



Understanding community health workers' activities in a community-based child health promotion project in Kyrgyzstan

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ARTICLE INFO

Keywords:

Community health worker (CHW)
Child health
Health promotion
Empowerment

ABSTRACT

Background: Community health workers (CHWs) have strong potential for conducting health initiatives in vulnerable countries. Their continuing activities are essential for positive outcomes. The purpose of this study is to understand CHW activities in Kyrgyzstan migrant villages and their impact on individuals and communities. **Methods:** This study used a mixed-method design. All active CHWs were invited to participate in the survey and the first reflection note regarding their experience and satisfaction with CHW activities. Respondents who agreed to participate in the second reflection notes wrote additional reflection notes. Participatory observational CHW activity report meeting data was collected for additional qualitative analysis. Quantitative data were analyzed using descriptive statistics, and qualitative data were analyzed thematically.

Results: CHWs started their activities with altruistic and personal motives, such as social recognition and knowledge acquisition. Job-related satisfaction after the activity tended to be high. After performing home visits and resident participatory events, they experienced intrinsic motivation, resource mobilization efforts, increased autonomy, and social recognition. Although the material rewards were small as volunteers, they recognized their positive impact on individuals and communities and gained pride and happiness.

Conclusions: CHWs participating in health promotion projects had training and CHW-nurse network activities and were gradually empowered in the process. When considering the sustainability of CHW activities, it is important to increase self-confidence and strengthen social recognition through empowerment.

1. Introduction

The major challenge to achieving health goals is the chronic shortage and unequal distribution of healthcare workers across the world and within countries, leading to gaps in healthcare service coverage (Asamani et al., 2019; WHO, 2020). Community health workers (CHWs) effectively address this challenge and strengthen primary and community healthcare systems (Lewin, Lehmann, & Perry, 2021).

The term CHW encompasses a diverse group of nonprofessional or paraprofessional community-based health workers that perform a wide range of roles and functions related to health promotion, healthcare delivery, and community development (Blanchard, Prost & Houweling, 2019). As interest in and recognition of CHWs as contributors to various public health and community-based healthcare settings has increased, there is an imperative need to explore and address the concerns and

challenges affecting CHWs' participation in community health programs.

Lessons from previous CHW programs provide evidence regarding the mechanism of the operational and tactical demand for CHW utilization, including the challenges affecting CHW retention (e.g., community recognition and training and supervision opportunities) or relinquishment (e.g., heavy workload and inadequate financial incentives) (Aron, Connolly, Ndambo, Nhlema, & Munyaneza, 2022; Musoke et al., 2022; Sanou et al., 2016). The qualitative studies conducted across multiple settings addressed personal experiences and CHWs' perspectives on the motivation (e.g., sense of empowerment and widening perspective) and challenges they face (e.g., poor integration into the formal health sectors, undervalued work, inadequate resources, and lack of career development opportunities) (Grossman-Kahn et al., 2018; Frantz, Johnson, Schopp, & Waggle, 2022; Derese, Moosa, &

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<https://doi.org/10.1016/j.evalprogplan.2023.102307>

Received 8 March 2021; Received in revised form 27 March 2022; Accepted 6 May 2023

Available online 9 May 2023

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Peersman, 2017).

A recent multi-country study on motivation and job satisfaction of CHWs from sub-Saharan Africa and South-east Asia provides insights for a more comprehensive understanding of CHWs rather than determining the gaps and differences between settings and populations (Bar-Zeev, Banke-Thomas, Olaniran, Madaj, & van den Broek, 2022). CHWs' roles and functions, program effectiveness, challenges, opportunities, structural competency, and personal growth may differ by the oriented and situational contexts of the CHW program. There is a need to address the context-specific issues affecting CHW programs.

In the migrant villages of Kyrgyzstan, a low-middle-income country in Central Asia, there are many children under the age of five in poor health. A health promotion project was recently implemented for this population (Kim, Shon, & Shin, 2020). One of the project strategies was CHW utilization, which tried to change the villagers' knowledge, attitudes, and practices regarding children's health. The strategy of CHW utilization was to empower CHWs and the villagers, a process of providing resources and opportunities to trust and depend, encourage, and support each other, and strengthen the power of others in relationships (Kanter, 1993). Recently, an empowerment project has been introduced that allows CHWs to do more advanced tasks, boost their motivation, and increase their capacity to help bridge existing health gaps (Philips Foundation team, 2021). Community residents also will be empowered through empowered CHWs. Empowering CHW should be planned for at the beginning of the project, and continuous monitoring is needed to determine performance as the project progresses.

The purpose of this study is to understand the CHW activities that introduced an empowerment program in Kyrgyzstan migrant villages and their impact on individuals and communities. This study will provide unique insight to better understand program-specific considerations in specific contexts for future CHW programs.

