

FURTHER ANALYSIS OF PSS SACE DATA

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INTRODUCTION.....	1
TRANSFORMING PSS SACE DATA INTO MEANINGFUL MANAGEMENT INFORMATION	2
THE POTENTIAL VALUE OF FURTHER ANALYSIS.....	2
GETTING STARTED WITH PSS SACE ANALYSIS	4
STRUCTURE OF THE PSS SACE FURTHER ANALYSIS GUIDE	12
RECOMMENDED STRATEGIES	14
CONDUCTING FURTHER PSS SACE ANALYSIS.....	15
CARER-REPORTED QUALITY OF LIFE [ASCOF 1D]	16
OVERALL SATISFACTION [ASCOF 3B]	22
INCLUDED OR CONSULTED IN DISCUSSIONS [ASCOF 3C]	26
EASE OF FINDING INFORMATION [ASCOF 3D].....	30

INTRODUCTION

The Carers survey (PSS SACE) produces robust data that can be used to inform local performance and service improvements – and, by doing so, improvements in the reported outcomes of people who use adult social care services and support – but further analysis is required to transform the data into meaningful management information.

The analysis and interpretation (A&I) element of the MAX toolkit was developed in response to the analysis needs identified during research activities and consultations conducted with

local authority (LA) staff earlier in the project. It includes Excel-based analysis tools, pre-recorded training tutorials and step-by-step guides for the following types of analysis: cross-tabulations, chi-square, independent t-tests and one-way analysis of variance (ANOVA). Survey-specific adjustment calculators, which produce a more accurate measure of the impact of services on carer (or service user) reported quality of life, are also provided.

The purpose of this summary is to provide suggestions on the types of statistical analysis that can be conducted with PSS SACE data and links to the relevant elements of the MAX toolkit. It builds on the [Exploring PSS SACE data guide](#) and should be consulted after the general trends in your PSS SACE dataset have been identified.



The [A&I presentation](#) provides an overview of the analysis and interpretation element of element of the MAX toolkit and outlines why LAs should conduct further analysis on their PSS SACE datasets.

TRANSFORMING PSS SACE DATA INTO MEANINGFUL MANAGEMENT INFORMATION

THE POTENTIAL VALUE OF FURTHER ANALYSIS

Further statistical analysis can be used to transform your PSS SACE dataset into relevant and potentially valuable management information that can help decision-makers and practitioners within your organisation (e.g. commissioners, managers, front-line staff) – and, perhaps, organisations in the wider community – to:

Better understand the views and experiences of the carers who use services

Further analysis can help to uncover variations in the experiences of services, quality of life and outcomes reported by different groups of carers (e.g. based on age, primary support reason of care-recipient, duration of caring).

Determine how local services could be improved and/or more effectively targeted to better support carers

Further analysis can help to establish the possible reasons for variations in reported outcomes and, by doing so, the priorities and appropriate strategies for making local service and performance improvements. Poor outcomes for particular groups of carers, for example, may be associated with difficulties in finding information about services and support or social isolation, and may therefore be improved by taking steps to make information more accessible to these groups and/or providing details about local support groups. Good outcomes, conversely, may be associated with having a joint assessment or feeling included in consultations, and can be shared and implemented as 'good practice' by other carers teams within the organisation.

Improve the reported outcomes and satisfaction of carers.

By establishing why some carers are dissatisfied and/or are reporting unmet needs or a low quality of life and identifying the kinds of remedial action that may improve outcomes, further analysis of your PSS SACE dataset can help to inform local planning activities that may improve reported outcomes.¹

If presented appropriately, the results from your further analysis can also help to **strengthen the accountability of your organisation to local people** by demonstrating that decision-makers are using the views expressed in the PSS SACE to guide local service planning and delivery.



The [reporting element](#) of the MAX toolkit includes guides and tools to help you produce concise reports and is accompanied by a short presentation [Creating engaging reports of your analysis findings](#).

¹ Discussions with LA colleagues and/or reference to additional sources of data (e.g. other local research, audit files) may be required to fully interpret analysis findings and identify possible courses of action.

