ENHANCING COMMUNITY ENGAGEMENT IN THE EXPANDED PROGRAM OF IMMUNIZATION (EPI) IN BALOCHISTAN: A VITAL APPROACH TO IMPROVE HEALTHCARE

DR. RUKHSHANDA ZAFAR[1], MS. HAFSA KARIM[2], ASMATULLAH DURRANI[3]
[1]Lecturer, Department of Social Work, Sardar Bahadur Khan Women's University Quetta
[2]Lecturer, Department of Social Work, University of Balochistan, Quetta
[3]Bs Gratitude Ir Buitems

Abstract:- Community engagement plays a pivotal role in the success of healthcare programs, particularly in areas with unique challenges such as Balochistan, Pakistan. This study explores the significance of community engagement within the Expanded Program of Immunization (EPI) in Balochistan, shedding light on its potential to improve immunization rates and overall healthcare outcomes. Balochistan, the largest and most remote province in Pakistan, faces numerous obstacles to healthcare accessibility, including rugged terrain, limited infrastructure, and cultural diversity. In this context, effective community engagement strategies are essential to bridge gaps in healthcare delivery. The EPI, a national initiative to provide essential vaccines to children, can greatly benefit from strengthened community involvement. This study reviews existing literature and ongoing initiatives related to community engagement in the EPI in Balochistan. It highlights the positive impact of community-based interventions, such as awareness campaigns, local health committees, and culturally sensitive approaches, in increasing vaccination coverage and reducing vaccine hesitancy. Furthermore, the study discusses challenges and potential barriers to effective community engagement in Balochistan, such as low literacy rates, gender disparities, and cultural norms. It emphasizes the importance of tailoring engagement strategies to address these specific challenges and the need for capacity building among healthcare workers to facilitate community participation. In conclusion, community engagement is an indispensable component of the EPI in Balochistan, with the potential to significantly improve immunization rates and healthcare outcomes. To achieve this, a multifaceted approach that accounts for the province's unique challenges and cultural diversity is essential. Strengthening community engagement in the EPI will not only enhance vaccination coverage but also contribute to the overall health and well-being of the Balochistan population.

Keywords:*Community Engagement, EPI, Approach, Balochistan*

INTRODUCTION

Worldwide vaccination programs have prevented millions of children from contracting and dying from diseases that can be prevented by immunization.The World Health Organization (WHO) has initiated TCMR as a global program to combat VPDs in many underdeveloped countries. The program is implemented on a global scale, and the logistics of each country have an impact on usage. WHO understands this and, where possible, conducts EPIs on a country-by-country basis. Although identical procedures and facilities are in place in each country, "local realities and national policies" must be taken into account for different vaccination programs to be successful. The Global Vaccine Action Plan was adopted by the 194 members of the World Health Assembly in 2012 (GVAP) (Albis, Etner, & Thuilliez,2022).

According to Kissi et al. (2022) Pakistan has the third-highest incidence of child mortality and has not made enough progress toward meeting the fourth Millennium Development Goal. In other words, our child mortality rate is below the national average. The best technique to deal with this as a result has received more attention. Out of all the federating provinces in Pakistan, Balochistan has the lowest level of immunization. The serious health issue of VPD in Pakistan has a knock-on

impact on the development of the country. Typically, infectious diseases put a heavy financial burden on developing countries. A case of meningitis may cost more than $2,000 in Pakistan, while a case of pneumonia requiring hospitalization can cost up to $235. These are the sorts of financial restrictions that are frequently imposed on people.

Pakistan's Expanded Immunization Program (EPI) was established to focus on diseases that the country's primary immunizations can shield against. Among them include the measles, poliomyelitis, and neonatal and maternal tetanus. The EPI in Pakistan is receiving support from the "Global Alliance for Vaccines and Vaccination" (GAVI), a public-private global health initiative designed to boost vaccination uptake in low- and middle-income countries (Ren et al., 2022).

The elimination of VPD has become a high priority for Pakistan and the international health community as a result of the multi-stakeholder cooperation in the polio and routine vaccination programs. GAVI is mostly managed by Civil Society Organizations (CSOs) at the district level in Pakistan. It's also important to examine how international organizations, the Pakistani government, and the communities they must operate in interact. The following elements are all connected to vaccine coverage: female literacy, family income, vaccine supply, the number of immunization recipients, and the monitoring of this health program (Rodriguez-Garcia, Onieva-Garcia, Garcia Cenoz, & Garcia Erce, 2022).

On a deeper level, albeit not as strongly as that of physicians, the density of nurses and women's health workers (LHWs) was positively connected with vaccination coverage. Studies have shown that female illiteracy has a significant influence, while data on whether household income impacts vaccine uptake varies. Estimates of the immunization coverage in Pakistan for children between the ages of one and two range from 59% to 73%, depending on a number of different criteria. The purpose of this literature study is to identify the reasons why Balochistan hasn't been able to comply with the vaccination requirements set out by international health organizations. In order to understand why Pakistan's immunization rates, fall short of the standards set by the international community for public health, it is important to look at the country's current vaccination status.

This research study's primary goal is to examine the potential effects and effectiveness of vaccination in Balochistan. The researchers look at inadequate service delivery, a lack of human resources, challenges with accountability and poor data quality, as well as the role of communities in public health, particularly the EPI program in Balochistan. The researchers looked into the effects of immunization and how it was carried out in Pakistan's Balochistan area.

Expanded Program on Immunization (EPI)

EPI was started by the World Health Organization (WHO) as a global initiative to fight VPD in a number of developing countries. The program is managed internationally, and the logistics of different countries affect how it is implemented. WHO recognizes this and conducts EPIs on a country-by-country basis whenever it is feasible. Even if similar methods and infrastructure are used in every country, each immunization program must take into consideration "local circumstances and national regulations" (Hastings et al., 2022). The Global Vaccine Action Plan was endorsed by the 194 Member States of the World Health Assembly in 2012.