2. Background

2.1. The child health promotion project in a migrant community

Immigrants from Kyrgyzstan generally face poor living conditions and do not have access to public services in their new settlements (Eroglu, Özsari & Yüksel, 2016). Children are the most vulnerable group of migrants ((Markkula et al., 2018). The village launched the 'Bright Kyrgyzstan (BK)' project for children under five years old. This is a five-year stepwise community-based child health promotion initiative (Kim, Shon, & Shin, 2020) to enable nurturing care for the better health and development of children living in underserved migrant communities. Details of the project's scope and intervention design have been described elsewhere (Kim, Shon, & Shin, 2020). In this study, we introduce the experience of CHW activities in the last year of the five-year BK project.

The target areas 'Ak-Orgo' and 'Ak-Ordo' represented a particularly underserved area. These are the largest settlements of internal migrants located in the outskirts of the capital city, Bishkek, is where official support of urban planning and basic infrastructure is unavailable to meet community service demands. The allocation of healthcare resources is disproportionate in these areas compared to national ratios (World Bank, 2019).

2.2. CHW Empowerment Program

Power is the ability to complete work in an organization, and empowerment is the process of encouraging and supporting each other and providing resources and opportunities to enhance individual power (Kanter, 1993). A tailored approach and community involvement to foster trust, support, and acceptability were emphasized to develop the potential of CHWs working in Nigeria (CPED policy brief series, 2015). Based on such preceding projects, this study also set CHW empowerment as a core behavioral strategy. For CHW empowerment, training and

CHW-nurse network activity were activated. CHW-nurse network activities include sharing activity experience, support, encouragement, and peer-to-peer learning. These increase intrinsic motivation, self-confidence, self-determination, and have a positive impact on residents. The expected outcome of the empowerment program is increasing job satisfaction, personal and community empowerment, and increased autonomy and responsibility of CHWs and community residents (Fig. 1).

The training was conducted to acquire work-related information and skills via seminars on childhood nutrition and anemia and CHWs' roles, sanitation, helminth infection, and more. A total of two to eight hours of seminars were held for each course during the project, and CHWs participated in three to eight seminars depending on the situation. Through this training, CHWs familiarized themselves with hygiene concepts, nutrition management, and anemia prevention for childcare practices and home visits. In addition, CHWs learned how to report the results of home visits and use mobile-tele systems (MTS) for reporting (using WhatsApp). They fully mastered its use and they found it a convenient and easy means of reporting to and communicating with nurses.

The CHW-nurse network activity allowed CHWs and nurses to work together for home visits and information transfer. The enrolled CHWs were assigned to a unit of the CHW-nurse network, ensuring three to four CHWs and one nurse as a functional unit for providing community health service. One of the three to four CHWs was elected as a CHW leader in the functional unit. The nurse in each unit was in charge of training and supportive supervision for the assigned CHWs. The network held periodic meetings to reflect on their activities by sharing experiences, peer-to-peer learning, and discussion of the current child health issues and intensive training on specific topics. CHW leaders and nurses held periodic meetings and steering committees, and CHWs held monthly meeting with CHWs, and CHW activity report meetings with health professionals twice a year. CHWs shared their working experiences, revised their knowledge and skills, advocated for each other's positions, and supported one another.

3. Methods

3.1. Study design

This study used a mixed-method design. Quantitative data (job satisfaction) and qualitative data (reflection notes and participatory observation reports) were collected from July of 2019 to April of 2020.

3.2. Study participants and data collection

From July 1 to July 20, 2019, job-related satisfaction and the first reflection notes for CHWs' experiences were investigated for all 46 CHWs participating in the BK project in two migrant villages. The 46 currently active CHWs include 38 people remaining CHWs until December 2018 and an additional eight CHWs hired in January 2018. The questionnaire was printed out and delivered to all active CHWs through their leaders for collection. The survey and reflection note usually took about 20–30 min to complete.

In the second reflection note, 10 out of 46 active CHWs in April of 2020 were convenience-extracted. We included those who voluntarily agreed to participate in texts sent by the project managers. The reflection note was filled out by mobile phone using MTS over WhatsApp. The second reflection note compensated for the lack of results for two items (the reasons for continuing CHWs' activities despite difficulties and the impact of CHWs' activities on the community) in the first survey. This took 10–20 min to complete.

