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ECONOMIC, SOCIAL, AND ADMINISTRATIVE BARRIERS IN ACHIEVING THE SUSTAINABLE DEVELOPMENT GOAL OF GOOD HEALTH AND WELLBEING: CASE OF EXPANDED PROGRAM ON IMMUNIZATION IN THE PUNJAB PROVINCE OF PAKISTAN

MUHAMMAD SHAHZAD
PhD Scholar, Institute of Banking & Finance, Bahauddin Zakariya University, Multan.
Email: shahzadcomsat@gmail.com

MUHAMMAD ABBAS
Tenured Associate Professor, Air University Islamabad-Pakistan, Multan Campus.
Email: mam@aumc.edu.pk

MUHAMMAD UMER QUDDOOS
Assistant Professor, Department of Commerce, Bahauddin Zakariya University, Multan, Pakistan.
Email: umerattari@bzu.edu.pk, ORCID ID: 0000-0002-1498-6822.

KHAWER NAHEED *
Associate Professor, Department of Commerce, Bahauddin Zakariya University, Multan, Pakistan.
*Corresponding Author Email: khawarnaheed@bzu.edu.pk, ORCID ID: 0000-0003-4226-7769

MAZHAR IQBAL
Lecturer, Department of Commerce, Bahauddin Zakariya University, Multan, Pakistan.
Email: mazhar.iqbal@bzu.edu.pk

ARSLAN AHMAD SIDDIQI
General Manager, Institute of Industrial and Control System, Karachi, Pakistan.
Email: dr.arslan.siddiqi@gmail.com, ORCID ID: 0000-0002-2430-1145

MUHAMMAD ADEEL
MS Scholar, Department of Commerce and Finance, Government College University, Lahore, Punjab, Pakistan. Email: acct.muhammad.adeel@gmail.com, ORCID ID: 0009-0005-9539-6654

Abstract

Good health and well-being are the 3rd Goal in UNDP Global Goals. The World Health Assembly requested the World Health Organization (WHO) to start an expanded program on immunization (EPI) to give universal access to vaccines against a set of diseases. Irrespective of the large number of efforts made by different agencies and government institutions, this program is still not achieving the desired coverage. The primary objective of this research was to identify the most critical administrative barriers to implementing this program in the Punjab Province, Pakistan. A sequential exploratory design was used in our study employing both qualitative and quantitative techniques. Qualitative analysis is applied to identify the most critical administrative barriers of the EPI program. A quantitative analysis was then conducted based on the results obtained from qualitative analysis, and rank orders of barriers were received from the same experts of the health department. The case study method was used to investigate the grounds of observations and concepts. The results indicate that twenty-eight barriers can cause implementation problems for this program. Still, the ten barriers that gained the maximum hits are the most important administrative barriers which include “Shortage of vaccinators, mismanagement of vaccines’ cold chain, biometric android application, ice-lined refrigerators, communication gap, inadequate legislation of EPI program, capacity

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building issues with EPI staff, Misconceptions about EPI program, lack of awareness of the parents and community, refusal cases and inadequate cooperation of lady health workers" are essential administrative barriers. All in all, these barriers are interlinked with each other, and coordinated efforts of the government and the public are highly recommended to address these barriers.

Keywords: Administrative Barriers; Expanded Program on Immunization; Sustainable Development Goals.

INTRODUCTION

Good Health and Wellbeing is the 3rd Goal in UNDP Global Goals. Good health is a prerequisite for achieving sustainable development. Universal health coverage is important for the socioeconomic development of a country. Research and development of vaccines and their universal coverage is a major target set under this Goal. An expanded program on immunization (EPI) is how a person is made immune or resistant to the infectious disease, Vaccine stimulates the immune system of the body and protects the body against the contagious disease [1]. According to the WHO statistics, delays in the immunization of children contribute to about 2 to 3 million deaths each year in the world.1.5 million deaths can be reduced, by improving vaccination programs. Approximately 19.4 million infants in the world are not getting the necessary doses of vaccination [2]. Vaccines are now considered worldwide, a useful tool to immunize against diseases and maximize health. It is also considered a very cheap and natural source to prevent the conditions in the community [3]. It is reported that the immunization program saved about one million lives from measles, neonatal tetanus, and whooping cough in developing countries [4].

