

Investigating physician leadership competencies in rural and remote areas of the province of Aceh, Indonesia

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ABSTRACT

Backgrounds Globally, the most rural healthcare systems are lagging behind those of urban healthcare systems. Especially in rural and remote areas, the essential resources to provide principal health services are inadequate. It is purported that physicians have an important role in healthcare systems. Unfortunately, there is a paucity of studies on physician leadership development in Asia, especially on how to enhance physician leadership competencies in rural and remote low-resource settings.

This study aimed to investigate doctors' perceptions of existing and needed physician leadership competencies based on their experiences in primary care settings in low-resource rural and remote areas in Indonesia.

Methods We performed a qualitative study with a phenomenological approach. Eighteen primary care doctors, who worked in rural and remote areas of Aceh, Indonesia, purposively selected, were interviewed. Prior to the interview, participants were asked to select the top-five skills they deemed most essential for their work based on the five domains of the 'Lead Self', 'Engage Others', 'Achieve Results', 'Develop Coalitions' and 'Systems Transformation' (LEADS) framework. We then performed a thematic analysis of the interview transcripts.

Results We identified the following qualities a good physician leader in low-resource rural and remote settings should possess: (1) cultural sensitivity skills; (2) a strong character that includes courage and determination; and (3) creativity and flexibility skills.

Conclusions Local cultural and infrastructural factors create a need for several different competencies within the LEADS framework. A profound amount of cultural sensitivity was considered the most important in addition to the ability to be resilient, versatile and ready for creative problem-solving.

BACKGROUND

Globally, inhabitants of rural and remote communities have poorer health status than urban dwellers. Poor access to healthcare is a significant contributor to these conditions, particularly in low-income or low- and middle-income countries (LMICs).¹ Health inequalities exist between urban and rural populations.² Other reports, too, have determined that several countries face comparable issues because health resources are concentrated in cities, while most of the population lives in rural areas.^{1,3} What's more, rural and remote healthcare systems face critical issues in service delivery, human resources and communication.^{4,5} Given the unique context of practice in a rural community, it stands to reason that there should be a list of domains and competencies

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Formalised leadership development is scarce in low-income and middle-income countries, particularly in rural and remote settings. Meanwhile, doctors working in these settings are frequently thrust into leadership roles and are expected to lead community health activities.

WHAT THIS STUDY ADDS

⇒ We discovered that the leadership competencies of rural and remote primary care doctors must fit with the unique features, culture and dynamics of rural/remote settings. Being resilient, adaptable and prepared for creative problem-solving are important physician attributes needed in these environments.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Due to the inherent constraints and complexity in rural and remote places, there is a need for leadership training in the medical curricula that is structured, and tailored to fit the local contexts.

that are especially important to sustained competence in that setting. Physicians, therefore, who want to practise in low-resource settings will eventually need additional competencies.⁶ Indeed, one study showed that constraints in rural and remote settings affected leadership and resource stewardship. Further, the quality of primary care services in rural settings depends on physicians' leadership competence.⁷ As such, a healthcare organisation's success depends on its ability to cultivate competent physician leadership.⁸ It also suggests that the concept of physician leadership would be relevant for rural and remote areas as it provides a way to improve health services in vulnerable settings⁹ and they are ready to handle and take on unusual responsibilities.¹⁰

In this context, the LEADS framework, as a conceptual framework, is of significant relevance as it describes the capabilities physicians and other healthcare providers need to be effective leaders in healthcare. The 'LEADS' acronym reflects the following five leadership domains: 'Lead Self', 'Engage Others', 'Achieve Results', 'Develop Coalitions' and 'Systems Transformation'. LEADS has proven to be versatile enough to be helpful in a wide variety of organisations and settings.¹¹ As such, it might also



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offer insight into certain capacities that physicians in remote areas of LMICs need to perform their tasks properly.

Formalised leadership training for doctors is scarce,^{12 13} for example, in Indonesia. As a result, rural municipalities are forced to hire doctors who lack these qualifications.⁷ Research on how to engage doctors in rural and remote areas is scant¹⁴ and little is known about how to improve physician leadership in these areas,⁹ including Asian countries. Although several articles have described healthcare problems in LMICs, these rarely touched on leadership in this context. The LEADS framework, while providing a very comprehensive guide for leadership development, does not provide points of focus for the specific context of rural and remote areas in LMICs. As an LMIC, the Indonesian context offers an opportunity to study doctors' perceptions of physician leadership during practice in rural and remote places. Hence, we sought to fill this knowledge gap by focusing on a rural and remote part of Indonesia. Our research question was: Which specific leadership competencies are needed in rural and remote areas of Indonesia as an LMIC?

