

## An investigation into the lifestyle and dietary characteristics of normal weight versus overweight and obese shift workers on the island of Ireland

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Approximately 17% of the workforce of the European Union is now engaged in shift work<sup>(1)</sup>. Shift work has been reported to adversely affect the health of workers, leading to a higher risk of overweight/obesity and other chronic diseases<sup>(2)</sup>. This study aimed to compare the lifestyle and dietary characteristics of normal weight and overweight/obese shift workers.

A cross-sectional study was conducted on 1,072 consenting shift workers using a 15-minute telephone questionnaire to establish demographic factors, shift work schedules, current food/drink consumption and snacking habits among shift workers living in Ireland. The questionnaire was developed from Irish qualitative research with shift workers<sup>(3,4)</sup>. Body Mass Index (BMI, kg/m<sup>2</sup>) was calculated using self-reported height (m) and weight (kg) measurements, and data were analysed according to WHO BMI categories: Normal weight, BMI 18.5–24.9 kg/m<sup>2</sup> vs. overweight/obese BMI ≥25 kg/m<sup>2</sup>.

Within this group of shift workers, 43.7% were classed as overweight or obese. Univariate analysis indicated that being male, middle/older-aged, consuming <5 portions fruit/vegetables per day and having medium-high fried food consumption were associated with overweight/obesity. Smoking and exceeding units of alcohol per week were associated with normal BMI. Following multivariate analysis, being male [p < 0.001, OR = 2.31, 95% CI (1.73–3.09)] and middle/older aged were independently associated with overweight/obese BMI [p < 0.001, OR = 2.54 95% CI (1.85–3.49) and p < 0.001, OR = 2.89 95% CI (1.87–4.48) respectively]. Dietary behaviours independently associated with overweight/obese BMI included medium-high consumption of fried food [OR = 1.97, 95% CI (1.48–2.63)] and eating less than the recommended number of portions of fruit and vegetables per day [OR = 1.38, 95% CI (1.07–1.79)]. Exceeding recommended units of alcohol per week remained associated with a normal BMI [OR = 0.62, 95% CI (0.38–0.99)]. Smoking was not associated with BMI following multivariate analysis.

	OR	95% CI
Male (ref: female)	2.31	1.73–3.09
Age (ref: 18–34 years)		
Middle aged (34–55 years)	2.54	1.85–3.49
Older age (>55 years)	2.89	1.87–4.48
Smoker (ref: non-smoker)	0.74	0.54–1.02
Exceed units of alcohol/week (ref: Males <17, Females <11)	0.62	0.38–0.99
<5 portions of fruit and veg/day (ref: ≥5)	1.38	1.07–1.79
Medium-high fried food consumption (ref: low)	1.97	1.48–2.63
Low lean meat consumption (ref: medium-high)	0.51	0.26–0.98

This study indicates that shift work is associated with lifestyle and dietary characteristics of shift workers, regardless of BMI. Male and middle/older age shift workers may benefit from targeted dietary and lifestyle advice to protect against overweight and obesity.

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