In 1974 World Health Assembly asked the WHO to start the EPI program to give universal access to vaccines against a set of diseases [5]. Irrespective of the large number of efforts made by different agencies and government institutions, it is still not achieving 100% coverage. Children who are members of ethnic/racial minorities are not adequately vaccinated [6]. Secondly, in poverty and rural areas, children are less vaccinated than the children of the urban and general population. Provision of incentives to the parents has mixed results in developing countries [7].

In 2018 an estimated 6.2 million children under the age of 15 years died, mostly from preventable causes. Of these deaths, 5.3 million occurred in the first 5 years. More than half of these early child deaths are preventable with simple, reasonable interventions including immunization [8]. Measles is the primary cause of death among 9 "EPI" diseases globally accounting for 114900 measles deaths in 2014, 314 deaths occurred every day and 13 deaths occur every hour [9]. Pneumonia is the leading infectious cause of death in children worldwide. Pneumonia killed about 808 694 children under 5 years of age in 2017, which accounts for 15% of all deaths of children under five years of age [10]. In 1998, 125 countries contained polio-endemic, but now only two countries Pakistan and Afghanistan, remain polio-endemic. Polio cases drop down from about 350000 in 1998 to 33 in 2018 which accounts for a 99% decrease, now 1 in 200 infections lead to paralysis, among which only 5 to 10% die [11].

The cost of an expanded program on immunization was US$58 460. In a case study that was conducted in the rural community of Vietnam, the main factors of cost categories are

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vaccines and supplies of vaccines (33%), and personnel cost (30.2%), community-based activities (38%). The average cost to vaccinate per child was US$ 1.03, which is much less than US$15 which is the figure of EPI in developing countries [12]. The EPI program started in Pakistan in 1967 and expanded over the country in 1978. The main objective of the EPI program in Pakistan is to reduce morbidity and mortality. The EPI program annually covers 5.8 million children below one year of age and 5.9 million pregnant women and their newborns, through the services of routine immunization [13]. Recently a new vaccine namely TCV (typhoid conjugate vaccine) introduced to the EPI program of Pakistan [14].

EPI cards of small size (9x8.5cm) are being used in Pakistan which contain all the information of the child e.g., schedule of immunization, complete knowledge of the children (name, father name, date of birth, father Computerized National Identity Card Number, phone number, etc.), date of next visit for vaccination. This card is useless for those mothers who are not educated and cannot read the card information; some mothers misplace this EPI card in their homes. No information or motivation is provided to the mothers at kit stations about vaccination. However, a well-coordinated and well-managed system of information sharing among mothers is available. Such a coherent and coordinated system leads to a reduction in the dropout in immunization [15].

The main focus of this EPI program was mobile teams, which was the weakness of this program. The coverage level or EPI results of mobile units were lower than the dispensaries, as there were difficulties in covering the remote areas. Many children were immunized too late, which created coverage issues. Expanding this program to remote and hard-to-reach areas could lead to a rapid increase in EPI coverage [16].

Communicable diseases participate a lot in morbidity and mortality rates. So, an effective preventive program of immunization is essential. Pakistan contributes to the highest rates of deaths among children below five years of age in the world. One child in every 11 (87 per 1000 live births) born in Pakistan dies before five years. Pakistan Millennium Development Goals (MDGs) 2019 target to reduce below five-year deaths to 52/1000 live births .[17]

Many factors or barriers that contribute to low vaccine immunization coverage in Pakistan include Low maternal (Health) literacy rate, Low Socioeconomic status, Less access to immunization services, etc. Many useful strategies for improving immunization services are improving management capacity at the District level, improving service delivery of EPI, Integration of other related health programs, progress monitoring and evaluation systems at the District level, increasing vaccine demand concerning the target population, the involvement of civil society and other organizations [18]. Lack of awareness about vaccination and lack of motivation are the main factors for the dropout ratio of immunization in most developing countries [23]. Large family size, low-income level of the parents, lack of awareness and motivation among mothers, and large distance of EPI kit stations from home badly affect the immunization schedule[19-22].