GETTING STARTED WITH PSS SACE ANALYSIS

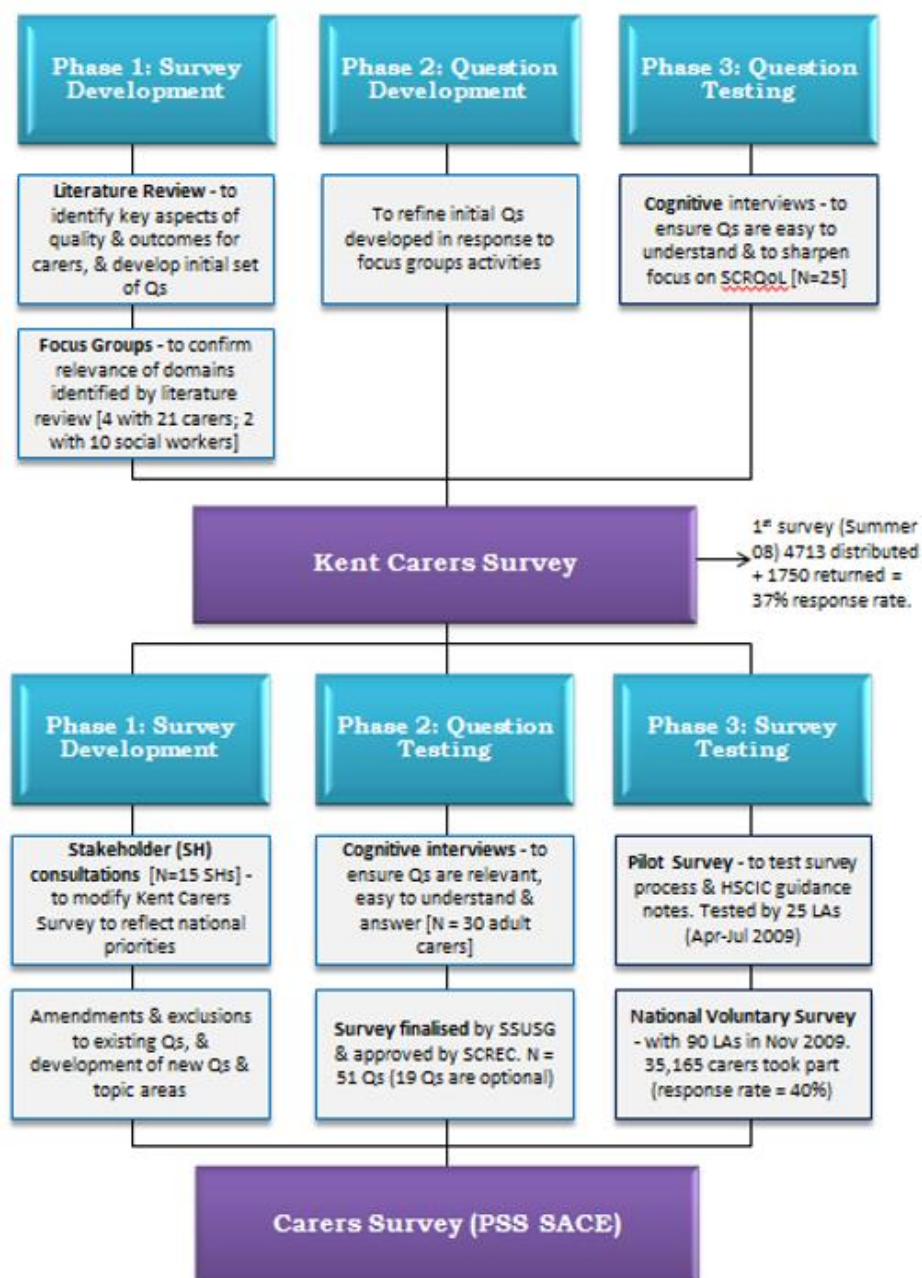
We appreciate that some of you may be new to your roles, are unfamiliar with inferential statistics and/or still trying to navigate the MAX toolkit. We have, therefore, provided additional guidance to get you started with your analysis and have provided links, where relevant, in this guide.

NEW TO THE PSS SACE?

The Personal Social Services Survey of Adult Carers in England (PSS SACE or, more commonly, the Carers survey) has been designed to generate data that can be used locally, regionally and nationally to inform policy and decision-making, and to improve the reported outcomes and services for local populations of adult carers. The survey builds on a local carers survey developed by researchers at the Personal Social Services Research Unit (PSSRU) and was further developed for national use, also by researchers at PSSRU, using a range of methods. These methods are summarised in Figure 1 and a more detailed overview of this work is provided in the [PSS SACE survey development summary](#).

Subsequent versions of the PSS SACE have been amended by the Social Services User Survey Group (SSUSG) to reflect policy priorities in adult social care. Further information about the SSUSG can be found at <http://content.digital.nhs.uk/socialcare/ssusg>.

Figure 1: The development of the Personal Social Services Survey of Adult Carers in England (PSS SACE or Carers survey)



The data from the PSS SACE is used to populate five indicators in the **Adult Social Care Outcomes Framework (ASCOF)**. These domains and the overall purpose of the ASCOF are respectively summarised in Table 1 and Box 1 below.

Table 1: ASCOF domains populated by PSS SACE data

Domain		Qs
1D	Carer-reported quality of life	7-12
1I	The proportion of people who use services and carers who reported that they had as much social contact as they would like.	11
3B	Overall satisfaction of carers with social services	4
3C	The proportion of carers who report that they have been included or consulted in discussions about the person they care for	18
3D	The proportion of people who use services and carers who find it easy to find information about support	16

Questions based on 2016/17 version of the PSS SACE

Box 1: Key functions of Adult Social Care Outcomes Framework (ASCOF)²

1. Monitor success of local interventions in improving outcomes
2. Identify priorities for making improvements
3. Inform the strategic planning and leadership role for local commissioning
4. Strengthen accountability to local people
5. Support sector-led improvement by bringing councils together to understand and benchmark their performance. This, in turn, stimulates discussions between councils on priorities for improvement, and promotes the sharing of learning and best practice

NEW TO STATISTICS?

The MAX toolkit includes tools, step-by-step instructions and training resources to help you to conduct cross-tabulations, chi-square analysis, independent t-tests and analysis of variance (ANOVA). Survey-specific adjustment calculators which produce a more accurate measure of the impact of services on carer (or service-user) reported quality of life are also provided. An overview of these tools is provided in Table 2.

The [Getting started with analysis guide](#) provides a brief overview of the key statistical and methodological terms that are used in the analysis guides and tools. The following sets of

² Source: ASCOF Handbook of Definitions, NHS Digital. Available for download at <https://digital.nhs.uk/>

resources, which are provided in a range of formats, describe two key approaches to analysing your PSS SACE dataset. As there is considerable overlap between these approaches, you may like to review both before you get started.