The CHW activity report meeting was held in July of 2019 to check the activities of CHWs with other CHWs and health care professionals. This meeting strengthened cooperation between nurses and CHWs and discussed current issues. Two researchers attended the meeting. In the participatory observation method, the observer directly participates in

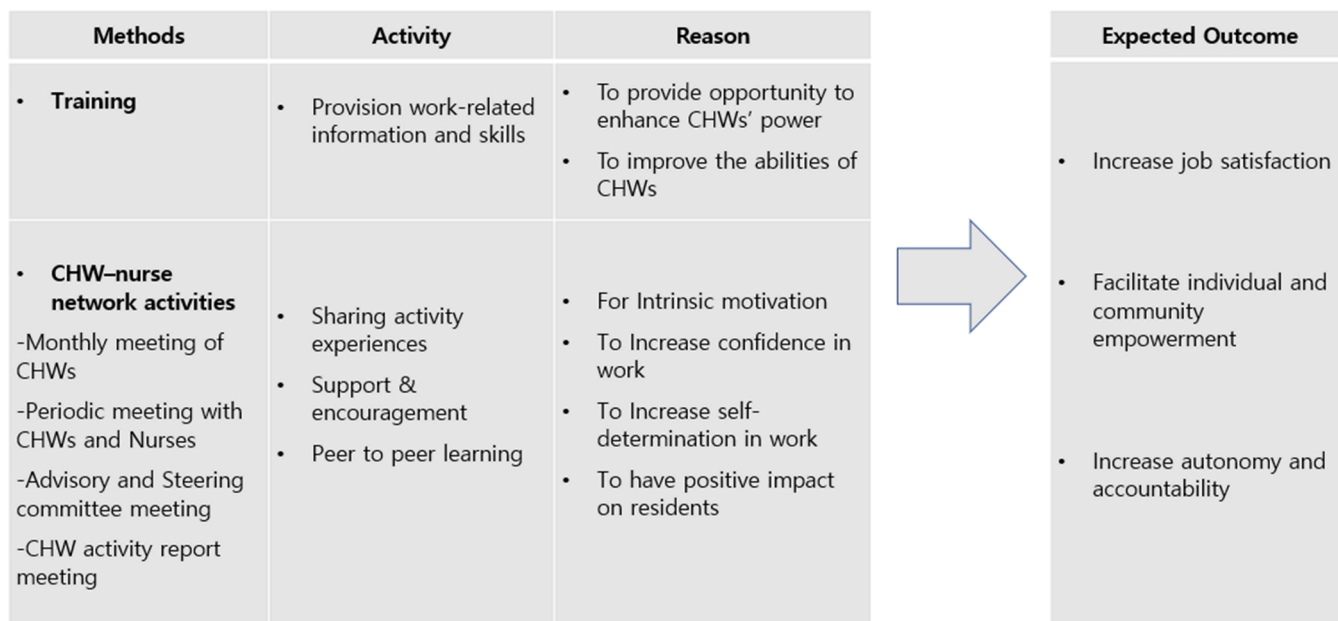


Fig. 1. CHW Empowerment Program.

the field and records the subject's actions and conversations while writing observation notes. Two attended researchers observed the meeting and asked questions as needed. The meeting, which lasted for about 90 min, was held to understand the experiences of the CHWs' activities and resident participatory events. In this study, we analyze the contents and experience of resident participatory events.

3.3. Study instruments and qualitative data questions

The job-related satisfaction instrument was comprised of 18 questions in Korean and generated through a literature review and discussion with the BK project team, health center nurses, and project directors. The questions evaluated the perception of supervision and support and the degree of job satisfaction. To confirm the validity of the constructed tool, two Korean nursing professors on the BK project team reviewed the questionnaire items. The constructed questionnaire was translated by a professional interpreter and a project director fluent in both Kyrgyzstan and Korean, and the BK project team confirmed the consistency of the translation and reverse translation. It was measured on a three-point Likert scale with three points indicating agreement and one point indicating disagreement; the higher the score, the higher the respondent's work satisfaction. The reliability of a total of 18 items was 0.793; however when four items with low reliability were excluded, it was 0.830. Analysis was performed with 14 items.

The reflection question measured "the motivation, the expectation, the difficulties of CHW activities, the reasons for continuing CHW activities despite difficulties, and the impact of CHW activities on individuals and communities". The presentation and discussion topics of the CHW activity report meeting were "the awareness and experiences of CHWs about the contents of resident participatory events, strengths and tasks of the events operation, and differences from the previous year."

3.4. Data analysis

General characteristics and job-related satisfaction were analyzed by descriptive statistics. The reflection notes written by the CHW were translated into Korean by a translator. After translation, two researchers thoroughly read the reflection notes and then categorized the semantic units by question and reclassified them to derive important sub-themes.

The researchers verified that the participants' opinions were well reflected and if the sub-theme and results interpretation were appropriate through mutual verification.

