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The influence of TB care community cadre's roles on the treatment adherence of tuberculosis (TB) sufferers☆

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Abstract
Objective: This research was conducted to analyze the effect of TB care Aisyiyah community cadre's roles on treatment adherence of tuberculosis sufferers.
Method: This study used a quantitative approach with a cross-sectional survey method, which is strengthened by qualitative data with an in-depth interview with 4 people of TB care Aisyiyah community cadres. Sample determination using the census technique to all TB patients totaling 128, which was carried out in Makassar City from February to May 2018.
Result: The results showed that the role of TB care Aisyiyah community cadres was relatively low, while the medication adherence is relatively high. The roles of Aisyiyah's TB care community cadre reflected by several indicators, namely early detection of TB suspects, ability to advocate, ability to mobilize, ability to motivate, and the ability to eliminate the stigma of TB sufferers, did not significantly affect TB medication adherence.
Conclusion: In general, the role of Aisyiyah's TB care community cadre was low and did not significantly affect the treatment compliance of TB sufferers.
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Introduction

Tuberculosis (TB) is an infectious disease caused by the bacterium *Mycobacterium tuberculosis*, which usually infects the lungs and affects other parts of the body. TB can spread into the air through coughing causes it is easy to spread. Over the past 5 years, tuberculosis (TB) even has become

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a leading cause of death with a ranking above HIV/AIDS. It happens even though with timely diagnosis and proper treatment, the majority of TB sufferers can be cured.

TB cases are still a threat in South Sulawesi Province. South Sulawesi Health Profile Data in 2016 noted that the number of pulmonary TB sufferers in South Sulawesi was 8470 cases, and specifically in Makassar City was 1884 cases, the largest compared to all districts and cities in South Sulawesi.[1] TB cases are not only economically detrimental but also have negative social impacts, such as stigma and even ostracized by the community.

TB control is not only the responsibility of the government, but it also needs the support and involvement of all elements of the community, including community organizations. As stated in Indonesian Law Number 36 the Year 2009 concerning health article 152 paragraphs 1 and 3 concerning infectious diseases, which states that the government (local government) and the community are responsible for making efforts to prevent, control and eradicate infectious diseases and their consequences.[2]

Treatment adherence is influenced simultaneously by socio-economic factors, health care systems, disease characteristics, patient-related factors, and treatment of the disease. Improved medication adherence can be achieved by solving problems related to each of these factors.[3] A research literature study examining TB treatment adherence found that four main interrelated factors affecting TB treatment adherence including structural factors (including poverty and gender discrimination), social context, health service factors, and personal factors.[4]

Study of factors that influence individuals to (including families) seek health care and be compliant for treatment include social factors, family support, economy, health care system (including good communication), peer group support, disease characteristics, patient personalities, and treatment of disease.[5–14]

Methods

This study uses a quantitative approach with a cross-sectional survey method that is strengthened by qualitative analysis. Determination of the sample using a census technique to 128 TB patients as research samples. The study was conducted in Makassar City from February to May 2018. Data collection was carried out through questionnaires, direct observation, and an in-depth interviews at the study site. Data processing and analysis using quantitative statistical analysis (descriptive and inferential). Descriptive analysis is used to describe information about the data or phenomenon under study. Inferential analysis using Smart Partial Least Squares (Smart PLS2.0) software to test the research hypotheses and draw conclusions based on the analysis results. Qualitative data obtained through in-depth interviews with 4 representatives of TB care Aisyiyah community cadres in Makassar. Qualitative data analysis was carried out to deepen quantitative findings.

Results and discussion

The roles of cadres

The roles of Aisyiyah's TB care community cadres which were the focus of this research study namely (a) the ability to detect TB suspects early, (b) the ability to advocate TB sufferers, (c) the ability of social mobilization, (d) the ability of TB cadres to motivate TB sufferers, and (e) the ability to minimize stigma for TB sufferers. In general, the role of cadres in this study is in the low category caused by the lack of meetings and visits of cadres to sufferers. A detailed description of the role of cadres is presented in Table 1.

Table 1 The frequency and percentage of respondents' assessments of the cadre's role.

Indicator	Category	Frequency	Percentage (%)
Early detection ability in suspected TB	Low	78	61.0
	Medium	30	23.4
	High	20	15.6
The ability to advocate TB sufferers	Low	77	60.1
	Medium	47	36.8
	High	4	3.1
The ability of social mobilization	Low	101	78.9
	Medium	21	16.4
	High	6	4.7
The ability of TB cadres to motivate TB sufferers	Low	76	59.4
	Medium	11	8.6
	High	41	32.0
Ability to minimize stigma for TB sufferers	Low	81	63.2
	Medium	36	28.1
	High	11	8.6

Table 2 The frequency and percentage of respondents' assessments of medication adherence.