Exploring the relationships between survey variables: [\[summary\]](#) [\[presentation\]](#)

Exploring the differences between respondent groups: [\[summary\]](#) [\[presentation\]](#)

NOT SURE WHICH RESEARCH QUESTIONS TO EXPLORE?

Your analysis should be guided by research questions. For example:

Are any of our carers reporting unmet needs?

What can we do to improve the reported outcomes of carers who use our services?

What changes (if any) do we need to make to our current information strategy?

You may have already formulated questions during the development of your provisional analysis plan: for example, through earlier conversations with relevant colleagues (e.g. managers and commissioners) and/or a review of the strategic documents for your organisation. If you haven't done so already, however, you can create a list using some of the many questions posed throughout this guide.

You may also find it useful to consider the following questions as you plan your further analysis:

Is this noted trend in reported outcomes important and do we need to take action?

Your exploratory data analysis (EDA) may highlight a number of interesting trends but, due to time and resource limitations, you may want to focus your further analysis on the areas where remedial action can realistically be taken to improve outcomes (e.g. by making changes to existing services and/or commissioning new services). Some preliminary further analysis may help you to establish which areas of your EDA you should pursue further.

Table 2: overview of the analysis tools included in the MAX toolkit

Analysis	Function	Inferential test?	Independent variable	Dependent variable	No. of variables
Cross-tabulations	Summarises the frequency distribution of two categorical variables in a dataset (e.g. gender and control) in tabular form, known as a contingency table. Can be used to describe or explore data.	N	Categorical	Categorical	2
Chi-square	Establishes whether the relationship between two categorical variables is statistically significant (i.e. the observed relationships did or did not occur by chance)	Y	Categorical	Categorical	2
Independent t-tests	Test whether the difference between the means of two unrelated groups (e.g. men and women) on the same continuous dependent variable (e.g. SCRQOL) is statistically significant.	Y	Categorical	Continuous	2
Analysis of variance (ANOVA)	Test whether the difference between the means of two or more unrelated groups (e.g. characterised by a demographic feature or response to a question) on the same continuous dependent variable (e.g. SCRQOL) is statistically significant.	Y	Categorical	Continuous	2+
SCRQOL and Carer QOL tools	Calculates adjusted quality of life (QOL) scores that control for the factors beyond local authority control → producing a more meaningful and accurate estimate of service impact	N	-	-	-

Notes:

1. Inferential tests allow generalisations about a population (e.g. adult carers in a given LA) to be made from a sample drawn from that population (e.g. all adult carers in a given LA who completed the PSS SACE).
2. All the survey variables in the PSS SACE have been categorised as categorical with the exception of age (carer and care recipient) and the carer-reported quality of life composite score, both of which are continuous. Age, however, can be organised into categories (e.g. 65-74)

Example: Jo has found that a number of carers are reporting difficulties in finding information about local services and support. Some preliminary further analysis has now confirmed that carers who report such difficulties also report a lower quality of life, less control over daily life and greater dissatisfaction with services. This suggests that further analysis to explore which groups of carers are experiencing difficulties, and why, may be useful and may help to guide the planned revisions to the LA information strategy.

Which carers groups (if any) are reporting these outcomes, and why?

Once you have decided to conduct further analysis, you may find it useful to establish whether any particular groups of carers (e.g. characterised by age, duration of caring role) are reporting the outcomes of interest and, if they are, for what reason. Such analysis will involve exploring group differences *and* the relationships between survey variables, and may help you to identify priorities for making improvements. Contextual information can also be provided by thematic analysis of respondent comments (where provided), additional sources of data (e.g. other local research, findings from national research) and/or insights from colleagues.

Example: Further statistical analysis has shown that older carers (aged 75+) – particularly those that are providing intense levels of care (defined in this instance as 50+ hours per week) – often report difficulties in finding information about local services and support. As comments boxes were not included in the survey, Jo conducts a brief review online and finds a recent ONS report which notes that approximately 2/3 of people in the UK aged 75+ do not access the internet.³ A subsequent review of the current information strategy for her organisation confirms that information about local services is provided online and via surgeries and health centres. This suggests that more targeted information strategies (e.g. sending information by post and/or providing information at assessments or via carers and visiting health professionals) may be useful. To enable decision-makers to consider whether the corporate

³ For further information, see <http://visual.ons.gov.uk/internet-use/>

information strategy needs to be amended, Jo adds these findings to her analysis report.

What actions can be taken to improve these reported outcomes?

Your analysis findings – and supplementary sources of data (where referenced) – should help you and the decision-makers within your organisation to identify possible strategies for improving reported outcomes. These should be included in analysis reports and presentations to facilitate discussions and remedial action.

Example: *Jo's findings indicate that minor amendments to the existing information strategy may help to improve the accessibility of information about local services and support (e.g. by ensuring that information is also circulated by post and/or provided at assessments or home visits). To enable decision-makers to consider the options, Jo adds these findings and her preliminary thoughts to her analysis report.*



The PSS SACE collects data on a wide range of variables, and the options for further analysis are therefore considerable. **Creating a list of questions *before* you start your analysis may therefore help you to focus your analysis on the areas of potential interest and relevance.**

For example, if your organisation is planning on revising its information strategy, you may want to conduct analysis that identifies what carer groups (if any) would benefit from more targeted information, are experiencing difficulties in accessing information and/or do not find current information useful.

