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The Prevalence of Malnutrition in Childs from 1 Month to 3 Years of Age and Factors are Associated with Underfeeding Determination in Quetta District, Balochistan

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ABSTRACT

Acute malnutrition is a major public health problem that needs urgent attention and response in all drought affected districts of the Balochistan province. The current study is designed the 1 month to 3 years children from district Quetta. A survey based and clinical based study was conducted by anthropometry method used for data collection. The data is collected from 6 months to onward; it's observed that weak and emaciated, A person that is emaciated is extremely thin and weak because of illness or lack of food. The Stunting; Wasting; Underweight and Overweight child's were seen very closely and collected data. A cross sectional survey was conducted to determine the health status of in tehseels of district Quetta (Especially), Balochistan after applying proportionate sampling technique from March 2023 to Sept 2023. Study evaluated the low or poor feeding practices in children, because of low income, not adequate knowledge and disease infections. In conclusion, the findings of our study revealed high prevalence of malnutrition, poor oral health and lake of proper nutritional diets for parents and children. Therefore, contextually focused approach to improve awareness, health education and service provision is required to reduce the burden of certain diseases. It is also suggested that future interventions may be planned with integrated approach to identify the causal relationship for further advancement and better incorporation at policy level.

Keywords: Malnutrition; Stunting; Wasting; Childs; Factors.

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INTRODUCTION

Malnutrition is defined as a state of imbalance of energy or protein and other nutrients leading to measurable adverse effects on human body and clinical outcome (Akibet al., 2023; Chen et al., 2023). Malnutrition is a universal problem and more out of control in developing countries including Pakistan. It remains undetected and untreated in respective communities due to multiple factors including high cost, social, cultural, environmental, medical, etc. Childhood is a critical period, which has direct impact on economic growth of the country. Early physical, cognitive and socio economic growth constitute foundations of future development. In consequence, retarded health circumstance in early years can be

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life-long with serious socio economic effects at individual and community level at large. Under-nutrition is more common in low middle income countries (LMIC). It is reported for stunting and underweight as predisposing factors to deficiency states and infections in children. On the other hand, overnutritionmay subsequent to obesity and other consequences like diabetes, hypertension and heart disease (Atef et al., 2023; Caldaria et al., 2023). Around 44% Pakistani children (under 5 years of age) are stunted, wasting found that 15.1 and 31.5% children are underweight (Ballesteros et al., 2023). According to WHO, obesity is declared as a "global epidemic". Overeating, sedentary life style, reduced physical activities and high-calorie expenditures are known risk factors in addition to genetic predisposition. This scenario may lead to high morbidity, mortality and escalated economic health expenditure (Desta et al., 2023). The economic behavior/income spectrum depends on the nutritional status of an individual. At individual level nutritional status affects health, survival, physical and cognitive functioning with impact on work capacity and productivity (Gonzalez et al., 2023). Poverty, on the other hand, having similar root causes all over the world and almost similar consequences like hunger, crime, social unrest, and food insecurity. In Asian countries, the whole spectrum of malnutrition exists mainly due to wide socioeconomic disparities. Some of these countries face a paradox of underweight and overweight. Poor intrauterine growth resulting in low birthweight followed by rapid childhood weight gain promoting obesity and associated metabolic complications (Graeb et al., 2023; House et al., 2023).Same paradox has been reported from Philippines, Thailand, and other Asian countries (Intiful et al., 2023). Population below the calorie based food plus non- food poverty line and minimum level of dietary energy consumption is 12.4and 30%, respectively (IsiZulu et al., 2023).

