Health & Care Experience Survey 2017/18

Weighting Methodology

1. Introduction

When conducting a survey, it is important to have a representative sample of the population you are interested in to reduce bias in the estimates produced. Applying weighting methods reduces the potential bias by making the results more representative of the population but also increases the variation in the estimates.

Survey weights are numbers associated with the responses that specify the influence the various observations should have in the analysis. The final survey weight associated with a particular response can be thought of as a measure of the number of population units represented by that response.

2. Methodology Pre-2017/18 Survey

A summary of the sampling and weighting approaches used in the Health & Care Experience Surveys pre-2017/18 is provided in this section. Full details on the methodology used in each survey can be found in the relevant technical report, available at www.gov.scot/GPSurvey.

2.1 Sampling

A random sample was taken from a database of all those who were 17 and over and were registered with a GP Practice in Scotland on a set date. A small number of special practices, run by NHS Boards to provide primary care services to particular, small groups of patients (for example, practices for homeless people) were excluded from sampling for the survey.

Sampling was done within GP Practice lists to aim for sufficient responses to achieve a reasonably reliable result for each practice. For some practices with very small numbers of eligible patients, all patients were included in the survey in order to meet the minimum sample size requirements identified.

2.2 Weighting

Results at Scotland, NHS Board and Health and Social Care Partnership level were weighted in order to account for the unequal probability of selection. Results at GP Practice level were presented unweighted.

Weighted results were calculated by first weighting each GP Practice result for each question by the relative practice size. The weighted practice results were then added together to give an overall weighted percentage at Scotland, NHS Board and Health and Social Care Partnership level.

The weight for each practice was calculated as the practice patient list size (of patients aged 17 or over and therefore eligible for being included in the sample) as a proportion of the entire population (Scotland, NHS Board or Health and Social Care Partnership) of patients eligible for inclusion in the survey. Weighting the results in this way provided results more representative of the population (at Scotland, NHS Board or Health and Social Care Partnership level) than would be the case if all practices (small and large) were given equal weighting in the calculation of aggregate results.

3. Weighting Review

Feedback from a UK Statistics Authority[1] (UKSA) review of the Health & Care Experience Survey publications prompted a review of the weighting methodology employed by this survey. The questionnaire has also gone under significant review in advance of the 2017 survey which means this was an ideal time to review and update the weighting methodology that is used.

Details of the weighting review that was carried out for this survey, including initial recommendations, can be found at www.gov.scot/Resource/0052/00527651.pdf.

4. Methodology Applied to 2017/18 Results

Further analysis was carried out on the recommendations using the 2015/16 survey data. This work identified some minor issues which has led to amendments to the final weighting methodology applied to the 2017/18 results. The final weighting methodology applied is detailed here:

One weight will be calculated for each section of the questionnaire, rather than one weight per question. This will be done on the following basis:

Population	Relevant Questions in 2017/18
Has used GP Practice in last 12 months	2, 3, 4, 5, 6, 7, 8, 9, 10, 11a-h, 12a-b
Has been referred in last 12 months	15, 16, 17
Have used an Out of Hours service in the last 12 months	19, 20, 21, 22
Has used help and care services for everyday living in the last 12 months	26, 27a-h, 28
Has regular caring responsibilities	31, 32a-e
Population total	1, 14, 18, 24, 25, 30, 40

[1] https://www.statisticsauthority.gov.uk/

The weight for each section will be calculated in two steps:

1. **Weight for unequal probability of selection** by weighting respondents up to the total population in each GP practice as is currently done.
2. **Weight for non-response** by weighting up to the entire population **using** the service based on **age** and **sex**.
    a. The number of people in the population using their GP Practice will be estimated using the number of people consulting their GP or practice nurse from the 2012/13 Practice Team Information (PTI) Statistics[2].
    b. The 'population total' is calculated as the whole sampling frame used for the survey.
    c. The estimated population totals for all other sections will be based on the proportions of the relevant 2017/18 survey responses at a national level, applied at all levels of reporting.
    d. Respondents will be assigned to one of 6 age groups (16-24; 25-34; 35-44; 45-54; 55-64; 65+) based on their age in the CHI database. This will be used for the weighting calculations and analysis of responses by age.
    e. The sex of each respondent will be taken from the CHI database, rather than gender as reported in the survey (Q33), to ensure the weighting calculations are not impacted by missing data. Sex will only be used for weighting calculations; gender as reported in the survey will be used for any analysis of responses.

Survey results will be published at National, Health Board, Health & Social Care Partnership, Locality, GP Cluster and GP Practice levels. The weighting methodology will be applied to all reporting levels with the following adjustments:

- **HB/HSCP Level** – As described but with three age categories (rather than the six used at national level): 16-44; 45-64 and 65+.
- **GP Cluster/Locality Level** – As described but with two age categories (rather than the six used at national level): 16-54 and 55+.
- **GP Practice Level** – As GP Practice was the sample strata used, there is no need to calculate a weight for unequal probability of selection. Instead, the weights at this level should just equal the weight for non-response as described for GP Cluster level.

Trimming will be applied such that the maximum weight is calculated as:

Mean + (x * Standard Deviation)

where x is an integer such that less than 5% of respondents have their weight trimmed for each reporting level.

[2] www.isdscotland.org/Health-Topics/General-Practice/GP-Consultations/

5. Impacts of Methodology Applied to 2017/18 Results

The change in methodology will have an impact on the results as the relevant population is being better represented by the new methodology. For example, analysis has shown that, generally, older people are more likely to report a positive experience and we know that older people are also more likely to respond to the survey – this weighting will help to redress this balance.

Results from the 2017/18 HACE Survey will be published in April 2018 via a national report and an interactive dashboard, available at www.gov.scot/GPSurvey. These results will have the weighting methodology described in Section 4 applied. Time series figures will be backdated where appropriate to ensure comparisons over time are available.

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