



Impact of Community Participation on Sustainable Primary Healthcare Service Delivery in Akobo County

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ABSTRACT

The present study investigated the role of community participation in the provision of sustainable primary healthcare (PHC) services in a fragile, conflict affected and flood prone environment of Akobo County, South Sudan. Guided by Arnstein's Ladder of Citizen Participation, the study used a convergent parallel mixed-methods design. A structured questionnaire was given to 382 respondents who were selected using stratified random sampling and qualitative data was gathered by conducting key informant interviews and focus group discussions with purposively selected health workers, community leaders, NGO staff and community members, in the four Payams of Akobo East. Descriptive statistics, correlation and multiple regression were used for the quantitative data analysis, while the qualitative data were analysed using thematic analysis. The four dimensions of community participation together explained 70% of the variance in PHC sustainability ($R^2 = .700$, $p < .001$), with volunteerism and community service the strongest predictor. Qualitative results suggested that participation facilitated uptake and access to services through dissemination of health information, early health-seeking, and community-based surveillance and referral, made services more responsive by incorporating local priorities into service planning and inputting of resources, and led to service ownership and self-mobilisation during times of insecurity. Viewed through Arnstein's ladder, participation operated mainly at the consultation level, with elements of partnership in local planning and oversight, while its strongest contribution came through volunteering and other practical action. However, participation did not resolve gaps in funding and continuity of health workers. Because the design was cross-sectional and the data self-reported, the findings indicate associations rather than causal effects. The study concludes that community participation is an important, but not sufficient, condition for sustaining PHC services in fragile settings.

Keywords: Community participation, sustainable primary healthcare, Arnstein's ladder, service access, community ownership, fragile settings, South Sudan.

INTRODUCTION

Community participation has increasingly been recognised as an important component of sustainable primary health care (PHC) service delivery, particularly in communities experiencing persistent health and socioeconomic challenges. Haldane *et al.* (2019) identify community participation as an important mechanism for ensuring that health services are need-based and demand-driven, particularly through community involvement in identifying health problems and planning, designing and implementing health interventions. Such involvement can promote community ownership of health services and contribute to their sustainability (Gizaw *et al.*, 2022). Community participation may also strengthen the resilience of health systems by enabling health services to respond more effectively to the diverse needs and priorities of the populations they serve (Warren *et al.*, 2021).

The contribution of community participation to PHC delivery extends beyond involvement in health activities to include participation in decision-making, health governance, service provision and policy processes. Meaningful participation requires communities to have influence over decisions affecting their health and the

services available to them (Mdaka *et al.*, 2014). Naidoo (2017) similarly conceptualises community participation as involving communities in health service activities, governance and policymaking. Evidence

from different settings illustrates how such participation can influence health service delivery. In Australia, partnerships between Aboriginal communities and health service providers facilitated the co-design of services responsive to community cultural and health needs (Durey *et al.*, 2016). Similarly, community-based initiatives in Samoa provided opportunities for local women to assume leadership roles in addressing public health concerns (Baghirov *et al.*, 2019), while Brazil's Participatory Health Councils were established to align health services with community needs and priorities (Bispo & Serapioni, 2021).

However, evidence also suggests that the presence of community participation structures does not necessarily result in meaningful influence over health service delivery. In South Africa, health committees were established to facilitate community involvement in the management of health facilities, yet their involvement in broader health governance and policy processes remained limited (Haricharan *et al.*, 2021). Similarly, Kilewo and Bagaya (2016) found that health facility committees in Eastern Africa generally operated at the lower levels of Arnstein's participation ladder, while George *et al.* (2015) reported that many committees functioned primarily in an advisory rather than decision-making capacity. These findings suggest that the contribution of community participation to PHC service delivery may depend not merely on whether participation mechanisms exist, but also on the extent to which communities are involved in decision-making, service activities and the mobilisation of local resources.

