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Development of food photographs to improve the portion size estimation among South Asian

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Measurement errors often occur when assessing the diet of individuals due to the difficulties of estimating food portion size⁽¹⁾. The weighed food record is the optimum method to estimate food intake. However, it is associated with high respondent burden and time costs⁽²⁾. Moreover, to our knowledge, ethnic specific food photographs for South Asians in the UK have not been previously developed. Therefore, there is a need to develop tools to estimate the amount of food consumed more accurately among this population. The aim of this study is to develop and test photographic portion sizes of commonly consumed foods by South Asian children to enhance the estimation of food portion sizes.

Participants were invited to compare a set of coloured food photographs with the actual portion sizes of foods served on a plate. In all, thirty-six participants completed the food estimation sessions. A total of 360 estimations were carried out by Indian (*n* 150) and Pakistani (*n* 210) mothers. The degree of accuracy and percentage of correct estimations were calculated. Statistical calculations were performed using SPSS software version 17.0. Descriptive statistics were used to assess the characterisation of the participant's response for the actual food as compared with photograph.

	Veg curry	Cereal	Biryani	Chicken curry	Dhal	Fruit salad	Keema	Palak	Rice	Soup
Indian										
Actual*	90	60	120	60	90	30	120	20	60	90
Estimated*	88	55	120	70	84	30	116	20	57.3	78
sd	7.7	10.9	0.0	14.6	20.3	0.0	10.5	0.0	7.03	18.9
Sig. (two-tailed)	0.33	0.09	–	0.02	0.27	–	0.16	–	0.16	0.03
Accuracy**	–2.2	–8.3	0.0	16.7	–6.7	0.0	–3.3	0.0	–4.5	–13
Correct estimation**	93	80	100	67	54	100	87	100	87	67
Pakistani										
Actual*	60	60	120	60	90	30	120	20	60	30
Estimated*	62.9	55.7	128.6	55.7	91.4	31.4	112.9	20	58.1	32.9
sd	9.02	8.40	21.5	14.3	22.2	6.5	13.1	0.0	6.02	9.02
Sig. (two-tailed)	0.16	0.03	0.08	0.18	0.77	0.32	0.02	–	0.16	0.16
Accuracy**	4.8	–7.1	7.1	–7.1	1.6	4.8	–6.6	0.0	–3.2	9.5
Correct estimation**	90.5	76.2	85.7	76.2	47.6	95.2	76.2	100	90.5	90.5

Positive responses were taken as over-estimations and negative responses taken as under-estimations.

*The value in (g), ** The value in percentage.

Food portion photographs may enhance both the reliability and validity of estimated dietary intakes in the South Asian population. This was demonstrated by the high percentage of accurately estimated portion sizes in this study (83%). Under/over-estimation was recorded for certain foods; however, these values were minimal and might be within the expected range due to difference of perception of individuals.

1. Lucas F, Niravong M, Villet S *et al.* (1995) *J Hum Nutr Diet* **8**, 65–74.
2. Young LR & Nestle M (1995) *Nutr Rev* **53**, 149–158.