Parents' education, laziness, illness of the children, non-availability of vaccinators, inconvenient EPI facilities, fear of side effects and rumors about immunization programs,

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and low-quality services are reasons for low vaccination coverage in Pakistan [24]. A lot of factors that may affect the vaccination coverage at the district level include workload on vaccinators/health workers and nurse density, female literacy rate, area, socioeconomic status, delivery at home, and distance to the facility. EPI infrastructure includes the Health Minister, Provincial program manager (Head of EPI) under the Director-General of Health, Secretary of Health, and Health Minister. The provincial program manager (PPM) supervises the EPI program through EDO (H). Each EDO has an EPI Coordinator at the District level who addresses the managerial issues. He supervises District superintendent vaccination (DSV), ASV, vaccinators, and all other staff [25].

In the Multan division, Vehari is the most deprived District concerning the EPI program. Unfortunately, the standards of this program are not being followed by the concerned vaccination staff, due to which the program faces many implementation problems. These problems are evident from the fact that a lot of times explanations/Personal hearings/Show cause notices were issued by Executive District Officer Health EDO (H) Vehari to the concerned EPI supervisors/Managers for inadequate and unsatisfactory performance, not achieving the targets, not completing and compiling the records, not complying with standards of EPI, absent from duty, not sending child-level data, inefficiency, misconduct, negligence, etc. [26].

All these facts indicate that EPI program implementation in District Vehari has been facing some severe issues. Although, some consideration was given to identifying the barriers to the implementation of this EPI program in this rural region of Pakistan, however, there is a need to identify the barriers to identify the implementation deficiencies regarding the EPI program. For this purpose, meetings were held with the WHO Polio Eradication Officer (PEO) District Vehari, Executive District Officer (H) Vehari, EPI Coordinator, EPI District Focal Person, School Health & Nutrition supervisors/EPI Supervisors, District superintendent vaccination (DSV), Assistant superintendent vaccination (ASV) tehsil Vehari, Mailsi & Burewala. All these officers assured the need for identifying barriers to EPI program implementation in District Vehari. In addition to identifying implementation barriers, it is also essential to identify the relative importance of these barriers so that the most critical barriers can be highlighted and discussed [27].

With low resources and insufficient funds, it is crucial to address all the issues simultaneously. The Health system in Pakistan is facing not only administrative problems but also a lot of critical financing challenges [28]. Identifying the relative importance of each barrier may help policymakers to allocate the resources to the most critical issues. From the above discussion, two questions arise. First, what are the main administrative barriers to implementing essential EPI services at health facilities of District Vehari? Second, what is the relative importance of each barrier following from the above first question? So, the study's objective was to reveal the administrative barriers to implementing essential EPI services at health facilities of District Vehari and find out the relative importance of each barrier. Practically speaking, without identifying and prioritizing these barriers, it is impossible to initiate necessary changes to effectively implement the EPI and other similar programs. The findings may facilitate local administration and international

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organizations (WHO, UNICEF, etc.) to improve the quality of EPI services by addressing the barriers identified in this research.

RESEARCH METHODOLOGY

The Study Setting

Punjab province is the most crowded province of Pakistan, and it has been divided into three essential regions, North Punjab, Central Punjab, and South Punjab. South Punjab is considered as an underdeveloped area of Punjab. District Vehari is an integral part of it, and it is located on the right bank of the river Sutluj. District Vehari is divided into three Tehsils, Burewala, Mailsi, and Vehari. Its total population is 3 million with an area of 4360 sq.km[29]. This study is conducted in the health department of District Vehari. District health profile consists of Executive District Officer (H), District Officer Health (H), Deputy District Officer (H) (One in every three Tehsils), EPI coordinator, EPI focal person (One in every three Tehsils), School Health & Nutrition supervisors/EPI Supervisors, District superintendent vaccination (DSV), Assistant superintendent vaccination (ASV) (One in every three Tehsils). Healthcare facilities are available in 1 District Headquarters, 2 Tehsil Headquarters, 12 Rural Health Clinics, and 77 Basic Health Units. District Vehari consists of 77 rural and urban union councils with one vaccinator in each union council [30].

Research Design and Sample

To explore organizational issues regarding the administration of the “Expanded Program on Immunization (EPI),” we used both qualitative and quantitative techniques. In the first step, a qualitative analysis was conducted. This qualitative research aimed to identify the administrative barriers to the immunization program in District Vehari through expert opinion. In the second step, a quantitative analysis was conducted to have expert advice about the essential administrative barriers from the overall list of barriers that were obtained during the qualitative analysis.