According to the GVAP's Official Secretariat Report, Pakistan is working to achieve the following global goals: (a) "Achieve 90% national coverage and 80% district coverage with three doses of diphtheria-tetanus-pertussis immunizations." "Achieve coverage of 80% in each district and 90% overall for all vaccines on the national schedule." Make the globe poliomyelitis-free. By 2020, "the current rate of global development must alter" in order to meet these GVAP goals. It is impossible to exaggerate the significance of EPI in Pakistan. The majority of the public's vaccines come from this source. Understanding its concept and implementation in Pakistan is necessary to understand its flaws and, consequently, development potential. Both the EPI's success and failure in Balochistan/Pakistan have been impacted by the social and political environment. (Bashir.2019)

The Expanded Program on Immunization (EPI) was put into place in Pakistan by the World Health Organization (WHO) in 1978. Following its initial success, the EPI sought to safeguard children by

immunizing them against measles, diphtheria, pertussis, tetanus, pediatric TB, and poliomyelitis. By 2013, polio was expected to be completely eliminated. Later, a large number of other vaccinations were released with the aid of development partners, including those for hepatitis B, Haemophilus influenza type b (Hib), pneumococcal vaccine (PCV10), and inactivated polio vaccine in 2002, 2009, 2012, and 2015. Additionally, it aims to protect children and pregnant women against tetanus. Parents may assist Pakistan in achieving the Sustainable Development Goal (SDG) by immunizing their children (Rodriguez et al., 2022).

Focuses on lowering child morbidity and saving up to 17% of childhood deaths and mortality rotavirus vaccine was created in 2017 to prevent one rotavirus-related cause of deadly diarrhea. Of all the provinces in 2018, Baluchistan was the first to take this move. In the same year, rotavirus was added to the EPI program. The Congenital Rubella Syndrome (CRS) cases in 2020 and 2021 increased, thus the Measles-Rubella (MR) vaccine was released on November 15, 2021, and it was included in the EPI schedule. Typhoid Conjugate Vaccine (TCV) was included in the EPI schedule for children aged nine months and older due to the rise in XDR Typhoid fever cases. Sindh began a TCV program successfully in 2019. Due to the Covid-19 epidemic, all of the other provinces of Pakistan were in the planning stages of TCV campaigns when they fell behind schedule. In 2021, it was successfully introduced just in Punjab. The remaining provinces—Balochistan, KPK, Azad Jammu Kashmir, and Gilgit Baltistan—will begin a TCV campaign in their chosen districts and union councils on October 3 and run it for twelve days until October 15 of 2022. Children between the ages of 9 months and 15 years will get vaccinations during the program. This accounts for 37% of the union councils' total population.

In the Figure 1, the district wise access and utilizations are illustrated which can be used simply to prioritize them for better planning, operation and evaluation. Access indicates the coverage percentage of the Penta-1. if the coverage of Penta-1 is greater than 80% then it is considered to be good access and if it decreases then 80% then it is said to be poor access. Similarly, utilization indicates the dropout of Penta-1 to Penta-3. If the dropout is less than 10% then it is considered good utilization and if it increases than 10 % then it shows the poor utilization. If access and utilization both are good then it is called category. If access is good and utilization is poor then it is categorized as category 2. If access is poor and utilization is good then it is considered as category 3 and, finally, if both access and utilizations are poor then it is considered as category 4. Despite of this, Category 4 is the 1st priority for planning and operation and respectively category 3 is the 2nd priority and similarly category 2 is the 3rd and category 1st are the last priority for planning and operations of the EPI.

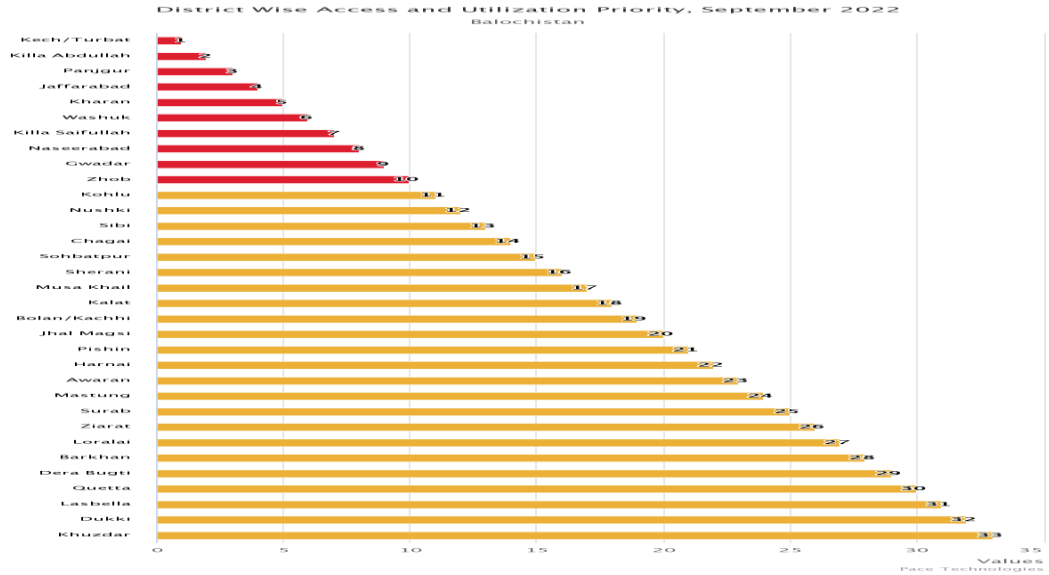


Figure 1. District Wise Access and Utilization Priority, September 2022

ROUTINE IMMUNISATION SCHEDULE			
WHEN	**AGE**	**VACCINES**	
At Birth	At Birth	BCG OPV-0	Hep-B
2nd Visit	6 weeks	OPV-I Pneumococcal-I	Rotavirus-I Pentavalent-I
3rd Visit	10 weeks	OPV-II Pneumococcal-II	Rotavirus-II Pentavalent-II
4th Visit	14 weeks	OPV-III Pneumococcal-III	IPV - I Pentavalent-III
5th Visit	9 months	MR-I Typhoid	IPV - II
6th Visit	15 months	MR-II	

Table 1: Current EPI Schedule 2023 (latest)

Table 2 Pakistan's EPI Vaccination Schedule. This Program of Immunization Is the Main Program That Provides Vaccination Coverage Contained by Pakistan. Currently, EPI Reaches 7.5 million Children Below the Age of One. To Be Fully Vaccinated Against the Twelve VPDs, a Child Needs Only Six Visits over the Course of Two Years

Demographic

Balochistan is the largest province in the country, with an area of 347,190 square kilometers. It is decentralized and has the fewest population of the four states. Many locations are difficult to get to because of the sparsely inhabited areas and difficult terrain. The most current statistics for 2022 from EPI MIS Balochistan were used to determine the baseline values for the multiple board clusters

depicted in number 2. National Institute of Population Studies (NIPS) growth rate, and new FDI formulas for targets for infants younger than one year, CBA, and pregnant women. The distribution between urban and rural areas is also determined using information from the 2017 census. The majority of people live in rural areas, which are considered to be remote locations.

