

Barriers to childhood vaccination in urban slums of Pakistan

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Abstract

Background: The urban slums of Pakistan continue to record low childhood vaccination coverage. It is therefore vital to understand the demand-side barriers to childhood vaccination in the slums to determine the required demand-generation interventions.

Aims: To document the demand-side barriers related to childhood vaccination in urban slums of Pakistan and recommend appropriate demand-generation interventions.

Methods: We investigated the demand-side barriers to childhood vaccination in 4 urban slums of Karachi, Pakistan, and disseminated the findings to the Expanded Program on Immunization and their partners. Using the findings, we made recommendations for collaborations with the various partners and for the design of demand-generation interventions to address the barriers. We then expanded the scope of the original research through a mapping exercise that gathered information on the vaccination-related research and interventions of the partners and used the information gathered to create a portfolio of activities. We present the demand-side barriers from the original research and the portfolio of demand-generation interventions.

Results: The original research showed that 412 (49.0%) children aged 12–23 months, from 840 households, were fully vaccinated. Reasons given for not receiving the recommended vaccinations were mainly related to the fear of side effects, social and religious influences, lack of awareness, and misconceptions about vaccine administration. The mapping of activities revealed 47 initiatives that aimed to generate demand for childhood vaccination in the urban slums of Pakistan.

Conclusion: Several stakeholders involved in childhood vaccination in the urban slums of Pakistan act independently, operating programmes that are disconnected. There is a need for better coordination and integration of the childhood vaccination interventions by these partners to achieve the goal of universal vaccination coverage.

Keywords: vaccination, urban slum, demand generation, barriers, Pakistan

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Introduction

One of the greatest achievements of modern medicine is the advent of vaccination, which has enabled elimination of many common childhood illnesses and improved survival rates (1). This has in turn improved public health outcomes, particularly in lower- and middle-income countries such as Pakistan. Vaccination programmes such as the Expanded Program on Immunization (EPI) at a national level are an efficient investment, because of their cost-effectiveness and long-term economic benefits (2). However, 1 in 10 children in many developing countries are still deprived of this fundamental health right (3).

Poor vaccination coverage is rooted in both demand- and supply-side hurdles, and there is geographic variation among countries (4). However, the poor coverage in urban slums compared with other areas is an emerging concern (5,6). Lack of basic infrastructure, poor governance, and lack of trust in informal healthcare providers contribute to worse health indicators (7). Pakistan is confronting

the same global issues (8,9). Urban slums face unique challenges related to the demand aspect of vaccination (10,11). Many slums in Pakistan, such as in the largest city Karachi, reported vaccination coverage to be < 50% (12).

To achieve greater immunization coverage in Pakistan, dedication and commitment are required from all the key stakeholders including the community, EPI, civil society organizations, World Health Organization (WHO), United Nations Children's Fund (UNICEF), and academia. A holistic vaccination programme, catering to supply- and demand-related barriers can reduce poor coverage (13). However, most of the EPI staff working in the urban slums face difficulties because of poor understanding of these barriers (14). Community demand for vaccination is an essential aspect of the EPI, and interventions tailored according to the demand of the community are integral (15). Every EPI stakeholder in Pakistan is committed to strengthening demand-generation, and several initiatives are underway. It is important to recognize how these programmes are fitted to the needs of the community,

especially in slums and how shared learning can help create momentum to generate demand for vaccination.

The main study was designed to generate data for frontline decision-makers about demand-side barriers in 4 urban slums in Karachi (16). The VITAL Pakistan Trust shared these findings with the national and provincial EPIs and extended partners at the 2019 joint appraisal of the EPI by Gavi and the World Bank.

The research team was requested to create a portfolio of demand-generation initiatives for Pakistan. A major reason for this request was the lack of coordination among different partners implementing these activities. The national EPI is the foundation of the vaccination programme; therefore, the leadership of the programme needs a directory of key initiatives that are being tested in different settings, including urban slums. This has not yet been formalized in the EPI, at national and provincial levels.