The case study method is used to investigate the grounds of observations and concepts. The case study method enables the analyst to develop a robust empirical basis for the ideas and generalizations. The case study method involves a person’s natural everyday experiences and the problems they face.

The sample was selected by targeting the participants based on professional skills, knowledge, expertise, field experience, and academic search. In other words, all the participants had in-depth knowledge and understanding of administrative barriers to immunization in District Vehari.

Before starting the interview process, we identified 50 key informants, out of which forty were health professionals available for the final interview- one WHO Surveillance Officer/ (Polio eradication officer (PEO); one EPI coordinator; one District EPI focal person; three Tehsil EPI focal persons; one District superintendent vaccination (DSV); three Assistant superintendent vaccination (ASV); twenty-four School Health and Nutrition Supervisors/EPI Supervisors; and six Vaccinators. This sample size included ten people from top/first-line management, twenty-four people from middle-line management, and six people from the low operational management level. Participants' selection criteria

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were based on professional skills, knowledge, expertise, field experience, and academic search.

Before the interviews, all the participants' consent was appropriately obtained. The respondents voluntarily participated in the interview process. All participants were guaranteed that their data would be confidential and that they would never face any negative consequences. Moreover, a documented study approval was obtained from the Ethical Committee for Scientific Research of COMSATS, Vehari Campus.

Based on attribution theory [31] this research suggests that attributions of the District's highly skilled persons toward the issue of administrative barriers can give us useful insight about the subject. The attribution theory states that "humans are not simply observers of events and behaviors. Rather, they are motivated to understand the cause of what they see and experience." This research identifies the different administrative barriers to EPI in the District Vehari which is of utmost importance to address and solve these barriers and improve the EPI coverage.

Qualitative Analysis

The study uses qualitative analysis in which detailed exploration is evolved, which consists of in-depth interviews, where complicated problems are being faced, where a user is required to understand the context and environment for better decisions, where you need to explain the things and where the measurements don't fit the problems. It wasn't easy to approach all the health department professionals and EPI field staff on the same day. Due to this problem, it was decided to contact all the professionals at their own workplaces. It was confirmed that all the professionals were present on a specific day, and each discussion time was about 30 minutes. The main focus was on the concerned question of the chief administrative barriers, which can affect the performance of the expanded program on immunization (EPI).

During the discussion session, important points were highlighted on the flip chart and shared verbally with the participants for feedback purposes at the end. About three months period was required for the collection of initial data (computer-based) from the mentioned professionals of the health department and technical staff. By completing this process, a content analysis was performed. For accuracy purposes, a comparison of flip chart notes and transcription of these was necessary.

The face-to-face interview technique was used to collect the data from the interviewees. The interviews were conducted from September to November 2017. About 30 minutes were given for each meeting. Before starting discussions, all the participants were informed about the objectives of the study. A well-experienced health official from the health department was present to decide. A research team was also trained to facilitate discussions relating to EPI standards. The main question of the interview was "What are the main administrative barriers that can cause implementation problems for the expanded program on immunization (EPI) in District Vehari." The conversations were recorded, and critical points were noted and added during the discussion where it was necessary, interviews were summarized on a flip chart by mentioning the most critical

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administrative barriers, and at the end of the interview the key points were verbally shared with the interviewee and any final thought from the interviewee was also added. It took about three months for the collection of data from all the experts, and afterward, content analysis was performed whereby data were transcribed with the help of an independent transcriptionist. For accuracy purposes, transcribed data were compared with the flip chart notes at the end.

It is essential to know the relative importance of each problem so that the most critical issues can be focused, on in low-resource settings [32]. The participants who identified the barriers could better give information about the relative importance of these factors [33]. So, after finalizing the barriers, the same respondents were approached and asked to rank the identified barriers based on their relative importance. A list of identified barriers along with a questionnaire was presented before the respondents to assign a unique number to each barrier depending on its intensity.

