

IDENTIFYING AND ADDRESSING SYSTEMIC BARRIERS TO IMMUNIZATION SCHEDULE COMPLETION IN MULTI-GENERATIONAL FAMILIES ATTENDING SAUDI PHC CLINICS: A PARTICIPATORY ACTION RESEARCH APPROACH

Dr Wasif Zamir Ahmed^{*1}, Dr Asif Fatah Abro², Khalid Faihan Ghazai Alotaibi³

^{*1}Registrar Public Health, Ministry of Health Riyadh KSA

²Resident Family Medicine, Alkharj Military Hospital KSA

³Male Nurse, Riyadh Cluster

^{*1}drwzmir@yahoo.com, ²drasif_aj@hotmail.com, ³o551616516@gmail.com

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Corresponding Author: *

Dr Wasif Zamir Ahmed

Abstract

The current action research is participatory and discussed the presence of systemic barriers to the attainment of immunization schedules in multi-generational families visiting Primary Health Care clinics in Saudi Arabia. A mixed method has been adopted by the researchers on six PHC clinics at Riyadh, Jeddah and Dammam, and have chosen 240 multi-generational families where immunization records are not up-to-date. These data collection methods included structured questionnaire, examining immunization records of 500 pediatric cases, semi-structured interview of 45 family members, focus group discussion of 60 participants and key informant interview of 45 healthcare providers. The collaborative barrier identification and culturally matched interventions formation state was reached through the assistance of three iterative PAR cycles consisting of 12 community workshops that allowed accessing families and healthcare professionals and engaging 35 community actors including religious and tribal leaders. The SPSS quantitative analysis revealed that a significant relationship existed between the attitudes and the generational attitudes as well as the family decision making hierarchies and compliance to vaccination. The thematic analysis showed that six major barriers exist, including cultural misconceptions, generation conflicts, inefficiency of healthcare systems, difficulties in appointing an appointment, poor health literacy and religious issues. The community-based interventions included those like Arabic educational materials, family-related counseling instructions, culturally related and Islamic-embracing communication arrangements. Conclusions have revealed that participatory interventions that take into account socio-cultural contexts make significant difference by enhancing the immunization rates which are evidence-based interventions Saudi healthcare systems can be empowered by adopting family-centered interventions that are culturally sensitive.

INTRODUCTION

Vaccination is one of the cheapest interventions in the area of public health which does not only

prevent millions of deaths among children annually but it is also largely involved in the

health security of the world (Argirova & Zlatareva, 2023). The Kingdom of Saudi Arabia has conducted one of the largest investments by developing comprehensive immunization programs through the recommendations of the World Health Organization as one of the biggest infrastructure developments that the Kingdom has conducted is the Primary Health Care infrastructure. Despite this effort, and despite the presence of free vaccination programs in every corner of the kingdom, the rates of compliance with the childhood vaccination programs are still not ideally high in certain areas and localities. These inequalities between availability of services and their actual realization is a grave issue to the health of the people at large and the mechanisms which lead to such a situation are not clearly understood (Alarifi et al., 2025). Saudi family system is multi-generational in which grandparents, parents, and extended family members are usually engaged in decision-making, in relation to healthcare, regarding children on their own. Even though this is a time-honored type of family structure which provides social support and the preservation of culture, it can also complicate the issue of healthcare decision-making (Alasiri & Mohammed, 2022). The various generations may hold varying beliefs towards vaccination ranging with their various educational levels, exposure to health facts, and perception of religious teachings. One should also understand the impact of such intergenerational dynamics on immunization adherence to provide a set of effective interventions that will not disrupt the cultural values but will enhance child health (Alfahad et al., 2024).

In Saudi Arabia that hosts diverse population with various levels of health literacy, language skills and cultural orientation, primary health care clinics are the best location in which the first line immunization services should be delivered. The medical staff in such facilities experiences multiple issues like language barrier, cultural sensitivities, time, and the need to address vaccine hesitancy because of misconception or religious problems (Thalib et al., 2024). The multi-generational families and healthcare system