METHODS

Study setting

Indonesian healthcare system has grown to meet the needs of its population. However, significant inequalities between urban and rural areas in access to care and state of health persist up to this day.¹⁵ Aceh, one of provinces which have many underserved villages, is divided into 18 districts and 5 autonomous cities. Of the estimated 17 000 villages dispersed throughout Indonesia, 2244 are located in the province of Aceh. Most of these villages, moreover, have been classified as poor.¹⁶

With respect to health services, Indonesia offers primary, secondary and tertiary care. The largest share of the country's total healthcare (86%), however, is offered in primary care facilities, called Puskesmas (Pusat Kesehatan Masyarakat). As such, primary care is offered in every subdistrict and aims to meet both community and individual health needs by promoting and preventing disease, and providing curative and rehabilitative services.¹⁷ As one of the health system leaders, primary care physicians play the role of gatekeeper and guarantee long-term health management.¹⁸ In Aceh, the total number of Puskesmas was 359 in 2020,¹⁹ with 196 units located in rural (55%), 69 units in remote (19%), and 33 units in very remote areas (9%).²⁰ Access to primary care services in remote and very remote areas is sometimes difficult due to inadequate road systems, especially during the rainy season. Serious concerns of primary care staffing, a poor health infrastructure and limited access to basic laboratory and emergency drugs are complicating matters even more.

Study design

We performed a qualitative study with a phenomenological approach, for which we held semistructured interviews. After being primed with information about the LEADS framework, we invited participants to elaborate on their responses based on their work experiences in rural and remote places. To elucidate certain issues or specific points, we also asked follow-up questions. We designed the interview guide using the five pillars of the LEADS framework¹¹ (see online supplemental appendix 1). The author translated the interview guide into Indonesian and then back-translated it into English to ensure consistency of meaning across all questions. Data were collected during a one-and-a-half-month time span.

Participants

The study sample comprised 18 doctors who worked in primary care in rural and remote areas. Participants were purposively selected due to geographical and logistical constraints. The province of Aceh is made up of 18 districts (2 of which are located on islands) and access to each of these islands is difficult and only either by air or sea. Furthermore, to meet a respondent who works in a remote location on this island, we must travel for 8 hours (round trip by car). Since our aim of our study was to obtain both a diverse and representative overview of leadership needs and practice in the different districts, we had to weigh our objectives against the practical and local challenges on the ground. To address this in part, we chose to purposefully sample participants from each district to ensure that we obtained a representative perspective on physician leadership in the province. Respondents were doctors who had been in practice for at least a year. We chose this time frame because it represents the average period employees need to adjust to the workplace.²¹

Data collection

After finding respondents and keeping in contact with them, assessing their eligibility and receiving their consent, we gave participants an overview of leadership attributes based on the five pillars of the LEADS framework, that is, the priming process. Respondents were asked to use this framework to reflect on their own experiences and to select from among this list the top-five skills they deemed most essential for their work in rural and remote settings (ranking). We subsequently interviewed the participants, transcribed the interviews, analysed the transcripts and discussed the findings within the author team. The lead author conducted the 18 individual interviews with respondents by visiting them in person.

Analysis

After participants had ranked the leadership attributes they considered most essential, we categorised each item (attribute) according to the number of responses received as follows: 'low' (0–5 responses); 'moderate' (6–10 responses) and 'high' need (over 10 responses). This step was used to set the stage for further discourse on leadership and to get a first impression of perceived needs.

The interviews were recorded and transcribed verbatim; transcription was done manually using Microsoft Word. To analyse the interview transcriptions, we performed a thematic analysis (see online supplemental appendix 2), which is a manual data analysis technique that spanned the following phases: (1) generating initial codes; (2) searching for themes; (3) reviewing themes; (4) defining and naming themes; and (5) writing up.²² From our raw data, we collected quotes that were representative of each theme and translated these from Indonesian into English.

Reflexivity

FS is a practising gynaecologist and a professor in health systems innovation and education in Amsterdam; he is an expert in qualitative methods within transdisciplinary research projects. JB is a general paediatrician, educationalist and associate professor of medical education in Maastricht; his area of expertise is in equity and leadership development in postgraduate medicine. MH is a medical doctor and associate professor of public health at Gadjah Mada University and teaches primary healthcare policy and management in Indonesia. FM is a general practitioner from Aceh, and her research interests centre on physician leadership

Table 1 Participants' characteristics (N=18)

Characteristics	Total (N)
Gender	
Male	9
Female	9
Age (in years)	
20–35	9
36–45	9
Origin/having a rural or remote background	
No	6
Yes	12
University	
Public	12
Private	6
Experience of medical practice (in years)	
1–5	3
6–10	6
11–15	9
Work experience in rural/remote practice (in years)	
1–5	8
6–10	5
11–15	5
In a leadership role at current workplace	
Yes	16
No	2

in underserved areas and healthcare systems in rural and remote settings.

