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Research Article

Exploring Contextual Factors around Childhood Immunization in Lebanon at the Level of Primary Care: Barriers and Recommendations from Individuals Residing in Lebanon

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Abstract

The study delves into the complexities of immunization practices in Lebanon, identifying key barriers within a context of economic turmoil and healthcare challenges. Through a comprehensive analysis involving 240 participants across 24 Focus Group Discussions in 16 Primary Healthcare Centers, the research uncovers a nuanced understanding of healthcare utilization, with a particular focus on immunization-seeking behaviors. Notably, the findings reveal a positive disposition towards immunization, albeit with gender disparities in knowledge favoring females. The study highlights several impediments to vaccine uptake, including financial hurdles, scheduling conflicts, perceptions of service quality, and infection control concerns. To mitigate these barriers, the study proposes a set of targeted recommendations aimed at enhancing operational efficiency in Primary Healthcare Centers, bolstering male engagement in immunization initiatives, fostering collaboration among healthcare professionals, and amplifying efforts by the Ministry of Public Health to encourage vaccine acceptance. This strategic approach underscores the need for concerted efforts to improve immunization coverage and, consequently, public health outcomes in Lebanon, particularly considering the exacerbated challenges posed by the COVID-19 pandemic and ongoing vaccine shortages.

Keywords: Immunization; Health system; Primary care; Barriers; Facilitators; Lebanon

Abbreviations: EPI: National Expanded Program on Immunization; FGD: Focus Group Discussions; iNGO: International Non-governmental Organization; IRB: Institutional Review Board; LPS: Lebanese Pediatric Society; MoPH: Ministry of Public Health; PHC: Primary Healthcare; PHCC: Primary Healthcare Center; UNICEF: United Nations Children's Fund

Introduction

Lebanon is currently grappling with an unparalleled crisis, ranked among the top 10 globally and possibly within the top 3 for severity [1]. This crisis has resulted in the country's downgrade on the World Bank's socioeconomic scale from a middle to high-income nation to a low to middle-income status [2]. With the majority of the population relying on the private sector for healthcare services, particularly through out-of-pocket expenditure or private insurance schemes, access to essential healthcare has been significantly compromised [1]. This strain has been further exacerbated by the presence of approximately 1.5 million refugees in Lebanon, adding additional pressure to an already burdened healthcare system [3].

The National Expanded Program on Immunization (EPI), established in Lebanon in 1987 and currently managed by the Primary Health Care (PHC) department at the Ministry of Public Health (MoPH), plays a crucial role in delivering immunization services (4). Integrated into primary healthcare services across 303 PHC centers (PHCCs), around 50-60% of children in Lebanon receive their vaccines through the EPI, while the remainder are vaccinated in the private sector [4-6]. Recent efforts to improve national coverage include collaborations with the private sector through the Lebanese Pediatric Society (LPS), although participation among pediatricians remains low [4]. Notably, Lebanon has witnessed a decline in immunization coverage to only 67%, attributed to various factors including increased transportation costs [1].

Despite limited available studies, barriers to accessing care in PHCCs, including issues of availability, affordability, and misconceptions about PHC services, have been noted. In response, the MoPH is actively engaging in partnerships to enhance access, affordability, and quality of PHC services. However, a deeper understanding of contextual factors influencing PHC utilization is necessary. The current study seeks to address this gap by investigating enablers, barriers, and behaviors associated with PHC utilization and preventive services.

This research adopts an implementation-focused approach, aiming to bridge the gap between theory and practice by identifying challenges and offering evidence-based recommendations for improvement. Collaboration with the MoPH and UNICEF facilitates investigations into factors influencing PHCC healthcare-seeking behaviors, thereby contributing to informed decision-making, policy development, and program adjustments for continuous improvement.

This research stands out due to its implementation-focused approach, where it aims to bridge the gap between theory and practice, identifying challenges and providing evidence-based recommendations for improvement. In collaboration with the MoPH and UNICEF, this implementation research investigates factors that influence PHCC health care-seeking behaviors, areas for enhancement, and evidence-based strategies. This approach contributes to continuous improvement by identifying and addressing bottlenecks and inefficiencies, informing decision-making, policy development, and program adjustments.