Balochistan's birth registration regulations are quite lax. Most people report newborns out of need since birth tracking is decentralized up to the Union Council (UC) level. Baluchistan has a birth registration rate of 22.9%, according to a study report published by UNICEF in 2010 (Haykal & Menkes, 2022). The complexity of the terrain, the condition of the roads, and the extreme heat and cold are additional factors contributing to the poor performance of the provision of health services, including vaccination. Increased attention, greater financing, and targeted immunization programs are needed to increase coverage rates.

The province experiences both internal and foreign population movement often. Internal migration is mostly seasonal; in the winter, residents of the districts of Ziarat and Kalat go to Harnai, Lasbela, and Quetta, respectively, while in the summer, residents of Jhal Magsi, Naseerabad, and Sibi in Sindh are relocated to Quetta. Inter-provincial movement from and through Sindh and Punjab exists, as does foreign migration to and from Afghanistan and Iran. The provision of vaccination services may be negatively impacted by all of the aforementioned issues, including the expanding population in remote and difficult-to-reach locations, inadequate birth registration procedures, and internal and external migration. These issues thus require special attention. This High-Risk Migratory Population (HRMPs) are typically missed in Supplementary Immunization Activities (SIAs) like Sub-National Immunization Days (SIDs), Mop-ups, or Case Response (CRs) due to travel because such campaigns are not implemented on a national level at the same dates but rather in one province or fewer districts of the province at the same time.

Aim of Research Study:

The goal of this study was to determine the relationship between various challenges by examining the special role of vaccination and how it was carried out in Balochistan. Additionally, to look at the role that communities play in the EPI program Additionally, this investigation assessed the health of several discovered issues critically. In addition, the study has taken into account the overall viewpoint of the local populace to gauge their experience with and belief in vaccination, particularly among minorities and other populations.

Research Objectives:

The research objectives of the current research study are as follow:

: • To examine at the role that communities play in Balochistan's public health services related to immunization

• To evaluate the vaccination program's reach and effectiveness in Balochistan.

• To evaluate the existing level of Baloch involvement in Balochistan's vaccination program's accountability difficulties and low data quality.

• To understand the existing level of Baloch engagement in accountability concerns and the poor data quality surrounding the vaccination program in Balochistan.

Service delivery

"Primary, Intermediate, and Tertiary Care" is the name of its three-tiered healthcare system, according to the DoH Balochistan Healthcare System. The medical house (1586), which works from the bottom up, offers community health care through medical personnel and is connected to grassroots medical units (749), provincial health centers (85) and a referral route to the district hospital and tehsil hospitals. Additionally, there are four academic medical centers. Outside of these institutions, other locations—such as pharmacies and SMI centers (80)—offer medical services. However, despite having a sizable health infrastructure, excellent care has not been achieved due to a number of systemic problems. Concerns about healthcare employees (discussed above in the section on healthcare workers), a lack of state health programs or policies, the ineffective use of resources, and more are some examples of these. According to the national EPI policy, all of these facilities must have a static EPI centre. Unfortunately, only 850 ENP centers are active. More than a

third of all union boards do not have an ENP centre. There are a total of 694 vaccine-preventable disease surveillance points.

List of Health Facilities of Baluchistan 2023					
S.No	Health Facilities	Total	Functional	Non-Functional	Close
1	Tertiary Care Hospitals	7	7	0	0
2	District Head Quarter	29	29	0	0
3	50 Bedded Hospitals/Other Hospitals	8	7	1	0
4	Tehsil Head Quarter Hospital	7	7	0	0
5	Civil Hospitals	5	5	0	0
6	Rural Health Center	112	106	6	0
7	Basic Health Unit	781	749	32	0
8	Civil Dispensary	503	461	42	0
9	Mother &Child Health Center	92	80	11	1
10	School Health Services	5	4	1	0
11	Sub Health Center	1	1	0	0
12	T.B.Clinic	8	6	2	0
13	Mobile Dispensary	5	4	1	0
14	Leprosy Clinic	15	15	0	0
15	Leprosy Hospital	2	2	0	0
16	Health Auxiliary Unit	14	14	0	0
17	Medical Emergency Response Center	16	16	0	0

18	Experimental Dispinsery	8	8	0	0
19	To B Deleted	19	0	0	19
TOTAL		1637	1521	96	20
20	EPI Functional Sites	996	819+ 31=850	146	
** PPL SUI Hospital ** Ghous Bakhsh Rehsani Hospital ** Jam Ghulam Qadir Govt Hospital ** Molana Mufti Mehmood Hospital Kuchlak **Benazir Hospital Quetta**50 Bedded Hospital KhudabadanPanjgur**50 Bedded Labour Hospital Usta Muhammad** 25 Bedded Hospital Khuzdar.					

Table 2: Service delivery capacity by type of public and private health care providers Health Facilities

Table 3: Details of EPI static Sites of each District of Baluchistan

Only EPI static sites (both public and private) are available in 574 of the province's 783 union councils, which makes up 74% of the total. The remaining 204 union councils, or 26% of all UCs, do not have any EPI static website. Similar to this, there are 233 commercial vaccine providers working in the remaining 233 UCs, making up 30% of all UCs, and 550 government vaccine providers working in the aforementioned UCs, making up 70% of all UCs. There is only one available vaccine for a total area of around 250 square kilometers at each EPI site, which averages 450 square kilometers. 42% of all union councils, or 330 of them, do not have access to LHW.

