Shams<sup>1</sup>, Abid Ali<sup>3</sup>, Ruqayya Afridi<sup>4</sup>, Kifayat Ullah Khan<sup>5</sup>, Shawana Ahmad<sup>6</sup>, Fazli Zahir Mian<sup>3</sup>

<sup>1</sup>Department of Biochemistry, Abdul Wali Khan University Mardan, Mardan-23200, Pakistan

<sup>2</sup>Department of Political Science, Abdul Wali Khan University Mardan-23200, Pakistan

<sup>3</sup>Institute of Biotechnology and Genetic Engineering, University of Agriculture Peshawar-25130, Pakistan

<sup>4</sup>Department of Pharmacy, Kohat University of Science and Technology Kohat-2600, Pakistan

<sup>5</sup>Institute of Basic Medical Sciences, Khyber Medical University, Peshawar 25000, Pakistan

<sup>6</sup>Department of Plant Pathology, University of Agriculture Peshawar-25130, Pakistan

*Received: September 12, 2014*

*Accepted: November 23, 2014*

---

### ABSTRACT

Federally Administered Tribal Areas (FATA) of Pakistan merits attention for social development. The persistent insecurity situation, military operations and lately floods have gravely affected FATA communities' access to social services including basic health services. The present study was undertaken to determine the potential risk factors associated with the child health and to investigate the immunization status of women with child bearing age in FATA regions of Khyber Pakhtunkhwa (KP). Special attention was given to investigate maternal and child health (MCH) in FATA. Three agencies of FATA and one FR region were selected for the current study including FR Kohat, Bajaur, Mohmand and South Waziristan. A total of 800 children and mothers from the selected regions were enrolled in this study. The potential risk factors were studied with the help of designed questionnaire along with the basic demographic information. Blood samples were taken from the suspected individuals and were processed for the detection of HBsAg and antibodies against tuberculosis by ELISA methods. Hepatitis B and tuberculosis were found as major diseases in pediatric population and their mothers residing in FATA regions of KPK. Lack of Immunization programs against the major communicable diseases is potential barrier against the state of health in these areas. Establishing mother to child health care centers (MCHC) and proper immunization strategies will be a key step to lower the burden of major communicable diseases in pediatric population of FATA regions.

**KEYWORDS:** Federally Administered Tribal Areas, Maternal, Newborn and Child Health (MNCH), Agencies.

---

### 1. INTRODUCTION

Federally Administered Tribal Areas (FATA) are known to the historian as areas stretched over 100,000 square miles on both sides of the Durand Line, and inhabited by Pathans (James, 1973). For Pakistanis, it is termed as "Federally Administered Tribal Areas" Khyber Pakhtunkhwa (KP) as distinct from the "Provincially Administered Tribal Areas", of approximately 27,220 Square Kilometers, having a Pathan population of about 3.2 million and comprising of seven Agencies and six Frontier regions. Pakistan Tribal Areas are distinct due their buffer status between Afghanistan and Pakistan's settled areas. This territory has been kept bereft throughout the history, whether it was under the British ruling or now as federally administered. The area has its own customs, conventions and traditions deeply steeped into history. There is disparity in the resource sharing in this country of the world. In this technological advanced age the tribal belt of Pakistan is away from basic health facilities. The child health laws have been passed and adopted by most of the countries but there are infringements of such rights as well. The death of millions of children under utter miserable poor conditions is the clear manifestation of it. Public programs in the field of survival, early development, education and protections are indispensable in this regard. These fulfillments are burdensome for family income and have other problems interconnected with it as availability and quality of services to issues related with gender discrimination and neglect (UNICEF, 2000). The situation is fit in tribal areas of Pakistan whereby the adverse socio-economic scenario is worthy to be highlighted in this backdrop. The most important is public health issue where children are suffering

