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POSTER PRESENTATION

Epidemiology and Economic Burden of Atherosclerotic Cardiovascular Disease (ASCVD) in Saudi Arabia and United Arab Emirates (UAE): A Systematic Literature Review

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Background and Aim:

- Atherosclerotic cardiovascular disease (ASCVD) is characterized by the accumulation of fatty plaques in the arteries, leading to reduced blood flow and increasing the risk of cardiovascular (CV) events such as myocardial infarction (MI) and stroke[1].
- The risk factors for ASCVD include hypercholesterolemia, hypertension, diabetes, smoking, age (males older than 45 years and females older than 55 years), male gender and strong family history. Also, a sedentary lifestyle, obesity, diets high in saturated and trans-fatty acids and certain genetic mutations contribute to risk[2].
- ASCVD causes substantial economic burden to both patients and payers. People with ASCVD incur higher costs than healthy population and the key cost drivers were indirect costs resulting from work absence and inpatient admissions[3].
- This review aimed to gain insight into trends and potential implications of the burden of ASCVD in Saudi Arabia and United Arab Emirates (UAE).

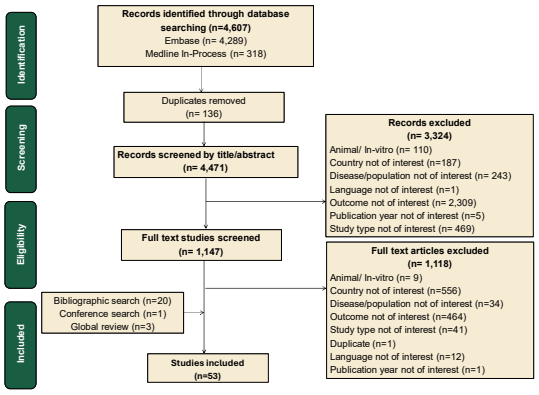
Methods:

- A systematic literature review was performed. The searches were conducted in Embase® and MEDLINE® (epidemiology: database inception to March 21, 2025; economic burden: January 1, 2013, to March 21, 2025).
- The studies were screened based on predefined criteria for population, intervention, comparator, outcomes, time, study design (PICOTS).
- The eligibility criteria for the population were adults (aged ≥18 years) at risk of experiencing a first ASCVD event or those who had experienced a previous ASCVD event and were at risk for a subsequent event.

Results:

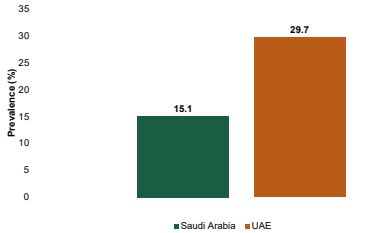
- A total of 4,607 records were identified. Following the screening process, 53 studies from Saudi Arabia and UAE met inclusion criteria (Figure 1).

Figure 1: PRISMA flow diagram



- The prevalence of ASCVD was reported to be 15.1% and 29.7% in patients with diabetes from Saudi Arabia and UAE, respectively (Figure 2)[4,5]
- The prevalence of ASCVD was approximately 8 times higher in patients with diabetes as compared to general population (29.7% vs. 3.9%)[5,6]

Figure 2: Prevalence of ASCVD in patients with diabetes[4,5]



- The age-standardized prevalence of ischemic heart disease (IHD) per 100,000 population was similar in Saudi Arabia and UAE (5.48% and 5.52%, respectively)[7], while the age-standardized point prevalence of stroke (per 100,000 population) was higher in UAE than Saudi Arabia (2,225.7 vs. 1,967.7)[8]
- The incidence/prevalence of ASCVD events was higher in males as compared to females. In UAE, the incidence rate of MI (11.6 vs 5.7) and stroke (4.5 vs 3.4) was higher in males as compared to females (Figure 3)[9]. In Saudi Arabia, the prevalence of stroke (3.7% vs 1.2%) and MI (4.7% vs 2.0%) was higher in males as compared to females (Figure 4)[10]

Figure 3. Incidence of ASCVD events in UAE[9]

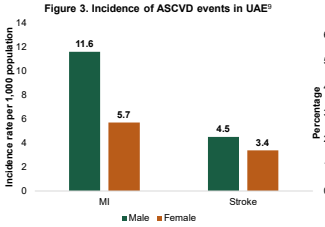
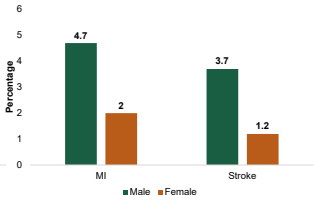
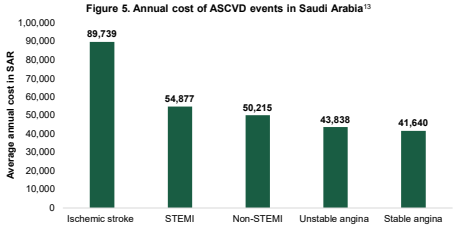


Figure 4. Prevalence of ASCVD events in Saudi Arabia[10]



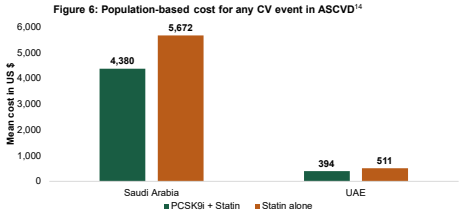
- The major risk factors for ASCVD are hypercholesterolemia, diabetes and hypertension; prevalence of these were 52.5%, 23.4%, and 18.1%, respectively in Saudi Arabian general population[11,12]
- Among ASCVD events, the annual cost per patient (in SAR) for ischemic stroke, STEMI and NSTEMI was 89,739 ($26,297.9), 54,877 ($16,081.63) and 50,215 ($14,715.44), respectively (Figure 5), with procedure cost (39%) and hospitalization cost (27%) being key cost drivers[13]

Figure 5. Annual cost of ASCVD events in Saudi Arabia[13]



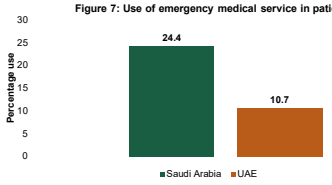
- Treatment with lipid lowering PCSK9i on top of statins reduced the hospitalization cost in patients with familial-hypercholesterolemia (Saudi Arabia: $5,225 and UAE: $5,008)[14].
- In ASCVD, the population-based cost for any CV event was reported to be lower in patients receiving lipid lowering PCSK9i + statin as compared to statin alone (Figure 6)[14]

Figure 6: Population-based cost for any CV event in ASCVD[14]



- In ACS patients, the frequency of emergency medical service was higher in Saudi Arabia (24.4%) as compared to UAE (10.7%) (Figure 7)[15]

Figure 7: Use of emergency medical service in patients with ACS[15]



Conclusions:

- Despite availability of several treatment options to manage cardiovascular risk factors, ASCVD burden is significant in Saudi Arabia and UAE, with high rates of ASCVD events and higher hospitalization and treatment costs.
- These findings highlight the importance of a multifaceted ASCVD management strategy that emphasizes guideline adherence, early and intensified control of lipid, glucose levels and blood pressure, and timely access to convenient effective treatment options enhancing long-term cardiovascular outcomes.

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