Do, however, bear in mind that further potentially important research questions may arise once you start your analysis.

For example, if you find that 'new carers' (i.e. carers who have been caring for less than 3 years) are feeling socially isolated, you might like to ask *Are new carers*

accessing information about existing forms of support, social groups and/or training for carers?

Allow sufficient time to explore these further questions.

NOT SURE WHICH STATISTICAL TEST TO USE?

Selecting the most appropriate statistical test to explore your research questions can be challenging, particularly if you're new to analysis. The overview in Table 2 should help to get you started, and additional guidance is provided where relevant in this guide. Further information about each of the statistical tests is also provided in the accompanying step-by-step instructions.



All of the analysis tools included in the MAX toolkit can be accessed from the [Analysis and Interpretation](#) page.

WANT TO ANALYSE RESPONDENT COMMENTS PROVIDED IN THE SURVEY?

Respondent comments can provide the contextual detail needed to make sense of the findings from statistical analysis. Thematic analysis is not covered in the MAX toolkit, but you may find the following guide useful:

Hancock B, Ockleford E & Windridge K (2007) *An Introduction to Qualitative Research* [Online], NIHR Research Design Service for the East Midlands / Yorkshire and the Humber. Available from: http://www.rds-yh.nihr.ac.uk/wp-content/uploads/2013/05/5_Introduction-to-qualitative-research-2009.pdf [Accessed 11 May 2017].

A NOTE OF CAUTION

Significant associations and differences between variables⁴ do not imply causality. Your statistical analysis may confirm that an association or difference between two PSS SACE variables is statistically significant (in other words, did not just occur as a result of chance), but this does not mean that one variable caused a change in the other. For example, if your analysis shows you that male carers are significantly more likely than women to report satisfaction with services, this does not mean that being male causes men to be more satisfied. Rather, it means that there may be a potentially important relationship between gender and satisfaction that should be further explored through statistical – and perhaps, thematic – analysis.

Take care not to over-interpret your analysis findings.

STRUCTURE OF THE PSS SACE FURTHER ANALYSIS GUIDE

As LA decision-makers are interested in the ASCOF data provided by the Carers survey, the remainder of this guide will focus on four of the five domains populated by PSS SACE data:

Carer-reported quality of life [ASCOF 1D]

Overall satisfaction of carers with social services [ASCOF 3B]

The proportion of carers who report that they have been included or consulted in discussions about the person they care for [ASCOF 3C]

The proportion of people who use services and carers who find it easy to find information about support [ASCOF 3D]

The ASCS exploratory data analysis guide includes a section on the remaining domain, **the proportion of people who use services and carers who reported that they had as much**

⁴ Significant associations are established through chi-square analysis, while significant differences are established through independent t-tests and analysis of variance (ANOVA).

social contact as they would like [ASCOF 1I], so you may find it useful to consult this guide too.

Each section will provide a brief overview of the domain and suggestions for further analysis (e.g. to establish why carers may be reporting poor quality of life, dissatisfaction and/or unmet needs, and what actions may be taken to improve outcomes). Examples of analysis based on dummy data will also be provided and will be linked to the following ASCOF functions: Identifying priorities for making improvements, and informing the strategic planning and leadership role for local commissioning.

Please note that the suggestions posed in this guide are based on the assumption that you have completed your exploratory data analysis, summarised in Box 2 below, and is neither exhaustive nor prescriptive. You should select the kinds of analysis that will best fulfil local information needs and/or address the areas of potential interest or concern you identified previously.

Box 2: Overview of PSS SACE exploratory data analysis

<input type="checkbox"/> Calculate current ASCOF 1D scores and conduct benchmarking comparisons
<input type="checkbox"/> Summarise the survey variables underlying ASCOF 1D by level of need
<input type="checkbox"/> Calculate the adjusted carer-reported quality of life score
<input type="checkbox"/> Develop carer profiles (optional activity)
<input type="checkbox"/> Identify and summarise areas of potential interest or concern

Please refer to the [PSS SACE exploratory data analysis guide](#) for further information

Please also note that your analysis is likely to uncover more complex relationships than those provided in the analysis examples. For example, you may find that three or more carers groups report an unmet need.

RECOMMENDED STRATEGIES

Allow enough analysis time: your further analysis plan will be guided by the findings from your exploratory data analysis [click [here](#) to access the [PSS SACE EDA guide](#)]. Additional research questions, however, may arise during the course of your analysis so ensure you allow sufficient time to explore these.

Use your administrative data: the PSS SACE dataset contains a lot of variables, but don't overlook the administrative data in the [NHS Digital data return](#) (e.g. primary support reason of care-recipient, method of assessment). This can also be used in further analysis and may provide some interesting and useful insights.

Take care to use the correct test: the statistical tests included in the MAX toolkit are all types of **parametric tests**. This means they are based on the assumption that your dataset will fulfil certain requirements (e.g. observations are normally distributed). The distribution of most PSS SACE variables, however, will be negatively skewed (e.g. most QOL scores will be clustered at the higher end of the scale) and will therefore require you to conduct the **non-parametric equivalent of the test**. Instructions on how to do this are provided in each of the step-by-step instructions.

Consider the practical implications and/or applications of your findings: always try to think about how your analysis findings can be applied or used to inform local decision-making and, where necessary and possible, supplement these findings with previous survey results, complementary sources of data (e.g. from other local research, audit files) and/or insights from LA colleagues.