offer a complex setting that might experience a set of systemic barriers that might occur as a result of various origins like service delivery systems, communication barriers, appointment systems, record-keeping systems, and cultural differences between medical protocols and family expectations (Nair et al., 2024). The literature available on the barriers to immunization among the Gulf Cooperation Council countries has focused more on the individual level, such as knowledge and attitudes of the parents, and minimal has been done as regards the systemic issues of healthcare provision, and the multi-generational level of decision-making (Alfouzan et al., 2022). In conventional ways of research conduction, communities are normally seen as passive rather than as actors of problem identification and problem-solving. Participatory Action Research offers an alternative paradigm as they will also accept the families and communities as the expert in their own lives and help to make a significant contribution and build the culturally acceptable and practical interventions (Algabbani et al., 2023). The immediate need that it was impossible to fulfil because of this research was to comprehend the barriers to immunization concurrently on multiple levels; the health care professionals, the young parents, the grandparents, and the community leaders and engage those stakeholders in the problem of solution creating and testing. The study determined that it was impossible to make enduring modifications to immunization coverage rates by merely establishing the barriers but also ensuring that the communities had a sense of ownership of the solutions and improve the relationship between the health care and the families served by the health care (Al-Eitan et al., 2025). Under the participatory approach, the study would offer to imagine the generation of applicable knowledge that would guide the development of the policy, enhancement of clinical practices and community health education strategies that are context-specific to Saudi (Alshahrani et al., 2024).

The selection of Riyadh, Jeddah, and Dammam as the location of the study provided the geographic diversification of Saudi Arabia that

includes the central, western, and eastern regions of it and each of them possesses its own demographic structure, urbanization patterns and trends of healthcare utilization. Such a multi-site design maximized the overall result generalizability, as well as allowed region-specific information, which can be used to guide interventions based on the locality. The research was conducted at a time when Saudi Arabia was experiencing massive healthcare transformation as per the vision 2030 targets to empower preventative healthcare services and improvement in healthcare outcomes among the whole population.

Research Objectives

1. To determine the systemic issues that influence the full immunization of schedules among the multi-generational families who visit PHC clinics in Saudi Arabia through participatory engagement with the families, healthcare providers, and the pertinent stakeholders within the communities.
2. To design and implement culturally competent family-based intervention interventions through iterative action participatory cycles defeating the perceived obstacles but which are consistent with the Saudi cultural values and Islamic ideas.
3. To examine the extent to which community-based interventions would promote the immunization coverage rate and improved bonds between healthcare systems and multi-generational families.

Research Questions

1. What are the systemic barriers, at the individual/personal, family, community, and healthcare system levels, that prevent the accomplishment of the childhood immunization schedules by multi-generational families at Saudi PHC clinics?
2. How do intergenerational processes, cultural values and religious interpretations play out in making decisions concerning vaccination among Saudi multi-generational families?
3. What participatory intervention strategies can effectively address the provided

barriers and boost the immunization completion rates without contravening the Saudi cultural contexts and family arrangements?

Significance of the Study

This research was of immense significance to the community health and practice as it provided evidence-based information on the immunization barriers surrounding the unique setting of the Saudi multi-generational families. There was also participatory approach that made communities active agents of healthcare change instead of passive consumers of services. Findings offered empirical recommendations about how PHC clinics might engage in family-based and culturally competent intensifying efforts on vaccination without disregarding and rejecting the traditional family systems. The study was a timely gap in health research on the Gulf region considering that it examined the systemic rather than individual-level factors providing policy makers with viable suggestions concerning how to improve the infrastructure of the Saudi Arabia immunization program and align the healthcare delivery with the health objectives of the Vision 2030.

LITERATURE REVIEW

Immunization against children is one of the pillars of preventive medicine, and the evidence on the efficacy of childhood immunization is enormous and can assist to reduce the effectiveness of morbidity and mortality due to vaccine-preventable diseases (Talbird et al., 2022). The World Health Organization through the Expanded Program on Immunization has done very well in the world, yet there is also much disparity between the different regions and the communities as well as where there are well-built healthcare centers. The description of these inequalities must include the multi-layered set of factors that extend beyond the vacuoles of the access to vaccines to comprise the features of the healthcare systems, socio-cultural environments, and family structures that precondition health-seeking behaviors (Baidya et al., 2025). Research on immunization barriers has mostly been conducted on an individual basis, particularly

parental knowledge, attitudes and beliefs. Studies conducted in numerous environments have established vaccine hesitancy as an increasing global trend, which is characterized by a delay in vaccine recognition or refusal despite availability. The underlying factors that motivate vaccine hesitancy are multifaceted, and they may involve fear of the vaccine safety, misinformation about the disease severity, pessimism towards the health care system or drug manufacturing companies, and religious and philosophical exemption. Namely, the concerns about the vaccine components, the potential contradiction with the religious faith, and the influence of the beliefs of traditional medicine on the usage of the contemporary healthcare have been reported in the context of the Middle East (Samara et al., 2025). The individualistic literature is inclined to ignore the role of families as social constructs in healthcare decision-making, particularly in the context of cultures, where the conceptual models of decision making are individualistic, and family behavior do not coincide with them (Al Ghafri et al., 2025).