The contents of the participatory observation report were analyzed thematically. During the observation of the CHW activity report meeting, a translator was next to the researchers and explained the contents in Korean with simultaneous interpretation. Immediately after the meeting, the recorded material was transcribed into Kyrgyzstan and then translated into Korean by a translator fluent in both Kyrgyzstan and Korean. The meaning of the translated content was analyzed to derive the final sub-theme. To secure the credibility of this observational survey, we tried to observe intensively, recorded the participant observations and interviews in as much detail as possible, and asked questions about ambiguous content during the meeting.

3.5. Ethical considerations

We obtained IRB approval (KHSIRB-17-022) for the BK project, and the questionnaire was distributed only when the study purpose was fully explained to the CHW before data collection and if they voluntarily agreed to participate in the study. Participatory observers obtained permission from the meeting chairperson to participate and record the meeting. Collected data, such as questionnaire and recording results, were anonymized and all personally identifiable information was deleted before analysis. We explained that there would be no disadvantages to withdrawing from the study.

4. Results

4.1. Participants characteristics

As of 2019, a total of 46 people who completed the survey were active as CHWs, 23 in Akordo and 23 in Akorgo. Of all participants, eight were in their 20 s (17.4%), 17 in their 30 s (37.0%), 16 in their 40 s (34.8%), and five in their 50 s (10.6%). Among the participants, 11 (23.9%) had two children and 35 (76.1%) had three or more children. Regarding educational level, 16 people (30.4%) had a high school diploma or less and 32 people (69.6%) had a college degree or higher. For income, 28 (62.2%) people had a monthly income per household of 20,000 som (about USD 280) or less. For work experience, 16 people

(34.8%) had been active as a CHW for less than one year, and 16 (34.8%) for more than two years. The number of hours worked as CHW per week was 34 (65.2%) for less than three hours and 11 (24.4%) for four hours or more.

There were 10 people who wrote the secondary reflection note, one in their 20 s (10%), five in their 30 s (50%), and four in their 40 s (40%). As for the number of children, two (20%) had two children, three had three children (30%), and five (50%) had four or more. As for the period of CHW activity, three (30%) were less than one year, four (40%) were between one and two years, and three (30%) were more than two years.

A total of 70 people attended the CHW activity report meeting, and they were 46 CHWs, eight nurses, and four doctors in Akordo and Akorgo public health centers. There were five staff from the Ministry of Health, and five doctors from a higher-level hospital overseeing the public health center.

4.2. Job-related Satisfaction

The average score for job-related satisfaction was 2.72 ± 0.29 points out of 3 points; these statistics suggest an overall positive perception. Among the job satisfaction questions, 43 people (93.5%) agreed with the item that nurses help solve problems, and 42 people (81.3%) agreed that the project manager provides sufficient guidance. There are some items that no one disagrees with among all the items, and most of them was found that about 1–3 people did not agree. The highest items that showed dissatisfaction were that the nurse gave praise to 7 people (15.2%), and the project manager provided sufficient supplies to 7 people (15.2%). (Table 1).

4.3. Experience of community health workers' activities

The reflection note described the motivation for starting work, work expectations, difficulties while working, reasons for continuing to work despite difficulties, and how CHW activities impact individuals and

Table 1
Job-related Satisfaction N = 46.

	Disagree	Moderate	Agree
Perception of supervision	n(%)	n(%)	n(%)
The nurse helps me find solutions to problems related to my activities.	1 (2.1)	2(4.3)	43 (93.5)
The nurse helps me understand how to do my activities.	3(6.5)	5(10.9)	38 (82.6)
The nurse praised me when I performed my activities well.	7(15.2)	11(23.9)	28 (60.9)
When I made mistakes or could not perform well, the nurse helped me improve my skills.	2(4.3)	7(15.2)	37 (80.5)
Perception of support			
I feel well-informed about changes to program activities.		10(21.7)	36 (78.3)
The project manager/staff ensures that I have enough supplies to do my daily work.	7(15.2)	10(21.7)	29 (63.0)
The project manager/staff works with me to identify solutions to problems.	2(4.3)	7(15.2)	37 (80.4)
I feel that my supervisor is sympathetic to my concerns.		7(15.2)	39 (84.8)
The project manager/staff gives me enough guidance and structure to do my job.		4(8.7)	42 (91.3)
The project manager/staff takes my concerns into account.	2(4.3)	5(10.9)	39 (84.8)
Job Satisfaction			
I am generally satisfied with my work as a CHW.	1(2.2)	5(10.9)	40 (87.0)
I received enough training to work as a CHW.	2(4.3)	7(15.2)	37 (80.4)
People value our efforts.	2(4.3)	13(28.3)	31 (67.4)
The program management values my work.		13(28.3)	33 (71.7)
Total (mean ± SD)	2.72 ± 0.29		(range 1–3)

communities. Detailed sub-themes were derived for each question, as follows Table 2.

