

# Sociodemographic and Quality of Life Analysis of a Cohort of Malignant Pleural Mesothelioma Patients at the Toronto Mesothelioma Program

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## Abstract

### Objectives:

Malignant pleural mesothelioma (MPM) is an aggressive cancer of the pleural surface of the lungs, primarily caused by asbestos exposure. To provide patients with more comprehensive and higher quality of care, social determinants of health and quality of life (QoL) of MPM patients were assessed.

### Methods:

A questionnaire containing demographic questions and EQ-5D-5L QoL survey was completed by 161 MPM patients upon their first visit to the Toronto Mesothelioma Clinic at the Princess Margaret Cancer Centre from 2018-2023. EQ-5D-5L index values were calculated for each patient based on Canadian health state valuations.

### Results:

The median age of patients in the cohort was 71. 78% of patients were male, 56% were exposed to asbestos, and 57% were current or past smokers. These results are consistent with the established trends for MPM. The most common comorbidities were hypertension (45%), hypercholesterolemia (42%), and diabetes (22%). 21% of patients reported a family history of cancer. Majority of patients presented with the epithelioid subtype, and systemic therapy (i.e. chemo- and/or immuno-therapy) was the most common treatment. The most prevalent symptoms were fatigue, shortness of breath, and chest pain.

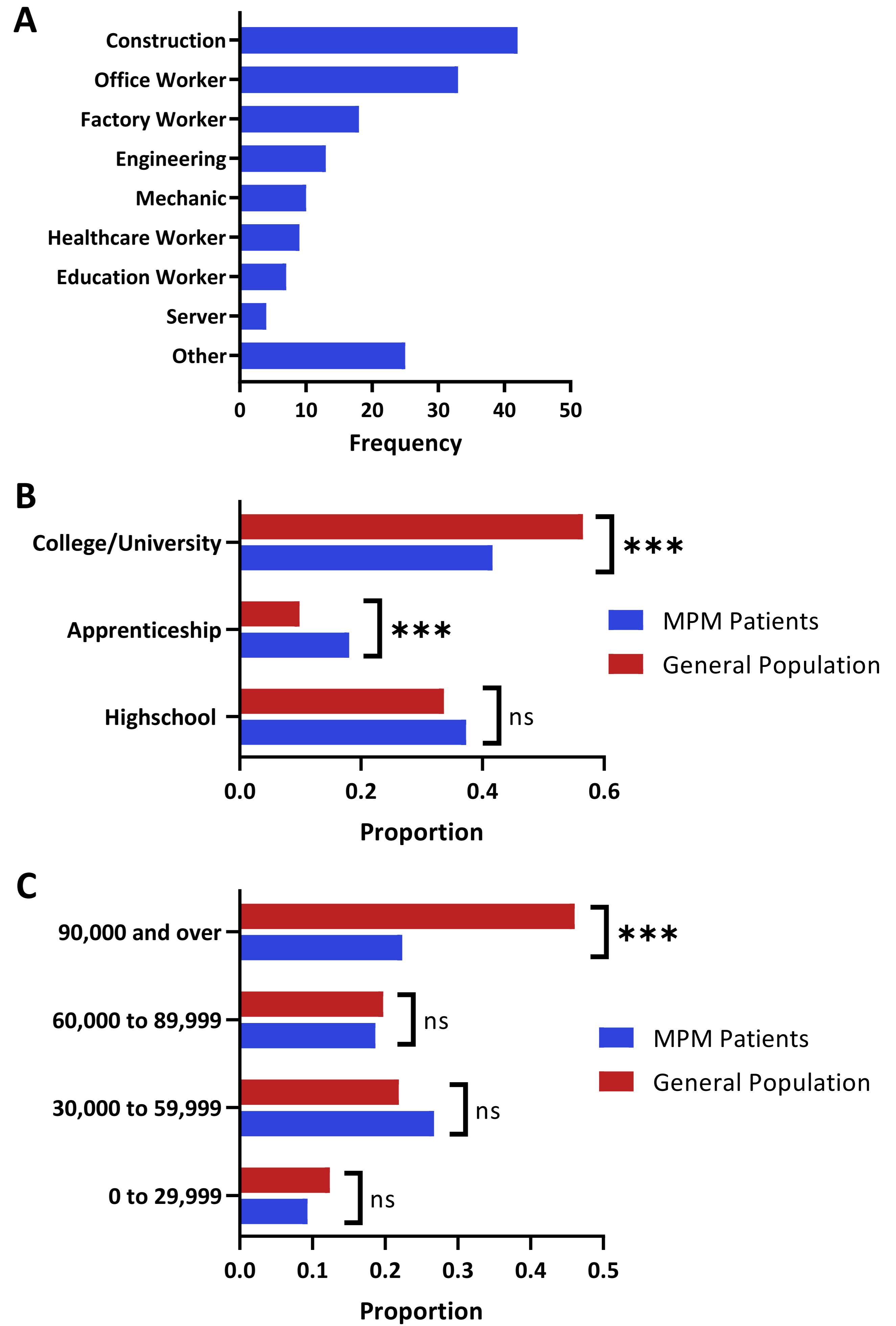
The mean EQ-5D-5L index value and visual analog scale (VAS) score from EQ-5D-5L analysis were  $0.784 \pm 0.166$  and  $67.29 \pm 18.88$ , respectively, consistent with the reported values for lung cancer patients in Canada. Subgroup analysis showed no significant difference in EQ-5D-5L index values and VAS scores based on sex, age, ethnicity, education, occupation, and income.

