Effect of distance on access to health services among women with type 2 diabetes in a rural community in Kenya

L W Mwaura, S Wandibba, and C O Olungah

Abstract

This cross-sectional and descriptive survey has determined the extent to which distance to the formal healthcare facilities influences the health-seeking behaviour of women suffering from diabetes in Kiambu County, Central Kenya. The lottery method and systematic sampling were used to select the study sub-counties and study sample size of 200 women. Data were collected using face-to-face interviews through survey methods, key informant interviews, and focus group discussions and narratives. The age of the respondents ranged from 18 to 85 years, while their modal range of age was 63–67 years. Over a half (54.0%) had primary education, 23.5% had secondary school education, and 18.5% had no formal education. Others (2.0%) reported that they had either university education or adult literacy classes. The range of distance covered was 1–141 km and the modal range of the distance travelled was 15–19 km. This study indicated that distance impacts choice of a health facility, cost of health services, frequency of clinic attendance, and mode of transport from home to the health facility. Taking health services closer to persons suffering from diabetes could benefit health-seeking behaviour.

Introduction

Diabetes, a long-term metabolic condition, requires self-care, family support, and care at health facilities in order to reduce health-related risks, improve health outcomes, and promote better quality of life.[1] Physical access to health services is considered an important barrier to provision of both preventive and curative services, particularly for rural populations residing in resource-scarce countries.[2,3]

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Geographical access to healthcare can be measured in travel time or distance travelled to a health facility, taking into consideration physical barriers and poor road networks.[4] Road networks and infrastructure in optimum condition are necessary for easier travel to health facilities, and for timely referrals in emergencies such as those that occur in persons suffering from diabetes. Conversely, lack of adequate road infrastructure and reliable transport services, as seen in resource-deprived regions and countries such as Kenya, is a notable barrier to access to healthcare. In remote rural health facilities this means that more time and finances are required, which act as obstacles to obtaining care, especially for women and the poor.[5]

Underprivileged and vulnerable populations mainly use public health facilities for their healthcare needs. These health facilities are, however, often not within reach of the majority of individuals living in rural areas.[6] Although a primary healthcare facility should ideally be at least within a 15 minute walking distance,[7] most walk long distances to get to such facilities. The policy of the government of Kenya is to make healthcare facilities easily accessible to all and, therefore, increase utilisation for better diabetes care.

This study was conducted to determine the role of distance in accessing healthcare by women in a rural setting in Kenya. The findings could help the government in the implementation of intervention programmes that enable women to access healthcare whenever they need to and wherever they reside.

Patients and methods

This was a cross-sectional and descriptive clinic-based survey involving 200 women with diabetes aged 18–85 years, drawn from two out of twelve sub-counties in Kiambu County, Central Kenya. Central Kenya is among three other regions in the country with a high burden of diabetes compared with other regions. The lottery method was used to select the two sub-counties. A sample size of 200 respondents, selected using a statistical formula recommended for cross-sectional studies, was considered adequate to provide pertinent information required during the face-to-face interviews.
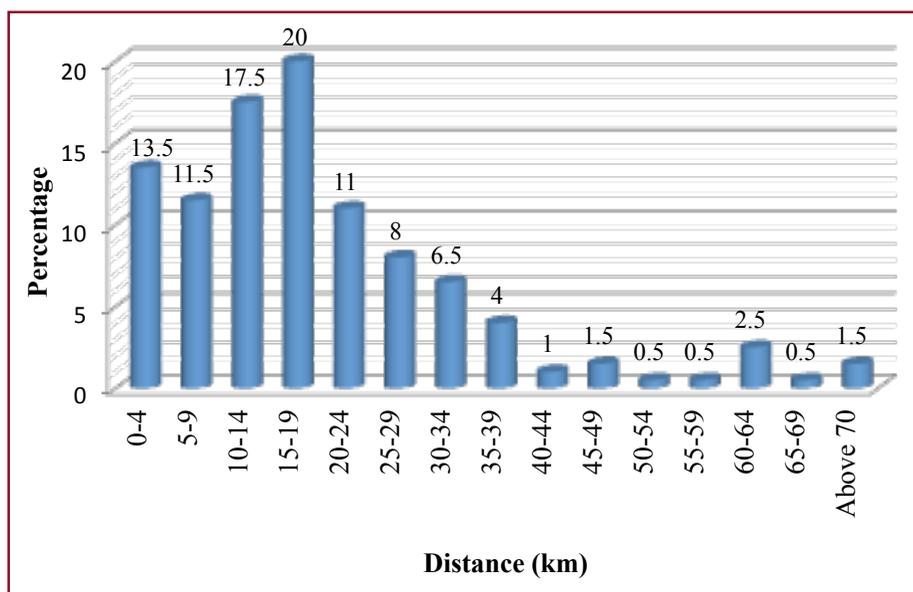
A structured questionnaire, the main research

Figure 1: Distance that patients travelled to the health facility

Clinic attendance	Frequency (%)
No response	1 (0.5%)
Weekly	5 (2.5%)
Two weeks	13 (6.5%)
Three weeks	4 (2.0%)
Monthly	46 (23.0%)
Two months	26 (13.0%)
Three months	85 (42.5%)
Over four months	20 (10.0%)
Total	**200 (100%)**

Table 1: Frequency of diabetes clinic attendance

instrument, consisted of open-ended and closed-ended questions. The questionnaire was piloted during the first phase of the study in a neighbouring sub-county. This was aimed at pre-testing and refining the survey instrument. Subsequent to the pilot study, face-to-face interviews were conducted to collect data on the extent and nature of formal healthcare obtained, predisposing factors and constraints to utilisation of formal healthcare.