The resulting multi-generational families, predominant in the Middle East and Asia, introduce a specific dynamic in the healthcare-related decision-making, which is only to be predicted poorly by Western-formulated models of health behavior. The grandparents tend to be very powerful in decision making in the family based on their life experience and systems of historical knowledge about matters that relate to the grandchildren (Sekimonyo, 2025). Research in South Asia and the Gulf has shown that whatever the attitude of the grandparents was towards vaccination; whether encouraging or not, it played a key role in influencing whether the grandchildren would be able to receive the advised immunizations or not. Such intergenerational forces can be positive because the elderly are demanding to receive medical attention, or can result in challenges when the cultural codes collide with the medical recommendations. The little literature examining these dynamics of Saudi situations can be considered a significant gap bearing in mind that the extended family setup is a core aspect of

Saudi society (Brian, 2025). The necessary category of immunization barrier which has attracted an increasing amount of literature is the factors of the healthcare system. Inconveniency of clinic hours, undue waiting time, bad appointment schedule, bad record keeping and missing linking of doses and poor reminders of follow-up vaccination have been found to be barriers to structure. There are also other provider-level problems like communication problems, cultural insensitivity, lack of time to educate the patient, and training in dealing with vaccine refusals, which contribute to the achievement of optimal immunization outcomes (Whittaker, 2022). Research on the Gulf Cooperation Council countries has documented language barriers to be exceptionally intense because the healthcare providers and patients are composed of a multicultural mix where neither the worker nor the consumer of health has a shared language that they can effectively communicate in health. The quality of provider-patient relationships with respect to the level of trust, respect and the effectiveness of information transfer has emerged as a significant predictor of immunization adherence in several settings (Alsubahi et al., 2024). The fact that culture and religion are also thought about assumes a rather insidious position in immunization literature, particularly, its approaches to most Muslim-majority populations. There were reports of problems with the composition of the vaccines, namely whether it has gelatin or pork-based elements, whether the vaccination would violate the religious beliefs in the divine will or natural immunity (Alsuwaidi et al., 2023). The Islamic academic community would concur on the application of vaccination as it does not conflict with the Islamic principles of saving lives and eradicating evil. The gap between the religious literature leaning towards vaccination and the lack of acceptance of the people within the communities regarding the issue of religion points to a lack of effective dissemination of official religious opinion to ordinary people. Religious motivation of vaccine hesitancy has been demonstrated to be effectively decreased using the help of trusted religious figures,

although there is no use of such involvement by most health service providers (Haw, 2024).

The issue of health literacy appears to be a frequent subject in the literature as a determinant of healthcare utilization, such as immunization adoption. Difficulties in obtaining information on schedules of immunization, the need to obtain vaccine on time, interpretation of health-related data, and workaround concerning medical care are the challenges faced by low health literacy populations (ZAIDI et al., 2025). The already low literacy levels of the less literate sections of the language in which the information is going to be conveyed in either Arabic or English are further discouraged in multi-lingual environment like Saudi Arabia. The intersection of health literacy and generational concern is particularly worth mentioning, as the old generations may be less educated than the young ones, and such gap in knowledge can influence it within the family (Martinez et al., 2022). The principle of the Participatory Action Research has gained popularity as a clearly applicable approach, particularly to the issue of addressing complex health concerns in the context of social and cultural surroundings. Unlike the paradigms of research used in the traditional research methods where researchers are considered as outsiders as experts, PAR considers community members as sources of knowledge and as part and parcel of the research processes. In literature, application of PAR in health settings is said to work well in identifying culturally relevant barriers, development of acceptable intervention and capacity building within the community in order to maintain health (Cornish et al., 2023). The cycles of reflection planning action and evaluation that are associated with PAR are also applicable to the quality improvement approach to healthcare and can offer a mechanism of continuous improvements of interventions based on the experience of their implementation. Despite its potential, the PAR is not utilized in health research projects in the Gulf region in a good way, which implies a chance to develop culturally-based evidence that will not breach the knowledge of the community and will be a part of the overall health goals of society (Pettican et