Current Situation Overview

Acute malnutrition is a major public health problem that needs urgent attention and response in all drought affected districts of the Balochistan province included in the current IPCAMN analysis, Acute Malnutrition (IPC AMN) – more than half of all 1 months to 3 years children in these districts are acutely malnourished. Quetta district has the highest prevalence of acute malnutrition and is classified as being in Phase 5 according to the ICPAMN scale (with nearly 1 in every 3 children in the district is acutely malnourished). Eleven other districts are in IPCAMN Phase 4 with extremely critical levels of acute malnutrition and two districts are in IPC Phase 2 (acute malnutrition is in serious levels). Information on contributing factors are limited in most of the 14 districts. However, with the available information, major contributing factors to acute malnutrition are likely extremely poor quality and quantity of food intake by children and high level of food insecurity (according to the IPC Acute Food Insecurity analysis findings). Poor water and sanitation situation coupled with sub-optimal feeding practices (especially very low levels of exclusive breastfeeding and introduction of complementary feeding at the age of 6 months) are of major concerns in the majority of the 14 drought affected districts – see below for details on major contributing factors to acute malnutrition by district. Low vaccination coverage (particularly measles coverage) is also of concern several districts. The 2018 Pakistan National Nutrition Survey (NNS 2018), the largest national nutrition survey, in Pakistan. It is designed to provide to policymakers, program managers and academicians a unique set of nutrition-related data including environmental, anthropometric and biochemical indicators. The study group included children, women of reproductive age (WRA) and adolescent boys and girls. NNS 2018 is the fifth national nutrition survey since 1965, but the first to yield district-representative data and to include adolescents and a component on water. NNS 2018 employed a cross-sectional survey design at the household level. It used a mixed-method data collection methodology with both quantitative and qualitative approaches. The sample design provides district level estimation at the national level for urban and rural localities and by gender, for the four provinces (Punjab, Sindh, Balochistan and Khyber Pakhtunkhwa, KP); and for the regions (Azad Jammu and Kashmir, AJK, and Gilgit-Baltistan, GB), KP-NMD and Islamabad Capital Territory (ICT). A national, province and district representative sample of 76,742 children (aged

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0–59 months), 145,847 adolescents (10–19 years) and 145,324 WRA (15–45 years) was selected from 115,600 households.

Problem Statement

Keeping in view the dismal situation and large-scale prevalence of malnutrition among the population of Balochistan which is also evident by the latest National Nutrition survey-2018 Results depicting an alarming high level of malnutrition among children and women of the province. Since 1997, the prevalence of low weight for height among young children is on the rise, from 8.6% to 15.1% in 2011 and 17.7% in 2018 in Pakistan and for Balochistan it is now 18.9% against the NNS-2011 16% ratio. Despite improvements in other socioeconomic indicators, acute malnutrition remains in a state of nutrition emergency. This is the highest rate of wasting in Pakistan's history. The Survey reveals that in Balochistan, 46.6% of children under five years of age suffer from chronic stunting. The nutritional status of women, particularly pregnant and lactating, remains poor due to various factors. The Women of Reproductive Age (15-49 years) having underweight (BMI <18.5) are 14.5% in Balochistan. The ratio of food insecure population in Balochistan is 50.3%against the national average of 36.9 %. This study had initially shown the malnutrition conditions in Baluchistan to find the prevalence, level and factors associated with malnutrition in Baluchistan especially in Quetta District, Pakistan.

Significance of the Study

Despite the public health impact of childhood malnutrition and the need to monitor trends, there has been little epidemiologic research in remote/rural parts of developing countries like Pakistan and other chronic pediatric health problems is reported due to unavailability of periodic screening mechanism. In the light of above, following survey was conducted to 1 month to 3 years going children in Quetta district of Balochistan with an estimated population of more than 2.5 million.

Objectives of the Study

To find the prevalence, level and factors associated with malnutrition in Baluchistan, Pakistan.
To explore the stunting and wasting ratios of child's from 1 month to 3years.

Nutritional Status of Children from 1 Month to 3 Years of Age

• STUNTING • WASTING • UNDERWEIGHT • OVERWEIGHT

In Pakistan, four out of ten children 1 month to 3 years of age are stunted while 17.7% suffer from wasting. The double burden of malnutrition is becoming increasingly apparent, with almost one in three children underweight (28.9%) alongside a high prevalence of overweight (9.5%) in the same age group. The prevalence of overweight among children under five has almost doubled over seven years, increasing from 5% in 2011 to 9.5% in 2018.The pattern of distribution of malnutrition among boys and girls remains the same, with boys being more affected than girls by all forms of malnutrition. Children living in urban areas suffer more from undernutrition (wasting, stunting and wasting) than their peers in rural areas. Overweight affects children equally, irrespective of locality.