4.3.1. Motivation

CHW activities began with a desire to help village children, neighbors, and nurses. Since these regions are located in an area where many children have anemia, most participants were motivated to help the village children by educating their parents on the prevention and management of anemia. At the same time, since the goal of the BK project was to promote children's health, CHWs motivated to cooperate with the BK project and help neighbors and residents support children in receiving anemia tests and timely treatment.

"Kyrz' bright future depends on our children's health. I participated in this project because I wanted to care for and promote their health."

"I started working because I thought it was good for our region and I wanted to share the education I learned here with the whole of Kyrgyzstan."

Many participants wanted to learn about parenting and anemia management as most were mothers with anemic children. Beyond acquiring knowledge, it was good for them to work with residents. While communicating with them, they expressed their wish to be useful people in society. Some participants expressed their motivation for socialization as a housewife, as they wanted to be with the people of the community, rather than just performing household chores.

Table 2
The sub-themes of experience of CHW activities.

Question	Sub-themes
Motivation for CHW activities	<ul style="list-style-type: none"> • Child Health promotion • Helping neighbors, countries, and the BK project • Helping nurses • Acquiring the right information and skills • Practical learning about anemia management • Contributing to the harmony of communities through communication
Expectations from participating in CHW activities	<ul style="list-style-type: none"> • Creating a bright future through child health promotion • Delivering information and improving awareness • Satisfying the desire to learn • Continuing the BK project • Facility installation and wage compensation
Difficulties in CHW activities	<ul style="list-style-type: none"> • Residents' misunderstandings and concerns • The difficulty of making home visits • Lack of facilities and resources • Lack of wage compensation • Regret for colleagues who were eliminated in the middle of the BK project
Reasons for continuing with CHW activities despite difficulties	<ul style="list-style-type: none"> • Positive changes in residents • Happiness • Acquisition of information and educational opportunities
Impact of CHW activities on individuals	<ul style="list-style-type: none"> • Helps parents, nurses, and village residents through information and knowledge transfer • Pride and happiness • Acquiring information through education • Applying learning in real-life • Accumulating knowledge and improving awareness
Impact of CHW activities on communities	<ul style="list-style-type: none"> • Communicating with residents • Decrease the number of children with anemia • Ensure children's healthy growth and development • Regional development • Knowledge improvement and attitude changes among residents • The closeness between residents and cooperation between nurses and residents

4.3.2. Expectations

During this project, CHWs hoped that by participating in CHW activities, they could become needed in the village and contribute to a bright future. They hoped that the BK project would continue and that the activity expenses would be paid for.

"I hope that the number of children with anemia decreases, the number of healthy children increases, fewer children come to the public health center, and more children get smarter. Only then will there be more people who can contribute to the future development of Kyrz and our future will be brighter."

"I look forward to being someone who is able to correctly convey information on various aspects like nutrition, anemia, and parasite prevention to parents. I hope to teach what I have learned widely with my fellow CHWs."

"I have received awards as a community health worker in the past and I hope to receive them again. Praising my efforts seems to motivate me. I look forward to receiving a bonus or wages, even a small amount."

"This project is very useful and interesting. I hope it does not end in this year as I want to extend it further."

4.3.3. Difficulties in CHW activities

CHW experienced misunderstandings, concerns, and devaluation from residents

"Some people were not accepting or understanding of this project. In some cases, when I visited their home, the family members bluntly asked me why I had come into their home when they did not want me there."

"I am working hard for the residents but my heart drops when residents do not value this work."

"I was frustrated when someone told me to quit as a CHW because they thought the project team was gathering information from our children for their own benefit rather than for our children's health."

CHWs also had some difficulties carrying out home visits, including bad weather, inconveniences of revisiting, and the families' dissatisfaction.

"When the weather was cold, I was also cold. There was a day when it suddenly rained after a home visit and I came home late; my husband was very upset."

One difficulty was the lack of confidence in whether the knowledge or information delivered through home visits was correct, but this improved over time.

"There were many things that I did not know about health-related information that I was asked by residents when visiting their homes. The information took time to master even though my education was progressing. Initially, I asked the nurse, but after that, as my health education continued, my knowledge of the information I had to convey increased."

Another obstacle was the time, resources, space, manpower, and wages associated with CHWs' activities. Due to these shortages, some withdrawals occurred in the middle of the program. Due to these withdrawals, some CHWs were agitated and expressed regret that they could not continue working together.

"When co-workers quit this activity, I felt frustrated and regretted that the colleague could not continue working until the end."

"My husband told me unpleasantly that I was doing a job without a salary. There is a disadvantage of lacking a budget in this project. If possible, I would want a salary."

