Healthcare Resource Use and Costs Associated with Obesity and Obesity-Related Complications in Saudi Arabia

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INTRODUCTION

- In regions with a relatively high gross domestic product (GDP) per capita, such as the Gulf Cooperation Council (GCC), obesity is highly prevalent. In Saudi Arabia, obesity prevalence was estimated by the World Health Survey to be 20.2% in 2019. [1,2]
- Obesity is associated with complications that can adversely affect health, productivity, and healthcare resources. [3,4]
- Obesity and its complications are a focus of Saudi Vision 2030, a strategic plan to transform multiple sectors, including healthcare, with initiatives to reduce the burden of chronic diseases and their risk factors. [5]

AIM

To assess healthcare resource use (HCRU) patterns and the cost associated with individual obesity-related complications (ORCs) in Saudi Arabia, using a micro-costing approach.

METHODS

- Micro-costing approach was used to estimate the healthcare costs associated with 10 ORCs namely type 2 diabetes (T2D), heart failure, angina, hypertension, atrial fibrillation, dyslipidemia, sleep apnea, osteoarthritis, asthma, and chronic kidney disease. [6,7]
- Experienced physicians in public and private practice across different geographical regions were requested to estimate HCRU associated with each ORC, and estimated unit costs were obtained from hospital administrators.
- HCRU and unit costs were estimated for the following cost categories: diagnostic tests per patient; scheduled outpatient visits per patient/year; treatments received (plus dose, frequency, and duration); consumables/devices per patient/year; health education programs per patient/year; monitoring tests per patient/year; treatment-related adverse events and complications per patient/year (including inpatient, outpatient, intensive care unit, and emergency room visits); and inpatient procedures per patient/year.
- Estimated overall annual costs per patient were calculated as a weighted average of separate public and private sector costs.

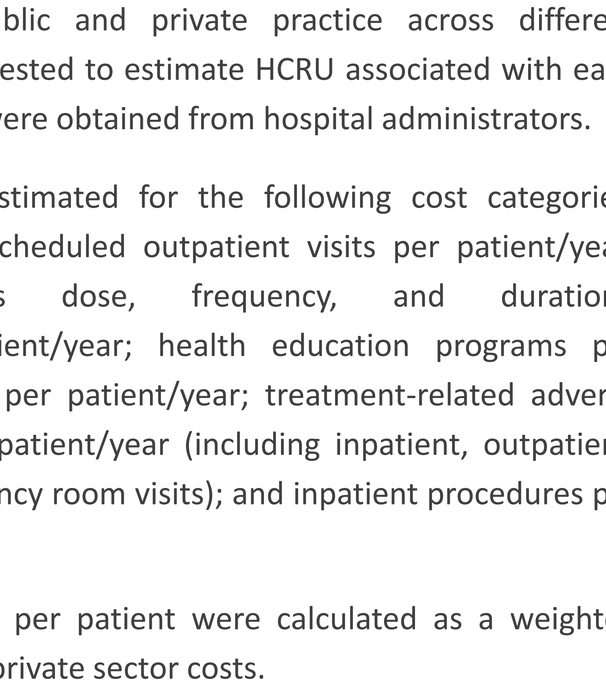
RESULTS

Total Costs for Different Obesity-Related Complications

Individuals in Saudi Arabia with any ORC incurred average annual healthcare costs between 2,165 and 7,558 USD per patient, depending on the complication.

Heart failure was the costliest complication, with an annual per patient cost of 7,558 USD. *(Figure 1)*