This study investigated the major causes of low vaccination demand in the urban slums of Karachi targeted in the main study (16). We created a portfolio of demand-side initiatives in Pakistan, along with information on the scope and context of their implementation.

Methods

Identification of demand-side barriers to vaccination in Karachi slums

The main study applied mixed-methods implementation research using quantitative and qualitative approaches to post-vaccination coverage, implementation barriers, and solutions to address them (16). The study was conducted in 2 phases. During Phase 1, a baseline cross-sectional survey and qualitative in-depth interviews were conducted. The cross-sectional survey was conducted from June to September 2017 to document the vaccination coverage of a representative sample of children aged 12–23 months, and to identify carers for interviews. A close-ended questionnaire was developed, translated into Urdu, and pretested on a subsample of households in the same community. Lot quality assurance sampling was used to randomly select 210 households at each site using the demographic surveillance system data and available line listing of the married women of reproductive age from the Aga Khan University. The 4 slums in Karachi were mainly in Bin Qasim Town, Malir District: Rehri Goth, Ali Akbar Shah, Cattle Colony, and Ibrahim Haidri. Aga Khan University established these surveillance sites in 2010 and has data available for all children aged < 5 years. The survey was administered to 840 carers during household visits by research staff, after written informed consent was obtained by a senior research assistant and a locally hired community health worker. The in-depth interviews were conducted from June 2017 to April 2018 through purposive sampling of respondents. Respondents were mostly carers identified through the cross-sectional survey who refused or accepted vaccination services, to explore demand- and supply-side barriers to vaccination

. Community members were also included, such as spiritual healers, social workers, midwives, family physicians, the principal of an Islamic seminary school, political party representatives, community heads, and older members of the community. Female health workers, vaccinators, senior health officials, EPI officials, and nongovernmental organization mobilizers were also approached.

Phase 2 of the study was conducted from June to July 2018 and consisted of qualitative data collection based on a structured in-depth interview guide that incorporated the Phase 1 findings (16). The interviews were conducted by the investigators as consultative meetings with policymakers and decision-makers. During the interviews, Phase 1 findings were disseminated and strategies to address any barriers to childhood vaccination were determined. There were 6 Phase 2 respondents: a director of the national EPI; 2 district health officers from provincial EPIs; a representative of partner organizations such as UNICEF; a consultant for civil society engagement at the national EPI; and a representative of the Civil Society Human and Institutional Development Programme (16).

Mapping demand-generation initiatives in Pakistan

To map the demand-generation activities by different partners in Pakistan, there was a need to develop a portfolio of demand interventions in line with demand-side barriers. A reporting tool was developed following consultations with experts to gather information on pre-existing demand-generation techniques. The respondents for this activity were: national and provincial EPI officials, and representative of UNICEF, WHO, Gavi, The Vaccine Alliance, civil society organizations, and academia.

A formal email containing the Excel sheet with mapping variables was sent to national EPI and extended partners, and data were gathered from September 2019 to January 2020. Variables included for this mapping activity included: institution name and type, title of project, year, duration, geography, objectives, key approach, outcomes, key learning objectives, sustainability, potential risks, opportunities for the EPI, funding sources, funds allocated, and recent status of the demand-generation activities. We also performed a literature search to identify demand-generation initiatives in Pakistan in the 10 years preceding the survey.

Data analysis

SPSS version 25.0 (IBM, Armonk, NY, USA) was used to analyse survey data, and Microsoft Excel version 16.61 (Redmond, WA, USA) was used for descriptive and graphic analysis. For qualitative analysis, an inductive thematic analysis approach was applied, followed by axial coding using NVivo Plus version 11 (QRS International, Burlington, MA, USA). To map demand-generation initiatives and create a portfolio of activities, responses were displayed in an Excel sheet, creating the vaccination-related demand-generation portfolio

for Pakistan. For analytical purposes, initiatives by different implementation partners were categorized by intervention type: advocacy and partner engagement; capacity building and technical assistance; social mobilization and community engagement; coordination; initiatives for demand generation (information, education, and communication material, social media, etc.); integrated service provision; transport support; mobile vaccination services; evidence of applying solutions to address barriers to vaccination; testing innovative approaches; and framework development. For each intervention, we examined whether national and provincial EPIs were aware of and collaborated with such initiatives. We examined the context of each intervention, according to province and whether it was in an urban, rural, or slum area, and whether these initiatives were implemented in the study areas. A final repository was shared with the national EPI.