"Home visits took more time than expected, thus reducing the time I could spend taking care of the housework."

4.3.4. Continuing CHW activities despite difficulties

The three sub-themes that were derived for continuing CHW activities despite difficulties were positive changes in residents, happiness, and the acquisition of information and educational opportunities. At the start of the project, it was difficult for some CHWs to engage in activities; however, over time, residents' attitudes and children's health changed positively. Learning useful information through education was a key point for continuing their work. CHWs reported enjoying working with children and feeling happy about interacting with people.

"It wasn't easy to work with the residents of our village. I heard various words of skepticism until I gained the residents' trust, but in the end, I started hearing words of gratitude about our work, which encouraged me to continue working."

"I was delighted to see children with anemia improve their hemoglobin levels and become healthier."

"Every time I went to meetings, I was able to discuss interesting topics and expected that it would be fun again the next time, so I was able to work continuously. I got good results by being constantly active."

"I thought that the CHW work was a little uncomfortable, but I didn't think it was particularly difficult. Rather, it was fun and offered an opportunity to get acquainted with a lot of people, and I was able to work continuously because I could help my village."

"Being active as a CHW required a lot of time and effort as a child's mother, and there were many aspects that required family sacrifices, but the reason why I worked so hard was to help make my children healthier through this project. Furthermore, it was greatly significant that I could play a part in promoting the health of Kyrgyzstan's children."

4.3.5. Impact of CHW activities on individuals

After activities, CHWs had a positive impact on gaining information and knowledge through education, communicating with the local community, helping others, and finding confidence and happiness. In addition to obtaining and applying information and applying it in real-life, knowledge accumulation and improvements in awareness. Being able to communicate intimately with neighbors was also a meaningful personal achievement.

"It was rewarding for me when a mother told me that my information about nutrition and hand-washing had helped her child's health. It was also a pleasure to see residents return to events after participating in parental education or child nurturing events conducted by CHWs."

"I shared the information I had learned with my husband, children, and relatives. All the education I learned was necessary and beneficial. It seems that the parents in the migrant village were getting the information they did not know through CHWs. I'm proud to think that I played an important role."

"I liked to inform and communicate with the residents about what events or things are going on in the project. It was fun to spend a lot of time with children and make them happy by conducting various events."

4.3.6. Impact of CHW activities on communities

The community impact of CHW activities ensures healthy growth and development, including fewer children with anemia. These activities also change residents' attitudes, including improving their

knowledge and increasing the relationships and cooperation between them.

"The number of children with anemia decreased, and the residents are starting to pay attention to nutrition and hygiene, which they did not care about before."

"When we first started our activity three years ago, there was distrust in us, and the residents did not follow the information we communicated, but after conducting health education for residents, the residents came to believe in the research team and CHWs."

CHWs' home visits and events strengthened residents' intimacy and cooperation with residents and various projects for children based on the child health promotion center influenced regional development.

"The parents have become familiar with the health center nurses, become friendly with the residents, and cooperate brightly; therefore, I feel that the development of our region is also improving."

4.4. Experience related to the operation of resident participatory events

At the CHW activity report meeting, the chairman of the steering committee announced the progress of the resident participatory event. The CHWs then presented their experiences and shared their opinions regarding resident participatory events. The right to speak and participate was equally given to the attending CHWs and nurses. The 2019 resident participatory events announced by the chairman can be broadly classified into health advocacy and resource mobilization efforts (Table 3). The child health promotions center was created for resource mobilization, and events were carried out to promote the health of children and residents. A felt book (kids activity book made of fabric) was made and sold for seed money for resident participatory events. CHWs were appointed as 'OKZ (formal community leaders)' and empowered as human resources within the community.

An analysis of the opinions presented during the meeting revealed four sub-themes of the resident participatory events experience.

4.4.1. Self-directed event participation

At the beginning of the project, resident participatory events were planned and carried out by the project team. As CHW were trained, the events were planned and carried out via CHW-centered initiatives.

"Last year, the project team gave us a tip, but this year we took the initiative, and the response was as good as last year."

"The 'parent movie night' and 'good parenting movement' were led by our CHWs, and the village residents participated in a successful completion."

4.4.2. Activities that reflect resident needs

Various health advocacy activities were conducted to reflect residents' needs.

"We planned the program by checking with the residents what needs to be improved about last year's 'children's day event', 'family walking day', and 'health week.'"

4.4.3. Community resource utilization and fundraising

As the demand for activities to promote children's health in the community increased, the physical space needed to be expanded. CHWs devised a plan to raise funds for a 'children's health promotion center'.