The authors were aware of the potential for bias in qualitative studies and took this into account during this study, especially since the lead researcher (FM) hails from the research setting under investigation. Despite the potential for bias, it was believed that, if existent, it would be effectively mitigated by the variegated composition of the research team. For example, FS and JB's experiences as physician leaders and researchers in the Netherlands provided an external perspective on the study design, analysis and interpretation of data. They used a (Western) European lens to critically question and clarify misconceptions that emerged. As a senior researcher from Indonesia, MH, in turn, guided the process by delivering vital and relevant insider input based on his knowledge and experience of the local and cultural dynamics.

Table 2 Leadership attributes that received the highest scores (N=18)

Domain	Subdomain—A competent leader...
Lead self	Takes responsibility for their own performance (N=13)
	Models qualities such as honesty, integrity, resilience and confidence (N=15)
Engage others	Creates engaging environments in which others have meaningful opportunities to contribute (N=14)
	Listens well and encourages an open exchange of information and ideas using appropriate communication media (N=13)
	Facilitates environments of collaboration and cooperation to achieve results (N=15)
Achieve results	Wants to understand the commitment being made and to be assured it will have a positive effect on their community (N=12)
	Inspires vision by identifying, establishing and communicating clear and meaningful expectations and outcomes (N=12)
	Acts in a manner consistent with organisational values to provide effective and efficient public-centred service (N=11)
	Assesses and evaluates outcomes (N=13)
Develop coalitions	Invites the community to set the direction (N=11)
	Understands that cultural safety is more than a history lesson (it is about opening dialogue with many different people about wellness; in this sense, the leader creates the appropriate conditions for this dialogue and joint learning to take place) (N=13)
	Creates connections, trust and shared meanings with individuals and groups (N=13)
Systems transformation	Facilitates collaboration, cooperation and coalitions among diverse groups and perspectives with the aim to improve service (N=11)
	Questions and challenges the status quo (thereby effecting positive change and fostering innovation) (N=15)
	Creates a climate of continuous improvement and creativity aimed at systemic change (N=14)

RESULTS

Demographic findings

The study included 18 respondents from 18 districts throughout Aceh province (see [table 1](#)).

We conducted 18 interviews that lasted 23–90 min (50.72 min on average). Sixteen of the 18 respondents held leadership positions at their current workplace, such as head of primary care (4/18), chief of quality assurance (7/18), and chief of individual services in primary care (5/18). Finally, 11 doctors worked in rural settings and seven worked in remote areas.

The leadership attributes perceived as most essential

In this section, we analysed and clustered attributes that respondents flagged as having a 'high' need, that is, more than 10 responses for further investigation in the interviews, and presented them in [table 2](#). For a complete overview of needs, see online supplemental appendix 3.

The identified needs as represented in [table 2](#) were subsequently used for the in depth interviews with the respondents. Based on the interviews conducted, we identified a couple of themes that described the qualities of a good physician leader in an LMIC setting like Aceh.

Qualities of a good physician leader commensurate with LEADS

Being culturally sensitive

The doctors we interviewed faced unique obstacles because each community where they worked had its own culture. One respondent, for instance, explained how they accommodated the community's wish not to receive primary care on Wednesdays:

It is a local custom, like a mystical one, that the community will not go to primary care on Wednesdays [Participant 18].

In some remote and very remote areas, cultural beliefs were so strong that the communities did not allow doctors to visit them, because they did not believe in modern medical treatment and the community preferred traditional healers:

In very remote villages, some people still believe in mystical things. Also, they have a higher regard for traditional healers than for doctors [Participant 5].

I visited a sick woman who had recently experienced a miscarriage at her home. She did curettage at the traditional healer. I got information that the traditional healer used cogon grass afterwards.

It was used to treat patients who miscarried and inserted into the female reproductive system [Participant 15].

Doctors also needed to understand how cultural values influenced their impact. More specifically, factors such as knowledge and daily habits could influence how people responded to healthcare services since beliefs, habits and culture were so firmly ingrained:

People do not want to use the toilet; they still perform open defecation. Also, they do not mind defecating in the river since they have had this habit for as long as they can remember [Participant 12].