This is the first qualitative national study that focuses on understanding the contextual factors around immunization-seeking behaviors. It aims at understanding knowledge, practices, barriers and recommendations as seen by individuals residing in Lebanon, whether they are beneficiaries or non-beneficiaries of the public primary healthcare system in Lebanon.

Methodology

Study Design

This is a national cross-sectional, qualitative study based on FGDs conducted between July and August 2023 with people residing in Lebanon. The study included beneficiaries visiting primary healthcare centers in Lebanon and non-beneficiaries that have never visited a primary healthcare center before. FGDs were conducted in randomly selected PHCCs across all governorates in Lebanon. PHCCs were selected using random number generation and selection from the PHCC list per governorate. For each governorate, two PHCCS were randomly selected, one supported PHCC and one not supported PHCC. A supported PHCC is defined as one receiving support from an international agency and a non-supported one does not receive such support. This approach aims to ensure the representation from different contexts when referring to PHCCs types and locations. The PHCC inclusion criteria was to (1) have a contract with the MoPH, (2) provide the five basic PHC services for a minimum of 3 years, and finally to (3) utilize PHENICS, which is the MoPH health information system.

A list of 297 PHCCs shared by MoPH through PHENICS was considered. Inclusion criteria included a MoPH contract, providing five basic PHC services for at least 3 years, and utilizing PHENICS. After applying criteria, 70 PHCCs were excluded, resulting in a final eligible list of 227 PHCCs. Random selection using Excel's feature was done, choosing one PHCC per

governorate. Validation against criteria identified and re-selected four PHCCs.

Sampling & Data Collection

A total of 24 FGDs were conducted across 16 PHCCs in 8 governorates. The target population included beneficiaries of all ages and nationalities, defined as those who are currently seeking care at PHCCs and have received at least one service within the past three months, as well as non-beneficiaries who do not utilize healthcare services at PHCCs. The sampling strategy ensured representation across various age categories, including parents with children under 18, pregnant women, recent mothers, adults, and older adults, including those receiving non-communicable diseases services. The sample size for each targeted population is summarized below in Table 1. Gender distribution was balanced, with one male and one female FGD conducted per governorate, selected randomly within each governorate. This resulted in an equal number of FGDs segregated by gender and PHCC supporting status (Figure 1).

Data Collection Instrument	Target Population	Sample Size	Characteristics
Focus Group Discussion (FGD)	Beneficiaries of different age groups and nationality that currently seek health services inside PHCCs	16 FGD with 10-12 participants in each (2 FGDs / governorate)	- 4 FGDs with males in supported PHCCs - 4 FGDs with males in non-supported PHCCs - 4 FGDs with females in supported PHCCs - 4 FGDs with females in non-supported PHCCs
	Citizens (>18 years old) residing in Lebanon that have never received a primary healthcare service in PHCCs	8 FGD with 10 - 12 participants in each: 1 in the catchment area of every selected supported PHCCs	- 4 FGDs with male non-users in supported PHCC - 4 FGDs with female non-users in supported PHCC

Table 1: Summary of data collection instruments in 16 selected PHCCs.

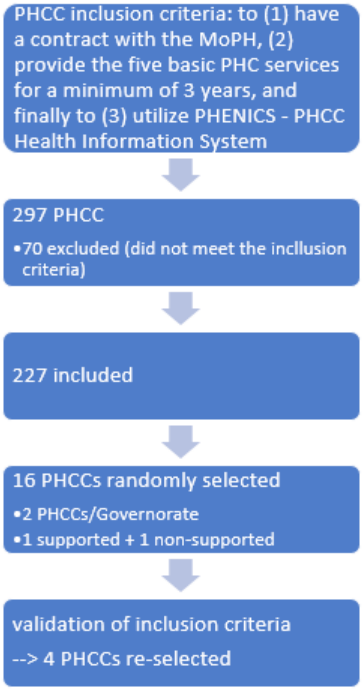

Figure 1: Summary of the selection of PHCCs in the study.