Stunting

Stunting is a major problem in Pakistan, with 12 million children with low height for age. To ensure that this form of malnutrition does not continue to compromise the human capital required to sustain the socioeconomic development of Pakistan, stunting reduction is a top national priority. The national average (40.2%) masks provincial disparities. The prevalence of stunting varies from32.6% in ICT to 48.3% in KP-NMD. The prevalence of stunting among young children in Sindh, Balochistan, KP-NMD and GB is higher than the national average. The prevalence of stunting improved from 1965 (48%) to 1994 (36.3%) but deteriorated from 2001 (41.6%) to 2011 (43.7%). In 2018, at 40.2%, it remains at a

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global critical level (Woeltje et al.,2023). The average annualreduction rate is estimated at 0.5%, too slow to significantly reduce the stunting rate in Pakistan.

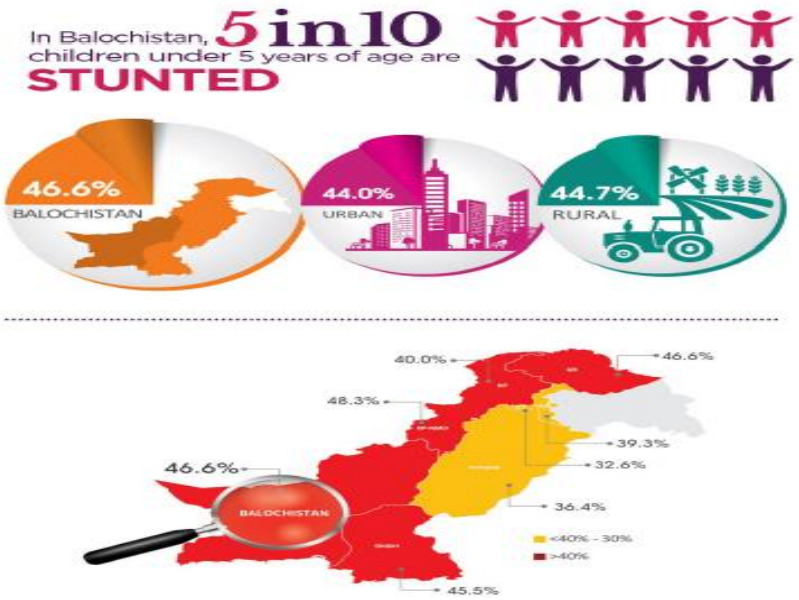

Figure 1: Stunting ratio showing in Balochistan.

Wasting

Since 1997, the prevalence of low weight for height among young children is on the rise, from 8.6% in1997 to 15.1% in 2011 and 17.7% in 2018. Despite improvements in other socioeconomic indicators, acute malnutrition remains in a state of nutrition emergency. This is the highest rate of wasting in Pakistan's history. This form of malnutrition is most prevalent in Sindh (23.3%) and KP-NMD (23.1%), whereas GoB and ICT have the lowest proportion of children with wasting, at 9.4% and 12.1% respectively. Sindh, Balochistan and KP-NMD have a higher prevalence of wasting than the national average. The prevalence of wasting among children under five in all provinces/regions excluding ICT and GoB exceeds the emergency threshold (15%) (Were et al., 2023).