---

\* **Corresponding Author:** Ume Kalsoom Afridi, Department of Biochemistry, Abdul Wali Khan University Mardan, Mardan-23200, Pakistan. [ummeafridi@gmail.com](mailto:ummeafridi@gmail.com)

for more than one reasons. Undoubtedly, as aforementioned that this belt is deprived in various basic human rights provisions as right to nutrition, right to education, right to access the fundamentals of life. Accumulatively the health of child is in dire need of all these amenities. A baby is born with neurons billion in numbers which are essential for lifelong capabilities; however a great attention is required to assimilate them for learning and development (Kolb, 2009).The topmost requirement in this regard is the environment to be favorable because it is the environment which either accelerates or hinders development and furthermore give an insight to comprehend other (Barnet & Casper, 2001).Keeping these factors in mind the tribal areas of Pakistan are the most unfavorable environment for child health. The absence of quality environment led to psychological syndrome as cognitive deficit and sentimental anomalies in later half of life (Bradly &Caldwel,1988). On humanitarian grounds these provisions should be ensured to children. As the UNICEF policy deemed the access of basic health facilities to children in general and to the handicapped in particular because their rehabilitations and essential amenities are indispensable which are due by family and local community (UNICEF, 1980). As considered the insecure environment in FATA drone strikes have caused psychological trauma in children whereby, they remained frightened. As Amnesty International report has stated that the children are greatly alarmed of drone planes and they rushed to their homes on every explosion or loud voice of planes, shelling, whereby they unconsciously hide themselves behind their parents; one father from Esso Khel told Amnesty International (Amnesty International Report, 2013).In such hard areas it was demanding to conduct research for identification of potential risk factors to pediatric population so that precautionary measures should be suggested for future course of events.

## 2.MATERIALS AND METHODS

**2.1. Selection of Targeted Agencies:** Four main regions of FATA including Kohat (FR Kohat), Bajaur, Mohmand, and South Waziristan agencies were selected to investigate the health situation of pediatric population and women in child bearing age.

**2.2. Exclusion Criteria:** All the children and their mother who belongs to areas other than FR Kohat, Bajaur, Mohmand and South Waziristan agencies were excluded from this study.

**2.3. Inclusion Criteria:** All the children, newborns and their residing in FR Kohat, Bajaur, Mohmand and South Waziristan agencies were included in this study.

**2.4. Study design and data collection:** The current study was carried out in between 2012 to 2013 to determine the maternal, child and neonate health situation and the risk factors associated with acquisition of major communicable diseases. The study was conducted in three separate phases. In first phase according to the feasibility and accessibility one FR region and three agencies as listed in the inclusion criteria were selected. In the second these areas were visited and suspected population was observed. In third phase initial functional operations including data collection and sample collection were carried out by trained research scholars. The written consent was also taken from the infected families. Direct interviews with the suspected mothers were also arranged by the volunteers of selected areas.

**2.5. Development of standardized questionnaire:** A questionnaire was developed to investigate the potential risk factors associated with maternal health and their children. Special attention was given to investigate the risk factors associated with major communicable diseases such as tuberculosis (TB) and viral infection such as hepatitis B. The modes of deliveries of the pregnant women were also investigated with the help of questionnaire. Other potential risk factors associated with child health such as Immunization, abrasions during haircut, circumcision modes, use of therapeutic injection etc were also noted. Parental socioeconomic status and their impact on child health were also observed.

**2.6. Blood collection and identification of antibodies against tuberculosis:** About 5ml of blood was taken from suspected children and their mothers. By using ELISA methods blood samples were further processed for the detection of antibodies against Tuberculosis by using the method as reported earlier (Sooraj, Nath, Nathiya, Dhanabalan, Angayarkanni &M. Palaniswamy 2011).

**2.7. Detection of HBsAg by ELISA:** All the suspected children and their mothers were screened for hepatitis B surface antigen (HBsAg) by using 3<sup>rd</sup> generation enzyme-linked Immunosorbant Assay (ELISA) (DRG Instruments, Germany) kits using the instructions given by the manufacturers.

**2.8. Statistical analysis:** The collected data was statistically analyzed using the SPSS software, version 17. *P-values* < 0.05 were considered statistically significant.