To overcome such cultural issues in the communities, doctors experienced a need to develop specific skills, of which communication and listening skills were indispensable. Adaptive communication was considered key.

Some people in remote areas are still illiterate. We must pay more attention to them, explain things slowly, frequently and in simple words [Participant 3].

Doctors who had the ability to communicate in the local language, for instance, were more readily accepted:

It is easy for me to approach them [society] since I can speak their native tongue. I have a strong emotional bond with them. Ultimately, they want to take part in primary care activities [Participant 6].

Doctors stressed they had to invest in listening; people in rural and remote areas were more likely to tell their stories and they were proud and happy if a doctor would listen to them, because, in their view, doctors had a high hierarchical position:

We need to listen more, drop our egos, and adapt to their culture so that when we provide therapy or education, they are willing to accept it [Participant 3].

Another way to address cultural issues was through good collaboration with members of the community. Good networking abilities provided doctors with access to potential resources that could help them to complete their tasks:

In the evening, I referred the patient to a hospital that was over 40 kilometres away from primary care. Because of the heavy rain, the ambulance was unable to pass the road, which was coated thick with muck. As the ambulance got stuck in the mud, the community helped us to pull the ambulance by using their personal vehicle (owned by one of the community members) [Participant 14].

Especially in Aceh province, where culture is heavily influenced by Islamic values, good collaboration with local religious leaders was considered key. Because these leaders have a high status in the community, their opinions carry the weight of a community decision. Participants therefore deemed it crucial to involve religious leaders in all primary care activities:

People refuse to be vaccinated [because of forbidden and permitted issues]. So, we sought to educate not only the public, but also the religious leaders. These leaders then wanted to assist us in educating the community. Finally, most individuals wanted to embrace the vaccine, albeit a tiny percentage still refused [Participant 16].

Finally, participants argued that doctors are likely to have more impact on health-related decision-making when they are capable of building bridges between religious beliefs and medical practices. Consider the following experience shared by one of the respondents:

When I educate the community about the importance of vaccination [the people in that area are quite religious], I must discuss vaccines

from both health and religious perspectives. I noticed people were responding positively [Participant 13].

Having a strong character (perseverance)

A second important quality was that doctors who work in limited settings must demonstrate character.

To reach the farthest village, we must travel by river in a traditional boat for over three hours. The boat was not available daily. It was quite dangerous if it rained severely. A phone signal was quite difficult to come by in this area. Before travelling to this place, I posted a status update on social media to let my family know I was there [Participant 14].

We made a home care visit. The challenge comes from having to go up- and downhill and walk for long distances. I also frequently ride a motorcycle and once had a miscarriage after I had fallen from a motorcycle [Participant 1].

Other conditions, too, such as firm cultural beliefs and deep-rooted traditions, could complicate working in a rural and remote community. Consequently, doctors needed to be patient and understand that building trust required a long time investment:

We did not build trust in a day or two. Doctors built it when they treated patients in primary care and when doctors involved themselves in the community (outside of working hours). Doctors also need to be patient and make sure that their societies understand their explanations. Take, for instance, the vaccination programme: the people initially resisted, but now they widely accept vaccination [Participant 2].

Being creative and flexible

A third quality that was frequently mentioned by participants was that doctors must be creative and adapt their thinking to find the solution. Geographical obstacles, for instance, proved a serious issue that called for creative solutions:

There were two rural areas on the river's bank that were difficult to reach. On a raft, we once transported a woman who was about to give birth [Participant 10].

Likewise, limited healthcare resources such as materials and anything else required to provide healthcare services called on doctors' creativity:

A child was brought to primary care because of maggots lodged in the child's head. His head swollen, and we found about 30 maggots. I then treated him using simple tools available in primary care. I treated the patient for 20 days until the wound healed [Participant 1].

Further restraints, such as a poor internet connection, caused doctors to experience difficulties in expanding their knowledge and competence:

The mobile phone signal is poor in this village. As a result, I must either set the phone near the window or travel to a neighbouring village in the next sub-district to gain a signal strong enough to be able to join the online seminars [Participant 18].

Despite these many difficulties, doctors could still develop programmes aimed to ease problems, simply by being creative:

We found that traditional healers assisted many mothers in giving birth by providing a 'one-package service', which included helping with childbirth, washing the mother and baby's clothes and taking care of the baby. As a result, we approached traditional healers and the community. When they were helping deliver, a midwife had to accompany the traditional healer. This programme was running well. We can see this from the decline in maternal and infant mortality rates [Participant 12].