Beneficiary participants were randomly selected from the service lists of individuals who had received healthcare within the past three months at Primary Healthcare Centers (PHCCs). The research team assisted PHCC staff to conduct random selection of thirty beneficiaries, filtering for gender as necessary, with caregivers of selected children also invited to participate. To ensure confidentiality of the beneficiaries' names and contact information, the PHCC staff initiated the communication with the selected beneficiaries and invited them to the agreed-on dates and times of the FGD with the research team. On average, each FGD comprised 10 to 12 participants.

FGDs with non-beneficiary participants were conducted in supported PHCCs only due to the availability of their iNGO-supported outreach activities, which facilitated access to communities beyond regular service users. Participants were recruited by the outreach volunteers during routine outreach activities conducted in the catchment area of supported PHCCs and were invited to participate in the FGD conducted in the PHCC by the volunteers. The inclusion criteria of non-beneficiary participants were being above the age of 18 years old, residing within the catchment area of selected supported PHCCs, and had either never utilized PHCC services or had not done so within the past three years. One single-gender FGD was conducted per governorate in each selected supported PHCC, with gender selection randomized.

It is important to note that within each category of FGDs (Female-supported, female-not supported, male supported, male not supported), there was a mix of nationality distribution among the FGDs. Some FGDs had almost equal numbers of Lebanese and Syrian participants, while others consisted mostly of a single nationality group, be it Syrians or Lebanese. This distribution was purely a result of random beneficiary selection and attendance. However, this diverse grouping facilitated the generation of rich data where both nationalities had opportunities to express and share information in a comfortable environment.

Data Collection Tool

Focus Group Discussions (FGDs) were conducted following a guide that encouraged participants to share personal experiences and to gather data on the knowledge, attitudes, and practices of both beneficiaries and non-beneficiaries regarding primary healthcare services, including immunization. The discussions involved case scenarios spanning across different stages of the life cycle. Additionally, the FGDs addressed barriers and facilitators to receiving care, engaging participants in discussions about suggested solutions and recommendations to enhance health services. Facilitators used probes and prompts to guide discussions and invited participants to engage in activities and visual methods to reflect their views. Participants also expressed preferences and grievances about healthcare facilities and described their ideal primary healthcare facility, suggesting improvements in various aspects. This approach allowed for direct and indirect sharing of viewpoints and recommendations through interactive activities. Facilitators ensured active participation by structuring FGDs around visual, creative, and participatory methods. The FGD Guide was developed in English, translated into Arabic and back translated to English for accuracy.

Analysis

The FGDs were recorded and qualitatively analyzed using thematic analysis. The recordings were coded and entered on the FGD analysis framework. The interpretation of findings and suggestions were guided by the Ecological Model. Therefore, the themes were organized into five levels: Individual, Interpersonal, Institutional, Community, and Public Policy. This framework allows for a deeper exploration of the implementation component of the research and the interplay between these levels and the identification of gaps and areas for improvement.

Ethical Considerations

This research obtained approval from the International Review Board at Rafik Hariri University Hospital on July 13th, 2023. Participants had the option to withdraw at any time, with written informed consent taken from all participants. There were no direct risks or benefits to participants, but the research contributes to the MoPH's strategy and strengthens Lebanon's Primary Healthcare Network. Measures were taken to minimize discomfort during discussions. Additionally, non-beneficiary participants in our data collection activities were provided with information sheets on PHCC services to augment their understanding of Primary Healthcare and Primary Healthcare Centers.

Results

The findings presented in this article constitute a subset of results derived from a broader research endeavor aimed at strengthening primary healthcare in Lebanon and understanding the contextual factors and drivers to seeking primary healthcare services in Lebanon. The focus of this article is specifically on immunization, being one of the main essential services offered in primary healthcare centers.