Don't overlook small samples: some of the carers groups in your PSS SACE dataset may be too small to analyse statistically (e.g. ethnic minority groups). As their experiences and reported outcomes may differ from those of the wider community, you may want to review and summarise these separately so the relevant carers teams can consider how any issues raised can be addressed through local services or service improvements.

CONDUCTING FURTHER PSS SACE ANALYSIS

Further statistical (and thematic) analysis can help to maximise the relevance, value and use of PSS SACE data for local decision-making and performance improvement. There are many ways that you can analyse your PSS SACE dataset, and your analysis plan should be guided by the information needs of the decision-makers within your organisation (if known).

This section briefly explores four of the five ASCOF domains populated by PSS SACE data and provides suggestions on the types of analysis that may help you to make sense of reported outcomes and, where required, establish remedial action.

Please be aware that there is some overlap between the suggested analysis for these domains. You may, therefore, prefer to review the subsections of particular relevance to your analysis plan, rather than the entire section.

CARER-REPORTED QUALITY OF LIFE [ASCOF 1D]

OVERVIEW: **carer-reported quality of life** [ASCOF 1D] is the overarching social care outcome indicator in the Carers Survey (PSS SACE), *Enhancing quality of life for people with care and support needs [Carers can balance their caring roles and maintain their desired quality of life]*. This composite measure was developed by researchers at the Personal Social Services Research Unit (PSSRU) and is calculated using the responses to six questions in the survey. Each question relates to an aspect of quality of life ('attributes') that are important to carers [summarised in Table 3 below] – and may be affected by social care support services – and is combined to form a score ranging from zero (lowest quality of life or QoL) to 12 (highest QoL).

Table 3: the domains underlying the carer-reported quality of life composite score

Q7	Occupation	Q9	Personal care	Q11	Social contact
Q8	Control	Q10	Safety	Q12	Encouragement & support



Further information on the development of the carer-reported quality of life measure – and the PSS SACE – can be found in the following [web link](#) and [presentation](#).

Carer-reported quality of life (SCRQOL) [ASCOF 1D] provides a useful measure of carer-reported outcomes but, as quality of life is affected by many factors that are beyond local authority (LA) control, does not isolate the impact of services provided by the local authority on those outcomes. The calculation underlying the **adjusted carer QOL score**, however, controls for the factors associated with the carer and care-recipient that are known to affect quality of life and, by doing so, provides a more accurate estimate of service impact.

The adjustment calculation is summarised in Box 3 below and further information can be found in the **Measuring impact using carers survey data** presentation [[slides](#)] [[recorded presentation](#)].

Box 3: the Carer SCRQOL (or QOL) adjustment calculation

$$\text{Adjusted carer SCRQoL score} = 3.88 + 0.604 \times \text{carer SCRQoL score} + 0.055 \times (\text{carer SCRQoL score})^2 - \text{carer adjustment factor}$$

Carers adjustment factor =		14.353
Care recipient: has 'dementia', then subtract:	(-)	1.820
Care recipient: has 'mental health problem', subtract:	(-)	0.703
Care recipient: has 'sensory impairment', subtract:	(-)	1.508
Carer: is 45+, then subtract:	(-)	1.807
Carer: is 'male', then add:	(+)	1.437
Carer: is 'white', then add:	(+)	0.634
Carer: is 'employed full-time', then subtract:	(-)	0.036
Carer: if the 'carer lives with care recipient', then subtract:	(-)	3.339
Carer: if the carer has a 'physical problem', then subtract:	(-)	2.401
Carer: if the carer has a 'mental health problem' then subtract:	(-)	1.419



The factors that affect carer-reported quality of life (QOL) were identified during the **Identifying the Impact of Adult Social Care (IIASC) project** which was conducted at the Personal Social Services Research Unit (PSSRU). Further information about this project and the adjustment calculation can be found at <http://www.pssru.ac.uk/archive/pdf/5158.pdf>.

MAKING SENSE OF ASCOF 1D: carer-reported quality of life may be affected by a number of factors. These include **satisfaction with and experiences of adult social care services** and the **characteristics associated with the carer** (e.g. age, health and employment status, living situation), **care recipient** (e.g. primary support reason), and/or the **caring role** (e.g. the intensity of the caring role, i.e. the number of hours spent caring per week).

Further analysis of these and other factors may help you to make sense of the composite and adjusted ('impact') QOL scores calculated for your organisation, the differences and trends (if any) noted during direct benchmarking comparisons and also the areas where more targeted support may help to improve outcomes.

PLEASE NOTE THAT FURTHER ANALYSIS SHOULD BE CONDUCTED ON THE COMPOSITE SCRQOL SCORE, RATHER THAN THE ADJUSTED SCORE.