Indicator	Category	Frequency	Percentage (%)
The frequency of taking drugs	High	118	92.2
	Low	10	7.8
Dosage compliance	High	124	96.9
	Low	4	3.1
Check-up schedule	High	109	85.2
	Low	19	14.8

Treatment adherence

Treatment adherence that is the focus of this study includes the frequency of taking drugs in TB patients, dosage compliance, and check-up schedule. In general, Table 2 shows that the level of patient medication adherence in all indicators is in the high category. It means that the majority of TB sufferers adhere to treatment. A description of the sample distribution based on treatment compliance with TB patients can be seen in Table 2.

The frequency of taking medication is in the high category (92.2 percent). Most sufferers take medicine as recommended by health workers (every day in the initial phase of treatment and three times a week in the next phase), never forgetting to take medication, and not deliberately not taking medication. However, we found several cases of patients stop taking medicines before the allotted time. The reason to that was because they feel that their health condition has improved (usually the next phase of treatment, which is the 3rd month of treatment). It is also because they forget not to take medicine for days (for example: due to working outside the area, like a driver). Beside it is also caused by feeling bored taking medication and because of side effects of the drug.

Dosage suitability is in the high category (96.6 percent), which means that most sufferers take medicine according to the dosage health workers recommended. The high percentage of dose compliance is due to the fact that most TB sufferers never reduce or increase the number of anti-TB drugs that have been recommended by health workers, never replace anti-TB drugs with other drugs or herbal medicines, and never throw away anti-TB drugs. However, we found several cases of patients stopping taking anti-TB drugs and preferring traditional or herbal medicines, stopping taking medication because it was difficult to swallow the drug due to its large size and a large number of drugs (3 drugs in one drink) which is usually experienced by sufferers of the elderly category.

The check-up schedule is relatively high (85.5 percent), which means that the patient follows the check-up schedule regularly and correctly according to the advice of the health worker. Based on observations of research locations, it is known that sufferers routinely visit health services (Community Health Center (Puskesmas) or hospitals) for sputum check, lung check, and for taking anti-TB drugs. However, for taking medicines, the patient is usually accompanied by a close relative and sometimes represented by a close relative.

The effect of the role of TB care Aisyiyah community cadres on the treatment adherence of TB patients

The results of statistical analysis (Fig. 1) show that the role of Aisyiyah's TB care community cadre reflected in the several indicators, including the ability to detect the TB suspect early, advocacy ability, social mobilization ability, motivation ability, and ability to eliminate the stigma of TB sufferers, did not significantly affect treatment compliance by TB sufferers. It is caused by the lack of meetings or interactions of cadres with TB sufferers.

The result found in this research is different from research findings in several literatures. Dudley et al. (2003) concluded that in North Africa, community health worker support contributed to better TB control program performance than approaches based solely on health facilities.[15] Besides, it was also reported in the literature that leaders, specially trained leaders, can help TB control. Pirkani et al. (2009) found that religious leaders who had received training were effective in finding individuals suspected of TB as well as in advising them to visit TB clinics, resulting in a noticeable increase in case detection rates.[16] These religious leaders convey messages to the public in an effective way so that patients attend TB clinics as religious leaders suggest. Sutisna et al. (2017) stated that the leadership role of community leaders in finding TB sufferers was to provide motivation, a place to ask questions and consultations, hold regular meetings, and manage activities and raise donations.[17]

Also, United Nations Children's Fund (UNICEF), in collaboration with non-governmental organizations in India, creates a *Social Mobilization Network* (SMNet), which aims to increase access and reduce family and community resistance to polio vaccination. Various innovations have been carried out, including the formation of a local social mobilization coordinator, the involvement of community leaders, the use of child motivators and child parades, the introduction of health camps, and the support of related health interventions such as sanitation, hygiene, and maternal health education.[18] Zainal et al. (2019) found that the patient's personal factors (self-efficacy) had a significant effect on the treatment of TB sufferers.[19] It is also found by Zainal et al. (2018) that the role of cadres and administrators of the Aisyiyah TB care community program in Makassar greatly influences TB sufferers through advocacy, communication, and social mobilization activities.[20]