RESULTS OF QUALITATIVE ANALYSIS

Table 1: Frequencies of Codes (in Number and Percentage)

"EPI Barriers"	No of Hits	% of total hits per question
1. Cold chain problem	37	8
2. Ice-lined refrigerators (ILR) Problem	20	4
3. Supply management system of the vaccines problem	11	2
4. Vaccinators are fewer in numbers	38	8
5. No alternate of vaccinator	18	4
6. Awareness problem	33	7
7. Biometric mobile software system problem	32	7
8. Legislation problems	29	6
9. Misconceptions problem	22	5
10. Non-availability of Incentive program	17	4
11. Refusal cases problem	21	4
12. Non-availability of the children's problem	6	1
13. Capacity building problems	23	5
14. Less no of LHWs and LHV problem	21	4
15. Behavior problems of the vaccination staff	6	1
16. Security issues	4	1
17. Non-availability of Reward and Punishment system	22	5
18. Communication gap problem	31	6
19. Fake entries and self-made reporting problem	18	4
20. Cooperation of other departments problem	17	4
21. W.H.O standards not being followed	9	2
22. Vaccination points problems	6	1
23. Political interference problem	5	1
24. EPI indicators problem	3	0
25. Behavior of other field staff problem	11	2
26. Handling problems of the vaccine	11	2
27. Registration problem of the children	4	1
28. Duty timing problem of vaccination staff	5	1
Total	**480**	**100**

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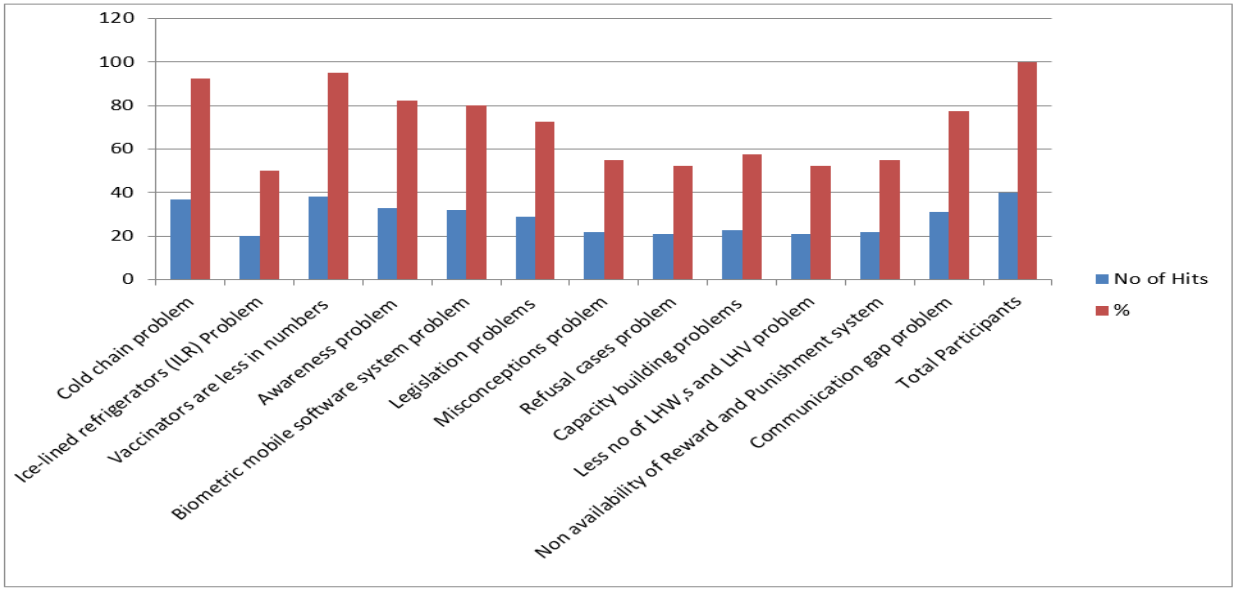

Figure 1: Administrative Barriers

Note: Each hit constitutes one respondent. N=40

By content analysis, twenty-eight administrative barriers were identified (see Table 1). The main question was "What are the administrative barriers that can cause implementation problems for the expanded program on immunization in District Vehari". A total of 480 hits were observed. Table 1 shows that the more hits (8%) were given to the barrier "the vaccinators are in fewer numbers according to their area population". The closest to this was cold chain management of the vaccines (8%). A third number was a barrier "awareness of the community" (7%) at number four was "Biometric mobile software system problem" (7%) and at number five was "communication gap between field staff and higher authority" (6%). Similarly, at number ten was the "Ice-lined refrigerator problem (ILR)" (4%). The top ten ranking Barriers are discussed in this research work.