Demographics

A total of 240 participants participated in the FGDs (168 beneficiaries and 72 non-beneficiaries). Average participation per FGD was 10 participants with the minimum being 6 and the maximum being 17 participants. Distribution by gender and nationality is presented in Table 2.

Demographics		N	%
Participant	Beneficiaries	168	70%
	Non-beneficiaries	72	30%
Gender	Males	110	46%
	Females	130	54%
Nationality	Lebanese	151	63%
	Syrian	85	35%
	Others	4	2%
PHCC Support Status	Supported	148	62%
	Not Supported	92	38%
Age	18-24	31	13%
	25-65	168	70%
	65-and above	41	17%

Table 2: Demographic characteristics of the participants.

Participants exhibited a wide range of characteristics, representing diverse demographics, economic backgrounds, occupations, and educational levels. The majority were parents, caregivers, or grandparents. Participants had children of varying ages, including those under 2, under 5, and under 18, with an average of 3 children per participant. The group also included pregnant women, students, newly married couples, and single individuals of various ages. The diverse participant distribution allowed for a wide range of perspectives and experiences to be considered, contributing to a more comprehensive understanding of the needs and perspectives of both beneficiaries and non-beneficiaries.

Knowledge and Attitudes towards Immunization

Immunization was the main and only preventive service actively sought by parents and caregivers. Majority of parents and caregivers expressed positive attitudes towards immunization and showed awareness towards its significance in preventing diseases and protecting their children. For instance, a Lebanese mother with five children stated that:

"The vaccines are so important and prevent diseases such as polio" (Lebanese mother of 5 children)

Interestingly, there was a significant variation in knowledge and awareness of immunization as a preventive service between genders, with females having more knowledge compared to males. No major differences were noticed across nationalities.

However, the most evident differences were noticed in knowledge and awareness between Females and Males. Females were much more aware with respect to immunization frequency, importance, and the process of seeking immunization. Some males reported that they didn't even know that it was required while others reported that it is not essential and is not needed. Two fathers, one with 2 children and another with one child reported not giving their children any vaccines and not believing in their importance.

"I did not give my 3 years old any vaccine, I don't think it is important" (Lebanese Father of one child)

"I don't see any need to give my child the vaccine" (Lebanese Father of 2 children)

Some of the male beneficiaries that were not parents and are not caregivers for children, were not aware of the importance and the availability of the vaccines inside the PHCCs. Concerns toward the effectiveness of the vaccines were only mentioned among the male participants.

Also, almost all female participants showed knowledge and awareness around the first vaccination visit and stressed on its importance. However, there was a variation in the knowledge of the entire immunization calendar. While the majority expressed knowledge and awareness that immunization continues beyond the early years of life, a minority expressed the belief that immunization loses its importance after a certain age, often around five years.

"We didn't know vaccines are important till the age of 18, we stopped at the age of 5" (Lebanese, Father to 3 children)

Only a minority reported on the importance of vaccines for adolescents while many did not report on its importance or even that it is a needed service.

"We didn't know vaccines are important till the age of 18, we stopped at the age of 5" (Lebanese, Father of three children)

Additionally, nearly all participants stressed on the importance of administering vaccines beyond those included in the national immunization calendar supported by the Ministry of Public Health. This was the second most reported on healthcare need by beneficiaries and the most recurrent recommendation when discussing preventive care. These extra vaccines were seen as a vital preventive measure to protect their children and participants seemed aware of the availability of such vaccines and their importance but reported on their cost in the private clinics as a major barrier against receiving them. A Lebanese mother of three children expressed:

"I didn't give my daughter the Rota vaccine (2 years ago) because it was very expensive, but then later she contracted Rota and we stayed for 2 weeks in the hospital. These vaccines are very important" (Lebanese Female, mother of 3 children).

Reported Immunization Practices

Among the group of participants, specifically among the beneficiaries, the majority reported being able to benefit from immunization services inside PHCCs even when dealing with some occasional barriers. However, even among PHCC beneficiaries, some still prefer to receive immunization services in the clinic of the private physicians. Reasons reported include more trust and the fear of the quality and the side effects of vaccines inside PHCCs.