Another respondent developed a programme in response to access obstacles, which was even rewarded by the government:

As some areas are hard to reach because of steep hills and rivers [people have to use a boat to cross the river], we then created a programme called ‘Saweu Ureung Saket’ [English: visiting a sick person]. So, if someone gets sick, we visit the patient(s) and provide health services for them. This programme was included in the 45 national-level innovation programmes of the Ministry of Health of the Republic of Indonesia [Participant 10].

Besides developing programmes for communities, respondents also built creative programmes for their staff:

To boost literacy, foster enthusiasm for learning, and practise public speaking, we created ‘Senin Pintar’ [English: Smart Monday]. So, on Mondays, the primary care staff have to present one learning material. They can choose any material linked to health services or even general information, such as cleaning a wound or even how to turn the computer on or off [Participant 6].

A final quality flagged by respondents was that doctors must be flexible and willing to compromise or adapt to the viewpoints of the local people:

Because most of the inhabitants here work as farmers and gardeners, all of their activities take place in the morning. As a result, we select the best moment to implement a health promotion campaign. We have to be flexible. We then adjusted the schedule to their working hours [Participant 4].

Ability to perform multiple tasks (versatility)

First of all, we observed that doctors in rural or remote areas performed a dual role in their workplace, namely that of clinician and leader. When only one or two doctors were available in primary care, the doctor would assume many responsibilities. Doctors, moreover, held a special position among other health professionals; people respected and considered their opinions more than those of other medical personnel. As a result, doctors had to be involved in all primary care activities:

I double-checked the medical records and ensured the integrated service posts in some villages. I had to go to the community, also do health promotion, be involved in environmental health activities, nutrition education, and much more. Although there was someone in charge, I remained involved [Participant 1].

DISCUSSION

Summary of findings

In this study, we explored the leadership competencies that are needed in a rural and remote area of Indonesia as an LMIC. The LEADS framework evidently had face validity as the results from the interviews bore a strong degree of similarity to LEADS principles. We found that the ‘well-prepared doctor’ had to be culturally sensitive with specific knowledge of local cultures and habits, preferably speaks local languages and is immersed in, and connected to the communities served and their religious leaders. In addition, the well-prepared doctor must have developed a strong character to cope with limited resources and infrastructure. They also must be patient and understand that building trust among rural and remote community with strong cultural views and deep-rooted traditions takes time. Because of the hard tasks and often inadequate infrastructure, the well-prepared doctor is flexible and adaptive, but above all, can be a creative problem-solver.

Reflection based on existing literature

Patients’ culture influences doctor-patient communication.²³ Doctors who learn and practise cultural sensitivity are better

equipped to minimise such barriers between physicians and their communities, increase understanding of diversity, and resolve miscommunications and mistrust.²⁴ In Aceh’s context, doctors were more likely to influence people’s health-related decisions when they were capable of building bridges between religious and modern health perspectives. More specifically, our study showed that an Indonesian doctor in a remote area was most effective when they complemented general cultural competencies with specific knowledge of the local culture and religion.

It is also important that doctors realise that informal communication is more important than formal communication. Traditional wedding receptions and harvest season celebrations, for instance, are ideal opportunities to connect with people in these societies. The doctors in our study also emphasised the competence of listening. Being immersed in the local communities may be a part of deep listening, which composer Oliveros has defined as listening which ‘digs below the surface of what is heard, unlocking layer after layer of imagination, meaning, and memory down to the cellular level of human experience’.²⁵ In addition to this, doctors in low-resource settings require social support. To achieve desired outcomes in rural or remote primary care, community participation is critical.^{26 27} Co-creation and community-based participation are methods to ensure that people have a sense of belonging to primary care and believe that they can fully contribute and take part in health programmes.²⁷ This suggests that the success of the health agenda depends on how effective doctors are at incorporating their communities into all agendas in primary care.

Compared with urban places, doctors in low-resource settings face many challenges during their medical practice. Hence, they need to develop creative problem-solving skills. Requiring a complete break with conventional thinking, creativity typically starts with a divergence of ideas and is followed by attempts to attain convergence (agreement).²⁸ Several scholars have argued that, considering the complex nature of the health system, leaders in healthcare should offer the appropriate conditions to help cultivate creative behaviours.²⁹

Some developed countries, such as Canada, have introduced the LEADS framework which represents a common language and set of expectations for leaders within the health system. Similar initiatives have been launched in Australia (called ‘Health LEADS Australia’) and the UK (known as the ‘Healthcare Leadership Model’). Consequently, their medical school curricula have adopted the LEADS standards as a guide to develop physicians and to help shape the professional development of practising physicians.³⁰ This study contributes new insights that may expand the comprehensive LEADS framework to include specific points of interest for the curricula in LMICs.