### 3. RESULTS AND DISCUSSION

A total of 800 individuals (mothers and their children) from the selected areas actively participated in the present study. Risk factors were investigated with the help of questionnaire. Out of total 800 individuals involving 370 girls and 430 boys, around 400 children were delivered at home by unprofessional local ladies of tribal areas with unhygienic practices without any immunization and antenatal screening. Out of total 800 samples (n=430 children with age range 1-15 years, n=370 mothers with age range 15-42 years), 270 (62.7%) children were found positive for HBsAg while 281 (75.9%) mothers were found positive for hepatitis B surface antigen by ELISA. While antibodies against tuberculosis were detected in 160 (37.2%) children by using ELISA. The major risk factors identified were unsafe home deliveries (50%), unhygienic obligatory circumcision practices (81.3%), sharing of personal items involving toothbrushes, razors etc. skin abrasion was also identified as major risk factors (59.3%) as there were no proper barber shops in these areas. An unsafe practice of therapeutic injections was also observed as a profound risk factor. Usually injections were reused repeatedly within the same family members. Further there was not a single family provided with immunoprophylaxis against the major communicable diseases.

Health situation in FATA regions is very worse as they are bereft of sound and healthy environment. There is unawareness about basic health cautionary measures. Mother health is under various risk factors. The present study was undertaken to investigate the potential risk factors in women of child bearing age and in pediatric population of FATA regions of KP, Pakistan. Lack of health facilities and access to tertiary care hospitals are major causative agents of poor health situation in FATA regions of KP, Pakistan. In current study we have found Hepatitis B and tuberculosis a major communicable diseases, the major risk factors for the acquisition of these disease are lack of proper health facilities, lack of immunization and screening against hepatitis B during pregnancy are top leading factors in these regions. Furthermore, vertical transmission may be a causative agent of high of HBV burden in pediatric population as it was found in the current study that most of the deliveries were held at home by local untrained ladies without any safety and immunization strategies. Other identified potential risk factors are obligatory circumcision mostly practiced by untrained quacks in these hard areas. One of the other risk factor identified in the present study was the unsafe usage of therapeutic injection, which might leads to the development of viral infection such as hepatitis B. Lack of awareness about safety measures is another contributing factor of poor health situation. This is the first study undertaken to investigate risk factors associated with acquisition of serious diseases such as tuberculosis and HBV in pediatric group residing in FATA regions of KP, Pakistan.

### 5. CONCLUSION

Hepatitis B and tuberculosis were found as major diseases in pediatric population and their mothers residing in FATA regions of KP Pakistan. Lack of Immunization programs against the major communicable diseases is potential barrier against the state of health in these areas. There is an urgent need to establish mother child health care center fully equipped with basic health facilities. Proper immunization should also be assured. Furthermore, a proper check and balance system monitored by trained, well equipped health practitioners must also be established. Regular health awareness campaign in such areas must be launched by the Government of Pakistan.

### 6. REFERENCES

1. James S (1973). *The Way of the Pathans*, Oxford University Press. 22.
2. UNICEF (2000). *Poverty Reduction Begins with Children*. UNICEF, New York. United Nation Development Program. Human Development Report. New York.
3. Kolb B, (2009). *Brain and Behavioural Plasticity in the Developing Brain: Neuroscience and Public Policy*. *Paediatric and Child Health* 14: 651-652.
4. Barnett E, Casper, M. (2001). *A Definition of Social Environment*. *American Journal of Public Health*, 91: 456.
5. Bradley RH, Caldwell BM (1988). *Using the Home Inventory to Assess the Family Environment*. *Pediatric Nursing* 14(2), pp. 97-102.
6. UNICEF. (1980). *Childhood Disability: its Prevention and Rehabilitation*. New York.
7. Amnesty International Report. (2013). *Will I be Next? US Drone Strikes in Pakistan*.
8. Sooraj, Nath, Nathiya K, Dhanabalan R, Angayarkanni J, Palaniswamy M (2011). *Detection of mycobacterial antibodies in serum samples by enzyme linked immunosorbent assay*, *African Journal of Biotechnology*. 10:16012-16015.