Ethical considerations

Written informed consent was obtained from the participants. The anonymity and confidentiality of the participants was maintained through unique study identification. For mapping of demand activities, permission from the participating organizations was obtained via email. Ethical approval was obtained from the Ethical Review Committee (ERC) (Ref: 4538-Ped-ERC-16) of Aga Khan University and WHO ERC (RC.0002845).

Results

Demand-side barriers

Survey highlights

The cross-sectional survey in Phase 1 of the main study found that only 412 (49.0%) of the 840 children aged 12–23 months were fully vaccinated, 361 (43.0%) were partially vaccinated or defaulters, and 67 (8.0%) were unvaccinated.

The most common reasons for being partially vaccinated or defaulting were fear of side effects and that the carers had a busy schedule (Figure 1). The main reasons for being unvaccinated were fear of side effects and family opposition to vaccination.

Findings from qualitative in-depth interviews

Qualitative thematic analysis of demand-side barriers to vaccination revealed 4 broad themes: (1) household barriers to vaccination; (2) gender-insensitive services; (3) myths, misconceptions, and fears related to vaccination; and (4) social and religious influences (16). Table 1 shows barriers to vaccination at community level.

Portfolio of demand-generation activities in Pakistan

A total of 47 different interventions or initiatives were identified from respondents as well as our literature research. Figure 2 represents the demand-generation portfolio for Pakistan based on the information gathered.

Initiatives of national and provincial EPIs

Nine different initiatives were implemented nationwide by the Pakistani Government with the support of UNICEF and WHO. These initiatives included partner engagement, campaign initiatives, alignment with Sustainable Development Goals, capacity building for interpersonal communication, use of social and mainstream media for visibility, strengthening of coordination among provinces for demand-generation activities, and a synergistic approach to the Global Polio Eradication Initiative. These initiatives were implemented at national level with the involvement of provincial EPIs and were not specific to certain geographic areas.

Initiatives of UNICEF and WHO

Six major initiatives led by UNICEF and WHO, with the involvement of the federal EPI, helped to enhance service