Our study has several strengths. First, we performed the research in all districts of Aceh province in order to obtain a variety of perspectives from respondents from various workplaces. We interviewed participants to collect detailed and in-depth data based on respondents’ experiences. Since we did not restrict the interviews to the questions in the interview guide, our data were a rich source of human experiences. As with any study, however, we also identified limitations. The findings should be interpreted and applied within the context, as we based them on a relatively small sample of participants from Aceh province (one doctor per district). As such, they may not represent the entire range of geographic diversity and, consequently, they may not be entirely generalisable to other LMIC contexts.

We recommend that the leadership (development) should also be studied in other LMICs with different cultures so that generalisable features and specific needs for certain contexts can be identified. Further, we recommend the need for additional studies to explore

how physician leadership can be developed in specific settings, such as conflict areas and areas prone to natural disasters.

CONCLUSIONS

In conclusion, we used a phenomenological qualitative approach, to investigate doctors' perceptions of existing and needed physician leadership competencies in primary care settings in low-resource, rural and remote areas of Indonesia. The participants used the LEADS framework to describe their work experiences, which showed that doctors in remote and rural settings already apply physician leadership concepts in their work. Despite a heavy workload, they deliver a large range of clinical and non-clinical services. Furthermore, the cultural and infrastructural challenges in rural and remote LMIC contexts, demand that special attention be given to three specific domains within the LEADS framework: cultural sensitivity, character building and creative problem-solving combined with flexibility.

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REFERENCES

- Strasser R, Kam SM, Regalado SM. Rural health care access and policy in developing countries. *Annu Rev Public Health* 2016;37:395–412.
- Parlier AB, Galvin SL, Thach S, et al. The road to rural primary care: a narrative review of factors that help develop, recruit, and retain rural primary care physicians. *Acad Med* 2018;93:130–40.
- Anticona Huaynate CF, Pajuelo Travezaño MJ, Correa M, et al. Diagnostics barriers and innovations in rural areas: insights from junior medical doctors on the frontlines of rural care in Peru. *BMC Health Serv Res* 2015;15:454.
- Strasser R, Couper I, Wynn-Jones J, et al. Education for rural practice in rural practice. *Educ Prim Care* 2016;27:10–14.
- Essendi H, Johnson FA, Madise N, et al. Infrastructural challenges to better health in maternity facilities in rural Kenya: community and healthworker perceptions. *Reprod Health* 2015;12:103.
- Longenecker RL, Wendling A, Hollander-Rodriguez J, et al. Competence revisited in a rural context. *Fam Med* 2018;50:28–36.
- Hana J, Rudebeck CE. Leadership in rural medicine: the organization on thin ice? *Scand J Prim Health Care* 2011;29:122–8.
- Taylor CA, Taylor JC, Stoller JK. Exploring leadership competencies in established and aspiring physician leaders: an Interview-Based study. *J Gen Intern Med* 2008;23:748–54.
- Doherty JE, Couper ID, Campbell D, et al. Transforming rural health systems through clinical academic leadership: lessons from South Africa. *Rural Remote Health* 2013;13:1–8.
- Ricketts TC. The changing nature of rural health care. *Annu Rev Public Health* 2000;21:639–57.
- Dickson G, Tholl B. *Bringing leadership to life in health: leads in a caring environment*. 2nd edn. Switzerland: Springer Nature Switzerland, 2020: 1–334.
- Istiono W, Claramita M, Ekawati FM, et al. Physician's self-perceived abilities at primary care settings in Indonesia. *J Family Med Prim Care* 2015;4:551–8.
- Maddalena V. Leadership training for undergraduate medical students. *Leadersh Health Serv* 2016;29:348–51.
- Suhail A, Azhar A. Managing human resources in public health care system in South Asia: case study of Pakistan. *South Asian Journal of Human Resources Management* 2016;3:75–83.
- Utomo B, Suchahya PK, Utami FR. Priorities and realities: addressing the rich-poor gaps in health status and service access in Indonesia. *Int J Equity Health* 2011;10:47.
- Ministry of Village Development of Disadvantaged Regions and Transmigration. *Decree of Ministry of village development of disadvantaged regions and transmigration of Republic of Indonesia number 126 of 2017 on Stipulation of village for village development targets priority, development of disadvantaged regions, and transmigration*, 2017.
- Ministry of Health. *Regulation of the Minister of health of Republic of Indonesia number 43 of 2019 on primary care*, 2019.
- Werdhani RA. Medical problem in Asia Pacific and ways to solve it: the roles of primary care/family physician (Indonesia Xperience). *J Family Med Prim Care* 2019;8:1523–7.
- Aceh Health Office. Description of Aceh's health human resources [Internet]. Banda Aceh, 2020. Available: <https://dinkes.acehprov.go.id/jelajah/read/2021/04/29/1371/profil-sdmk-aceh-tahun-2020.html>
- Aceh Health Office. Aceh Health Profile [Internet]. Banda Aceh, 2020. Available: <https://dinkes.acehprov.go.id/jelajah/read/2021/04/28/136/profil-kesehatan-aceh-tahun-2020.html>
- Gajda J. Professional adaptation of new employees to the organization. *Syst Saf Hum - Tech Facil - Environ* 2019;1:929–38.
- Nowell LS, Norris JM, White DE, et al. Thematic analysis: Striving to meet the Trustworthiness criteria. *Int J Qual Methods* 2017;16:1–13.
- Paternotte E, van Dulmen S, Bank L, et al. Intercultural communication through the eyes of patients: experiences and preferences. *Int J Med Educ* 2017;8:170–5.
- Issa AA, Yunusa M, Garga FZA. *The meaning and theories of Intercultural communication*, 2015.
- Oliveros P. *Deep listening: A composer's sound practice*. Lincoln: Deep Listening Publications, 2005.
- World Health Organization. *Imbalances in rural primary care: a scoping literature review with an emphasis on the who European region*, 2018.
- Villar ME. Community engagement and co-creation of strategic health and environmental communication: collaborative storytelling and game-building. *JCOM* 2021;20:C08–9.
- Nakano TdeC, Wechsler SM. Creativity and innovation: skills for the 21st century. *Estud Psicol* 2018;35:237–46.
- Belhiti Z, Nebot Giral A, Marchal B. Complex leadership in healthcare: a scoping review. *Int J Health Policy Manag* 2018;7:1073–84.
- Dickson G, Van Aerde J. Enabling physicians to lead: Canada's LEADS framework. *Leadersh Health Serv* 2018;31:183–94.