Quantitative Analysis

A quantitative analysis was performed on data obtained from the rank-order survey. We calculated summed-rank orders to determine the relative importance of each barrier. To complete the qualitative analysis, we returned to the same respondents with a questionnaire that contains ten restrictions (acquired the maximum number of Hits). Respondents were asked to rank each barrier to the EPI program. The respondents of the study were asked to determine the factors that were most critical concerning the implementation of the expanded program on immunization. According to Pulling et al., the summed-rank order of each barrier is calculated as S (Frequency x Rank). The total lowest score results in the highest ranking and the highest overall score results in the lowest ranking. Classification of these factors was analyzed by using Kendall's W or

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Kendall's coefficient of concordance test that determined the rank differences among different elements in a group of variables [34].

RESULTS OF QUANTITATIVE ANALYSIS

Table 2: Kendall's Coefficient of Concordance

Kendall's coefficient of concordance, a non-parametric test for rank differences among EPI barriers			
Kendall's W	Chi-square	df	Sig
0.706	282.430	10	0.000

Rank Frequencies and Descriptive Statistics of EPI Barriers

The following Table shows the descriptive statistics and ranking of the barriers to expanded program on immunization.

Table 2: Summed Rank Orders

"EPI Barriers"	Summed Rank order	Percent ranked (1)	Percent ranked in top 3	Percent ranked in top 5
1. Vaccinators are fewer in numbers (Qty)	68 (1)	63	93	98
2. Cold Chain Problems	96 (2)	23	83	98
3. Awareness Problems	102 (3)	10	63	98
4. Biometric mobile software system problem	131 (4)	5	30	95
5. Communication gap problem	149 (5)	0	23	78
6. Misconceptions problem, Non-availability of Reward and Punishment system	167 (6)	0	3	13
7. Capacity building problems	168 (7)	0	5	10
8. Ice-lined refrigerators (ILR) Problem	170 (8)	0	3	5
9. Refusal cases problem, Less no of LHW, s and LHV problem	177 (9)	0	3	5
10. Legislation problems	231 (10)	0	3	10

The summed rank order of each barrier was calculated by ∑ (Frequency x Rank). The highest value results in the lowest ranking (10), while the lowest value results in the highest ranking (1). Table 2 shows that the barriers of EPI ranked differently from each other. Kendall's W is 0.706 and the chi-square is 282.430. The P-value (<0.01) shows that the results are correct.

The result of the barrier "vaccinators are less in number", and "cold chain problem" is (summed rank 68 and 96 respectively) significantly different from each other. The Table 3 shows that "vaccinators are less in numbers" is a barrier that is ranked at the top one among ten barriers and ranked at the top among the three ranking and five ranking columns. The Table 3 also shows that in the top five rankings "the vaccinators are less in numbers, cold chain management of the vaccines problem and awareness of the community problem" have got the same percentage, i.e. 98%. In the top ten ranking the barrier "legislation problem" is at number ten. The barrier "awareness problem" stands at number three in the top three rankings.

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The Table 3 shows that the people have given almost equal weightage to the top three barriers i.e. “vaccinators are short in numbers, cold chain management problem, and lack of awareness about the non-vaccination issues”.