SUGGESTIONS FOR FURTHER ANALYSIS ⁵

Research question(s)	Analysis strategies	Potential value
Scenario 1: Adjusted Carer QOL scores are low and/or are low compared to comparator LAs and the national average		
<i>What factors (if any) beyond our control are affecting the impact of our services on carer-reported QOL?</i>	<p>Make sense of carer-reported QOL by exploring the composite score [ASCOF 1D] with the variables included in the Carer QOL adjustment calculation:⁶</p> <ul style="list-style-type: none"> Carer QOL + Carer lives with care recipient (Q3) [t-test] Carer QOL + Own health condition (Q24) [ANOVA] Carer QOL + Primary support reason for care-recipient (data return) [ANOVA] Carer QOL + Age of carer (Q26) [t-test or ANOVA] Carer QOL + Gender of carer (Q27) [t-test] Carer QOL + Ethnicity of carer (Q28) [ANOVA] Carer QOL + Employment status (Q19) [ANOVA] <p>If any statistically significant associations are uncovered, conduct further statistical analysis (e.g. chi-squares) on the variables of interest and carry out thematic analysis of respondent comments (if provided). Share and discuss findings with relevant colleagues both within and beyond your organisation.</p>	Analysis may help to explain seemingly low impact of services on carer-reported QOL and/or differences noted during benchmarking activities.
<p>Example: Melanie conducted a series of ANOVAs and t-tests on her PSS SACE dataset and found a significant association between low QOL and residential status and low QOL and primary support reason (PSR) of care-recipient. Post-hoc t-tests with the PSR administrative data also found a statistically significant association between QOL and PSR - dementia. These findings confirm to Melanie that her organisation are</p>		

⁵ Unless otherwise stated, chi-square tests are the most appropriate tests for the suggested analysis.

⁶ Please remember that analysis of carer-reported quality of life should use the composite score (i.e. ASCOF 1D) and not the adjusted score. The use of the adjusted score should be limited to benchmarking comparisons. See the Exploring PSS SACE data guide for further information.

Research question(s)	Analysis strategies	Potential value
providing services to a considerable number of carers who are either living with the person they care for and/or are caring for someone with dementia and, as both factors are known to negatively affect QOL, these may account for the low carer-reported quality of life scores.		
Scenario 2: a considerable number of carers are reporting a low quality of life		
<i>Are carers with low QOL also reporting poor outcomes in other areas?</i>	<p>Determine whether low carer-reported QOL is associated with other poor outcomes. For example:</p> <p>Carer QOL + Satisfaction with services (Q4) [ANOVA]</p> <p>Carer QOL + Impact on health (Q14) [ANOVA]</p>	Analysis may help to establish whether action (e.g. changes to service provision) are required and that further analysis can be justified.
Example: Jo's analysis has shown that low QOL is also associated with dissatisfaction and poor health. This suggests that remedial action may be necessary and that further analysis (to establish the underlying issues and possible solutions) is required.		
<p><i>Which of our carers are reporting low QOL?</i></p> <div> ASCOF function: identify the priorities for making improvements </div>	<p>Establish whether particular carer groups are reporting low QOL by exploring QOL for different groups. If you have already explored the variables underlying the adjusted Carer QOL score (summarised in Scenario 1) you can use the findings here. You may also like to explore:</p> <p>Carer QOL + Age of care recipient (Q1) [ANOVA]</p> <p>Carer QOL + Duration of caring role (Q21) [ANOVA]</p> <p>Carer QOL + Intensity of caring role (Q22) [ANOVA]</p> <p>Carer QOL + Method of assessment (data return) [ANOVA]</p> <p>Carer QOL + Support provided to carer (data return) [ANOVA]</p>	Analysis may help you to identify between-group variations in QOL. Such variations, in turn, may uncover areas of unmet need and/or inequality that require remedial action and/or areas of good practice that can be shared and implemented elsewhere in the organisation.
Example: Analysis has shown Melanie that 'new' carers (defined as those caring for 3 years or less) and carers providing intense levels of support (defined as 75+ hours per week) are reporting a lower QOL than carers who have been caring for longer or are providing less intense levels of support.		

Research question(s)	Analysis strategies	Potential value
<p><i>What factors are associated with low QOL?</i></p> <div> <p>ASCOF function: inform the strategic planning and leadership role for local commissioning</p> </div>	<p>Establish the characteristics and reported outcomes of groups with low QOL and compare these with the wider carer population⁷. For example:</p> <ul style="list-style-type: none"> Carer group + Age of care recipient (Q1) Carer group + Age of carer (Q26) Carer group + Satisfaction (Q4) Carer group + QOL variables (e.g. control) (Q7-11) Carer group + Ease of finding information (Q12) Carer group + Usefulness of information (Q13) Carer group + Impact on health (Q14) or finances (Q15) Carer group + Impact on other caring responsibilities (Q16) Carer group + Mechanism of delivery (data return) 	<p>Analysis may help you to uncover the potential reasons for low QOL. Such findings can be used to inform local decision-making and performance improvements.</p>
<p>Example: Melanie conducted a series of chi-square tests and found significant differences between ‘new carers’ and more ‘established’ carers (caring for 3 years or more) in reporting unmet control needs and difficulties in finding information about local support and services. She also found that carers providing ‘intense’ levels of support reported unmet occupation and personal care needs and a negative impact of their caring role on their health.</p>		
<p><i>What can be done to improve QOL and the reported outcomes of these groups?</i></p>	<p>Supplement findings from statistical analysis with other relevant data (if available), e.g. thematic analysis of respondent comments, findings from other local or national research, insights from LA records and colleagues.</p>	<p>Drawing on supplementary sources of data can help provide the contextual detail needed to make sense of the findings from statistical analysis.</p>

⁷ In this instance, the wider carer population refers to the other carers within the remit of the LA that have responded to the PSS SACE (i.e. the remaining dataset).