As for the practices around the abidance by the immunization calendar and follow-up, some reported on their commitment towards ensuring that their children complete all the national calendar on time.

"The vaccines are so important and prevent diseases such as polio" (Syrian, Mother of 5 children)

"I vaccinate all of my 3 children inside this PHCC. The vaccines are free, and all vaccines are available. Also, the PHC do campaigns in our neighborhood, and they are very good" (Lebanese, Mother of 3 children)

Some beneficiaries reported gratitude toward the provision of Paracetamol after being provided the vaccines that encouraged them to come and seek the service, and others reported highly positive feelings towards nurses who remind them of their vaccines and conduct follow up calls.

On the other hand, some caregivers reported waiting until campaigns are conducted or until the child goes to school to take vaccines, especially those that are beyond the age of 2 years. It was evident that parents and caregivers rely more on these efforts to receive "booster doses". Also, as discussed above, some caregivers reported that these vaccines are less important or no longer needed. Also, interestingly, among the group of non-beneficiaries, 2 fathers reported that they have zero dose children and are resistant to immunizing their children.

As for non-beneficiary participants, they reported seeking vaccination for their children using various healthcare facilities and organizations. Their choice of where to visit depended on several factors, including their socioeconomic status, nationality, and place of residence. A significant number of non-beneficiaries, particularly among Lebanese participants, were unaware of the availability of essential vaccines within the national vaccination calendar at PHCCs and dispensaries. Those who were aware of their availability expressed conflicting views regarding their effectiveness, safety, and potential side effects. Some reported being influenced by their pediatricians in the private sector, who advised against taking these vaccines. For example, one mother reported:

"We know about their availability [of vaccines] at the centers, but the doctors at the private clinics always say that the vaccines that are provided by Ministry of Public Health have severe side effect, so we prefer to give our children vaccines at the private clinic since it's safer and do not have severe side effects" (Lebanese Mother)

Another father reported:

"MoPH vaccines have severe side effects" (Lebanese Father)

Among those who reported seeking immunization services, non-beneficiaries mentioned receiving vaccines primarily in private clinics for Lebanese individuals and in clinics within camps for Syrians. Other locations, for both nationalities, included government hospitals, national campaigns or at schools.

Challenges in Seeking Immunization Services at Primary Healthcare Centers

When discussing barriers to seek immunization services inside PHCCs, beneficiaries and non-beneficiaries reported on several barriers including conflicts in scheduling appointments, long waiting times, and communication barriers.

Clinical Encounter and Perceived Quality of Services

The perceived quality of services within PHCCs emerged as a significant barrier reported by both beneficiaries and non-beneficiaries. Negative past experiences and clinical encounters within PHCCs contributed to a prevailing negative perception of service quality. Instances were recounted where medical consultations lacked thorough physical examinations, with physicians often skipping essential diagnostic procedures. For example, a Syrian mother recounted her experience when seeking care for her child's cough: *"The doctor did not even sit the child on the chair, he did not listen to his lungs or anything, he said there is nothing wrong and [quickly] we finished."*

This perception was exacerbated by limited communication and explanation provided to patients, often leaving them feeling uninformed and dissatisfied with their consultation experience. Additionally, insufficient time allocated for each patient during consultations was a common concern, with beneficiaries reporting feeling rushed and inadequately attended to during their visits. Previous negative experiences were reported as main determinants of seeking PHCC services, whether curative or preventive, including immunization. Communication barriers and perceived discrimination based on nationality were also reported by both nationalities, impacting trust in the healthcare system.

Delays and Conflicts in Scheduling

Delays in scheduling vaccination appointments, conflicts with working hours, and appointments scheduled during school

hours were common barriers reported by participants. Participants reported on several instances of being sent back due to multi-dose vaccines and the refusal of the health staff of opening the vaccine vial if the number of children present does not match the number of vaccines in the vial

"My child is now 2 months late for his vaccine. Every time I go, they tell me there is not enough children. Eventually I had to pay transportation to go to another dispensary to give him the vaccine" (Lebanese mother)

Chaotic appointment scheduling processes, long waiting time, and unpredictable physician arrival times led to frustration and dissatisfaction among beneficiaries. Some beneficiaries reported being given unrealistic appointment times or experiencing delays in scheduling appointments, further compounded by long waiting times before receiving care.