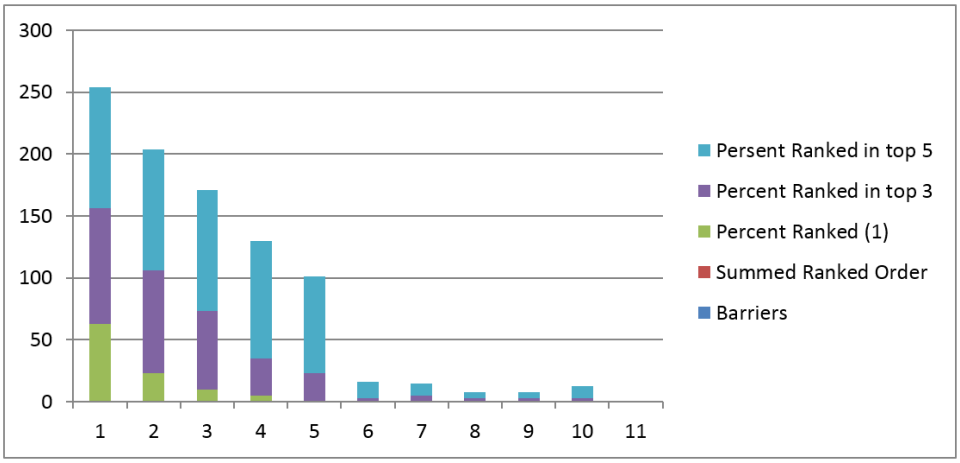

Figure 2: Graphical display of Table 3

DISCUSSION OF RESULTS

Several factors of administrative barriers were identified in qualitative and quantitative analysis. However, the top five regulatory hurdles have been considered the most important. We discussed these five most critical administrative barriers.

Vaccinators are Fewer in Numbers according to their Population Size (Quantity of Vaccinators)

The population of the union councils is increasing day by day, but vaccinators are still one. According to the World Health Organization policy, there should be one vaccinator in 20,000 populations. But in Pakistan conditions are different; the population of the union councils has doubled or tripled. However, vaccinators are alone till now, due to which population remains uncovered, and children remain defaulters in the non-registered population. Vaccinators must be recruited locally, and their training should be primarily for National Immunization Days (NIDs). There is also a need for female vaccinators as the demand for vaccinators is increasing day by day. It is also mandatory that proper recognition and importance should be given to vaccinators in the immunization plan of the government [35,36].

Cold Chain of Vaccines

It is mandatory that during transportation the temperature range of vaccines should be between 2-8^{o}C [37,38]. It is very necessary to check the vaccine vial monitor (VVM) before opening the vial whether it is damaged or intact. VVM is a vaccine vial monitor which tells how much the vaccine is destroyed by heat. VVM contains a heat-sensitive material that responds quickly to anger; it is changed to darken when it is exposed to heat when the temperature constantly rises, the color of the VVM becomes dark. It depends upon the

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time and temperature which leads to the darkening point with time [39]. All these requirements are needed at every step from the national level to the global level. This system prevails throughout the country. Vaccines are usually transferred through air transport from the manufacturer to the cold stores, and the temperature must be between 2-8^{o}C [40]. Vaccines are very important health tools that have saved about three million lives each year [41]. Due to this importance, the health community has made it possible to avail of the vaccine all around the world's children. It has created an additional Burdon on already available old cold chains and other equipment as well. All the vaccines, according to World Health Organization rules and manufacturer guidelines, should be kept between 2-8oC except the oral polio vaccine. However cold chain may deviate from this range which may lead to freezing temperatures, and this could result in the loss of tetanus, pertussis, diphtheria, influenza type B, hepatitis B, and inactivated poliovirus vaccine potency and efficiency [42].UNICEF spent a considerable amount which is almost 38 % of the US$ 638 million on vaccines. That is being frozen on accidental essential or freeze sensitivity of the vaccines in 2021[43,44].

Awareness Problem of the Parents and Community

It is a settled principle among health professionals that the participation of the community people is mandatory to resolve any health problem that is being faced by the community [45]. To change the attitude of people having health issues and diseases to educate people about any topic to the community, the participation of the community is necessary. The partnership means giving ownership to the community [46]. A survey level in KPK which was cross-sectional revealed that there is no motivation in people about the vaccination and there is no information among the people about vaccination, which leads to immunization failure [47]. Another survey which was conducted in Karachi shows deficient immunization coverage related to less knowledge among the community about vaccination [48]. The field staff is of the view that despite having a large number of vaccines with them, we are unable to vaccinate a large number of people due to people's attitudes towards them and the vaccine. They suggest that TV, Radio, and the media should be used to change the community behavior, which is strict with vaccination. Some religious factors should be discussed on TV and Radio which can positively affect the attitude of the community [49,50]. In the project, the capacity, and knowledge of the community can be enhanced to the highest level by maximum participation of the population [51].