Despite the growing recognition of community participation as an important component of PHC delivery, limited empirical evidence exists on its contribution to the sustainability of PHC services in fragile and conflict-affected settings. There is also a dearth of evidence regarding the effective management of resources in the context of PHC, and the extent to which community participation affects linkage, access and availability to PHC services, as well as the quality of the services. This is particularly applicable to Akobo County, Jonglei State where there is insecurity and inadequate infrastructure which could hinder community participation and regular delivery of health services. The study thus assessed the impacts of community participation in sustainable provision of PHC services in Akobo County, South Sudan.

Sustainable PHC service delivery is the ability of PHC services to be available, useful and of good quality, to be non-disrupted and well-resourced over time, even when interrupted by insecurity, flooding and variable external assistance. It was operationalised through four indicator domains: (a) accessibility and availability (ease of access, convenient operating hours, adequate health workers, and available equipment and supplies); (b) quality of care (culturally appropriate care, and cleanliness and hygiene); (c) resource management (efficient use of resources and contingency plans for emergencies and shortages); and (d) continuity and consistency (follow-up care, consistent supply of medicines and vaccines, record management, and continuity with the same provider). Community participation was operationalised through four dimensions: involvement in decision making; attendance and participation in community meetings; volunteerism and community service; and perceived impact and effectiveness of participation.

Theoretical Framework

This study was guided by Arnstein's (1969) Ladder of Citizen Participation, which conceptualises participation as eight rungs grouped into three categories that reflect increasing degrees of citizen power (Figure 1). The two lowest rungs, manipulation and therapy, represent non-participation: activities that appear to involve the public but are used by those in authority to educate or "cure" participants and to explain decisions that have already been made, without giving them any real influence.

The middle rungs, informing, consultation and placation, represent degrees of tokenism. Citizens can hear and be heard, and under placation may be given seats on advisory bodies, but power holders retain the right to decide. The top rungs, partnership, delegated power and citizen control, represent degrees of citizen power, in which citizens negotiate and share decisions with traditional power holders or hold the majority of decision-making seats and managerial authority.

8	Citizen Control	Citizen Power
7	Delegated Power	
6	Partnership	
5	Placation	Tokenism
4	Consultation	
3	Informing	Nonparticipation
2	Therapy	
1	Manipulation	

Arnstein (1969) further argued that application of this strategy allows these individuals to participate actively in shaping how information is distributed, setting policies and objectives, allocation of tax revenues, management of programs, and the distribution of benefits such as opportunities and contracts.

In this study, the ladder was used as an interpretive lens rather than as a measurement scale. It informed the decision-making dimension of the questionnaire, which asked respondents about their involvement in identifying priorities, planning and facility decisions, and it guided the interpretation of the qualitative data, in which accounts of participation were examined in terms of who set the agenda, whose views were acted upon and who controlled resources. One-way health messages were read as informing, requests for community views as consultation, committee representation without authority as placation, and shared planning, budgeting and oversight as partnership. The resulting positions on the ladder are discussed in the Discussion section.

Research Philosophy and Design

The study was based on the pragmatic research approach, which assumes that the research method should be selected based on its ability to provide solutions to problems in the community and to answer the research questions (Hothersall, 2019). A convergent parallel mixed methods design was used (Creswell & Plano Clark, 2018). Both quantitative and qualitative data were gathered at the same time, analysed independently and then integrated in the interpretation of the findings (Figure 2). The quantitative strand assessed the extent of community participation and the sustainability of PHC services, examining the relationship between them while the qualitative strand investigated how and why participation affected the level of PHC service delivery.

