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Prevalence of malnutrition risk, thinness, obesity and short stature in patients from a paediatric tertiary and district general hospitals

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Prevalence of malnutrition in hospitalised children has been mainly measured in tertiary hospitals. The introduction of a novel paediatric nutrition screening tool in both a tertiary paediatric (TPH) and a district general hospital (DGH) has resulted in the ability to assess variations in prevalence of malnutrition risk, obesity, thinness and short stature in these different settings.

Inpatients (≥ 1 year) from selected medical and surgical wards of a TPH and paediatric ward of a DGH were screened by the nursing staff, over a 4-month period, using the Paediatric Yorkhill Malnutrition Score – PYMS (malnutrition risk: low, medium and high)[(1)]. Thinness and obesity were defined as a BMI *z*-score ≤ -2 and ≥ 2, respectively. Short stature was defined as a height/length *z*-score ≤ -2. Social class was determined with the Scottish Index of Multiple Deprivation.

One thousand five hundred and seventy one patients (72.3% of admissions) were screened (M:58%; age: 7.3 years $\pm$ 4.4). 10.1% of those screened were at high and 9.2% at medium risk of malnutrition with more girls than boys being at high or medium risk (high: F:11.9% versus M:9.1%; $P = 0.042$; medium: F:11.2% versus 7.6%; $P = 0.009$). 7.4% of the patients were thin, 9.6% obese and 6.9% had a short stature. No difference in prevalence rates were identified between TPH and DGH (Table 1) although differences were noted between specialties within TPH.

Setting	Malnutrition (%)	Thinness (%)	Obesity (%)	Short stature (%)
TPH	10.5	8.2	9.8	7.6
DGH	8.9	5.5	8.8	5.1

In TPH, thinness was greater in medical than surgical patients (10.1% versus 5.1%; $P = 0.002$) as was short stature (OR: 0.65; 95% CI: 0.4–1.1; $P = 0.084$). Thin children were younger (median, IQR: 3.9, 2.1–9.6 years) and obese children older (median, IQR: 9.4, 5.5–11.9 years) than children with normal BMI (median, IQR: 6.4, 3.2–10.7 years; $P < 0.0001$). Obesity was more likely in boys (F:8.1% versus M:10.8%; $P = 0.080$) and girls were more likely to have short stature (F:8.6% versus M:5.7%; $P = 0.034$). Children with short stature were significantly older than children with normal height (median, IQR; short: 8.7, 2.9–13.7 years versus normal: 7, 3.2–10.6 years; $P = 0.006$). No differences were noted between social classes.

Prevalence of malnutrition in children is similar in DGH and TPH. Obesity in paediatric inpatients is similar to the general population[(2)] and no social inequalities were observed. More than 25% of the patients at high risk of malnutrition had a normal BMI, which highlights the importance of a malnutrition screening tool rather than the use of anthropometric measurements alone to assess malnutrition.

1. Gerasimidis K, Macleod I, McGrogan P, *et al*. (2009) BSPGHAN Annual Winter Meeting 2009.
2. Reilly HM & Dorosty (1999) *Lancet* **354**, 1874–1875.