al., 2023). Reminder-recall systems, community health worker program, education, monetary incentive and healthcare system improvements have been some of the methods employed in the past to improve the rate of immunization. The systematic reviews are indicating the fact that the multi-component interventions that involve the multi-layered levels of barriers are more effective than the single-strategy ones (Dancis et al., 2023). In various cases, the interventions vary in applicability and what has worked in one group might not be effective in a different group with a different culture. This context-specificity underscores how formative research is important in the learning of the local obstacles before creating the interventions and participation method where people are engaged in the creation of solutions that are context-specific and not external programs created elsewhere (Ozer et al., 2022).

RESEARCH METHODOLOGY

Research Design

This study involved the use of the Partnership Action Research (PAR) to carry out research to identify and address the systemic barrier to immunization schedule among the multi-generational families visiting Primary Health Care (PHC) clinics in Saudi Arabia. This study involved qualitative and quantitative research so as to have complete knowledge and community-based solutions.

Study Setting and Sampling

The purposive sampling technique was applied in the study so as to choose six PHC clinics in three Saudi areas namely Riyadh, Jeddah as well as Dammam basing on the completeness rates of immunization, number of patients and social-demographic representation. The researcher employed the stratified random sampling with the selection of 240 multi-generational families (grandparent, parent, and children) with incomplete immunization histories through clinic registries.

Data Collection Methods

In the collection of data, there were various strategies. The researcher administered questionnaires that were structured to 240 representatives of families to identify the knowledge and attitude level and perceived barriers toward vaccination. The immunization records were investigated systematically to analyze the dropout and schedule completion rates in 500 sporadic cases of the young demographic of that age group. The investigation of cultural beliefs, barriers to access, and intergenerational factors to the decision to get vaccinations was done through semi-structured interviews of 45 family members. In addition to that, family processes, decision-making structures and community attitudes to immunization were examined in 8 focus group discussions of 60 respondents. The barriers to healthcare delivery in the system were established by key informant interviews that were conducted on healthcare providers including 20 physicians, 15 nurses, and 10 health educators.

Participatory Action Cycles.

Three processes were cyclic in the PAR model. The scholar assisted in 12 community workshops

where families and healthcare specialists defined the barriers together, developed context-specific intervention plans, and culturally-appropriate educational content in Arabic. The action planning sessions (n=35) included the community stakeholders who included religious leaders and tribal representatives to make the interventions based on the Saudi cultural values and Islamic teachings.

Data Analysis

The SPSS was used to statistically analyze quantitative data that assisted in establishing the relationships of the demographic variables, family structures, and immunization completion rates. The relationships between the generational attitudes and the vaccination adherence were tested by the chi-square tests. Interview and focus group data and workshop discussions were transcribed verbatim and where necessary, translated and analyzed using NVivo software, in theme to extract similar barriers, facilitators and solutions that were created by the community. The researcher conducted the triangulation of the different sources of data in order to ensure the validity and reliability of the systemic barriers identified as well as the proposed intervention.

RESULTS AND DATA ANALYSIS

QUANTITATIVE ANALYSIS

Table 1: Demographic Characteristics of Participating Families (n=240)

Characteristic	Frequency	Percentage
Family Structure		
Nuclear family	87	36.3%
Extended family (3 generations)	153	63.7%
Primary Decision Maker		
Mother	45	18.8%
Father	62	25.8%
Grandparents	98	40.8%
Joint decision	35	14.6%
Educational Level (Primary Caregiver)		
No formal education	43	17.9%
Primary/Secondary	102	42.5%
University/Higher	95	39.6%
Monthly Income (SAR)		

<5,000	58	24.2%
5,000-10,000	104	43.3%
>10,000	78	32.5%

The demographic analysis showed that 63.7% of the families involved in the study had extended family structures of three generations, which is a typical Saudi family structure. It is important to note that the grandparents became the major decision-makers about child health in 40.8% of families, which is far more than mothers and/or fathers, which shows the leading role played by older generations in healthcare choices. The education levels were different significantly

(17.9% primary caregivers had no formal education) and it might influence the health literacy and understanding of information. The distribution of income was concentrated on the middle-income group as 43.3% had middle-income of 5,000-10,000 SAR/month, which could indicate economic considerations as a contributing factor to the pattern of healthcare access.