Type of service	Number of Positions		
	Required	Available	Delivering EPI
1. **LHW**	5406	1586	600
2. **CMW**	--	0	0
3. **Vaccinator**	1786	1456	1456
4. **CDC**	--	--	0
5. **Sanitary patrol**	Un Known	Un Known	Un Known

Table 4: Service delivery capacity per type of health care professional-community level

Health Information management

DoH uses the same information systems as other parts of the country, such as the County Health Information System "DHIS", the Vaccine Preventable Diseases Surveillance System "VPD" and other specific programs. Information systems mostly used by vertical programs such as EPI. EPI-MIS, a very intelligent and comprehensive information system for especially E PI, was created in 2017 (Management Information System). It covers all EPI-related categories under one roof.

Figure 2. MIS Dashboard for EPI, Balochistan

Immunization system

One of the most significant vertical projects in the province is the Expanded Immunization Program (EPI). Most vaccination-related tasks were handled by the Federal EPI Unit of the Department of Health (MoH) until July 2011. The majority of responsibility for providing health care were transferred to the provinces when the 18th amendment to the constitution was passed in 2011. As a result, it is now the Government of Balochistan's (GoB) obligation to enhance and grow the province's capacity to offer EPI services. However, it was agreed upon and determined that the Federal Unit of EPI would control the vaccination supply until 2015. The 18th Constitutional Amendment, which shifted significant legislative and executive authorities, as well as ministries, from the federal to the provincial levels, including health, is regarded as a watershed moment in Pakistani history. However, there are now some difficulties in the decentralization process. Due to the dissolution, issues arose such as the absence of a federal health structure to oversee federal responsibilities, a lack of funding for provincial programs to operate effectively, health regulation, particularly drug regulation, a weak mechanism for transferring power to the provinces, a lack of a mechanism for community involvement in decision making, and misuse of funds as a result of provincial capacity issues (Unicef, 2011). A new department was established during the decentralized health sector restructuring after two years of turbulence.

Various federal health duties were assigned to seven separate departments and health departments during those two years. Several vertical programs have been restarted at the national level, notably, the national program against malaria, tuberculosis (TB), acquired immunodeficiency syndrome (AIDS) and the open vaccination program (TCMR). Some of the reasons for the change in policy, were donors' dissatisfaction with the success of these initiatives, as well as the fact that Pakistan is one of only three countries in the world to undermine international efforts to eliminate the polio virus. However, legislators opposed the decision, saying it went against the spirit of decentralization; constitutionally, when this kind of void arose, it had to be debated in a council of the common good (CCI), which was not done in this case. Last year, the shoddy pharmaceutical disaster in Punjab province paved the way for the reintroduction of federal drug and health regulators.

Decentralization is a complicated process, and many factors may make it successful or unsuccessful. The federal bureaucracy, a lack of implementation planning, inadequate preparedness, a lack of finance, and a lack of capacity at all levels are some of these causes. In Pakistan, there are several obstacles that must be overcome in the decentralization process. This suggests a constant handoff of authority from the federal to the provincial levels under the control

of a federal organization. Priority should also be given to improving the ability of the provinces to carry out different health projects (Balasubramaniyan, Santhanam, Vinayagam, & Perumal, 2022).

Impact of Devolution on the EPI Program

- Enhanced technical capacity of provincial staff & less dependency on federal EPI because no resources (HR and Financial) were devolved to the province
- Province specific comprehensive multiyear plan (CMP) was developed
- The first province-specific PC-1 developed and implemented with the support of the World Bank
- EPI budget shifted to the regular side with the opening of new DDO codes in each district for EPI
- Improved fully immunized children coverage from 16% in 2012 to 38% in 2022
- More allocation of funds from provincial government and donors based on province-specific planning
- Regular program reviews and monitoring of activities conducted by provincial EPI
- Strengthened cold chain system with enhanced storage capacity by the implementation of the province-specific improvement plan
- Expansion of service delivery by the increased number of EPI sites, vaccinators and outreach teams
- No of vaccinators increased from 950 in 2015 to 1400 in 2022 while EPI sites from 500 to 850
- Strengthened surveillance system for vaccine-preventable diseases
- Inclusion of a new tier of district M&E officers in each district

1. **Current role of the Federal Directorate of Immunization (FDI)**

- Federal EPI is doing pool procurement of vaccines, syringes and related logistics at the National level for all provinces and each province pays from their budget.
- Federal EPI's main role after the 18th amendment is coordination with donors and all donor-funded support goes to provinces through MoNHR&C stands for Ministry of National Health Services Regulations and Coordination.
- Federal EPI provide support to EPI Baluchistan through Gavi, BMGF, UNICEF, WHO, World Bank, USAID etc. in routine immunization and campaigns.

  There is a significant disparity between immunization coverage rates provided by the EPI reporting system and third-party coverage surveys. According to EPI regulatory data, Balochistan's DTP3 coverage rate in 2012 was 65%, but according to the most recent PDHS of 2013. DHO Baluchistan has agreed to use PDHS baseline coverage data. for 2012 after consultation with all key stakeholders (DoH, WHO, UNICEF, TRF, PPHI and others) during a provincial workshop to develop CMYP.

According to TPVICS Survey 2020, the following figures can clearly illustrate the current situation of Baluchistan EPI and its districts conditions.