PHCC Infrastructure

Concerns regarding infection prevention and control within PHCCs also acted as a barrier to seeking care. Participants expressed reservations about the cleanliness of PHCC facilities and the adequacy of infection control measures, raising doubts about the safety of seeking care in such environments.

Long waiting times and crowded waiting areas at PHCCs were perceived as additional barriers, with concerns about disease transmission heightened during the COVID-19 pandemic. Some caregivers also expressed anxiety about their healthy children being exposed to contagious diseases while waiting for vaccinations and suggested separate waiting rooms for healthy and sick children.

"Once during COVID, we came to the PHCC to take the vaccine, the following days we developed corona, we got infected in the waiting room" (Lebanese Mother)

Additionally, the absence of a breastfeeding room and support and encouragement of PHCC staff to breastfeeding moms were reported as barriers to new moms with young infants that might need to breastfeed especially when faced with long waiting time.

Financial Barriers

Financial constraints, including increased consultation fees and the cost of transportation to distant PHCCs, were identified as significant barriers to accessing care. Particularly, transportation costs and PHCC fees further hindered access to vaccination services for families with multiple children. Despite the availability of free vaccination services by nurses, parents and caregivers reported a preference for vaccinations to be administered by physicians over nurses, citing concerns about the thoroughness of physical exams conducted by nurses and the fear of undiagnosed symptoms leading to complications. While also highlighting the importance of routine check-ups during early childhood, many parents and caregivers expressed a preference for pediatricians to conduct physical examinations and address any concerns during vaccination visits.

"Maybe my child has a sore throat, and the nurse does not know, my child will have a fever the second day and I will think it is a vaccine side effect, it will go undiagnosed and untreated and lead to complications" (Lebanese mother of 4 children).

Discussion

This study is the first national qualitative study focusing on the parent's and caregivers' knowledge and attitudes around immunization and challenges faced when seeking the service at primary healthcare centers. As parents and caregivers play an essential role in the immunization of their children, it is important to understand their experiences when working towards enhancing immunization in Lebanon.

The results of this study showed generally good knowledge and positive attitudes towards immunization among participants, which included parents, caregivers, young adults, and older adults. Parents and caregivers recognized the importance of immunization as a major preventive service and the only preventive service being actively sought. As we noticed a general positive knowledge and attitudes towards immunization, with the minority exhibiting against it, we can assume that the drop in immunization coverage in Lebanon is due to the heightened barriers and challenges amidst the current situation in Lebanon rather than being a result to a shift in believes and misconceptions. The correlation between childhood immunization and chronic conditions or autism was not reported amongst our participants.

Interestingly, this study showed variations in knowledge and awareness across genders without any differences across nationalities. Females exhibited higher knowledge and awareness when compared to males and showed less susceptibility in believing misconceptions around childhood immunization. There are limited studies in the literature that explore disparities in knowledge and attitudes regarding gender. Our findings are consistent to one study in Saudi Arabia that showed that mothers were more aware of their children's immunization schedules when compared to their fathers [7] but goes against another one that showed no statically significant association between gender and vaccine hesitancy among parents in Saudi Arabia [8]. The remaining available research primarily focuses on HPV and COVID-19 vaccines rather than child immunization. Even within this limited scope, females tend to demonstrate greater knowledge and awareness compared to their male counterparts [9-11]. Considering that males, including father figures, typically wield significant influence in healthcare

decision-making, this can impact the immunization behaviors of their children. This influence was evident in our research findings. This goes in line with the results of a study in Nigeria, which found out that when women are the sole provider of the family or have decision-making power, it is associated with a higher likelihood of the child being fully immunized [12]. This implies that further efforts that should target males.