Table 2: Immunization Completion Status and Dropout Patterns (n=500 children)

Immunization Status	Frequency	Percentage
Fully immunized (all doses on schedule)	142	28.4%
Partially immunized (missed 1-2 doses)	246	49.2%
Significantly incomplete (missed 3+ doses)	112	22.4%
Dropout Stage		
After birth dose	37	10.3%
After 2-month dose	98	27.4%
After 6-month dose	143	39.9%
After 12-month dose	80	22.4%
Reasons for Missed Appointments		
Child illness at appointment time	156	31.2%
Forgot appointment date	187	37.4%
Family travel/relocation	89	17.8%
Vaccine concerns/hesitancy	68	13.6%

The immunization completion study showed that merely 28.4 percent of children were fully vaccinated as per the recommended schedule, meaning that there was a lot to be done. Pattern of dropouts revealed critical phases, where 39.9 per cent of dropout was observed to happen beyond the six months dose implying that intervention plans must be particularly based on continuity beyond six months. The forgetting of

the date when the appointment was scheduled was the most common cause of missed appointments (37.4%), which means that the reminders are not effective. Illness in children during appointments time caused 31.2 percent of missed visits, which implies that some form of flexible rescheduling and education about vaccinating mildly sick children when medically suitable are required.

Table 3: Knowledge Scores and Attitudes Toward Immunization by Generation

Variable	Grandparents (n=153)	Parents (n=240)	p-value
Knowledge Score (Mean ± SD)	5.2 ± 2.1	7.8 ± 1.9	<0.001
Attitude: Vaccines are safe			
Agree	89 (58.2%)	201 (83.8%)	<0.001
Neutral	41 (26.8%)	28 (11.7%)	
Disagree	23 (15.0%)	11 (4.6%)	
Attitude: Natural immunity better			
Agree	67 (43.8%)	52 (21.7%)	<0.001
Neutral	48 (31.4%)	71 (29.6%)	
Disagree	38 (24.8%)	117 (48.8%)	
Trust in healthcare providers			
High	71 (46.4%)	162 (67.5%)	<0.001
Moderate	58 (37.9%)	63 (26.3%)	
Low	24 (15.7%)	15 (6.3%)	

There was a major generation gap in the knowledge and attitudes towards vaccinations. Parents were also found to score much higher on knowledge scores (7.8+1.9) than grandparents (5.2+2.1) which were less than the p-value of 0.001 and this is an indication that parents have been more exposed to modern health information. Although 83.8% of parents thought that vaccines were safe, only 58.2% of grandparents held the same opinion with 15%

being strongly opposed to this opinion. The perception that natural immunity is better as compared to vaccine-induced immunity was much more common among grandparents (43.8) than parents (21.7). The level of trust in healthcare providers was also significantly less in grandparents than in parents (46.4% of grandparents versus 67.5% of parents reported high trust levels).

Table 4: Healthcare System Barriers Reported by Participants

Barrier Type	Frequency	Percentage
Long waiting times (>2 hours)	198	82.5%
Inconvenient clinic hours	167	69.6%
Inadequate appointment reminders	211	87.9%
Language barriers with providers	134	55.8%
Insufficient time for questions	176	73.3%
Difficulty scheduling appointments	145	60.4%
Lack of culturally sensitive communication	123	51.3%
Poor coordination between healthcare visits	156	65.0%

The barriers in the healthcare systems were highly reported, and lacked proper appointment reminder systems became the most common problem (87.9%), which is directly related to a high percentage of forgotten appointments. The 82.5% of families experienced the effects of long waiting lines which was practical burden

especially to working parents or large families. The lack of time to consult (73.3) was a limiting factor as they were able to discuss vaccine issues and build trust. More than half of the participants (55.8%), indicated that language barriers were a problem because of the multicultural nature of Saudi Arabia healthcare

workforce in which the provider and patient might have no common language. The problem with cultural sensitivity in communication was also identified in 51.3 percent of the families,

and the provider training on culturally responsive care that takes into account the family structures and decision-making patterns is in place.