Figure 3 : Percentage of fully immunized children aged between 12-23 months in each province

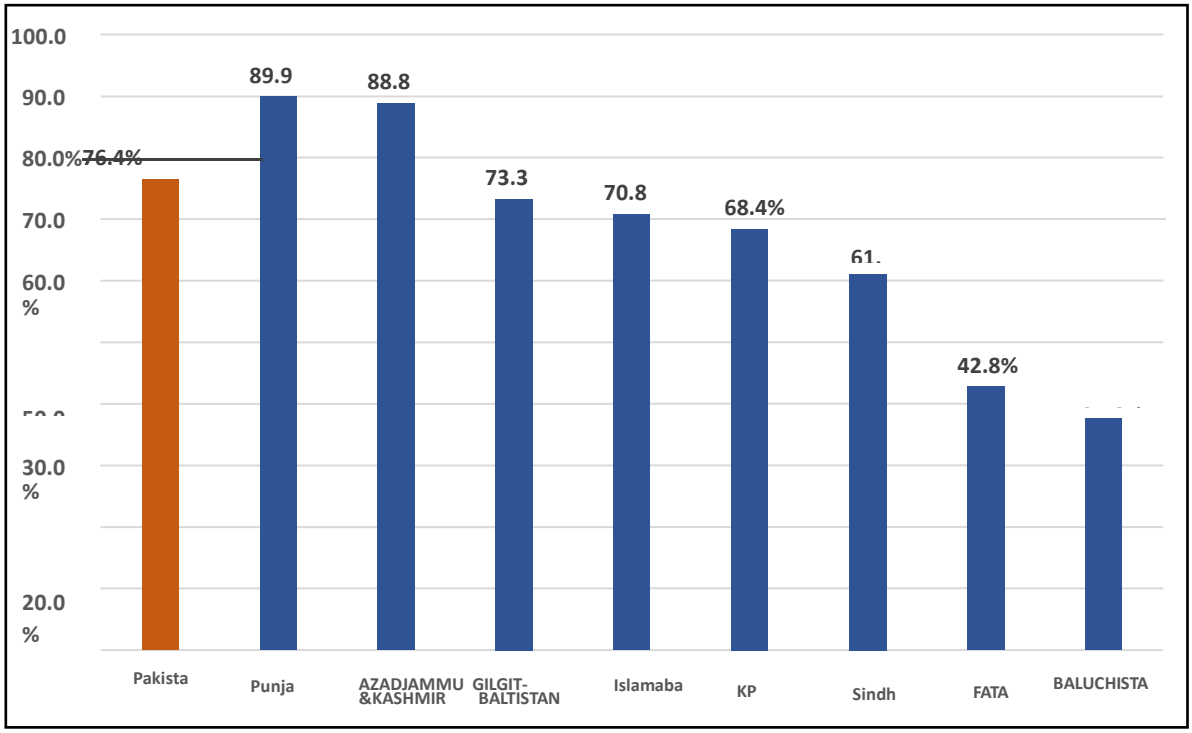
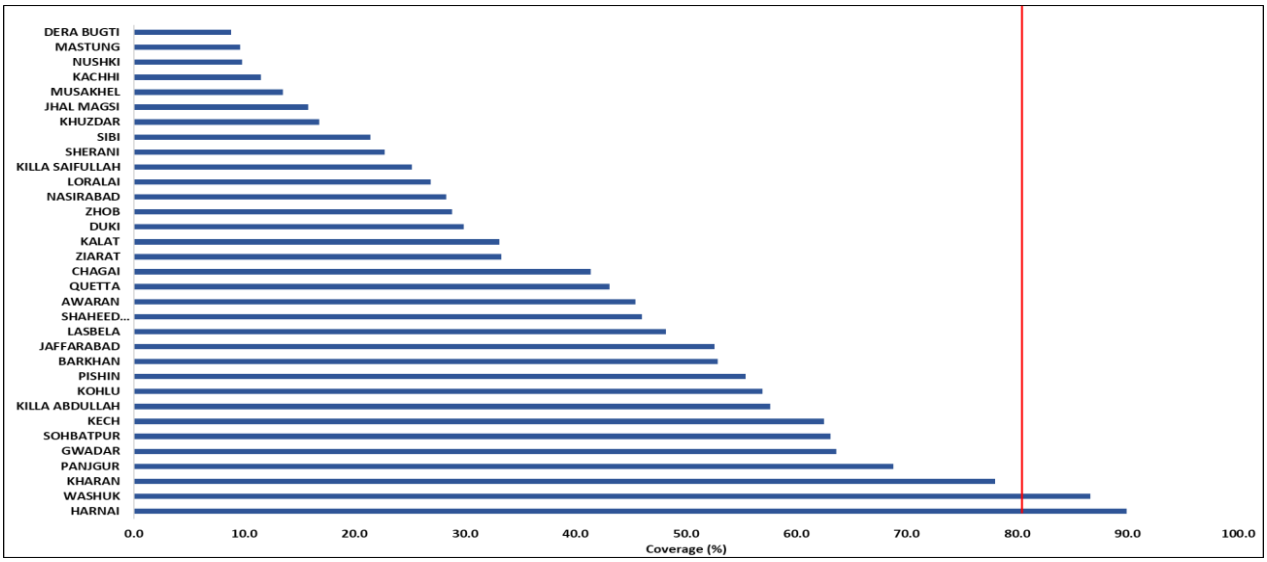


Figure 4: District Wise Coverage of Penta-3 among children 12-23 months in Baluchistan



RESEARCH METHODOLOGY

The study population data was collected from men and women who come for vaccination their kids in (EPI center) for prevention of contagious and non-contagious diseasesin Balochistan

The simple randomized method is used in this experiment. In this study men and women who come for EPI vaccination at DHQ Hospitals Balochistan. Structured questions were instruments in this study. Most of the questions were close-end questions, and a few will open-end questions. Data was collected by asking structure questionnaire to the respondents.

RESULT

The Pearson correlation, as we know, is used to investigate the relationship between variables. Correlation is deemed weak if the result varies from 0 to 0.49. Meanwhile, values ranging from 0.5 to 0.79 are regarded as moderate, while those ranging from 0.8 to 1 are considered high. The correlation between the dependent variable (Education) and the four independent variables (Human capital, Employment, Infrastructure, and Economic Development) is greater than 0.49. The correlation data of the analysis are shown in **Tables 5, 6 and 7.**

Table 5. Correlations between Poor delivery of services in EPI program for implementation

Correlations	poor delivery of services	poor delivery of services	poor delivery of services	poor delivery of services
Pearson Correlation	1	-.381**	.061	-.190
Sig. (2-tailed)		.002	.629	.127
N	120	120	120	120
Pearson Correlation	-.381**	1	.149	.296*
Sig. (2-tailed)	.002		.226	.014
N	120	120	120	120
Pearson Correlation	.061	.149	1	.482**
Sig. (2-tailed)	.629	.226		.000
N	120	120	120	120
Pearson Correlation	-.190	.296*	.482**	1
Sig. (2-tailed)	.127	.014	.000	
N	120	120	120	120