It is worth mentioning that even among the male group, negative attitudes and misconceptions were more prominent among non-beneficiaries, which might be linked to the lack of awareness and education that is usually conducted in the PHCCs and to the conflicting messages received by private physicians that implicates that MoPH vaccines are of negative quality and have major side effects. This was reflected in the literature that showed that private physicians recommend against receiving MoPH vaccines and advice parents to delay immunization due to financial barriers, even when available for free in PHCCs [4]. The lack of physician recommendation and reassurance intensifies the fear of side effects, both of which were major barriers against childhood immunization reported in our study and goes in line with available literature in Lebanon [7,13] and in the region on immunization, whether routine immunization [7,8,13,14] or influenza vaccine [15]. Physician recommendation was reported as the sole factor and most important player that overcomes misconceptions, vaccine hesitancy and fear of side effects in Lebanon [15].

Also, it was evident in our study that the urgency across parents and caregivers to immunize children and its respective importance decrease after a certain age, being age of 2 years for some and 5 years of age for others, while only minority reported on seeking the service for adolescents. This was mainly reported either due to having a wider time range to immunize the child, and while facing more barriers when seeking the service, caregivers tend to wait for campaigns or for schools to seek the service. On the other hand, it was common among some participants that the vaccine is no longer needed or important. This goes in line with other studies done in Lebanon [13] and signifies that further efforts needs to target older children and adolescents.

Moreover, barriers to receiving immunization services in PHCCs include financial constraints, past negative experiences, and inadequate communication, along with limited clinical encounters. The most frequently reported barriers occur at the operational level within PHCCs, including scheduling delays and complexities within the immunization process. When discussing financial barriers, transportation costs were most evident financial access barriers, which goes in line with previous literature in Lebanon [1,4]. Also, while noting that vaccines are provided free of charge in PHCCs, the increased cost of vaccines in the private sector coupled with the misconceptions discussed above around the quality of public vaccines act as a main barrier against childhood immunization. Also, it is important to mention that the immunization service is offered free of charge in PPHCCs when administered by the nurse, and the cost of it when administered by the physician, even when minimal, was reported as a financial barrier. This aligns with existing literature that details how caregivers often express dissatisfaction when healthcare workers other than their own physicians administer the vaccine [8]. Similarly, when parents or caregivers have a negative experience in the PHCCs, whether during a regular consultation or an immunization service, it influences future immunization practices. A positive physician encounter and proper communication were factors that were correlated with better immunization [7,15]. Finally, PHCC operational and infrastructure characteristics impose challenges in the vaccination process whether delays in the scheduling, long waiting time, crowded waiting rooms, lack of breastfeeding room and unsupportive healthcare workers with negative attitudes lacking proper communication skills all act as barriers and heightens the challenges when seeking immunization service. As a result, our study findings underscore the importance of focusing on improving the quality of services and the infrastructure of PHCCs for future initiatives aimed at enhancing immunization uptake and coverage.

Finally, participants provided recommendations to enhancing immunization in PHCCs at different levels. It is worth mentioning that recommendations reported by the participants were reflected throughout our study where our findings going in line with the recommendations that were suggested by the participants. Most of the recommendations were at the level of PHCC, whether infrastructure, or operational. Also, at a personal and interpersonal level, participants encouraged awareness and education efforts and reported on it as essential and beneficial. Finally, at the national and policy level, efforts should focus on enhancing awareness through campaigns and scaling up immunization services in the community and putting on policies that facilitate the immunization process, such as procuring single-dose vaccines, incorporating additional vaccine antigens like Hepatitis A into the national immunization calendar and to consider fully subsidizing immunization services offered by pediatricians to further improve accessibility and uptake. Implementing these recommendations at various levels can contribute to strengthening immunization services and improving public health outcomes in Lebanon.