Figure 1. Reasons for nonvaccination and defaulters^a

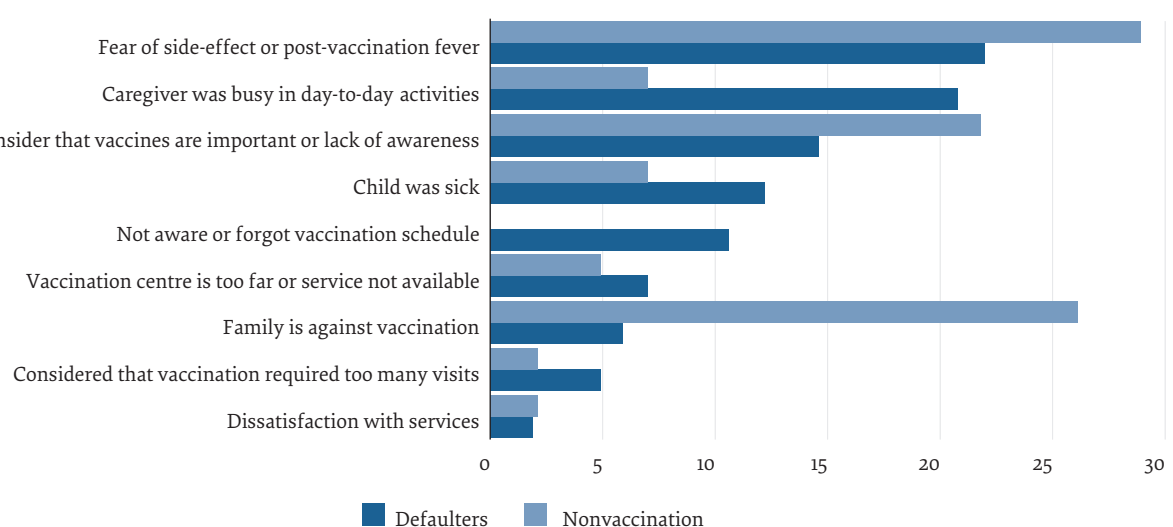


Table 1 Themes and insight on barriers to vaccination at community level

| Theme | Detail impression | Insights |
|---|--|---|
| Household barriers to vaccination | Lack of permission by the main decision-maker of the household for vaccination is a common barrier which hinders a woman from accessing vaccination services. Secondly, family gives less priority to the vaccination compared to other household tasks. | “Women cannot go for vaccination without the permission of men; only when a child becomes ill, then she has permission to take the child to the hospital, but with another woman.” (Mother) |
| Gender insensitive services | Poor knowledge and lack of awareness. Male dominance of vaccinators is the critical aspect of service delivery which leads to restrictions on seeking healthcare. | “We do not know what these injections are and why you force them on our children” (Mother) “They are male; how can I go to talk to them when I am not allowed to talk to men? They are rude and disrespectful.” (Mother) |
| Myths, misconceptions, and fears related to vaccine administration. | It is a common belief that vaccination causes sterility in males, serious illnesses/side effects, pain, and disabilities. | “These vaccines cause boys and girls to reach puberty quickly. These vaccines decrease men’s ability to reproduce. I know some cause fever, so, why would I let my child be exposed to them?” (Father) |
| Social/religious influence | A few social and religious influencers are known to have forbidden vaccination and going against their teaching seems as if one is committing a sin. | “Prevention is better than cure. I do not take drugs; I know they are harmful, and contain alcohol. However, if you stay in a state of ablution, you will remain protected.” (Spiritual Healer) |

quality and accountability (12,17). The key initiatives in demand generation were: development of EPI social media accounts, a strategic tactical plan, content development, quarterly editorial calendar, engagement of bloggers/influencers, social media monitoring and analysis, and introduction of automated chatbots. Gaining of community trust, adaptation of information, education, and communication materials, public service messages, and vaccination fact sheets also played an important role. The joint milestones achieved were the National Communications Strategy and Provincial Communication Action Plans, which were implemented at national level. UNICEF and WHO were engaged in evidence generation through studies on the theme of knowledge, attitude, and practice; allocation of funding for demand generation; and implementation research to improve social mobilization (15). These initiatives were implemented at national level.

Initiatives of civil society and not-for-profit organizations

Fourteen vaccination-related initiatives led by civil society organizations covered a vast population across Pakistan. They were mainly high-level engagement, technical assistance, social mobilization, and community engagement, and initiatives for demand generation, service provision, and evidence generation. The secretariat of the Pakistan Civil Society Coalition for Health and Immunization has been strengthening engagement between civil society organizations and national and provincial EPIs to improve immunization coverage in Pakistan. The VITAL Pakistan Trust has adopted an integrated services model across the maternal, neonatal, and child healthcare continuum in slum areas, including the main study sites (18). This resulted in improved vaccination coverage over a period