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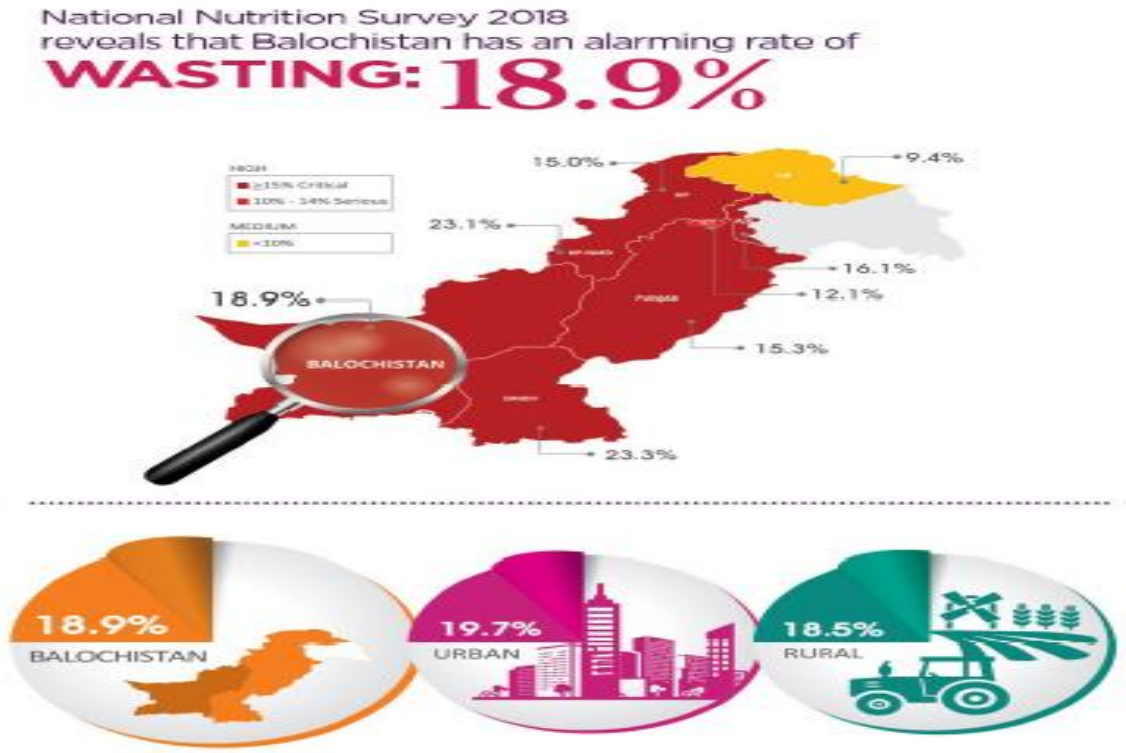

Figure 1: Wasting ratio showing in Balochistan.

Underweight

The prevalence of underweight among children under five years of age (i.e. weight for age below z-score) is high in all provinces/regions, from 19.2% in ICT to 41.3% in Sindh. The prevalence of underweight is below 20% only in ICT (Wei et al., 2023).

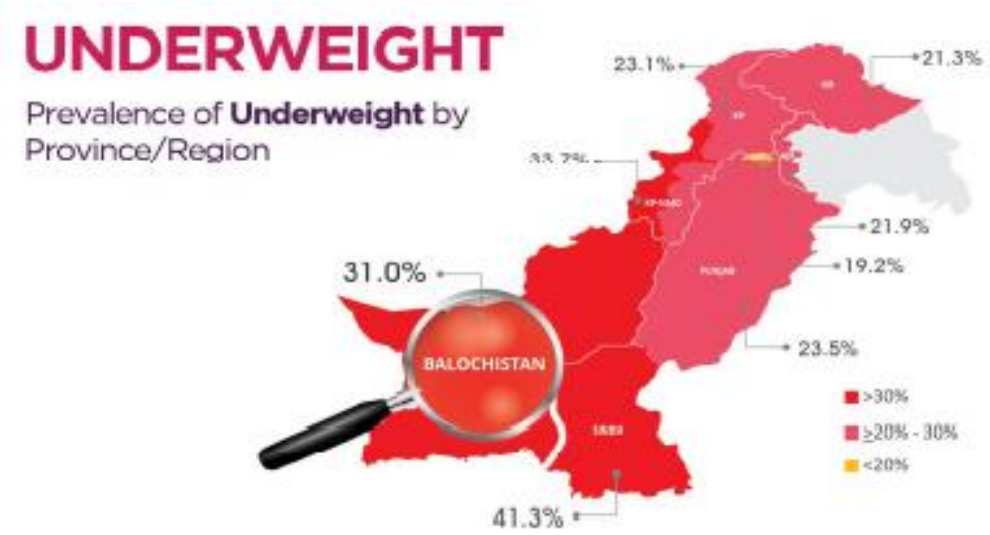

Figure 3. Under weight ratio showing in Balochistan.