Research question(s)	Analysis strategies	Potential value
<div> ASCOF function: inform the strategic planning and leadership role for local commissioning </div>	<p>If this information is not available or you are unsure what the findings from your analysis mean in practice, you can summarise the key findings in a presentation or report and circulate to LA decision-makers – and perhaps, external organisations (e.g. voluntary agencies) – for information.</p>	
<p>Example – ‘new’ carers: Melanie conducted further statistical analysis on her PSS SACE dataset and found that a considerable number of ‘new’ carers had not accessed information + advice and/or training for carers in the past 12 months (Q6). Thematic analysis of respondent comments provided in the comments box following Q12 uncovered an issue with the information pages on the organisation website (e.g. broken links, inadequate navigational features) and a resultant feeling of helplessness and frustration. These findings suggested to Melanie that an overhaul of the existing information webpages, perhaps following a consultation with ‘new carers’, and a well-promoted relaunch of the website might be useful. She includes these findings and her suggestions in her PSS SACE analysis report, prior to circulation to the senior management team.</p> <p>Example – ‘intense’ levels of care: while analysis of respondent comments provided in the PSS SACE did not uncover any relevant themes, Melanie found that a considerable number of carers providing ‘intense’ levels of care and/or the person they cared for had not accessed services in the last 12 months that might have helped to alleviate their caring burden (e.g. respite care, home help, meal services) (see Q5). She disseminates these findings to the relevant carers’ teams within her organisation to enable them to determine the best course of remedial action (e.g. signposting carers to available forms of support).</p>		

OVERALL SATISFACTION [ASCOF 3B]

Overall satisfaction of carers with social services.

OVERVIEW: ASCOF 3B provides a self-reported measure of satisfaction and is calculated as the percentage of carers reporting that they are “extremely or very satisfied with the support or services that they and the person they care for have received from Social Services in the last 12 months” (question 4 in the 2016/7 PSS SACE). Satisfaction [ASCOF 3B] is linked to the overarching measure *Ensuring people have a positive experience of care and support [people who use social care and their carers are satisfied with their experience of care and support services]* and is believed to be a good predictor of the overall experience of services and quality.

MAKING SENSE OF ASCOF 3B: alongside service quality, carer (and service user) satisfaction with the support and services they receive may be affected by a number of factors. These include **characteristics associated with the carer** (e.g. age, ethnicity), the **care-recipient** (e.g. primary support reason), and/or the **caring role** (e.g. the intensity of the caring role, i.e. the number of hours spent caring per week) and the extent to which carers feel **included in consultations** about the person they care for. **How the services are administered** (e.g. the mechanism of service delivery, method of assessment or review and the types of support provided) may also affect satisfaction.

REMEMBER THAT THE STATISTICAL TESTS INCLUDED IN THE MAX TOOLKIT CAN IDENTIFY ASSOCIATIONS BETWEEN VARIABLES (E.G. CHI-SQUARE) OR STATISTICAL MEANINGFUL DIFFERENCES BETWEEN THE MEANS OF DIFFERENT VARIABLES (E.G. T-TESTS AND ANOVA) BUT DO NOT INFER CAUSATION (I.E. THAT ONE VARIABLE AFFECTS ANOTHER VARIABLE)

SUGGESTIONS FOR FURTHER ANALYSIS ⁸

Research question(s)	Analysis strategies	Potential value
Scenario 3: a considerable number of carers are reporting dissatisfaction with services and support		
<i>Are dissatisfied carers also reporting poor outcomes in other areas?</i>	<p>Determine whether dissatisfaction is associated with other poor outcomes. For example:</p> <ul style="list-style-type: none"> Satisfaction (Q4) + Carer QOL (composite score) [ANOVA] Satisfaction (Q4) + QOL variables (e.g. Control, Q8) Satisfaction (Q4) + Encouragement and support (Q12) Satisfaction (Q4) + Impact on health (Q14) Satisfaction (Q4) + Included in consultations (Q18) 	Analysis may help to establish whether action (e.g. changes to service provision) are required and that further analysis can be justified.
<p>Example: Peter's analysis has shown that dissatisfaction with services is associated with poor quality of life, unmet social contact needs and feeling excluded (as defined by 'sometimes' and 'never' included responses) from consultations. This suggests that remedial action may be necessary and that further analysis (to establish the underlying issues and possible solutions) is required.</p>		
<p><i>Which of our carers are reporting dissatisfaction?</i></p> <div> <p>ASCOF function: identify the priorities for making improvements</p> </div>	<p>Establish whether particular carer groups are reporting dissatisfaction by exploring satisfaction ratings for different groups. For example:</p> <ul style="list-style-type: none"> Satisfaction (Q4) + Age of care recipient (Q1) or Carer (Q26) Satisfaction (Q4) + Gender of carer (Q27) or Ethnicity of carer (Q28) Satisfaction (Q4) + Employment status (Q19) Satisfaction (Q4) + Duration of caring role (Q21) Satisfaction (Q4) + Intensity of caring role (Q22) 	Analysis may help you to identify between-group variations in satisfaction. Such variations, in turn, may uncover areas of unmet need and/or inequality that require remedial action and/or areas of good practice that can be

⁸ Unless otherwise stated, chi-square tests are the most appropriate tests for the suggested analysis.