of 5 years. Within the integrated maternal, neonatal, and child health approach, vaccination activities were initiated with close coordination with the provincial EPI in the slums of Karachi. The Civil Society Human & Institutional Development Programme implemented social mobilization, community awareness (19) and urban profiling through individual and institutional developments in slums (14). All the initiatives were made in close coordination with the national and provincial EPIs. None of the initiatives were implemented in the main study settings. The Health and Nutrition Development Society, through the MISALI Project, improved knowledge about vaccination through community engagement in rural Pakistan (20). The Health, Education and Literacy Programme, through the integrated maternal, neonatal, and child health service, enabled community mobilization by providing vaccination services at fixed sites and conducting outreach activities through collaboration with the provincial EPI (unpublished data). These initiatives were mostly in urban slums of Karachi, and none were implemented in the main study settings. The National Rural Support Programme implemented the Water, Immunization, Sanitation and Education Programme, which developed links between community-based support organizations and district health management in rural Pakistan (unpublished data). None of the initiatives were implemented in the main study settings. The Rural Education and Economic Development Society Pakistan conducted vaccination awareness sessions in Rahimyar Khan, and trained community volunteers in inaccessible areas (unpublished data). None of the initiatives were implemented in the main study settings, and the level of EPI involvement was not clear. The Sindh Development Society conducted integrated community awareness sessions on vaccination and reproductive

Figure 2 Demand-generation portfolio of Pakistan. High-level thematic analysis.

| Demand generation work in Pakistan | | Leading organizations | | | | | | |
|-------------------------------------|--|-----------------------|-------------------------|--|----------------------------------|----|---|---|
| | | EPI Pakistan | UN agencies | Civil society/not-for-profit organizations | Academia/ Research organizations | | | |
| Intervention type – major themes | High-level engagement: advocacy, accountability, and partners engagement | 5 | 1 | 1 | 1 | 1 | | |
| | Campaign initiatives | 1 | - | - | - | - | | |
| | Technical assistance: development of strategies, capacity building for interpersonal communication and social mobilization, and community engagement | 1 | 1 | 1 | 1 | - | | |
| | Coordination: alignment with milestones of Sustainable Development Goals and creating synergy among other programmes such as polio eradication. | - | - | 2 | 1 | 1 | | |
| | Initiatives for demand generation: information, education and communication material, social media, Robocalls, chatbots, Babilbot, toolkits, decision support system, mobile conditional cash transfer | 1 | 3 | 3 | 5 | | | |
| | Service provision: integrated services, transport support, mobile vaccination service | - | - | 5 | 3 | | | |
| | Evidence generation: barriers, testing innovative approaches, and framework development | - | 1 | 2 | 7 | | | |
| | Setting where interventions were implemented | | | | | | | |
| | Geographical area of implementation | R | U | US | US | US | U | U |
| | Sindh | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Punjab | | | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Khyber Pakhtunkhwa | | | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Baluchistan | | | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Gilgit Baltistan | | | (Nationwide initiative) | ✓ | ✓ | ✓ | ✓ | |
| Azad Jammu and Kashmir | | | (Nationwide initiative) | ✓ | ✓ | ✓ | ✓ | |
| Federally Administered Tribal Areas | | | (Nationwide initiative) | ✓ | ✓ | ✓ | ✓ | |

R=Rural
U=Urban
US=Urban slums

health in rural areas of Sindh, with the involvement of young people in the community (unpublished data). None of the initiatives were implemented in the main study settings, and the level of EPI involvement was not clear. The Integrated Community Development Initiative conducted a survey to create awareness related to routine vaccination and to counter false perceptions (unpublished data). Trust for Vaccines and Immunization and Precision Development Research and Advocacy Consultants assessed the feasibility and acceptability of vaccine indicator and reminder bands in slums (21). They also evaluated a single strategy for delivering injectable polio vaccine using maternal, neonatal, and child health services at scale in high-risk districts (22). None of the initiatives was implemented in the main study settings, and the level of EPI involvement was not clear.