Appendix 1**Interview guide**

Key questions:

1. What is/are your role(s) in your organisation (tell us about your work as a physician leader)?
2. What are the important elements of the physician leader role? (based on LEADS framework: Lead self, Engage others, Achieve results, Develop coalitions, and Systems transformation)
3. From your experience, what are the main challenges and barriers to building physician leadership competencies in rural and remote areas?
4. What leadership behaviour and competencies do you apply in practice?
5. What knowledge, skills and attitudes are needed by a physician who leads primary care teams in rural and remote areas?

Appendix 2**Overview of themes and subthemes**

Themes	Subthemes	Codes	Participants who mentioned this
Qualities of a good physician leader commensurate with LEADS	Being culturally sensitive	Sociocultural	1, 2, 3, 4, 5, 6, 8, 9, 11, 12, 14, 15, 16, 17, 18 (N=15)
		Communication skills	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 (N=18)
		Listening skills	2, 3, 5, 6, 7, 9, 13, 14, 15, 16, 18 (N=11)
		Community collaborative engagement	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18 (N=16)
	Having a strong character (perseverance)	Courage	3, 9, 11, 14, 15, 17, 18 (N=7)
		Determination	1, 2, 3, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 (N=14)
		Building trust	1, 2, 5, 6, 7, 8, 9, 10, 12, 13, 16, 17, 18 (N=13)
	Being creative and flexible	Geographical barriers	1, 3, 4, 6, 8, 9, 10, 11, 12, 14, 15, 17, 18 (N=13)
		Limited material/healthcare resources	1, 3, 4, 8, 9, 11, 12, 13, 18 (N=9)
		Difficulties in expanding their knowledge and competence	18 (N=1)
		Limited health workforce	1, 3, 4, 6, 8, 9, 10, 12, 15, 16, 17, 18 (N=12)
		Social rejection	17 (N=1)
		Illiteracy problem in community	1, 2, 3, 4, 5, 7, 8, 11, 12, 13, 14, 15, 16, 17, 18 (N=15)
Ability to perform multiple tasks (versatility)	Responsibilities	Dual role	1, 2, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 (N=16)
		Multitasking	1, 4, 5, 7, 8, 9, 11, 14, 15, 17, 18 (N=11)