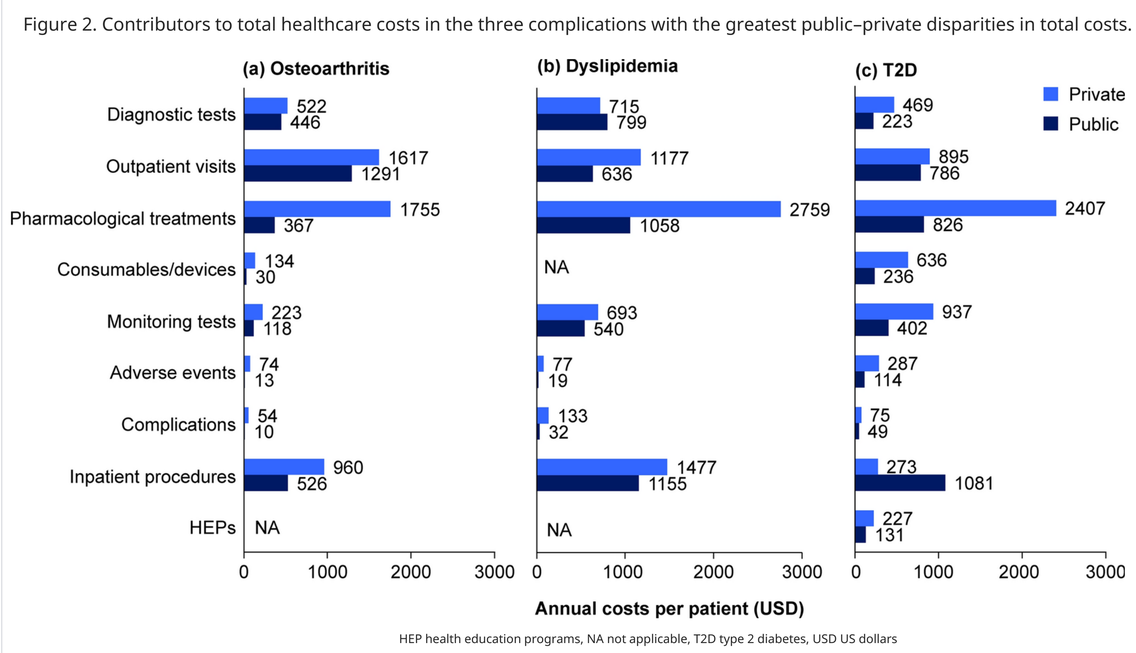
Figure 1. Estimated average annual healthcare costs of obesity-related complications per person in adults with obesity



Comparison of Costs in Public Versus Private Healthcare

- For all ORCs, costs in private healthcare exceeded those in public healthcare as shown in *Figure 1*. The largest difference was observed for osteoarthritis. Private costs were also higher than public costs for dyslipidemia, and T2D. All three complications, differences in pharmacological treatment costs accounted for the greatest disparities in total healthcare costs. [8,9] *(Figure 2)*

Figure 2. Contributors to total healthcare costs in the three complications with the greatest public–private disparities in total costs.



- For other complications, such as CKD, angina and heart failure, or hypertension, the difference between private and public healthcare costs was smaller. For these four conditions, the costs of treatment, outpatient visits, devices, and diagnostic testing were higher in private than in public healthcare, but this was offset by lower costs associated with treating complications and adverse events. *(Table 1)*

Table 1. Contributors to total healthcare costs in the seven complications with the lowest percentage difference between private and public total healthcare costs

Cost category	Public costs (USD)	Private costs (USD)	Ratio private/public
Heart failure			
Total	$7,173	$8,539	1.19
Angina			
Total	$2,839	$3,374	1.19
Hypertension			
Total	$2,250	$2,851	1.27
Atrial fibrillation			
Total	$2,688	$4,141	1.54
Sleep apnea			
Total	$3,030	$4,087	1.35
Asthma			
Total	$1,899	$2,842	1.5
Chronic kidney disease			
Total	$4,785	$6,007	1.26

USD; US dollars

CONCLUSIONS

Based on the conservative approach adopted in this study, our findings suggest that ORCs result in a considerable financial burden to the healthcare system of Saudi Arabia.

Significant cost savings could be achieved by preventing or delaying the occurrence of ORCs. Healthcare resources used in managing these complications could be reassigned to other priorities, resulting in improved quality of care for all patients in Saudi Arabia.

A multifaceted nationwide strategy, involving policymakers as well as public and private healthcare providers, is needed to address both weight management and progression of existing complications in people with obesity.

REFERENCES