Initiatives of academia and other research organizations

There were 17 different initiatives led by academia and other research organizations. They were mainly involved in high-level engagement, social mobilization, integrated health services, and demand generation. Researchers at the Aga Khan University gathered evidence on barriers to routine polio vaccination and two of these were in 1 of the main study settings (23–27). It was unclear whether national or provincial EPIs were involved in protocol design, methodology, and defining the research objectives, although the provincial EPI was engaged in disseminating the findings where applicable. Interactive Research and Development Pakistan was working on: vaccine reminders; tracker bracelets; car pooling to facilitate vaccination of children; artificial-intelligence-enabled vaccine chatbots that responded to the concerns of caregivers and parents about vaccination; electronic decision support systems for frontline healthcare providers; and the Kiran Sitaras Youth Engagement Programme (28). Interactive Research and Development Pakistan was closely involved in all the initiatives of the provincial EPIs, which were broadly implemented across Sindh Province. Community Information and Epidemiological Technologies assessed the effectiveness of evidence-based discussion of childhood vaccination uptake in Lasbela, Baluchistan (29). The initiative was not implemented in the main study settings, and the level of EPI involvement was not clear.

Discussion

The results of our study suggest that demand-side barriers are deep-rooted in communities, especially in

slum areas. These barriers affect sociocultural factors, service quality, and religious practice at household and community levels (30, 31). With low vaccination rates, robust tools and interventions are required to achieve universal coverage (7). EPI in Pakistan, with the support of Gavi and other partners such as WHO, UNICEF, civil society organizations, academia, and other private sector operators, is applying different strategies to generate demand for vaccination to tackle the identified challenges (8,12,15,32). However, such interventions if implemented without involvement of different stakeholders such as EPI, civil society organizations, and academia, and without understanding of the community needs, may result in failure. (33). The development and implementation of such interventions require understanding the population demand for vaccination, coordination of interventions, and collaboration with the local community (6,10), which are missing in the interventions in Pakistan. The global vaccination community has realized that top-down monologues have resulted in poor outcomes or have scalability and sustainability issues (7,33). Demand interventions are supposed to be people-centred, evidence-based, and socio-behavioural in design and implementation (34); however, this approach needs to be strengthened in Pakistan.

The research was originally focused on collecting data on demand-side barriers in just 4 urban slums in Karachi, but improved coordination and sharing of key findings led to more significant actions. These included the creation and documentation of a demand portfolio for demand-related interventions across Pakistan. Although the original research was conducted in a small setting, the portfolio has helped us to understand that demand-generation interventions require a more targeted approach with more in-depth knowledge of demand-related barriers in different areas.

One of the limitations to the creation of the demand-generation portfolio was the use of unpublished data, which may have introduced potential bias. The specific focus on Pakistan makes it difficult to generalize the results.

Contextual interventions are pertinent and synergy between different partners is important to create scalability and sustainability for implementation of successful interventions. National and perhaps provincial interagency coordination committees can play this pivotal role. National and provincial EPIs can use the strengths of different partner organizations to mobilize resources and to plan, implement and monitor demand-generation activities appropriately and address the demand-side barriers in a more effective way .

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Obstacles à la vaccination des enfants dans les bidonvilles urbains du Pakistan

Résumé

Contexte : Les bidonvilles urbains du Pakistan continuent à enregistrer une faible couverture vaccinale des enfants. Il est donc essentiel de comprendre les obstacles liés à la demande de vaccination des enfants dans les bidonvilles afin de déterminer les interventions requises pour générer la demande.

Objectifs : Documenter les obstacles liés à la demande de vaccination des enfants dans les bidonvilles urbains du Pakistan et recommander des interventions appropriées visant à générer la demande.

Méthodes : Nous avons étudié les obstacles liés à la demande de vaccination des enfants dans quatre bidonvilles urbains de Karachi (Pakistan) et diffusé les résultats au Programme élargi de vaccination (PEV) et à leurs partenaires. Sur la base de ces résultats, nous avons formulé des recommandations concernant la collaboration avec les différents partenaires et la mise en place d'interventions qui visent à générer la demande afin de lever les obstacles. Nous avons ensuite élargi la portée de la recherche initiale grâce à un exercice de cartographie qui a permis de rassembler des informations sur la recherche et les interventions des partenaires liées à la vaccination ainsi que d'utiliser les informations recueillies pour créer un portefeuille d'activités. Nous présentons les obstacles liés à la demande résultant de la recherche initiale et de l'ensemble d'interventions destinées à générer la demande.