Appendix 3**Perceived needs (N=18)**

Domain	Subdomain – A competent leader..	Total respondents who responded this	Category
Lead self	is aware of their own assumptions, beliefs and principles	N=5	Low
	is aware of their own strengths and limitations	N=10	Moderate
	takes responsibility for their own performance	N=13	High
	takes responsibility for their own health	N=7	Moderate
	actively seeks opportunities and challenges for personal learning, character building and growth	N=10	Moderate
	models qualities such as honesty, integrity, resilience and confidence	N=15	High
	is genuine and passionate	N=10	Moderate
	gains the respect of their community members and peers	N=1	Low
	is comfortable in their own shoes	N=9	Moderate
	understands when is the right time to pass on information	N=9	Moderate
	knows who they are, where they come from and is proud of that grounding, for it is their identity	None	Low
Engage others	supports and challenges others to achieve professional goals	N=6	Moderate
	supports and challenges others to achieve personal goals	None	Low
	creates engaging environments in which others have meaningful opportunities to contribute	N=14	High
	ensures that resources are available to fulfil expected responsibilities	N=5	Low
	listens well and encourages an open exchange of information and ideas using appropriate communication media	N=13	High
	facilitates environments of collaboration and cooperation to achieve results	N=15	High
	Leadership is fostered across the community	N=8	Moderate
	wants to hear the information first-hand	N=1	Low
	takes time to digest what they are hearing	N=2	Low
	listens more, talks less and asks questions	N=3	Low
	represents active listening	N=8	Moderate
	encourages the community to take the lead	N=2	Low
	wants to understand the commitment being made and to be assured it will have a positive effect on their community	N=12	High
Achieve results	inspires vision by identifying, establishing and communicating clear and meaningful expectations and outcomes	N=12	High
	integrates organisational missions and values with reliable, valid evidence to make decisions	N=9	Moderate
	acts in a manner consistent with organisational values to provide effective and efficient public-centred service	N=11	High
	assesses and evaluates outcomes	N=13	High
	compares the results against established benchmarks	N=3	Low
	corrects the course as appropriate	N=4	Low
	invites the community to set the direction	N=11	High
	creates a space where everyone has an opportunity to speak and learn from each other regardless of who they are	N=9	Moderate
	understands that cultural safety is more than a history lesson (it is about opening dialogue with many different people about wellness; in this sense, the leader creates the appropriate conditions for this dialogue and joint learning to take place)	N=13	High
	must be in an environment that supports ownership and self-governance	N=1	Low

Develop coalitions	creates connections, trust and shared meanings with individuals and groups	N=13	High
	facilitates collaboration, cooperation and coalitions among diverse groups and perspectives with the aim to improve service	N=11	High
	employs methods to gather intelligence	N=10	Moderate
	encourages an open exchange of information	N=4	Low
	uses quality evidence to influence action across the system	N=2	Low
	shows a political astuteness (adeptly uses skills, knowledge and judgements to shape an environment that will influence the organisation's decision-making process)	N=7	Moderate
	can negotiate through conflict	N=9	Moderate
	can mobilise people	N=1	Low
	can develop community trust (i.e. the community trusts that what they say is true)	N=3	Low
	invests in getting to know the people in the community so that they learn more about how the community operates	N=7	Moderate
	nurtures relationships over time; rather than visiting the community once, the competent leader is dedicated to long-term relationships	N=6	Moderate
	passes forward information and knowledge	N=7	Moderate
	protects the wisdom of the past and uses it to educate the future	N=2	Low
	recognises that knowledge can come from many different sources	N=5	Low
	acknowledges that historic agreements have a key place in indigenous history and are therefore foundational to many conversations	N=2	Low
Systems transformation	thinks analytically and conceptually	N=7	Moderate
	questions and challenges the status quo (thereby effecting positive change and fostering innovation)	N=15	High
	can identify issues, solve problems and design and implement effective processes across systems and stakeholders	N=8	Moderate
	creates a climate of continuous improvement and creativity aimed at systemic change	N=14	High
	scans the environment for ideas, best practices, and emerging trends (and, in doing so, makes maximum use of the resources available)	N=9	Moderate
	actively contributes to change processes that improve health service delivery	N=7	Moderate
	recognises that communities and nations need to be able to control their systems and make their own decisions	N=1	Low
	aims to include all healthcare providers and indigenous people (is able to organise and manage a heterogeneous group, whilst respecting their uniqueness in an empathetic, unbiased way)	N=3	Low
	allows the community to set the agenda and priorities	N=5	Low
	recognises that each community is unique, and that each community therefore requires a tailored approach; there is no one size fits all	N=9	Moderate
	realises that today's decisions impact the leaders of tomorrow as well as their future quality of life	N=5	Low
	acknowledges that health transformation pushes limits to promote required changes	N=5	Low
	accounts for and modifies timelines, so as not to rush community decision-making	N=1	Low

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