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graph LR
    QDC[Quantitative data collection] --> SDA[Statistical data analysis]
    SDA --> RF1[Research findings]
    QDC2[Qualitative data collection] --> TDA[Thematic data analysis]
    TDA --> RF2[Research findings]
    RF1 --> CCF[Compare or contrast findings]
    RF2 --> CCF
    CCF --> IF[Interpretation of findings]
  
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Study Area and Population

The study was carried out in Akobo East, Akobo County in Jonglei State in South Sudan, which is an area of conflict and prone to flooding where access to PHC services rely largely on humanitarian partners. The county headquarters as well as all the PHC facilities are in Akobo East while Akobo West was not included due to inaccessibility during the study period. The target population comprised 102,695 residents of the four Payams of Akobo East (Alali, Bilkey, Nyandit and Dengjok) (National Bureau of Statistics, 2017), together with 100 government health workers, 30 community leaders and 20 NGO workers.

Sampling and Sample Size

The quantitative sample size was determined using the Krejcie and Morgan (1970) formula at a 95% confidence level and a 5% margin of error, giving 383, which was increased by 10% to 421 to allow for non-response. The sample was allocated to the four Payams in proportion to their populations (stratified sampling), and respondents within each Payam were selected by simple random sampling from household lists compiled from Boma lists and health-facility catchment registers. Eligible respondents were adults aged 18 years and above living in the four Payams. For the qualitative strand, participants were selected purposively for their knowledge of community participation and PHC delivery, using criterion-based, maximum variation, expert and homogeneous sampling. The qualitative sample comprised 45 key informant interviews with health workers, community leaders and NGO staff, and 3 focus group discussions with community members of 8–12 participants each. Recruitment continued until no new themes emerged.

Data Collection Instruments and Measures

Quantitative data were collected using a structured questionnaire containing 16 items on community participation and 16 items on PHC sustainability, rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The items were grouped into the four dimensions of participation and the four domains of PHC sustainability defined in the Introduction, and composite scores were computed as the mean of the items in each scale. Qualitative data were collected using key informant interview and FGD guides covering the same constructs. Questionnaires were administered face to face by trained research assistants, who translated the items from English into Arabic and Nuer, between March and June 2025.

Validity and Reliability

Content validity was established through a qualitative expert review by a panel of four: two academic supervisors, a monitoring and evaluation officer from a non-governmental organisation, and a County Health Department officer. The panel assessed the relevance, coverage and clarity of the items, and unsuitable items were revised or removed; a Content Validity Index was not computed. The instruments were pre-tested at Mangateen Internally Displaced Persons Camp in Juba, whose displaced population faces PHC challenges comparable to those in Akobo County, and pre-test participants were excluded from the main study. Internal consistency was assessed using Cronbach's alpha (community participation $\alpha = 0.945$; PHC sustainability $\alpha = 0.965$).

Data Analysis

Quantitative data were analysed using SPSS version 26. Descriptive statistics (means, standard deviations and percentages) summarised the indicators of PHC sustainability. Pearson's correlation was used to examine the association between the composite community participation score and PHC sustainability, and multiple linear regression was used to estimate the contribution of each dimension of participation, after checking the assumptions of linearity, normality of residuals, homoscedasticity and absence of multicollinearity. Qualitative data were transcribed verbatim, translated into English, with a sample of transcripts back-translated to check accuracy, and analysed in NVivo 14 using thematic analysis (Braun & Clarke, 2022). Initial codes were derived deductively from the dimensions of participation and sustainability, and additional codes, such as insecurity and flooding, were developed inductively from participants' accounts. Codes were grouped into themes, which were reviewed against the data and organised under the domains of PHC sustainability.

Participants are identified by codes: CM (community member), HW (health worker), NGO-R (NGO respondent) and FGD (focus group discussion).

Integration of Quantitative and Qualitative Findings

Integration took place at the interpretation stage through a merging approach (Fetters et al., 2013). For each domain of PHC sustainability, the quantitative results were compared with the corresponding qualitative themes to establish whether they converged, complemented each other or diverged. These comparisons are reported together in the Findings and summarised in a joint display (Table 3).

Ethical Considerations

Ethical approval was obtained from the Tangaza University ethics review committee and permission to conduct the study was obtained from, the Ministry of Higher Education of South Sudan, the State Ministry of Health and the Akobo County Health Department. All participants gave written/verbal informed consent after the purpose of the study was explained. Participation was voluntary, and identification codes were used in place of names to protect confidentiality.