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Overweight

The study estimated the proportion of overweight children under five to be 9.5%, twice the target set by the World Health Assembly. Prevalence is highest in KP-NMD (18.7%) and Balochistan (16.7%), and lowest in Sindh (5.2%) and ICT (5.8%) (Wang et al., 2023). The prevalence of overweight among young children exceeds 10% in KP, Balochistan, KP-NMD, AJK and GB.

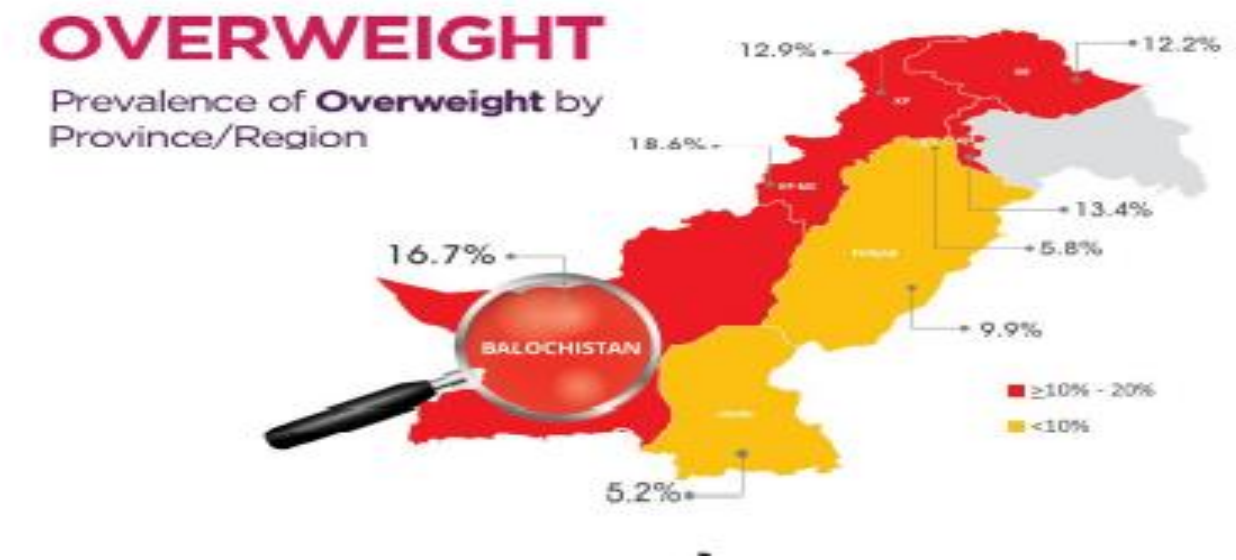

Figure 4: Over weight ratio showing in Balochistan.

MICRONUTRIENT DEFICIENCIES IN CHILDRENUNDER FIVE YEARS OF AGE

More than half (53.7%) of Pakistani children are anemic and 5.7% are severely anemic. The prevalence of anemia is slightly higher (54.2%)amongst boys than girls (53.1%). Children in rural areas are more likely to be anemic (56.5%)than in urban areas (48.9%). A similar pattern was observed for severe anemia (rural: 5.9%;urban: 5.2%) (Truong et al., 2023; Van et al., 2023).

METHODOLOGY

Inception

A pre-survey meeting was arranged at Quetta district of Balochistan through District Health Officers and Health Officials. Piloting of study tools was done to further acquaint the survey team with the tools and standard operating guidelines for data collection in a uniform, validated, and reliable manner.

Access to the community

To enhance compliance and avoid intolerable situations, political / religious community representatives identified in each union council / tehseels as gate keepers. The gate keeper of each representative community will be contacted before the start of field activity and informed about the purpose and rationale of the study.