Recommendations to Enhance Immunizations Services

Participants suggested recommendations at different level to enhance immunization in PHCCs, whether directly as solutions to discussed barriers or as PHCC characteristics when discussing the prefect PHCC activity. These recommendations are summarized below:

Personal/Interpersonal Level

- Enhance awareness and education efforts on:
- The quality of MoPH vaccines
- Importance of immunization after the age of 5
- Awareness efforts targeting men since they have a great impact on immunization seeking behaviour and the majority lack proper awareness on immunization

Primary Healthcare Operational Level

- Facilitate vaccination process by making vaccines available all the time and that includes efforts to:
- Prolong opening hours making them 9:00 am till 5:00 pm
- Open the center on Saturdays to provide immunization services
- Adhere to the given appointments to avoid long waiting time
- Dedicate a full-time nurse to the immunization service where she is readily available to vaccinate children whenever they come to avoid long waiting hours and to avoid sending children back
- For parents who do not trust the nurse, make a pediatrician available all the time in the PHCC, or a full-time equivalent
- Separate waiting rooms for "healthy" children seeking immunization services and "sick" children and make waiting rooms "Child friendly" with coloring books or toys to distract them while waiting
- Make available a breastfeeding room and offer support to breastfeeding mothers by encouraging them to use the breastfeeding room.

National & Policy Level

National efforts to enhance awareness and scale-up current campaigns that offer immunization services in the community. It was also recommended to procure single dose vaccines to avoid related barriers and to incorporate additional vaccine antigens in the national immunization calendar, namely Hepatitis A. Finally, at a policy level, to completely subsidize immunization services offered by pediatricians.

Strengths & Limitations

Being the first implementation research of its kind in Lebanon, and in the absence of a previous research on this topic, future research is recommended to ascertain the generalizability of the results. To our knowledge, this is the first study of its kind in Lebanon that explored qualitatively the point of views towards childhood immunization of individuals residing all over Lebanon. Given its qualitative nature, this study encounters inherent limitations. While facilitators maintained objectivity and encouraged the inclusive participation of all individuals, it is important to note that the study's outcomes relied on self-reported knowledge and attitudes from participants, thus the potential influence of social desirability could introduce a bias in the accuracy of the reported results.

Moreover, our implementation research acknowledges potential participant selection biases. Targeting non-beneficiaries through community health volunteers in the catchment area of supported PHCCs may have overlooked non-beneficiaries residing in the catchment areas of non-supported PHCCs, introducing a distinct contextual factor. Additionally, declines in participation, particularly among individuals with specific legal residence statuses in Lebanon, pose a limitation, as this population might not be adequately represented in the study. Furthermore, the study observed a lower participation rate among nationalities other than Lebanese and Syrians, potentially missing insights into populations benefiting from primary healthcare services in Lebanon. While the study covered all governorates in Lebanon, the selection of only two PHCCs per governorate may have overlooked certain contextual factors pertinent to districts not included in the study, particularly in governorates with large geographical areas.

Conclusion

In conclusion, targeting operational improvements within PHCCs is crucial for achieving comprehensive immunization coverage and bolstering implementation efforts in Lebanon. Additionally, campaigns must actively engage males and father figures, emphasizing the significance of vaccines throughout all stages of life beyond infancy. Moreover, enhancing physician collaboration and recommendations regarding childhood immunization, alongside promoting the uptake of MoPH vaccines, is imperative for maximizing immunization effectiveness and public health outcomes. These findings are in line with the recommendations provided by participants that focused on enhancing the immunization process.

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particularly International Medical Corps, Amel Association, and Relief International, for their support in recruiting non-beneficiary participants. Without the collective efforts of all those mentioned above, this research would not have been possible.

Disclosures

Authors' Contributions

All the authors contributed to the study design, data collection, analysis and write up of the manuscript.

Conflict of Interests

The authors declare no financial or non-financial interests that could be perceived as influencing the research, analysis, or interpretation of the presented work. This includes, but is not limited to, any commercial, personal, or academic affiliations that might pose a conflict of interest in connection with the submitted manuscript. The research is conducted with integrity and objectivity, solely for the purpose of contributing to scientific knowledge and public discourse.

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