FINDINGS

Response Rate and Sample Characteristics

Of the 421 questionnaires administered, 382 were completed and analysed, a response rate of 90.7%. Of the 382 respondents, 35% were female and 65% male; most (65.7%) were aged 31–50 years; and 16.5% had no formal education. The key informants who included health workers, NGO representatives and community leaders provided critical perspectives as the people overseeing service delivery with the knowledge on decision making process, resource allocation, operation of facilities and the influence of the donors.

Indicators of Sustainable PHC Service Delivery

Table 1 presents respondents' ratings of selected indicators of sustainable PHC service delivery across the four domains.

Table 1: Respondents' Ratings of Indicators of Sustainable PHC Service Delivery (N = 382)

Dimension	Statement	Mean	SD	Agree + Strongly Agree
Accessibility & availability	Enough healthcare professionals are available	3.89	1.28	72.20%
	Facility is equipped with necessary medical supplies/equipment	3.87	1.35	68.60%
Quality of care	Facility provides culturally appropriate care	3.98	1.3	78.50%
	Satisfaction with cleanliness and hygiene	4.04	1.21	83.60%
Resource management & sustainability	Facility efficiently manages resources for long-term sustainability	4.1	1.21	80.90%
	Contingency plans exist for emergencies/resource shortages	3.87	1.19	76.70%
	Facility has access to consistent funding for its operations	3.29	1.32	53.70%
Continuity & consistency	Follow-up care is provided after initial visit	4.17	1.3	83.00%
	Consistent supply of essential medicines and vaccines	3.89	1.38	73.80%

Note. Items were rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree).

Contribution of the Dimensions of Community Participation

Multiple linear regression was used to estimate the contribution of each dimension of community participation to PHC sustainability. The four dimensions together explained 70.0% of the variance in PHC sustainability ($R^2 = .700$, adjusted $R^2 = .697$), and the model was statistically significant, $F(4, 377) = 219.78$, $p < .001$ (Table 2). Volunteerism and community service was the strongest predictor ($\beta = .568$), followed by attendance and participation in community meetings ($\beta = .418$) and involvement in decision making ($\beta = .386$), all $p < .001$. Because the dimensions were almost uncorrelated with each other ($r = .003$ to $.092$), each made a distinct contribution. Perceived impact and effectiveness had a small negative coefficient ($\beta = -.081$, $p = .005$), although its simple correlation with sustainability was not significant ($r = -.058$); this is most likely a statistical suppression effect rather than evidence that favourable perceptions reduce sustainability. Because the data are cross-sectional, these results indicate associations, not causal effects.

Table 2: Multiple Regression of PHC Sustainability on the Dimensions of Community Participation (N = 382)

Dimension of community participation	β	p
Involvement in decision making	0.386	< .001
Attendance and participation in community meetings	0.418	< .001
Volunteerism and community service	0.568	< .001
Perceived impact and effectiveness	-.081	0.005

Note. Dependent variable: PHC sustainability composite score. β = standardised coefficient. Model: $R^2 = .700$, adjusted $R^2 = .697$, $F(4, 377) = 219.78$, $p < .001$.

Improved Service Uptake and Access

The quantitative findings indicated that in general, the community members had a positive attitude towards the availability and accessibility of PHC services. For example, 72.2% of respondents agreed or strongly agreed that sufficient healthcare professionals were available at the facility ($M = 3.89$, $SD = 1.28$), while 68.6% reported that the facility was equipped with the necessary medical supplies and equipment ($M = 3.87$, $SD = 1.35$). The qualitative findings complemented findings from the quantitative findings to give greater depth to the understanding of the role of community participation in facilitating access to services. A health care professional explained that:

“In involving community members, individuals can share accurate health information within their communities, and as a consequence, people are urged to seek treatment at the early stages of illness, reducing the burden placed on health facilities and avoiding complications associated with the disease, like malaria.” [HW-11]