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Enumeration

NRSP, Balochistan provided list of all tehseels in consultation with Education Department in Balochistan. Each school/tehseel visited will be enumerated with specific code (NRSP-SP-school list no./date of visit) by a senior field member, under the supervision of a team leader.

Field visits

Field visits initiated from first week of March 2023 and completed before end of May 2023. Prior to every field visit, gate keeper and community mobilizer of respective community informed about the date and timings of the visit for their presence and facilitation. On average, two to three visits will be done by field teams in different intervals in between 8:00 AM and 1:00 PM in each school / tehseel for maximum coverage.

Field team

Our field team specifically trained to adopt friendly and pleasing attitude with potential study participants for easy access and confident building behaviors for participation and follow-ups, if required. Keeping in mind that district / tehseel in District Quetta Balochistan province represents diverse ethnic groups; field team composition was reviewed and rationalized as per need. In addition to the required technical expertise, the field team members intentionally recruited from respective community's to limit lingual and ethnic barriers and biases.

Ethical considerations

Respecting to the autonomy of an individual, those who did not agree to participate after introduction and counseling; were excluded as per their desire. Privacy of interview was also maintained.

Monitoring

Following the principle of supportive monitoring, Chaiman / Nazim and UC /Principal Investigator and Co-Principal Investigator made series of visits to assure quality of data. Furthermore, to avoid conflict of interest at an individual or communal level, ongoing internal monitoring of filled data and verification of physical locations was also done.

Execution Plan

This study was carried out in Quetta district, Baluchistan selected through proportionate method. The primary school children irrespective of their age and gender were included. The project team members (data collectors) were trained on project instruments and tools using standardized project manual. All participants received standardized training to fill questionnaires and collect validated and uniform data. A pre tested questionnaire was used and children's height, weight, ENT, eye assessment, and personal hygiene were recorded after clinical assessment by field doctor. BMI scores were calculated for each children using WHO chart.

Data Collection & Analysis

Collected data was entered and analyzed and explained in simple tabular form. Descriptive statistics of frequency and proportion was used to give a clear picture of base line characteristics have been done and shown in figure in chapter 2. Along with data of physical parameters including ear, nose, throat, height, weight, and hygiene was screened and worked out.

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RESULTS AND DISCUSSION

This survey was focusing on health and oral hygiene status 1 month to 3 years children at different districts in Balochistan; but here in this study researcher will discuss only some cases from Quetta district considering the comparatively less developed and socio demographically deprived part of the Country. A cross sectional survey was conducted to determine the health status of in tehseels of district Quetta (Especially), Balochistan after applying proportionate sampling technique from March 2023 to Sept 2023. Field teams visited assigned schools to screen children and collect health related data on predesigned and pre coded proforma. The previous research showed that the anthropometry technique is more authentic for malnutrition analysis (Jini et al., 2023; Katoch et al., 2023; Tran et al., 2023).

Success Stories

Before

After

Name :- Suhail Khan	Fathers Name :- Fateh Khan
Age :- 6 Month	Address :- Killi Bangulzai
OTP site :- UC Sariyab	Identified As :- SAM CHILD
Admission Date :- 26/5/2023	Date of Exit :- 9/9/2023
MUAC on Admission: 8.3	MUAC on Exit: 12.0

6 months old child Suhail Khan S/o Fateh Khan resident of Killi Bangulzai, U/c Sariyab District Quetta was identified as SAM CHILD during community screening. At the enrolment the child was having a MUAC 8.3 cm and his weight was only 4.6 kg the child was immediately enrolled in Program and provided RUTF and his parents were counselled by IPC session. In a terms of breastfeeding complementary feeding food diversity, hygiene and IPC session with his family. Apparently the child health was improved and he gained MUAC 12.0 cm and 6.2 kg Weight during the treatment. The 06 months of age is very sensitive for victim of nutritional deficiencies (Llorca et al.,2023; Miura et al., 2023).