Family income and education status were compared to Canadian 2021 census data. The comparison showed that a significantly lower proportion of MPM patients were from higher income class (household income of \$90,000 or more) compared to the general Canadian population. Furthermore, a significantly lower proportion of MPM patients had college or university degrees and a significantly higher proportion had apprenticeship training compared to the general Canadian population.

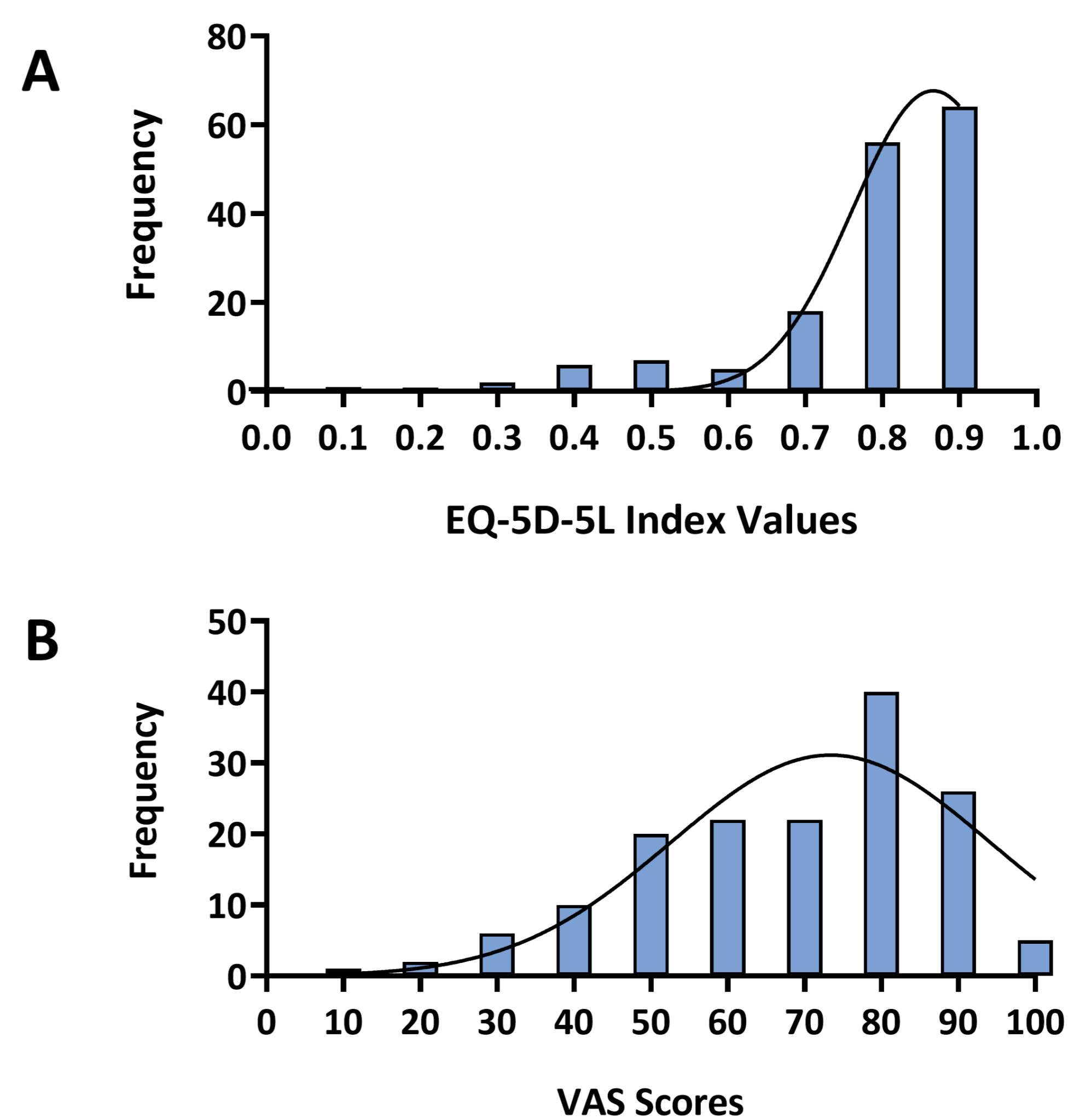
## Results

Covariate	Category	Number of Patients	Percentage of cohort n=161 (%)
Age (Median, in years [IQR])	71 [11]	-	-
Gender	Male	126	78.26
	Female	33	20.50
	Missing	2	1.24
Ethnicity	East Asian	3	1.86
	South Asian	6	3.73
	Black	2	1.24
	Indigenous	4	2.48
	Latin American	2	1.24
	Middle Eastern	5	3.11
	Caucasian	126	78.26
	Latin American	2	1.24
Treatment	Chemo- and/or Immuno-therapy	85	52.80
	Surgery	45	27.95
	Radiation	3	1.86
	Chemotherapy and Radiation	6	3.73
	Palliative Care/No Treatment	12	7.45
	Missing	10	6.21
Asbestos Exposure	Yes	96	59.63
	No	49	30.43
	Missing	16	9.94
Subtype	Epithelioid	125	77.64
	Biphasic	28	17.39
	Sarcomatoid	8	4.97
Smoking History	Non-smoker	64	39.75
	Past Smoker	83	51.55
	Current Smoker	8	4.97
Family History of Cancer	Yes	35	21.74
	No	111	68.94
	Missing	15	9.32

**Table 1. Demographic and clinical characteristics of the MPM patient cohort.** Results of sociodemographic and clinical analysis of all MPM patients are shown as absolute frequencies and percentages of the total cohort.



**Figure 1. Occupation, education and income of MPM patients.** (A) Frequencies of the most common occupations among the MPM cohort are shown. (B) Educational status and (C) income of the patient cohort were compared to the general Canadian population ( $n=161$ , \*\*\*  $p < 0.001$ ).



**Figure 2. Distribution of EQ-5D-5L index values and VAS scores in MPM patients.** Frequencies were fit to a Gaussian curve (black line) ( $n=160$  and  $n=154$  for (A) and (B), respectively).

## Conclusion and Significance

This study demonstrates that MPM is more prevalent amongst elderly, male, white, lower-middle income, and lower education populations. We anticipate these observed sociodemographic trends are related to the risk of occupation-related exposure to asbestos.

Aside from providing insights into the characteristics of the MPM patient population in Canada, this work can be used as a baseline for future QoL studies, to investigate the effects of different treatment strategies on MPM patients' QoL and further explore the role of sociodemographic factors on health status of MPM patients.