Community participation therefore supported service uptake through information dissemination and early health-seeking behaviour. This was complemented by community-led disease surveillance and referral. As one community member explained:

“One of the significant roles we play is to monitor and report on the spread of diseases at an early stage in health facilities, and to support in referrals of sick people from the community to the clinics, which helps to reduce delays in diagnosis and treatment, strengthen continuity of health care, and increase the ability of health facilities to respond to the emergence of disease threats in the community.” [CM-2]

The qualitative evidence did follow on from the quantitative findings. As the survey findings indicated services were generally available, the accounts of participants highlighted the use of community-based mechanisms to connect households with health facilities, especially in areas where insecurity, flooding and limited infrastructure made it difficult to access the facilities. Taken together, the two strands suggest that community

participation supported service uptake and access through health information dissemination, encouragement of early health-seeking behaviour, and community-based disease surveillance and referral.

Quality and Effectiveness of Service Delivery

Quality of care was also positively assessed. A majority of respondents (83.6%) expressed agreement or strong agreement with satisfaction regarding cleanliness and hygiene at the facility ($M = 4.04$, $SD = 1.21$), while 78.5% indicated that the facility provided culturally appropriate care that respected their beliefs and practices ($M = 3.98$, $SD = 1.30$). The qualitative findings suggested that community participation contributed to this responsiveness by allowing community members to communicate their priorities and provide feedback on service delivery. In particular, community input was reported to influence local budgeting, implementation and resource allocation. An NGO respondent explained:

“...whereby community input helps in shaping budgeting and implementation of decisions. When community members raise concerns about priority needs, such as essential drugs or outreach services, these are reflected in how limited resources are allocated at the local level. This involvement also strengthens transparency and accountability, as the community is able to follow up on how agreed plans are executed.” [NGO-R-15]

The qualitative evidence further demonstrated how community feedback enabled health actors to respond to locally identified priorities rather than relying exclusively on decisions made at higher administrative levels. For example, feedback concerning the need for mosquito nets enabled resources to be concentrated in the villages considered most affected.

“The useful feedback received on what was the immediate need in the community like provision of mosquito nets in some villages enables us to concentrate our resources to most affected villages and act timely to avert any outbreak of disease in the community, and that the intervention takes into account the community's actual priorities and not what is assumed at higher levels of administrative authority.” [FGD3]

This provides a probable explanation of the positive ratings for quality and culturally appropriate care; services and resources were aligned closer to local needs through community participation, thus the convergence of these two strands. The findings indicate that participation helped to enhance the quality and effectiveness of PHC service delivery through increased responsiveness of services to local priorities, enhanced accountability in resource allocation and the facilitation of timely and contextually appropriate interventions. This relationship, however, is based primarily on the qualitative accounts and the association reported in Table 2, although respondents' perceptions of quality were assessed as opposed to clinical quality.

Community Ownership and Resilience

Quantitatively, perceptions of resource management and resilience of PHC service delivery were generally favourable. Most respondents (80.9%) agreed or strongly agreed that the facility efficiently managed its resources to support long-term sustainability ($M = 4.10$, $SD = 1.21$), while 76.7% reported that contingency plans were available to address emergencies or resource shortages ($M = 3.87$, $SD = 1.19$). Similarly, 73.8% agreed or strongly agreed that essential medicines and vaccines were supplied consistently ($M = 3.89$, $SD = 1.38$). The findings indicated that the participants generally felt that the PHC system had provisions that facilitated the provision of services and adaptation to disturbance. Consistent funding was rated at the lowest level, with only 53.7% responding agree or strongly agree that the facility had consistent funding to support operations, while 32.2% responded disagree or strongly disagree ($M = 3.29$, $SD = 1.32$).

The qualitative results added to the understanding of how these capacities are supported through community participation. Participants talked about community ownership as evidenced by their involvement in health committees and decision-making processes, which increased the sense of accountability and let communities play a role in health services.

