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Asbestos mining and manufacturing was banned in South Africa over 15 years ago. Data from the country's National Cancer Registry reveal a declining incidence of mesothelioma over the years and this is expected to decline further since this cancer can present as late as 20-50 years after exposure. Due to a greater occupational exposure to asbestos, there were more males than females with mesothelioma. Although Blacks comprise much of the mining workforce, we found low incidence of this cancer among them. This is possibly due to poor access to cancer screening services. Routine occupational screening among miners and ex-miners is important.

BACKGROUND

Mesothelioma affects the epithelial lining of the pleura and pericardium in the chest, the peritoneum and mesentery in the abdomen and the tunica vaginalis in the pelvis (mesothelium). Exposure to asbestos (a fibrous silicate and Group 1 carcinogen), which is often due to occupational exposure, can lead to chronic inflammation of the mesothelium resulting in malignancy. South Africa has amongst the highest incidence rates of mesothelioma in the world. After asbestos mining and production for more than a century, mining, importation, exportation and manufacturing of asbestos was banned in 2008. We aimed to describe the epidemiology of mesothelioma in South Africa.

METHODS

A cross-sectional study of pathologically diagnosed mesothelioma from 1986 to 2021 was conducted. Patient characteristics were described using proportions. The Segi world standard population and midyear population estimates from Statistics South Africa were used to calculate age-standardized incidence rates (ASIRs). Using annual percentage change (APC) calculated in Joinpoint regression, the trends in the incidence of mesothelioma were estimated

RESULTS

During the study period, 6,306 individuals were diagnosed with mesothelioma. Of the individuals diagnosed with mesothelioma, those aged 50 years and above were affected the most. Males constituted a larger proportion (72.6%) with a persistently higher incidence of mesothelioma than in females. There was a significant overall decline in the incidence of mesothelioma between from 1989 (APC=-2.45/100000 population), with the drop being more significant among the males compared to the females (APC=-2.41/100000 population).

The proportion of Africans diagnosed with mesothelioma was less than that of the Whites (34% versus 51%). The proportions of patients diagnosed in private and public sectors were similar (52% and 48% respectively). The Whites were the majority population group diagnosed in the private sector (70%).

Table 1: Characteristics of Mesothelioma Patients (1986 - 2021)

Male; n (%)	4 563 (72.6)
Age; years (IQR)	63 (54 - 71)
Population Group; n (%)	
Asian	113 (1.8)
Black	2 117 (33.6)
Coloured	725 (11.5)
White	3 215 (51)
Unknown	136 (2.1)
Diagnostic Services; n (%)	
Private	3 271 (52)
Public	3 035 (48)