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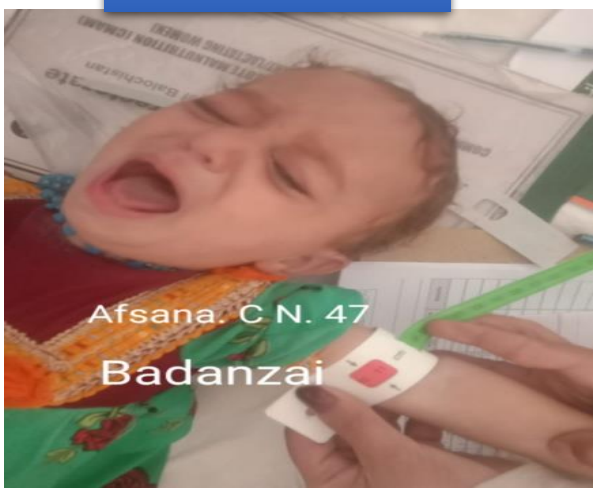
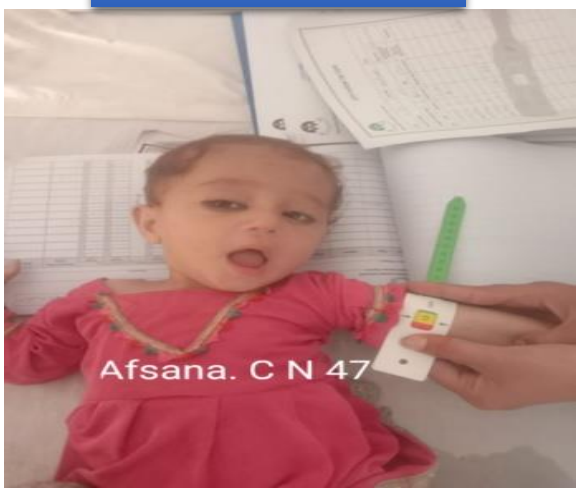
Before



After



Name :- Afsana	Fathers Name :- Ahwal Khan
Age :- 11 Months	Address :- Essa Nagri
OTP site :- UC Barwery	Identified As :- SAM CHILD
Admission Date :- 10/5/23	Date of Exit :- 15/8/2023
MUAC on Admission: 10.6	MUAC on Exit: 11.8

Afsama D/o Ahwal Khan is 11 months old child resident of Essa Nagari U/c Barwery District Quetta she was identified as SAM CHILD during screening . At the enrolment the child was having a MUAC 10.6 cm and her Weight was only 4.7 kg the child was immediately enrolled in Parogram and provided RUTF and his parents were counselled. In a terms of brestfeeding supplementry feeding food diversity and hygiene and IPC session with her family. Apparently the child health was improved and she gained 11.8 cm MUAC and 7.1 kg Weight durring the teratment. The 11 months age is also near towards dangerous grade of diseases (Salmeron et al., 2023).

Before

After

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Name :- Din Muhammad	Fathers Name :- Baz Khan
Age :- 6 month	Address :- Hazara Town
OTP site :- UC Marriabad	Identified As :- SAM CHILD
Admission Date :- 11.4	Date of Exit :- 12.2
MUAC on Admission: 13/5/2023	MUAC on Exit: 17/8/2023

6 months old child Din Muhammad S/o Baz Khan resident of Hazara Town U/c Marriabad District Quetta he was identified as SAM child during screening . At the enrolment the child was having a MUAC 11.4 cm The child was immediately enrolled in a Parogram and provided RUTF and his parents were counselled. In a terms of brestfeeding supplementry feeding food diversity and hygiene and IPC session with his family. Apparently the child health was improved and he gained cm MUAC 12.2 cm durring the teratment. The 06 months childs under feeding is need more care as compaire rest of childs above age (Sanjeev et al., 2023;Taani et al., 2023).