During the second phase, key informant interviews were conducted with four health providers comprising nurses and social workers in the diabetes clinics. Case narratives, derived from purposively sampled narrators, were also conducted during this phase. Phase three involved conducting focus group discussions on health-seeking behaviour of the study elements. Qualitative data, obtained in these two phases, complemented the quantitative data collected during phase one of the study. Information collected during the interviews included age, marital status, educational status, main occupation, income, type of facility, distance to the facility, and mode of transport used, as well as predisposing, enabling, need, and restrictive factors.

To obtain distances from home to diabetes clinics, the Geographical Information System (GIS) was used. The system was used to compile county and sub-county administrative boundaries, villages, roads, and public health facilities. Specific villages of interest, where the study sample resided, were identified and plotted as points. Using a measuring tool, ground distances were measured from the identified points in the villages along the roads to the main health facilities. Distances were measured in kilometres.

Data were analysed quantitatively and qualitatively using the Statistical Package for the Social Sciences (SPSS) programme Version 21.0, and through content and thematic analyses, respectively. The narratives were recorded verbatim without any attempt to alter meaning.

Results

In total, 200 respondents were interviewed in this study. The respondents travelled varying distances from their places of residence to the health facilities of their choice (see Figure 1). More than one third (37.5%) of the respondents travelled a distance of 10–19 km, followed by one quarter (25.0%) who covered a distance of 0–9 km. Other respondents (19.0%) travelled 20–29 km, while 10.5% covered a distance of 30–39 km. There were 3.0% who covered a distance of 60–69 km, 2.5% travelled 40–49 km, while 1.5% covered a distance of over 70 km. Lastly, a small proportion (1.0%) indicated that they travelled a distance of 50–59 km. The respondents' modal range of distance travelled was 15–19 km. The range of distance travelled was 1–141 km. Using Pearson's correlation coefficient test, results indicated that an increase in the distance travelled to the health facility was associated with a decrease in the frequency of seeking medical treatment ($p < 0.05$).

Diabetes clinic attendance

Frequency of clinic attendance was determined by prevailing individual health needs. Table 1 shows the frequency of clinic attendance for the 200 patients. Most (42.5%) attended the clinic every three months, with 78.5% attending a clinic at intervals of between one and three months.

Mode of transport from home to health facility

Mode of transport to a health facility has a bearing on cost, and such cost is also influenced by distance. There were 179 (89.5%) who used public minibuses (matatu), and 56 (28.0%) who used motorbikes. Only 13 (6.5%) walked to the clinic, 8 (4.0%) used a personal car, and 7 (3.5%) travelled by taxi.

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Discussion

This study was conducted in a rural area with over a half of the respondents having attained primary education and slightly more than half engaged in subsistence farming. These demographic characteristics, inter alia, influence health-seeking behaviour in different ways. The results also indicate that distance to the health facilities was considered by the respondents as one of the limiting factors to seeking care in health facilities.

In low-income countries, the distance that persons travel to health facilities has been reported to be a determinant of health-seeking behaviour. For example, recent studies on health services utilisation in Pakistan and Zambia respectively, observe that physical distance to the health facility influences health seeking-behaviour and use of health services.[8,9] In our study, some of the women chose to travel from their rural homes to residences of their relatives who lived closer to the health facilities in order to report to the clinic on time. Similar observations were made in Tanzania regarding distance, indirect costs, and use of public transport.[10] The findings on the complications that distance adds to accessing formal health services in the foregoing studies are consistent with some recent studies in Kenya,[6,11] on geographical distance from place of residence to a health facility as a factor for consideration in the choice and use of health services.

Distance influences frequency of clinic attendance and the overall management and treatment of diabetes. The debilitating nature of diabetes potentially results in long-term damage, malfunction, and eventual failure of different body organs.[12] This requires the women to attend diabetes clinics at designated intervals for screening and monitoring diabetes control, blood pressure, weight, etc. Uptake of health services, based on the level of illness, is dependent on predisposing, enabling, and need-for-care factors.[13–15] The need to cover varying distances by the respondents and accompanying costs influenced the follow-up protocol at the health facility.

Challenges of geographical accessibility to health facilities cause patients to use different modes of transport to access biomedical treatment. In this study, women with diabetes in Kiambu County walked, used public and private means of transport, and, in a few cases hired vehicles in order to reach health facilities. Use of transport has an impact on healthcare expenditure. When women were accompanied to and from health facilities, the cost of transport increased. In some cases, depending on their general health status, two adults accompanied them. Accompanying an ill person to a health facility constitutes indirect costs of illness, which is an increase in the burden on the household budget.[3,16] Limited access to transportation and costly public transport are among the challenges facing women while seeking treatment, particularly in resource-poor settings.[17]

In conclusion, this study revealed that distance from place of residence to the health facility invariably influences the frequency of clinic attendance, mode of transport, and cost of transport for persons suffering from diabetes.

Author declaration

Competing interests: none.
Any ethical issues involving humans or animals: none.
Was informed consent required: yes - documentation on file.

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