"The BK project team helped to build the 'children's health promotion center' at the Akordo Health Center. Our CHWs made full use of the center. For example, we operated a small library by donating books, and an amusement school to promote children's development. Children and mothers using the center found it useful, but it

Table 3
Resident Participatory Events and Sub-theme of the Experience.

	Activity	Sub-theme	
Health advocacy	- Health fair : Children health promotion campaign booth : Children's health check-up : Education about children's health : Provide poster and leaflet about children's health and the project	<ul style="list-style-type: none"> ● Self-directed event participation ● Activities that reflect residents needs ● Community resource utilization and fundraising ● Recognized as the village's public leader 	
	- Health contest : Health activity awards : Writing an essay about health : Drawing about health : Exhibition of essays and pictures		
	- Good parenting movement : Improving awareness of child health and family dynamics		
	- Children's day event : Improving awareness about children's rights and promoting health		
	- Family working day : Involve all family members in the promotion and engagement of child health and good parenting methods		
	- Health week : Emphasizing child health through community and school activities		
	- Parent movie night : Watching a movie about parenting and discussing concerns with an expert		
	- Operation of the child health promotions center by a parent leader : Children's library : Playschool for children under the age of five		
	- Produce a felt book (kids activity book made of fabric) and supportive community leader activity		
	- Selected as OKZ, a government-appointed community leader		
	Resource mobilization		

was a pity that only a limited people were available due to the small space."

"There was a need for a cost for activities for children. There was an opinion that the felt book should be produced and sold to prepare it, so a sewing machine and materials were provided at the children's health promotion center and a few CHWs started to produce it. It's still in the early stages, so it hasn't sold a lot, but we expect it to be of some help as a fund for resident participation activities."

4.4.4. Recognized as the village's public leader

The CHW leaders who have been trained for the three years of the project have been recognized by the government for their activities and have been appointed as OKZ, a government-designated community leader. They disseminate information regarding their activities to the government and other communities.

"As I and some CHWs worked hard on the BK project, we were awarded the honorary title of OKZ. We are all proud and our family is also proud of it."

"I worked hard even without this title, but receiving this title gave me a sense of responsibility, which made me think that I should work harder in health projects for villagers."

5. Discussion

Repositioning lay-community people as healthcare providers in the community-level healthcare system has been widely implemented in resource-constrained settings to strengthen the autonomy of resource mobilization for the equitable delivery of effective healthcare interventions (Blanchard, Prost, & Houweling, 2019). Understanding the unique characteristics of the projects in the context of various CHW activities and how their capabilities are strengthened will be important when conducting projects under similar conditions.

Positive CHW program outcomes are influenced by empowering factors such as community members' program ownership, positive relationships with CHW, support supervision, and continuing education. (Scott et al., 2018). The empowerment of CHWs is essential to effectively fulfilling their role as health promoters (Kane et al., 2016). Shrestha presented a conceptual model for the empowerment of female CHWs and argued that only when empowered can they bring about sustainable change and improve the health outcomes of the communities they serve (Shrestha, 2003).

The BK project provided a CHW empowerment program and strengthened the CHW-nurse network activities with training. It included support, encouragement, and peer-to-peer learning, which inspire CHWs (Das, Gopalan, & Mohanty, 2012). Especially, the CHW nurse network activity was intended to revitalize the motivation to help villages through a sense of responsibility and mutual support while sharing activity experiences.

At the individual level, CHWs were motivated by the altruistic mindset of "helping others." CHWs who worked for child health promotion programs reported that it was important for them to be meaningful people making efforts to "help" specific people. Many studies in low- or middle-income countries concluded that "helping someone" was the most important motivational factor for CHWs (Brunie et al., 2014; Rabbani et al., 2016). In this study, the job-related satisfaction score was 2.72 out of 3, indicating high satisfaction. CHWs' consciousness of benefiting the community, along with the respect and recognition gained from the village, may result in happiness and job satisfaction. Also, as with previous results, they gained confidence and happiness in realizing social responsibility through CHW activities (Gopalan et al., 2012).

As a result of observations at report meetings, CHWs voluntarily participated in and conducted village events by reflecting the needs of residents. They also made efforts to utilize resources and raise funds on their own. After performing a health project in an underdeveloped country, the villagers are encouraged to run the project independently as an exit strategy before the project is closed. In this project, in 2019, the end of the project, the CHWs reported a sense of self-confidence and autonomy compared to the previous year. The active participation of villagers in events may be a developmental result of the exit strategy.

CHWs were able to align project goals with the community and provide good outcomes through the planning and operation of resident participatory events (Strachan et al., 2015). These results support the evidence that CHW can promote civic engagement, community conditions, and organizational capacity to influence policy (Sabo et al., 2017). The close relationship between CHWs and residents is a strength of this CHW program; therefore, program planners should consider how to promote this relationship while providing adequate support. CHWs need to strengthen their social leadership skills along with their knowledge (Bruchhausen, Falkenberg, Saxena, Memon, & Yasobant 2021). In previous research, CHWs acting as intermediaries has resulted in the prioritization of these factors (Ingram et al., 2016; Schneider, & Nxumalo, 2017).

