**S1 Table. Main differences in measurement protocols for the weight and height data used in this paper**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | SweepTarget age (date) | Assessment type | System ofmeasurement | Precision ofweight measurement | Precision ofheight measurement |
| **1946 NSHD** | 2 (1948) | Measured(health visitor) | Imperial | 0.028 kg | 0.025 m |
|  | 4 (1950) | Measured(health visitor) | Imperial | 0.113 kg | 0.025 m |
|  | 6 (1952) | Measured(school doctor) | Imperial | 0.113 kg | 0.006 m |
|  | 7 (1953) | Measured(school doctor) | Imperial | 0.028 kg | 0.006 m |
|  | 11 (1957) | Measured(school doctor) | Imperial | 0.028 kg | 0.006 m |
|  | 15 (1961) | Measured(school doctor) | Imperial | 0.028 kg | 0.006 m |
|  | 20 (1966) | Self-reported(postal questionnaire) | Imperial | 0.454 kg | 0.025 m |
|  | 26 (1972) | Self-reported(administered questionnaire) | Imperial | 0.454 kg | 0.025 m |
|  | 36 (1982) | Measured(trained nurse) | Metric | 0.5 kg | 0.005 m |
|  | 43 (1989) | Measured(trained nurse) | Metric | 0.5 kg | 0.001 m |
|  | 53 (1999) | Measured(trained nurse) | Metric | 0.1 kg | 0.005 m |
|  | 60-64 (2006-2010) | Measured(trained nurse) | Metric | 0.1 kg | 0.001 m |
| **1958 NCDS** | 7 (1965) | Measured(medical officer) | Metricor imperial | 0.454 kg | 0.01 m |
|  | 11 (1969) | Measured(medical officer) | Imperial | 0.454 kg | 0.006 m |
|  | 16 (1974) | Measured(medical officer) | Metricor imperial | 0.01 to 0.454 kg | 0.006 to 0.01 m |
|  | 23 (1981) | Self-reported(administered questionnaire) | Imperial | 0.454 kg | 0.025 m |
|  | 33 (1991) | Measured(trained interviewer) | Metric | 0.1 kg | 0.01 m |
|  | 42 (2000) | Self-reported(CAPI) | Metricor imperial | 0.454 to 1 kg | 0.01 to 0.025 m |
|  | 44 (2002) | Measured(trained nurse)or self-reported(CAPI) | Metricor imperial | 0.1 to 0.454 kg | 0.001 m |
|  | 50 (2008) | Self-reported(CAPI) | Metricor imperial | 0.454 to 1 kg | 0.01 to 0.025 m |
| **1970 BCS** | 10 (1980) | Measured(medical officer) | Metricor imperial | 0.028 to 0.1 kg | 0.001 to 0.006 m |
|  | 16 (1986) | Measured(medical officer)or self-reported(questionnaire) | Metricor imperial | 0.028 to 0.1 kg | 0.005 to 0.006 m |
|  | 26 (1996) | Self-reported(postal questionnaire) | Metricor imperial | 0.454 to 1 kg | 0.01 to 0.025 m |
|  | 30 (2000) | Self-reported(CAPI) | Metricor imperial | 0.454 to 1 kg | 0.01 to 0.025 m |
|  | 34 (2004) | Self-reported(CAPI) | Metricor imperial | 0.454 to 1 kg | 0.01 to 0.025 m |
|  | 42 (2012) | Self-reported(CAPI) | Metricor imperial | 0.454 to 1 kg | 0.01 m |
| **1991 ALSPAC** | 7 (1998) | Measured(anthropometrist) | Metric | 0.05 kg | 0.001 m |
|  | 8 (1999) | Measured(anthropometrist) | Metric | 0.05 kg | 0.001 m |
|  | 9 (2000) | Measured(anthropometrist) | Metric | 0.05 kg | 0.001 m |
|  | 10 (2001) | Measured(anthropometrist) | Metric | 0.05 kg | 0.001 m |
|  | 11 (2002) | Measured(anthropometrist) | Metric | 0.05 kg | 0.001 m |
|  | 13 (2004) | Measured(anthropometrist) | Metric | 0.1 kg | 0.001 m |
|  | 14 (2005) | Measured(anthropometrist) | Metric | 0.1 kg | 0.001 m |
|  | 15 (2006) | Measured(anthropometrist) | Metric | 0.1 kg | 0.001 m |
|  | 18 (2009) | Measured(anthropometrist) | Metric | 0.05 kg | 0.001 m |
| **2001 MCS** | 3 (2004) | Measured(trained interviewer) | Metric | 0.001 kg | 0.001 m |
|  | 5 (2006) | Measured(trained interviewer) | Metric | 0.1 kg | 0.001 m |
|  | 7 (2008) | Measured(trained interviewer) | Metric | 0.1 kg | 0.001 m |
|  | 11 (2012) | Measured(trained interviewer) | Metric | 0.1 kg | 0.001 m |

CAPI: Computer-Assisted Personal Interviewing, NSHD: Medical Research Council National Survey of Health and Development, NCDS National Child Development Study, BCS: British Cohort Study, ALSPAC: Avon Longitudinal Study of Parents and Children, MCS: Millennium Cohort Study