Ashwell and Barclay (2009) on community-based health programs in Papua New Guinea found that sustainable

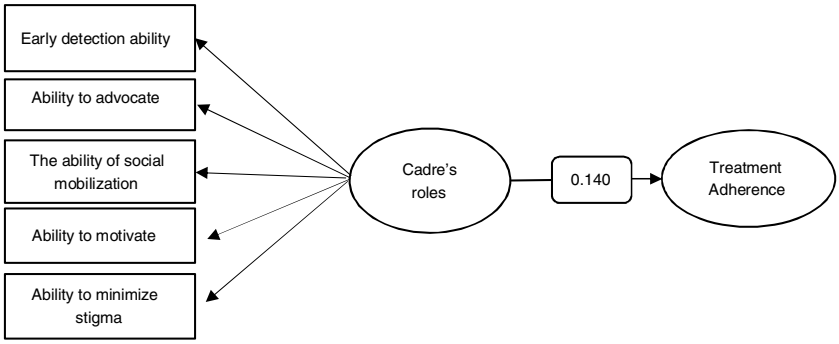

Figure 1 The effect of Community TB Care Aisyiyah cadre's roles to treatment adherence of TB sufferer.

independence in the health sector can be achieved through the leadership of community leaders and maintaining health-related activities.[21] Kamineni et al. (2011) pointed out that the involvement of Non-Government Organizations (NGOs) as a link, coupled with increased training and involvement of health workers and community groups, and the distribution of community-based resources can contribute to raising awareness and knowledge about TB.[22]

Overall, the findings of the low role of cadres in this study were strengthened by the results of interviews with cadres in the study location. For example, cadres in Panakukang Subdistrict admit that it is difficult to divide their time since being accepted as a health worker in one of the health services in Makassar City. Since being appointed as a health worker in 2013, the frequency of meetings with TB sufferers is more frequent in health services. But he continued to monitor the development of patients or suspected through cadres, ''satellite'' that he recruited in each working area. The ''satellite'' cadre is in charge of delivering information about TB.

> ''Since 2013, Cadre LY has been less active in looking for suspected TB because he has been accepted at Makassar City's Lung Center as an employee. But I recruited satellite cadres to help convey information about TB and suspects.''

Likewise, a cadre working in the Makassar sub-district admitted that from 2015 to 2017, there was very little searching for TB suspects or TB patient assistance because of costs, especially transportation and logistics costs. However, the cadre said that at the beginning of joining as a cadre (from 2008 to 2014), he actively sought TB suspects and provided assistance specifically to help TB sufferers get drugs in health services (puskesmas). In addition, there are also cadres who also work as administrators of the Rukun Tetangga (RT), village officials, so that it has implications for the less optimal in finding and assisting TB patients.

> ''*Cadre NB* said that he actively sought suspects and TB patients around 2008–2014. From 2015, 2016 to 2017, he is no longer actively seeking suspects and prefers to wait at the Puskesmas due to transportation funds. Besides that, gathering people needs consumption for people.''

However, it was found that there were still active cadres assisting TB sufferers. One of them is a cadre in the Tallo District of Makassar City. The cadres have relatively free time to find and help TB patients and have good friendships with local health workers. According to him, the purpose of being a cadre was only to accompany her husband in order to recover from TB. But over time, cadres began to become active as cadres for social care, also to help the household economy because becoming cadres get salaries, if they find suspects and TB positive patients. Sometimes they also receive an additional honorarium for attending TB training held by the Aisyiyah TB care community committee.

> ''Cadre *ST* He explained that my initial motivation was to join because my husband had suffered from TB, so I had to accompany him during treatment until healed. In addition to the economic boost, it happened that my husband was only a private employee, and I still had several family members (children) who were attending school.''

Cadres hope to get the attention of the government because they are directly involved in helping alleviate the government's responsibility (in the health sector) to overcome TB.

Conclusion

In general, the role of Aisyiyah's TB care community cadres was relatively low. The influence of the role of Aisyiyah's TB care community cadre reflected by indicators of TB suspected early detection ability, advocacy ability, social mobilization ability, motivation ability, and ability to eliminate the stigma of TB sufferers did not significantly affect TB patient treatment compliance due to the low meetings or interactions of cadres with TB sufferers. Efforts to improve the competency of cadres are needed so that their role as the ''spearhead'' in the field can have a more significant influence on the treatment compliance of TB sufferers.

Conflict of interest

The authors declare no conflict of interest.

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