**. Correlation is significant

*. Correlation is significant

The table 8 shows that most of the variables are a positive correlation most of the above variables of the study immunization with poor delivery of services is positive correlation which is 0.629 immunizationwith scarce human resources positive correlation with is 0.579accountability issues with immunization a positive correlation which is 0.726 poor data quality is a positive correlation which is 0.86 on immunization so most of the variables are correlation are more than 0.01 which are accepted. Poor delivery of services, scarce human resources, accountability issues and poor data quality

H_1: There is a significant relationship between poor delivery of services and the implementation of immunization in Baluchistan.F= 2.795and, since p value= 0.01 <0.05, At the =0.05 level of consequence, there exists adequate evidence to conclude that the slope of the population regression line is not zero and, hence, that There is a significant relationship between poor delivery of services and implementation of immunization in Baluchistan.

Table 6. Correlations between Scarce Human Resource in EPI program for implementation

Correlations	scarce human resources	scarce human resources	scarce human resources	scarce human resources
Pearson Correlation	1	.541**	.407**	.579**
Sig. (2-tailed)		.000	.001	.000
N	120	120	120	120
Pearson Correlation	.541**	1	.360**	.172
Sig. (2-tailed)	.000		.003	.165
N	120	120	120	120
Pearson Correlation	.407**	.360**	1	.389**
Sig. (2-tailed)	.001	.003		.001
N	120	120	120	120
Pearson Correlation	.579**	.172	.389**	1
Sig. (2-tailed)	.000	.165	.001	
N	120	120	120	120

**. Correlation is significant at the 0 0.01 level (2-tai Tailed).

Scarce Human Resources

R square is 0.537 which indicates that about 53.7% of the variation on the dependent variable is explained by the moderately good predictor variable. It indicates that 53.7% of the changes in other predictors can be explained by the changes in the dependent variable which shows that the relationship among the variable is moderate.

H_2: There is a significant relationship between scarce human resources and the implementation of immunization in Baluchistan.F= 16.821 and, since p value= 0.01 < 0.05, we shall reject the null hypothesis.At the =0.05 level of consequence, there exists adequate evidence to conclude that the slope of the population regression line is not zero and, hence, that There is the relationship between There is a significant relationship between scarce human resources and the implementation of immunization in Balochistan.

Table 7. Correlations between accountability issues in EPI program for implementation

Correlations	accountability issues	accountability issues	accountability issues	accountability issues
Pearson Correlation	1	-.098	.095	.317**
Sig. (2-tailed)		.432	.440	.009
N	120	120	120	120
Pearson Correlation	-.098	1	.162	.044
Sig. (2-tailed)	.432		.193	.726

N	120	120	120	120
Pearson Correlation	.095	.162	1	-.138
Sig. (2-tailed)	.440	.193		.265
N	120	120	120	120
Pearson Correlation	.317**	.044	-.138	1
Sig. (2-tailed)	.009	.726	.265	
N	120	120	120	120

**. Correlation is significant at the 0.01 level (2-tailed).

Accountability issues

Explanation:

R square is 0.242 which indicates that about 24.2% of the variation on the dependent variable is explained by the moderately good predictor variable. It indicates that 24.2% of the changes in other predictors can be explained by the changes in the dependent variable which shows that the relationship among the variable is moderate.

H_3: There is a significant relationship between accountability issues and the implementation of immunization in Baluchistan.F= 4.779 and, since p value=0.01<0.05, we shall reject the null hypothesis.At the =0.05 level of consequence, there exists adequate evidence to conclude that the slope of the population regression line is not zero and, hence, that There is a significant relationship between accountability issues and the implementation of immunization in Baluchistan.

Table 8: Minorities ratio on EPI vaccine of the patients and their percentage% according on age

S. N	EPI Vaccination	Number of Patients	Percentage %
	Age (Months)		
1	0-05	540	30.1%
2	05-07	460	25.4%
3	07-09	450	25.1%
4	09-18	350	19.4%
Total		1800	100%

The above **Table.8** is showing the data of minorities in EPI vaccine center on age wise for better follow up and advertisement in their community the various ratios of kid's immunization.

Table 9: EPI vaccine centers the Communities' response towards Yes, No & Undecided

Items	Parents / Kids	Percentage %
Yes	1430	79.4 %
No	270	15.1 %
Undecided	100	05.5 %
Total	**1800**	**100 %**

The t**able.9** is showing the data of minorities in EPI vaccine center for response and willing ness for the scheduled vaccine and immunization on their kid's smoothly and routinely.

Discussion

The study produced a proforma for analyzing the results of minorities in the EPI vaccination program for immunization of children, the role of different faiths in monitoring and adapting the immunization program, and it was performed only as a survey. As is common knowledge, the link between variables is examined using the Pearson correlation (Chua et al., 2022). If the result

ranges from 0 to 0.49, the correlation is considered poor. While numbers between 0.5 and 0.79 are regarded as moderate, those between 0.8 and 1 are seen to be high. The relationship between the four independent factors (Human capital, employment, infrastructure, and economic development) and the dependent variable (education) (Yokoyama et al., 2022).

Table 5 shows a strong association between inadequate service delivery and the EPI program for immunizations. Communities and other religious groups benefit more from the execution of this program.All ethnic groups should get immunized, according to past study.In order to save a person's life, the medical industry is independent of all ethnic and religious affiliations (Curtis et al., 2022). The vaccination program is scaled based on population and the requirement of individuals to protect themselves from dangerous diseases. The urge to control any breakout of catastrophe and losses is fueled by awareness of EPI (Wang et al., 2022; Osei et al., 2022).

In **Table 6** the inadequate human resources in EPI program for immunization implementation is successful ratio shown, the human resources are limited but workers trying the best perform in immunization (S. Liu et al., 2022). The sessions of awareness are mandatory for promotion of program implementation. The relations between human and available resources are shown in this table. The communities, minorities and other ethnic groups also following EPI program for saving their kids against various diseases and illness (Sheahan et al., 2022). The poor health also made a victim of any deficiency of syndrome may cause the contagious disease.

