Scottish Cancer Patient Experience Survey 2018

Introduction of Weighting

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 can be thought of as a measure of the number of population units represented by the response.

The first Scottish Cancer Patient Experience Survey (SCPES) was run in 2015 and the results for this survey were presented unweighted. The 2018 SCPES is the second iteration of this survey and results are due to be published in April 2019.

Feedback from a UK Statistics Authority[1] (UKSA) review of the Care Experience Survey publications prompted a review of the weighting methodologies employed by the other Care Experience Surveys in the programme[2]. Following these reviews, it was agreed that the use of weighting for SCPES should be considered.

2. Consideration of Weighting SCPES

The weighting reviews for the other Care Experience Surveys have recommended that the results be weighted to account for both unequal probability of selection and non-response bias. As the sample for SCPES is taken as a census of the sample frame, a weight for unequal probability of selection is not relevant here.

Respondents to the 2015 SCPES were broadly representative of the sample frame population, however, this is not something that can be guaranteed for future surveys. Therefore weighting to account for non-response bias enables us to make the results more representative of the sample frame population in a statistically robust way that is consistent with the methodologies applied to other Care Experience Surveys.

Due to a number of other changes already being applied to the 2018 SCPES, including changes to how responses will be allocated at lower reporting levels and the questionnaire content, there would be minimal impact to users if weighting was introduced as the 2015 results will already require to be backdated and there will be a reduced number of comparable questions between the two surveys.

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

[2] 2017/18 Health & Care Experience Survey: www.gov.scot/Resource/0053/00533823.pdf
2018 Inpatient Experience Survey: www.gov.scot/Resource/0053/00538713.pdf

3. Recommendation

Given the considerations outlined in Section 2, it is proposed that the 2018 SCPES results be weighted to account for non-response bias. The methodology to be used will mirror that used for other Care Experience Surveys and is detailed here.

Each respondent will have one weight. This differs slightly to the methodology applied to the other Care Experience Surveys which have had one weight per routed section. There is no administrative data available to estimate population totals for the routed sections in SCPES. Additionally, exploratory analysis suggests that using the national survey response to estimate population totals – as has been done for some routed sections in other Care Experience Surveys where population total estimates were not available from other sources – would not be appropriate here due to variation between areas.

The **weight will be calculated to account for non-response** by weighting up to the sample frame population based on **age**, **sex** and **tumour group**. Age will be taken from the CHI database, sex will be taken from SMR01 and tumour group will be taken from SMR06.

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

$$\text{Mean} + (x * \text{Standard Deviation})$$

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

SCPES results are published at National, Network (of treatment and of residence), NHS Board (of treatment and of residence) and Cancer Centre levels. The weighting strategy described should be **applied to all levels except Cancer Centre level**, which will continue to be presented unweighted. The following groupings will be used at each reporting level:

- **National** – Two sex groupings (male and female), three age bands (16 to 64, 65 to 74 and 75+) and twelve[3] tumour groups (Breast; Colorectal / Lower Gastrointestinal; Gynaecological; Haematological; Head & Neck; Lung; Prostate; Skin; Upper Gastrointestinal; Urological; Other, including Brain / Central Nervous System and Sarcoma; and Tumour Group Unknown).

- **Network** – Two sex groupings (male and female), three age bands (16 to 64, 65 to 74 and 75+) and twelve[3] tumour groups (as for National level).

- **NHS Board** – Two sex groupings (male and female), two age bands (16 to 64 and 65+) and twelve[3] tumour groups (as for National level).

Time series figures would be backdated where appropriate to ensure comparisons over time are available.

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[3] The number of tumour groups used will need to be reviewed ahead of each survey to ensure the proportion of blank categories remains below 1% of the sample population at each reporting level.