RESULTS CONTINUED

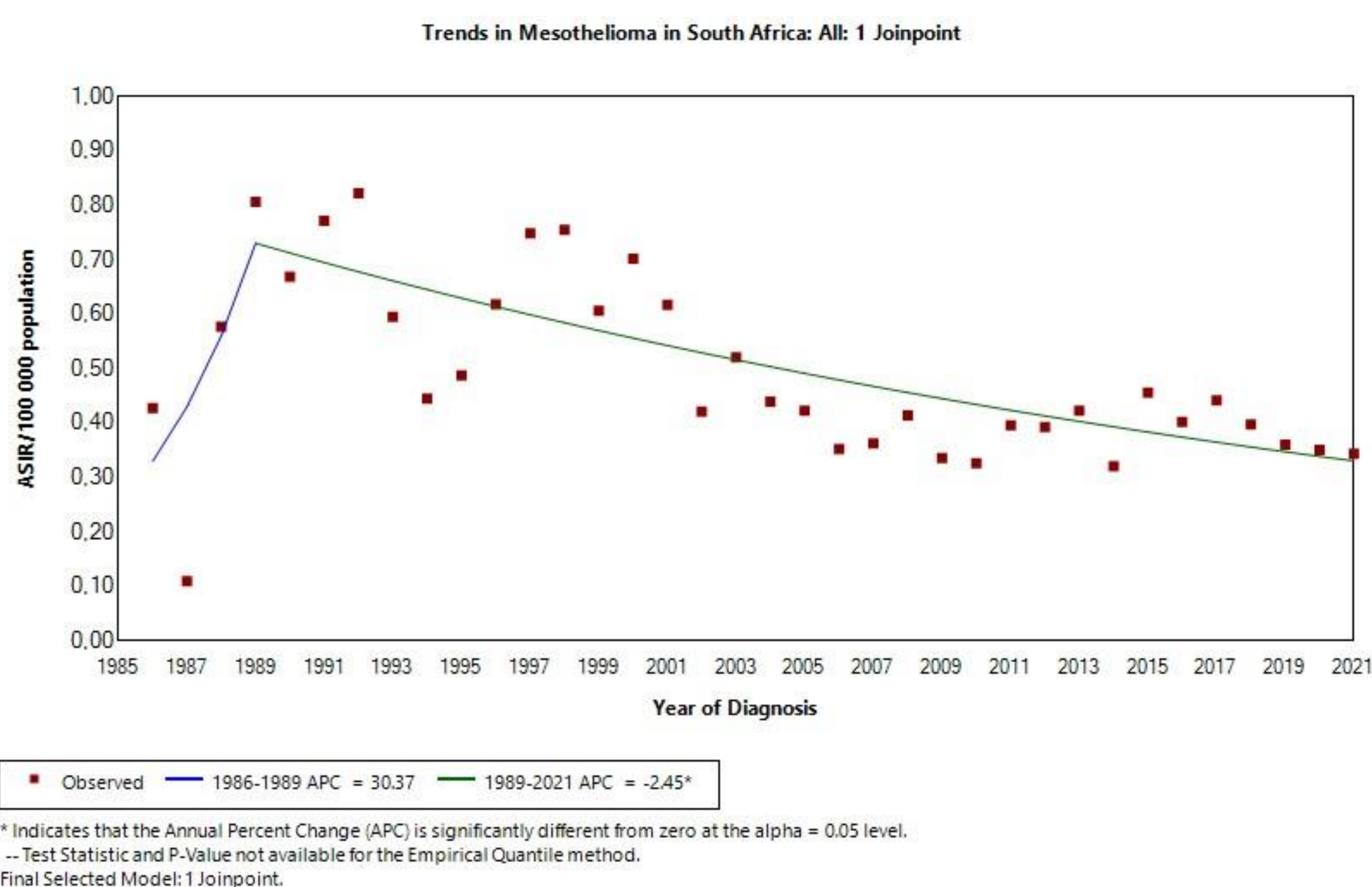


Figure 1: Trends in Mesothelioma in South Africa from 1986 to 2021

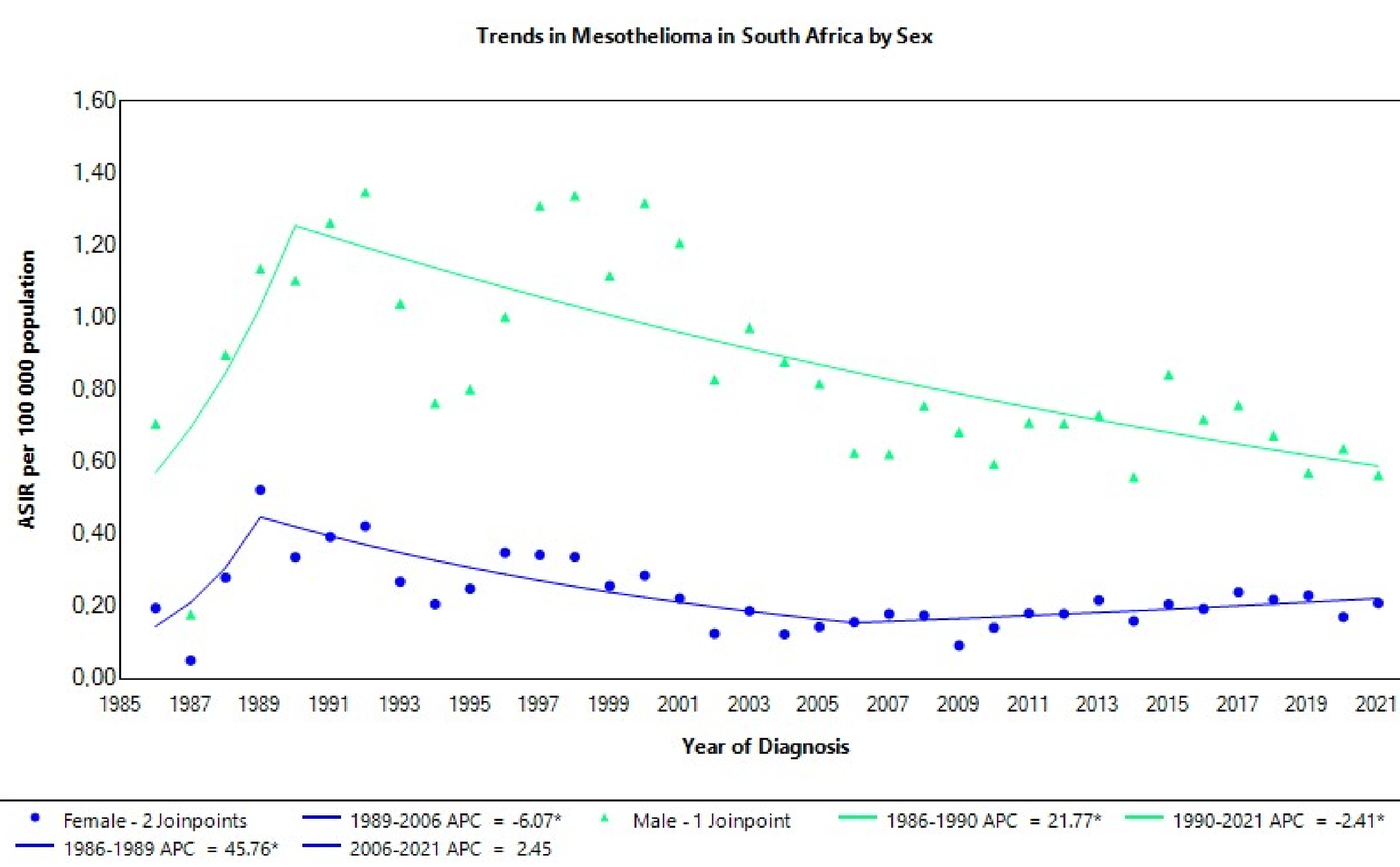


Figure 2: Trends in Mesothelioma in South Africa By Sex from 1986 to 2021

CONCLUSION

The incidence of mesothelioma has been declining over the years. With now 15 years post the legislative ban on asbestos use in manufacturing industry in South Africa, the incidence is expected to drop further since mesothelioma can present as late as 20-50 years after exposure. Despite the mining workforce consisting mainly of Blacks, we found low incidence of this cancer among them. The poor access to cancer screening services and misdiagnosis of mesothelioma (due to shared symptoms with tuberculosis) are possible causes for this finding. Due to a greater occupational exposure to asbestos, there were more males than females with mesothelioma. Occupational screening of miners with history of working in asbestos mines should be implemented as a routine measure.

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Conflicts of Interest:
The authors declare no conflicts of interest.

Additional Resources:
<https://www.nicd.ac.za/centres/national-cancer-registry/cancer-statistics/>