In **Table 8** is showing the percentage of communities' population for coming in EPI center for vaccination and routine checking the vaccine schedule as per recommended for kids. The Expanded Immunization Program (EPI) is one of the province's most important vertical initiatives. Until July 2011, the majority of vaccination duties were performed by the Federal EPI Unit of the Department of Health (MoH). After the 18th amendment of the constitution in 2011, the provinces were given the majority of health care duties and responsibilities. Therefore, the Government of Baluchistan (GoB) now has the responsibility to strengthen and develop the capacity of the province in providing EPI services.

In Table 9: EPI vaccine centers the communities' response towards Yes, No & Undecided However, some challenges have emerged in the process of decentralization. As a result of the dissolution, problems arose such as no federal health structure to oversee federal responsibilities, lack of funding to properly function provincial programs, health regulation, especially drug regulation, lack of a strong mechanism to transfer power to provinces, lack of a mechanism for community participation in decision making, misuse of funds due to lack of capacity at the provincial level (Galvez et al., 2022). After two years of upheaval in the decentralized health sector, a new department was created during the interim government last year to oversee medical affairs at the federal level. However, legislators opposed the decision, saying it went against the spirit of decentralization; constitutionally, when this kind of void arose, it had to be debated in a council of the common good (CCI), which was not done in this case. Last year, the shoddy pharmaceutical disaster in Punjab province paved the way for the reintroduction of federal drug and health regulators.

Decentralization is a complex phenomenon, with several aspects affecting the success or failure of decentralization (Bashir,2021). These reasons include a lack of implementation planning, poor preparation, the federal bureaucracy, insufficient funding and limited capacity at all levels. Many challenges need to be addressed in the process of decentralization in Pakistan. This implies a continuous transfer of responsibility from the federal to the provincial level under the supervision of a federal entity. The minorities also pay a vital role for EPI campaign on immunization and expended its vision and understanding worth towards saving their kids.

CONCLUSION

The purpose of this study was to explored the Determinants of Immunization in Baluchistan and roll of communities to accept and forward the promotion and behavior towards adaptation for the goal of inquiry for the current study, access accessible locations of the province Quetta especially talk

with educated people with interaction with this mega collaboration of projects employing a convenience sampling approach Furthermore, a regression model has been developed for the investigation and selection of descriptive statistics, graphical analysis, and multivariate regression techniques in determining poor service delivery, scarce human resources, accountability issues, and poor data quality on Immunization in Baluchistan Failed to Meet Global Vaccination Standards. Furthermore, in this study only the accessible district of Balochistan province. It has been found that there is a positive and significant role of poor delivery of services, scarce human resources, accountability issues and poor data quality on Immunization in Balochistan. The peoples of communities accepted EPI program and regularly follow this immunization process.

RECOMMENDATIONS

The set of recommendations designed based on the conclusion and findings of the current investigation are summarized as follows:

- Public sector bodies need to understand the important role of poor delivery of services, scarce human resources, accountability issues and poor data quality on Immunization in Balochistan, and input with necessary measures to improve these factors for better implementation of immunization in Balochistan Province of Pakistan.
- It is also necessary for Hospital Sectors to start with an efficient and effective structure within the province to provide inhabitants of the province with remarkable ways of immunization access according to the protocol of immunization.
- It is also good for the province with an injection of private sector security bodies along with private and public sector collaboration to improve security conditions of the province for immunization.
- It is also required to attract the private sector with the creation of employment opportunities for the province with employment opportunities to inhabitants to bring happiness in their lives that ultimately input positive trends in lives and increase the scope of immunization in Balochistan.
- To provide the officers and monitors the accumulation facilities and living facilities according to the rules and regulations of the Balochistan Government.
- The communities need more attention and concentration towards all public health programs including nutrition and family planning.

References:

[1] Adegoke, O. J., Mungure, E., Osadebe, L. U., Adeoye, O. B., Aduloju, M., Makinde, I., . . . MacNeil, A. (2021). Targeted Short Message Service-Based Intervention to Improve Routine Immunization Reporting in Bauchi State, Nigeria, 2016. Pan Afr Med J, 40(Suppl 1), 11. doi:10.11604/pamj.supp.2021.40.1.15811

[2] Baloch, M. S., S, Bashir, H. Z., & Aftab Aslam, Muneera (2023). Countering Violent Extremism In Balochistan: A Case Of Strategic Communication. Russian Law Journal, 11(8s), 343-354.

[3] Balgovind, P., & Mohammadnezhad, M. (2022). Perceptions of Healthcare Workers (HCWs) towards childhood immunization and immunization services in Fiji: a qualitative study. BMC Pediatr, 22(1), 610. doi:10.1186/s12887-022-03665-9

[4] Bashir, S. (2016). The role of NGOs in community development in Balochistan. Pakistan Journal of Applied Social Sciences, 4(1), 123-135.

[5] Bashir, S., Sadiq, W., Zafar, H., Murtaza, A., & Naseer, P. (2022). The Role And Analysis Of Quality Education On The Perspective Of Socio-Economic Development Of Balochistan Province Of Pakistan. Journal of Positive School Psychology, 6(10).

[6] Bashir, S., Shah, N. A., Karim, H., Farooq, K., & Ahmed, Z. N. (2021). THE PERCEPTIONS OF STUDENTS REGARDING THE WAYS OFCOMMUNITY INVOLVEMENT IN PUBLIC SECONDARY

SCHOOL AT DISTRICT KECH BALOCHISTAN. Humanities & Social Sciences ReviewseISSN: 2395-6518, Vol 9, No 3, 2021, pp 1690-1698https. doi. org/10.18510/hssr, 93171.