“The participatory dialogues and health committees in the BHI foster a sense of ownership and encourage equitable access to services among community members, allowing different groups to raise their concerns and participate in decision-making processes that impact on service provision in their communities. This collective involvement strengthens accountability, and helps ensure that services are equitably distributed, including the vulnerable and hard-to-reach populations.” [FGD1]

The qualitative findings also highlighted the self-organising dimension of ownership, particularly in the context of frequent conflict in the study area. One FGD participant stated:

“We are not waiting for others to come in, but we are mobilising ourselves, all of us, even when there is a lot of conflict around. We're mobilising ourselves, we're making our own arrangements for support, we're making our own arrangements for health facilities, we're making our own arrangements for basic services. That's our own initiative, it's our own drive to make things happen, and when there is insecurity, other people that come into the area, may not be there.” [FGD3]

Overall, the findings indicate that community participation supported community ownership and resilience in PHC service delivery by strengthening local involvement in decision-making, accountability and collective mobilisation, and by helping communities sustain some essential services during periods of insecurity and disruption. Participants associated ownership with greater accountability, equity and self-reliance. The survey results were consistent with this, although continuity with the same provider was rated less favourably ($M = 3.40$, $SD = 1.37$), indicating that community ownership did not resolve staffing gaps. Community participation therefore appeared to be an important local mechanism for maintaining and adapting PHC services in the face of conflict and other disruptions, but not a substitute for adequate staffing and resources.

Integration of Findings

Table 3 summarises how the quantitative and qualitative findings were integrated for each domain.

Table 3: Joint Display of Quantitative and Qualitative Findings

Domain	Quantitative result	Qualitative theme	Integration
Accessibility and availability	68.6–72.2% agreed that health workers and supplies were adequate ($M = 3.87$ – 3.89)	Health information, early health-seeking, community surveillance and referral linked households to facilities	Complementary: qualitative data explain how availability became use
Quality of care	78.5–83.6% rated cultural appropriateness and hygiene positively ($M = 3.98$ – 4.04)	Community feedback shaped priorities, budgeting and allocation (e.g. mosquito nets)	Convergent
Resource management and continuity	76.7–83.0% rated contingency plans, resource management and follow-up positively; continuity with the same provider lower ($M = 3.40$) and consistent funding ($M = 3.29$; 53.7% agreed) rated lower	Committees followed up on plans; communities self-mobilised during insecurity	Convergent, partly divergent: ownership did not resolve staffing continuity or funding
Dimensions of community participation	$R^2 = .700$; volunteerism strongest predictor ($\beta = .568$), decision making weaker ($\beta = .386$)	Practical contributions (volunteering, surveillance, referral, self-mobilisation) were most prominent in participants' accounts	Convergent: practical participation carried much of the explained variance

Note. Percentages are the proportion of respondents who agreed or strongly agreed.



DISCUSSION

Community participation was perceived as an important mechanism for improving service uptake and access to PHC services in Akobo County. Community mobilisation, health promotion, disease surveillance, referrals and follow-up ensured that there was a link between households and health services, more so in the remote and inaccessible areas. Participation in these activities led to quicker access to care, by promoting early treatment and referrals. This is corroborated by Ranjan *et al.* (2026) who reported that members of the community health committees were more aware and actively used the services in comparison to those who were not members of the committee. The outcomes of disease surveillance were also comparable to the findings obtained by Ratnayake *et al.* (2020) where they found that community-based disease surveillance can enhance early detection of diseases and reporting within the populations affected during a crisis. More mobilization, referral and adaptation of outreach efforts can enhance access to PHC services in areas of fragility and geographic isolation.