Résultats : Selon les résultats de la recherche initiale, 412 enfants âgés de 12 à 23 mois (49,0 %) issus de 840 ménages étaient entièrement vaccinés. Les raisons invoquées pour ne pas recevoir les vaccins recommandés étaient principalement liées à la crainte des effets secondaires, aux influences sociales et religieuses, au manque de sensibilisation ainsi qu'aux idées fausses sur l'administration des vaccins. Le recensement des activités a mis en évidence 47 initiatives qui visaient à générer une demande de vaccination des enfants dans les bidonvilles urbains du Pakistan.

Conclusion : Plusieurs parties prenantes impliquées dans la vaccination des enfants dans les bidonvilles urbains du Pakistan agissent de manière indépendante, en mettant en œuvre des programmes qui sont déconnectés les uns des autres. Il est nécessaire que ces partenaires coordonnent et intègrent mieux les interventions de vaccination des enfants afin d'atteindre l'objectif de la couverture vaccinale universelle.

العقبات التي تعترض تلقيح الأطفال في الأحياء الحضرية الفقيرة في باكستان

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الخلاصة

الخلفية: لا تزال الأحياء الحضرية الفقيرة في باكستان تسجل انخفاضاً في التغطية بالتلقيح في مرحلة الطفولة. ومن ثم، يلزم فهم العقبات التي تعترض تلقيح الأطفال في الأحياء الفقيرة على جانب الطلب، وذلك لتحديد التدخلات المطلوبة على جانب الطلب.

الأهداف: هدفت هذه الدراسة إلى توثيق العقبات القائمة على جانب الطلب التي تعترض تلقيح الأطفال في الأحياء الحضرية الفقيرة في باكستان والتوصية بالتدخلات المناسبة على جانب الطلب.

طرق البحث: استقصينا العقبات القائمة على جانب الطلب التي تعترض تلقيح الأطفال في 4 أحياء حضرية فقيرة في كراتشي بباكستان، وأبلغنا النتائج إلى القائمين على البرنامج الموسع للتلقيح وشركائهم. واستناداً إلى النتائج، قدمنا توصيات بشأن التعاون مع مختلف الشركاء، وبشأن تصميم أنشطة لتوليد الطلب لإزالة هذه العقبات. ثم وسعنا نطاق البحث الأصلي من خلال إجراء عملية حصر جمعت من خلالها معلومات عن البحوث والتدخلات التي أجراها الشركاء بشأن التلقيح، واستخدمت المعلومات المجمعة لإنشاء حافظة من الأنشطة. ونعرض كلاً من العقبات القائمة على جانب الطلب التي توصلنا إليها من خلال البحث الأصلي، وحافظة أنشطة توليد الطلب.

النتائج: أظهر البحث الأصلي أن 412 (49.0%) طفلاً تتراوح أعمارهم بين 12 و 23 شهراً، من 840 أسرة، لُقِّحوا بالكامل. وكانت الأسباب التي سبقت لعدم تلقي التلقيحات الموصى بها تتعلق أساساً بالخوف من الآثار الجانبية، والتأثيرات الاجتماعية والدينية، ونقص الوعي، والمفاهيم الخاطئة

بشأن إعطاء اللقاحات. وكشفت عملية حصر الأنشطة عن 47 مبادرة تهدف إلى توليد الطلب على تلقيح الأطفال في الأحياء الحضرية الفقيرة في باكستان.

الاستنتاج: يعمل العديد من أصحاب المصلحة المعنيين بتلقيح الأطفال في الأحياء الحضرية الفقيرة في باكستان على نحو مستقل، إذ يديرون برامج منفصلة. وهناك حاجة إلى تحسين التنسيق والتكامل بين تدخلات تلقيح الأطفال التي يجريها هؤلاء الشركاء، من أجل تحقيق هدف التغطية الشاملة بالتلقيح.

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