CHW had a strong motivation to raise healthy children and families and a desire to gain social recognition. Community recognition has been a major incentive in all countries (Musabyimana et al., 2018); however, social recognition is not the only reward. Adequate financial compensation is also an important component of any sustainable activity (Sanou

et al., 2016). A study reported that although CHWs were satisfied with community recognition and appreciation, both monetary and non-monetary incentives were important for them as well (Abbey et al., 2014). In our study, the lack of wage compensation was derived as a sub-theme for the difficulties they faced, but positive changes among residents and the acquisition of information and educational opportunities were the sub-themes for continuing work. Until now, CHWs were considered an easy, inexpensive resource, and allotted funds were insufficient (Alderman, Coates, Puett, & Sadler, 2015). It is necessary to properly understand the value of CHWs and to use them efficiently by allocating adequate compensation and resources.

In the BK project, CHW gained community recognition over time. Their activities were recognized as exemplary and they gained authority from OKZ, an official community leader composed of men and elders. By appointing female OKZ as the village leader, the CHW became more empowered and active. This was well received by the residents who initially opposed it, and the number of residents who wanted to become a CHW increased. Thus, empowering migrant local housewives without job opportunities as OKZs and engaging them in community-leading activities could be a sustainable model for community health care (Willis-Shattuck et al., 2008).

The CHWs' positive attitudes can be enhanced through predictable incentives, frequent supervision and support, and ongoing training. The steering committee and CHW activity report meeting are part of the continuous supervision and support. Among the participants, public officials from the ministry of health were included to review the project activities and seek national-level solutions. It is necessary to identify the experiences and requirements of CHW through periodic meetings for policy reflection (WHO, 2007). Policymakers and project managers should consider CHWs as effective changers that require continued technical support, motivation, and training.

At the policy level, it is necessary to shift the paradigm of the CHW program design to one that stresses self-help and participation. This can be achieved through empowering CHWs or local community members. Governments and other stakeholders should listen to the voice and experiences of CHWs to shape sustainable solutions to complex community health needs.

It is difficult to find a causal relationship between autonomous and proactive activity participation and the CHW empowerment program, but it can be inferred that the relevance is sufficient. Although this study investigated perceptions based on only CHW experiences, future studies should focus on the dynamics of the health care system and resident responses.

6. Lessons learned

In this study, we investigated the experience of the activities of CHWs applying an empowerment program. For a CHW to act independently and responsibly, it is important to strengthen the motivation and support among colleagues and acquire the necessary knowledge and skills training. Women who participated in an empowerment program and acted as village CHWs had increased pride in the child promotion activities, a positive impact on individuals and communities, and induced residents' active participation. Thus, CHWs are an effective workforce for improving knowledge, attitudes, and practices that result in better health. Such an empowering community volunteer model must be adapted to the local context. Although job-related satisfaction of CHWs tends to be good, they require adequate compensation and continued recognition. Managing these presents a community challenge.

7. Conclusions

CHWs who participated in health promotion projects in migrant villages in Kyrgyzstan were motivated to help residents and villages, promote children's health, receive social recognition, and gain knowledge and skills. Their activities were coordinated through training and

CHW nurse network activity, and they were empowered gradually in the process. CHWs held resident participatory events to promote children's health and encouraged resident participation to change their attitudes and promote village development. They were able to continue their activities because they acquired information and opportunities, effected positive changes in residents, and were happy.

Although the material rewards for volunteers were small, they recognized that they positively influenced individuals and communities, and as a result gained confidence and happiness. Increasing confidence and strengthening social recognition via empowerment are important when considering the sustainability of CHWs' activities.

Funding sources

This research was supported by Korea International Cooperation Agency (KOICA)(Grant No: 2017-047) and performed by the Global Korean Nursing Foundation (GKNF) & Kyung Hee University.

CRedit authorship contribution statement

Hyunsook Shin: Fund raising, Conceptualization, Supervision, **Soonyoung Shon:** Data collection, Writing – original draft preparation. **Hyerang Kim:** Writing – original draft preparation, Data collection, Validation. **Suk Jeong Lee:** Conceptualization, Writing – review & editing, Methodology, Validation.

Conflict of interest

The authors have no conflicts of interest to disclose.

Acknowledgments

The authors thank all members of the 2017–2019 Bright Kyrgyzstan project conducted by the Global Korean Nursing Foundation (GKNF) and Kyung Hee University.

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