Biometric Android Mobile Software System

Globally vaccination coverage has been increasing day by day; however, there is always a need to formulate new procedures and technologies to enhance the coverage of EPI. Among such efforts, mobile technology is one of them [52]. There has been always a need to develop new technology for the coverage of hard-to-reach areas [53]. Mobile technology and Smartphones are widely used by health department officials for addressing health-related issues in developing countries[53]. Smartphones are being used for identification, prevention, reduction, and protection from diseases [54] and are considered to be beneficial in hard-to-reach areas. It can lead to in-time information to improve case management and achievement of quality, validity, and reliability targets [48,53]. To obtain M.D.G.s,

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W.H.O., and UNICEF have recommended the use of the smartphone to develop countries to improve a central strategy for immunization in hard-to-reach areas at the District level [55]. The e-VACCS works in conjunction with an Android application. Child and infant records are automatically updated on the Smartphone with a single click [56].

The Communication Gap between Higher Authority and EPI Staff

Due to the lack of proper implementation and monitoring mechanisms, 58% of children remain unimmunized [57]. EPI report depicts that there is much difference in coverage rates due to different social conditions of the community. Irrespective of the fact that there are equal services available, but coverage rate is not similar in every society [58]. Coverage reports that are created from the evaluation of the health center either from EPI cards or verbal history are not accurate [59]. Vaccination quality and coverage can be increased with the proper monitoring and evaluation of the campaigns and pre-campaign activities [60]. The field staff is facing many problems in the field, especially the non-supportive behavior of the supervisory team and facilities, in the form of vehicles and other supplies. Close monitoring and solving the problems of field staff are essential factors that can be used to increase immunization coverage [61,63,64].

CONCLUSION

Based on data from health professionals, this study concludes that EPI program implementation is facing many administrative barriers which must be presented to higher authorities to improve the EPI program in District Vehari. It is recommended that health service providers, managers, policymakers, and international organizations (i.e. WHO, UNICEF, etc.) take steps towards increasing the number of post of vaccinators to make it easy for every child to vaccinate. EPI program is facing a lot of financial, political, and community-level issues. The community feels reluctant to get involved in the EPI program. People are mostly unaware of the benefits of the EPI program, but community ownership and involvement are the core elements for the successful implementation of this program. There are no proper arrangements for the health education of the community. Cold chain maintenance is another main barrier to this program. The leading causes of this barrier are load shedding, and periodic tripping of the electrical leads to destroy the cold chain, which results in a reduction in the efficacy of vaccines.

The communication gap between the supervisors and field vaccination staff is the barrier of utmost attention. The management style is autocratic and authoritative, and decisions are imposed without knowing the practical implications. Authority should create an active role to create harmony with coworkers for the successful execution of this EPI program. Android mobiles are provided to vaccinators, but they don’t have the requisite skills to use these mobile applications, and due to their complications, create a lot of problems. There is no integration between local administration and the health department to facilitate the registration of a newborn child as a red alert in an Android application for a vaccination program. The integration between the NADRA and the EPI program could have produced better results. The community is unaware of the benefits of vaccination and has a sense of ownership toward vaccine-preventable diseases. Many types of religious beliefs are

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present in society, and parents are reluctant to vaccinate their children. There are no proper arrangements from the Government or administration to deal with the EPI refusal cases, and children remain unvaccinated. Due to these unvaccinated children whole community remains at risk of diseases. So, effective awareness campaigns must be launched to give the community ownership of the EPI program.

LIMITATIONS AND FUTURE RESEARCH DIRECTION

This research has only identified a specific set of barriers interlinked with each other, and coordinated efforts are needed to address these barriers. Like other studies, this research is not free from limitations. The data gathered is wholly and exclusively based on the practical knowledge of health professionals. However, this practical knowledge and experience of the individuals may be different in different areas of the country. As this research is directly linked with government EPI officials it is quite possible that due to some job-related restrictions and reservations, some officials had not provided information with full confidence. This study is exploratory, and no hypotheses were made and tested, future researchers may determine whether hypotheses and theories can be developed from this exploratory data [62]. Moreover, this study was based on a specific health-related issue in a particular region of Pakistan. Future research may focus on other healthcare issues, and the related managerial implications [65], and also examine their impact on the different economic activities in the region including sustainable tourism.

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