Community participation was perceived to improve the quality and effectiveness of PHC service provision through making it more responsive to local needs. The participants narrated their experiences regarding their needs, hence allowing the healthcare workers to give priority to these needs. This finding concurs with an empirical study by Olusola *et al.* (2022) that established that community participation in planning and budgeting was key in prioritizing investment in health. Community health committees have also been found to facilitate sharing local concerns (Karuga *et al.*, 2023). However, there were still some issues with PHC service provision, such as inconsistent funding. In order for PHC to be responsive and effective, it is important to have sufficient resources and support.

Community ownership and resilience was associated with active involvement in participatory governance and accountability alongside collective action during conflicts, floods and other disruptions. Community health committees provided opportunities for community members to discuss their priorities, ensure actions are being delivered and build support for services. They also ensured continuity of basic services during disruptions in some cases. This is consistent with findings from the literature showing that meaningful community participation is a key factor for accountability and ownership of health programmes (Haricharan *et al.*, 2021). However, it was pointed out that if committees lack decision making power, then the ownership is restricted in the community (Haricharan *et al.*, 2021). These findings are also consistent with those of Karuga *et al.* (2023) who identified community health structures as an important link between the communities and health facilities. The lowest rating among the indicators was consistent funding ($M = 3.29$, $SD = 1.32$) with only 53.7% of respondents agreeing that facilities had consistent funding for operations, indicating that consistent funding cannot be achieved by ownership alone. Therefore, to deliver sustainable PHC in fragile contexts, there needs to be mechanisms in place to engage community members beyond consultation to improve community decision making and accountability. Resources need to be made available to support this so as to ensure essential services are provided during disruption.

Positioning the Findings on Arnstein's Ladder

Read through Arnstein's (1969) ladder, the findings place community participation in Akobo County mainly on the tokenistic rungs, with elements of partnership. Health information and mobilisation messages largely flowed one way, which corresponds to informing. Community feedback on priorities such as essential drugs and mosquito nets was sought and sometimes acted upon, which corresponds to consultation. Where Boma health committees contributed to local budgeting and followed up on how agreed plans were implemented, participation approached partnership. This paper did not examine how far communities-controlled agendas or final decisions, so it cannot establish whether participation reached the higher rungs of delegated power or citizen control. Participation therefore rarely reached delegated power or citizen control, consistent with Kilewo and Bagaya (2016), who found that health facility committees in Eastern Africa operated mainly at the lower levels of the ladder. At the same time, the strongest quantitative predictor of sustainability was volunteerism and community service ($\beta = .568$), not involvement in decision making ($\beta = .386$). Practical contributions such as surveillance, referral and self-mobilisation during insecurity are not captured by the ladder, which ranks participation by control over decisions. This suggests that in fragile settings participation



contributes to sustainability through operational as well as decision-making channels, and that the ladder is best applied alongside an assessment of communities' practical contribution to service delivery.

LIMITATIONS

These results must be interpreted with some caveats. The cross-sectional design also makes it difficult to conclude that the associations reported are causal, and they could be bi-directional, with better functioning services also leading to higher participation. Limited and self-reported perceptions were used as quantitative data. The study was limited to the accessible Payams of Akobo East, and may underestimate the situation of the most remote and insecure populations. Expert review was used to determine content validity of the instrument with no computed index. The results should therefore be interpreted as evidence in a highly context-specific environment and should be applied to other settings in subsequent studies.

CONCLUSION

This study aimed to establish the role of community participation in sustainable provision of PHC services in Akobo County, South Sudan. Community participation was strongly and positively related to PHC sustainability. Community involvement was described to facilitate improved uptake and access, responsiveness and quality of PHC services. However, it was largely a hands-on role in the form of volunteerism, mobilisation, monitoring, referral and follow up. There was little community involvement in final decision making. Therefore, community participation needs to be seen as core part of PHC programmes within fragile settings and not an additional task. However, it cannot be used as a substitute for the important role of funding and infrastructure. To further improve PHC sustainability in Akobo County there needs to be more community involvement which provides them with real power over their priorities and resources. Funding and infrastructure are also required to continue locally led health initiatives. Longitudinal or comparative research should be conducted in future research to determine if these associations are causal.

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