Financial costs of diabetes mellitus among patients attending outpatient clinics in a military hospital in Sri Lanka

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Diabetes mellitus is a chronic non-communicable disease with rising global prevalence.[1] It affects the quality of life and causes negative socioeconomic consequences to patients, families and the country. A hospital-based, descriptive cross-sectional study was conducted to assess the financial cost due to diabetes mellitus among patients attending outpatient clinics at a military hospital in Sri Lanka.

Prevalence-based retrospective data were collected using a self-administered questionnaire from a convenient sample of 200 outpatients in which the majority were males (95.5%; n=191), and the mean age was 41 years and 8 months (±SD 7 years). The mean duration of illness was 5 years and 22 days (±SD 4 years). The financial cost incurred by patients due to diabetes was studied as 'direct medical cost' and 'direct non-medical cost' using the 'cost-of-illness' approach[2] from patient perspective. The estimated mean financial cost was US$55 (LKR9949.11) per patient per year. The mean direct medical cost was US$36 US$ (LKR6478.65) per patient per year (US dollar value, US$1 to LKR=181.511, used for comparisons). It comprised 65% of the total financial cost. The majority (54%; n=108) incurred costs for investigations. The majority had incurred mean direct non-medical costs of US$11 (LKR1978.48) for food and lodging (87.5%;n=75), and US$12 (LKR2140.74) transport (80.5%; n=61) during clinic participation. The cost of clinic participation was affected by the longer total time (mean 8.5 hours; IQR 5–10) spent on clinic participation due to travel time and waiting time.

To assess the out-of-pocket burden to the patients, the financial cost incurred was categorised as 'low' and 'high' considering the 75th percentile of the total financial cost per patient (US$61.6; LKR11 188.00) as the cut-off.[3] The highest (fifth) quintile of family income incurred the highest mean financial cost (US$65; LKR11 745.36), and lower quintiles incurred a higher out-of-pocket spending burden ratio of 0.02. Associations between selected sociodemographic factors with the financial costs were tested using logistic regression and the level was $p \leq 0.05$. Based on the multivariate analysis, the financial cost was significantly associated with a duration of diabetes less than 5 years (OR 0.103; 95% CI 0.022 to 0.485), and with diabetes-associated complications (OR 8.9; 95% CI 2.708 to 41.354). The financial cost to the patients was higher among older males and in lower-income patients ($p<0.05$) similar to previous literature.[4] This study identified that 96% (n=192) of the patients with diabetes mellitus incur financial costs despite free healthcare in the Sri Lanka Army. Medication costs (mean US$43; LKR7889.08) and investigation costs (mean US$21; LKR3788.03) incurred by the patients denote the shortages of medical supplies and accessibility problems to free healthcare which need to be addressed by policy directives. Since cost component estimates provide microeconomic information to formulate strategies to alleviate the burden of financial cost,[5] they necessitate healthcare planning and policy decisions aimed at reducing costs to patients.

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Competing interests None declared.

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REFERENCES

1 Statista. Percentage of diabetics in the global adult population in 2017 and 2045. Health & Pharmaceuticals; 2017. Available: http://www.statista.com/statistics/271464/percentage-of-diabetics-worldwide/
2 Kirigia JM, Sambo HB, Sambo LG, *et al*. Economic burden of diabetes mellitus in the WHO African region. *BMC Int Health Hum Rights* 2009;9:6:1–12:.
3 van Jaarsveld CH, Jacobs JW, Schrijvers AJ, *et al*. Direct cost of rheumatoid arthritis during the first six years: a cost- of-illness study. *Rheumatol (Sunnyvale)* 1998;37:837–47.
4 Wang W, Fu C, Zhuo H, *et al*. Factors affecting costs and utilization of type 2 diabetes healthcare: a cross-sectional survey among 15 hospitals in urban China. *BMC Health Serv Res* 2010;10:244:1–8:.
5 Bommer C, Sagalova V, Heesemann E, *et al*. Global Economic Burden of Diabetes in Adults: Projections From 2015 to 2030. *Diabetes Care* 2018;41:963–70.