Table 5: Association Between Family Decision-Making Structure and Immunization Completion

Decision Maker	Complete Immunization	Incomplete Immunization	Chi-square	p-value
Mother primary	18 (40.0%)	27 (60.0%)		
Father primary	23 (37.1%)	39 (62.9%)		
Grandparents' primary	19 (19.4%)	79 (80.6%)	16.83	0.001
Joint decision	17 (48.6%)	18 (51.4%)		

The results of statistical analysis showed high levels of association between the structure of family decision making and immunization outcomes ($\chi^2=16.83$, $p=0.001$). The family backgrounds, in which grandparents acted as the main decision-makers, depicted the lowest completion rates (19.4%), in comparison with those, in which there were joint decision-making processes (48.6% completion). The result here indicates that the negative effect of immunization adherence is associated with decision-making power being concentrated in grandparents that had lower scores in vaccine knowledge and trust. In contrast, families that used collaborative decision-making methods were more successful, which implies that the intervention that could support intergenerational conversations and acceptance of joint decision-making could increase immunization rates without disrupting family values and the role of the elderly.

QUALITATIVE ANALYSIS

Theme 1: Intergenerational Knowledge Conflicts

The conflicts between the generations in the family were usually connected with the choice to be vaccinated or not, and the parents, who are younger, possessed more recent information about the health state of affairs, and grandparents previously had to follow their own attitude and traditional beliefs. Parents also reported frustrations of being told not to be vaccinated by the grandparents based on misplaced criticisms but the cultural dictum not to disrespect the authority of the older relatives in the family. Other grand parents did not disavow their

unformal education but demanded to make decisions basing on their life experience and general sense of wisdom. The examples of families who succeeded in overcoming these conflicts through respectful communication where the parents gave information about the child health and at the same time did not ignore the role of grandparents in the child rearing are few. Interesting in some of the effective communication strategies was the use of grandparents during the clinic visits and the intervention of the health workers on the issues in a culturally sensitive way that did not interfere with the elderly authority but provided the relevant information.

Theme 2: Religious Interpretation and Vaccine Acceptance

Religion considerations were brought into limelight, albeit with a vast disparity in the way the Islamic teachings were translated into meaning as far as vaccination was concerned. The ingredients of the vaccines were also subject to complaints that were not in line with the Islamic food laws particularly on gelatin or pork-based products. Others were also posing whether the vaccination was a show that they did not believe in God or tampering with His Will. However, a number of respondents on reaching religious thinkers or imams received a blunt answer whereby the vaccination did not in any way oppose the Islamic concepts of saving and not causing harm. The positive influence of the authority religious endorsements on acceptance was found to be significant on the level of families and it is possible that through the

assistance of the trusted religious leaders, religiously motivated reluctance can be easily overcome. The identified difference in religious understandings demands a routine flexible communication on the use of vaccines by religious leaders.

Theme 3: Lack of Trust in Healthcare Relationships

One of the main and often missing features of the interaction with healthcare that affected the intention to get vaccinated is trust. Families reported of having experiences where providers were seen to rush or disregard their concerns or fail to communicate in a language of their choice diminished their reliance on medical advice. Other participants also noted that they have had poor experiences in the past with medical services including misdiagnoses or medical errors that had led to a long-term mistrust toward medical advice which they also incorporate vaccination. The level of trust between healthcare providers with similar cultures or culture competence was much higher. Trust was facilitated by the continuity of care where the families had the same providers who were conversant with their history unlike care that was fragmented where providers were new. Empowerment of trust was a long process that was achieved by building relationships, respectful communication that considers family aspects and culture specific practice that recognizes family structures in making decisions.

Theme 4: Practice Access Barriers and Competing Priorities

Besides attitudinally barriers, there were also important practical barriers to immunization schedules, pointed out by the families. The employed parents were finding it problematic attending to appointments during normal clinic hours and had to take leave which some of them feared to request at intervals. Transportation hit families in the periphery areas especially those that lacked means of transport individually which made use of the transport system where young children were involved. Some childhood families were burdened with the burden of ensuring that

they help various kids to obtain healthcare care especially when they mix this with other family duties. Other mothers stated that the extended family fails to assist them to make their appointments since family members are not convinced of vaccinations, or simply because there are no people to help them with childcare when siblings accompany them to clinic visits. Though it is not directly related to the free vaccination offer, the economic pressures put conflicting priorities in which the need of the family members to be met urgently took precedence over preventive health practices that do not have any apparent short-term benefits.