[7] Chua, B. Y., Sekiya, T., Koutsakos, M., Nomura, N., Rowntree, L. C., Nguyen, T. H. O., . . . Kida, H. (2022). Immunization with inactivated whole virus particle influenza virus vaccines improves the humoral response landscape in cynomolgus macaques. PLoS Pathog, 18(10), e1010891. doi:10.1371/journal.ppat.1010891

[8] Collins, J. P., Ryan, E. T., Wong, K. K., Daley, M. F., Ratner, A. J., Appiah, G. D., . . . Gutelius, B. J. (2022). Cholera Vaccine: Recommendations of the Advisory Committee on Immunization Practices, 2022. MMWR Recomm Rep, 71(2), 1-8. doi:10.15585/mmwr.rr7102a1

[9] Curtis, M., Kanis, J., Wagers, B., Coffee, R. L., Jr., Sarmiento, E., Grout, S., . . . Grout, R. (2022). Immunization Status and the Management of Febrile Children in the Pediatric Emergency Department: What Are We Doing? Pediatr Emerg Care. doi:10.1097/PEC.0000000000002864

[10] Curtti, T., Agrimbau Vazquez, J., Yori, S., Kantarovsky, A., Torolla, J., Di Santo, M., . . . Parra, A. (2022). Immunization with messenger RNA vaccines against COVID-19 in adolescents with a history of multisystem inflammatory syndrome: a case series. Arch Argent Pediatr, e202202757. doi:10.5546/aap.2022-02757.eng

[11] Dalbis, H., Etner, J., & Thuilliez, J. (2022). Vaccination under pessimistic expectations in clinical trials and immunization campaigns. J Public Econ Theory. doi:10.1111/jpet.12617

[12] Galvez, N. M. S., Pacheco, G. A., Schultz, B. M., Melo-Gonzalez, F., Soto, J. A., Duarte, L. F., . . . Kalergis, A. M. (2022). Differences in the immune response elicited by two immunization schedules with an inactivated SARS-CoV-2 vaccine in a randomized phase 3 clinical trial. Elife, 11. doi:10.7554/eLife.81477

[13] Kissi, J., Owusu-Marfo, J., Osei, E., Dzamvivie, K., Akorfa Anku, V., & Naa Lamiokor Lamptey, J. (2022). Effects of coronavirus pandemic on expanded program on immunization in weija gbawe municipality (Accra-Ghana). Hum Vaccin Immunother, 2129830. doi:10.1080/21645515.2022.2129830

[14] Liu, S., Yang, G., Li, M., Sun, F., Li, Y., Wang, X., . . . Yang, P. (2022). Transcutaneous immunization via dissolving microneedles protects mice from lethal influenza H7N9 virus challenge. Vaccine. doi:10.1016/j.vaccine.2022.09.008

[15] Liu, Z., Li, M., Hutton, D. W., Wagner, A. L., Yao, Y., Zhu, W., . . . Wang, W. (2022). Impact of the national hepatitis B immunization program in China: a modeling study. Infect Dis Poverty, 11(1), 106. doi:10.1186/s40249-022-01032-5

[16] Mishra, R., Jha, R., Mishra, B., & Kim, Y. S. (2022). Maternal immunization against myostatin suppresses post-hatch chicken growth. PLoS One, 17(10), e0275753. doi:10.1371/journal.pone.0275753

[17] Miyaji, K. T., Itto, L. Y. U., Jacintho, L. C., Sales, A. C. R., Hiratsuka, M., Leonel, F. C., . . . Sartori, A. M. C. (2022). Adverse events following immunization of elderly with COVID-19 inactivated virus vaccine (CoronaVac) in Southeastern Brazil: an active surveillance study. Rev Inst Med Trop Sao Paulo, 64, e56. doi:10.1590/S1678-9946202264056

[18] Murphy, D. M., Cox, D. J., Connolly, S. A., Breen, E. P., Brugman, A. A., Phelan, J. J., . . . Basdeo, S. A. (2022). Trained immunity is induced in humans after immunization with an adenoviral vector COVID-19 vaccine. J Clin Invest. doi:10.1172/JCI162581

[19] Sheahan, K. L., Speizer, I., Curtis, S., Weinberger, M., Paul, J., & Bennett, A. V. (2022). Influence of family planning and immunization services integration on contraceptive use and family planning information and knowledge among clients: A cross-sectional analysis in urban Nigeria. Front Glob Womens Health, 3, 859832. doi:10.3389/fgwh.2022.859832

[20] Silva, P. H., Vazquez, Y., Campusano, C., Retamal-Diaz, A., Lay, M. K., Munoz, C. A., . . . Bueno, S. M. (2022). Non-capsular based immunization approaches to prevent

Streptococcus pneumoniae infection. Front Cell Infect Microbiol, 12, 949469. doi:10.3389/fcimb.2022.949469

[21] Stehlin, F., Tommasini, F., Monzambani-Banderet, V., Girard, C., Yerly, D., Ribi, C., & Muller, Y. D. (2022). Graded-dosing immunization in adults at risk for immediate-type reactions to mRNA SARS-CoV-2 vaccines. Allergol Int. doi:10.1016/j.alit.2022.10.001

[22] Sunder, A., Varghese, B., Taha, O., Keshta, M. S., Khalid Bughamar, A., Nadir Abelhamid Mohamed, E., . . . Darwish, B. (2022). Maternal COVID-19 Disease and COVID-19 Immunization. Cureus, 14(8), e28328. doi:10.7759/cureus.28328

[23] Takeuchi, I., Hidaka, Y., Oshizaka, T., Takei, C., Mori, K., Sugibayashi, K., & Makino, K. (2022). Chitosan-coated PLGA nanoparticles for transcutaneous immunization: Skin distribution in lysozyme-sensitized mice. Colloids Surf B Biointerfaces, 220, 112916. doi:10.1016/j.colsurfb.2022.112916

[24] Yang, L., Chen, Y., Li, S., Zhou, Y., Zhang, Y., Pei, R., . . . Wang, Y. (2022). Immunization of mice with vaccinia virus Tiantan strain yields antibodies cross-reactive with protective antigens of monkeypox virus. Virol Sin. doi:10.1016/j.virs.2022.10.004

[25] Waseem Sadiq, D. S. B., Zafar, H., Zarar, R., TahiraNaudani, M., & Ali, T. (2022). Exploring the perceived concerns of people of Balochstan province related to Pakistan's signature project, the China Pakistan Economic Corridor. Central European Management Journal, 30(3), 214-222.