Before

After

Name :- Yaseen	Fathers Name :- Baz Muhammad
Age :- 8 Months	Address :- Wahadat Coloney Stop # 02
OTP site :- BHU Wahadat Coloney	Identified As :- SAM CHILD
Admission Date :- 6/6/2023	Date of Exit :- 29/7/2023
MUAC on Admission: 11.1	MUAC on Exit: 11.6

8 months old child Yaseen S/o Baz Muhammad resident of Wahadat Coloney Stop # 02 U/c BHU Wahadat Coloney District Quetta he was identified as SAM CHILD during screening . At the enrolment the child was having a MUAC 11.1cm and his Weight was only 4.2 kg the child was immediately enrolled in Program and provided RUTF and his parents were counselled. In a terms of breast feeding supplementary feeding food diversity and hygiene and IPC session with his family. Apparently the child health was improved and he gained 11.6 cm MUAC and 5.8kg Weight during the treatment. Good nutrition always save the children from diseases (Seboka et al.,20203; Takahashi et al., 2023).

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Name :- Hummima	Fathers Name :- Ajab Khan
Age :- 8 Month	Address :- Nawa Killi Master Coloney
OTP site :- BHU Nawa Killi	Identified As :- SAM CHILD
Admission Date :- 29/6/2023	Date of Exit :- 19/8/2023
MUAC on Admission: 11.1	MUAC on Exit: 12.2

8 months old child Hummima D/o Ajab Khan resident of Nawa Killi Master Coloney U/c BHU Nawa Killi District Quetta she was identified as SAM CHILD during screening . At the enrolment the child was having a MUAC 11.1cm and her Weight was only 5.3 kg the child was immediately enrolled in Program and provided RUTF and his parents were counselled. In a terms of breastfeeding supplementary feeding food diversity and hygiene and IPC session with her family. Apparently the child health was improved and she gained 12.2 cm MUAC and 7.4kg Weight during the treatment. Childs get weight during nutritional full filling desire (Atef et al., 2023).

CONCLUSION AND RECOMMENDATIONS

Conclusion

In conclusion, the findings of our study revealed high prevalence of malnutrition, poor oral health including smokeless tobacco use and low BCG coverage among major cities in Balochistan. Therefore, contextually focused approach to improve awareness, health education and service provision is required to reduce the burden of certain diseases. It is also suggested that future interventions may be planned with integrated approach to identify the causal relationship for further advancement and better incorporation at policy level.

Recommendation

Baluchistan has one of the highest under-nutrition levels in Pakistan, with chronic malnutrition and micro-nutrient deficiencies. A high level of food insecurity contributes to under-nutrition. Low emphasis on under-nutrition across sectors is also a problem. The province faces stiff contextual

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challenges, including a lack of drinking water, poor sanitation, low food production, difficult community outreach (which makes it harder to implement services and to reach beneficiaries), and patriarchal systems and beliefs. Although schemes such as cash transfers to the poor, school feeding, and food distribution for people affected by disaster are in place, there are few connections between relevant sectors. Services also do not always reach those who are most at risk of under-nutrition, particularly low-income pregnant women and children under three years of age. Post-devolution, Baluchistan has the policy space to design and implement province-specific strategies, and has benefitted from closer interaction with development partners. However, the province has not yet created a development strategy to define its own vision for the social sector, or a nutrition strategy linked to the development priorities of relevant sectors. The continued deterioration in law and order in the region compounds these issues by diverting attention and resources from development issues and creating security concerns. This has slowed efforts by development partners to build technical capacity within the provincial government. Stake holders in Baluchistan, as compared with those in other provinces, understand that progress on nutrition requires strong linkages between sectors. However, nutrition is given low priority in the province because it is not politically visible and because it relies on shared action by many stake holders. Low civil society and media activism on nutrition, and a lack of championing by politicians, further weaken nutrition on the list of provincial priorities. Political commitment is important to leverage nutrition across sectors, but federal support has been towards more politically visible agendas, especially alleviating hunger. Provincially, the emphasis has been on infrastructure-dominated projects. Hence, nutrition has lacked acomprehensive strategy and state funding, and has instead had to rely on fragmented, donor supported projects.

CONFLICT OF INTEREST

The authors does not exist the conflict of intrest in this research paper.

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