Theme 5: Information Gaps and Misinformation Exposure

The families had large knowledge gaps regarding their knowledge on the vaccination schedules, the risks and dangers of the diseases and the safety of the vaccines, which were usually filled by misinformation of the informal sources. The social media was one of the most frequent sources of vaccine misinformation and the interviewees witnessed scary and unverified information about the harmful nature of vaccines shared in WhatsApp chats and Facebook pages of the groups. The other grandparents were making their choices based on information regarding years old or personal experience with vaccination that were not reflective of the current vaccine preparations and safety. Inadequate information provided by healthcare providers was a common occurrence during the vaccination since it was focused on how to administer the vaccinations, and not provide education to the families and leave the questions they have unanswered and prone to other sources of information. Simple education lapses existed since not all the families had the capacity to explain what sort of diseases are prevented by vaccines and why multiple doses needed to be implemented. Dissemination of adequate information required culturally appropriate, linguistically readable materials on common problems and myths that were being preempted.

Theme 6: Participatory Improvement of Empowerment

The participatory action research process per se yielded desirable results other than data collection. The families said that their presence in the workshops led to the increase in their awareness of the importance of immunization and the opportunity to use channels that would allow them to raise their concerns and benefit themselves with a respectful hearing by the medical practitioners in non-clinical zones. The healthcare providers reported that the workshops opened their eyes to the family perspectives and obstacles which they had not known previously gave them empathy and persistence to change their practice. The community stakeholders like religious leaders were pleased to be consulted and offer religious support which was authoritative to the families. The development of the learning resources was participatory and therefore enabled them to be culturally relevant and appropriate that the external developed materials did not have. It was heavily invested in solutions that were co-created by families and this means that through participation strategies, a feeling of ownership and sustainability is created. The iterative cycles allowed further refinement of the interventions basing on the experience of the implementation coming up with more and more effective and acceptable solutions.

DISCUSSION

Integration of quantitative and qualitative data demonstrated the existence of multi-generational Saudi families' barriers to immunization on multiple levels of manifestation and require an intricate intervention plan. Validity of grandparents as the influential force in the decision-making process in healthcare was confirmed by the demographic trends, whereas the knowledge and attitudes analysis confirmed the presence of the critical generation gaps between grandparents and grandchildren, which led to the appearance of the family conflicts with regard to vaccination. The dropout trends and the absent appointments were all directly linked to the barriers in the healthcare system including a weak reminder system and long waiting times.

The statistical correlation of grandparent primary decision-making with low completion rates as well as the qualitative data on the disputes between the intergenerational knowledge suggest that the family functioning should be intervened and not the parents. Cultural and religious matters favored the necessity to recruit trusted community and religious leaders in the promotion of vaccination and ensure that healthcare communication is culturally competent. The participatory process was found helpful in building trust, developing culturally relevant solutions and developing community ownership of health gains and merits increased use of participatory means in health programs in the Gulf region.

CONCLUSION

It was revealed that multi-level interventions are required to decrease the immunization coverage among Saudi multi-generational families because such population must manage knowledge gaps and family-related issues, health services barriers, and culture in parallel. The participatory action research approach proved to make the families the active participants and generated culturally based insights and solutions which otherwise would not have been gained using the traditional approaches to research. The outcomes have confirmed that grandparents play an important role in child health choices and intervention strategies cannot ignore the old generation and instead should find alternative method of involving the older generation. Improved healthcare systems include such aspects of improvement as strong reminder systems, extending clinic hours, and cultural competence training of the providers, which could be effectively introduced and may significantly influence it. The research provided evidence-based practice and policy improvement in line with the health objectives of Saudi Arabia in line with Vision 2030 without compromising the cultural values and the forms of family structures that the Saudi society holds dear.

RECOMMENDATIONS

The healthcare policy makers need to embrace family-based immunization policies that will respect and interact their multi-generational decision-making units but not the parents themselves. The PHC clinics will be recommended to come up with robust SMS-based appointment reminder schemes, extended clinic working hours to cater to the working families and save on waiting lines by coming up with improved schedules. The target areas of the provider training programs should be the cultural competence, effective communication with the multi-generational families, and addressing the phenomenon of vaccine hesitancy through a respectful dialogue. Development of formalization of partnerships with religious leaders should be done to ensure the uniformity and authoritative Islamic approvals of vaccination to communities through credible voices. The learning materials should be developed in a collaborative cooperation with communities in cordial Arabic which ought to address both the myths and cultural sensitivities. The future studies should look at the sustainability of the long term intervention of participatory intervention and also look at the scalability of such interventions in different locations of Saudi and different population.

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