Research question(s)	Analysis strategies	Potential value
	<p>Satisfaction (Q4) + Own health condition (Q24)</p> <p>Satisfaction (Q4) + Primary support reason for care-recipient (data return)</p> <p>Satisfaction (Q4) + Method of assessment (data return)</p> <p>Satisfaction (Q4)+ Support provided to carer (data return)</p>	shared and implemented elsewhere in the organisation.
Example: Analysis has shown Peter that carers looking after people with mental health problems report lower levels of satisfaction than carers looking after people with other primary support reasons.		
<p><i>What might explain carers of people with mental health problems' dissatisfaction with services?</i></p> <div> ASCOF function: inform the strategic planning and leadership role for local commissioning </div>	<p>Establish the characteristics and reported outcomes of dissatisfied carers groups and compare these with the wider carer population.⁹ For example:</p> <p>Carer group + Age of care recipient (Q1) or Age of carer (Q26)</p> <p>Carer group + QOL variables (e.g. control) (Q7-11)</p> <p>Carer group + Encouragement and support (Q12)</p> <p>Carer group + Impact on other caring responsibilities (Q13)</p> <p>Carer group + Impact on health (Q14) or finances (Q15)</p> <p>Carer group + Mechanism of delivery (data return)</p>	<p>Analysis may help you to uncover the potential reasons for low satisfaction ratings and/or dissatisfaction. Such findings can be used to inform local decision-making and performance improvements.</p>
Example: Peter conducted a series of chi-square tests and found that carers of people with mental health problems were more likely to be younger and were less likely to be caring for someone who has a personal budget.		

⁹ In this instance, the wider carer population refers to the other carers within the remit of the LA that have responded to the PSS SACE (i.e. the remaining dataset).

Research question(s)	Analysis strategies	Potential value
<p><i>What can be done to improve satisfaction ratings and the reported outcomes of these groups?</i></p> <div> <p>ASCOF function: inform the strategic planning and leadership role for local commissioning</p> </div>	<p>Supplement findings from statistical analysis with other relevant data (if available), e.g. thematic analysis of respondent comments, findings from other local or national research, insights from LA records and colleagues.</p> <p>If this information is not available or you are unsure what the findings from your analysis mean in practice, you can summarise the key findings in a presentation or report and circulate to LA decision-makers – and perhaps, external organisations (e.g. voluntary agencies) – for information.</p>	<p>Drawing on supplementary sources of data can help provide the contextual detail needed to make sense of the findings from statistical analysis.</p>
<p>Example – ‘retired’ carers: Thematic analysis of respondent comments highlighted to Peter the potential challenges faced by some carers adapting to retired life and their caring role, and also the disappointment of not having so many opportunities (if any) to pursue their own hobbies as planned. Peter looked at some of the services being accessed by retired carers by ratings of satisfaction (e.g. by creating frequency distributions) and found that there seemed to be an association between reported satisfaction among retired carers and accessing the kinds of services that would enable them to have a break from their caring role (e.g. respite, day centre/activity or lunch club services). These findings suggested to Peter that the provision of regular or one-off services may help retired carers.</p> <p>Example – carers of people with dementia: an additional open-ended question had been added after Q12 to enable respondents to describe why they felt unsupported and/or to outline what would help them to feel more supported. Thematic analysis of comments provided by carers of people with dementia noted that many currently felt overlooked or ignored by practitioners, particularly support workers (e.g. formal carers) who visited their home. A considerable number cited examples of where their suggestions on how to care for the care-recipient were brushed aside and/or expressed a wish for their role and expertise to be acknowledged by support workers. Peter wondered whether minor changes to existing front-line practice (e.g. encouraging support workers to engage and collaborate more with informal carers) may help carers to feel more supported.</p>		

INCLUDED OR CONSULTED IN DISCUSSIONS [ASCOF 3C]

The proportion of carers who report that they have been included or consulted in discussion about the person they care for.

OVERVIEW: ASCOF 3C provides a self-reported measure of the extent to which carers feel they are involved in the decision-making about the person they care for. ASCOF 3C is calculated as the percentage of carers reporting that they are “always or usually involved or consulted as much as they wanted to be in discussions about the support or services provided to the person they care for” (question 18 in the 2016/7 PSS SACE) and is linked to the overarching measure *Ensuring people have a positive experience of care and support [carers feel that they are respected as equal partners throughout the care process]*.

MAKING SENSE OF ASCOF 3C: a number of factors may affect the extent to which carers feel included or consulted in discussions about the person they care for. These include **characteristics associated with the carer** (e.g. age, ethnicity), the **care-recipient** (e.g. primary support reason).

REMEMBER THAT THE STATISTICAL TESTS INCLUDED IN THE MAX TOOLKIT CAN IDENTIFY ASSOCIATIONS BETWEEN VARIABLES (E.G. CHI-SQUARE) OR STATISTICAL MEANINGFUL DIFFERENCES BETWEEN THE MEANS OF DIFFERENT VARIABLES (E.G. T-TESTS AND ANOVA) BUT DO NOT INFER CAUSATION (I.E. THAT ONE VARIABLE AFFECTS ANOTHER VARIABLE)

SUGGESTIONS FOR FURTHER ANALYSIS ¹⁰

Research question(s)	Analysis strategies	Potential value
Scenario 4: a considerable number of carers are reporting that they are often excluded or never included in consultations about the person they care for¹¹		
<i>Do carers who feel excluded from consultations report poor outcomes in other areas?</i>	<p>Determine whether feeling excluded from consultations is associated with other poor outcomes. For example:</p> <ul style="list-style-type: none"> Included or consulted (Q18) + Carer QOL (composite score) [ANOVA] Included or consulted (Q18) + QOL variables (e.g. Control, Q8) Included or consulted (Q18) + Satisfaction (Q4) Included or consulted (Q18) + Impact on health (Q14) 	Analysis may help to establish whether action (e.g. changes to service provision) are required and that further analysis can be justified.
Example: Amanda's analysis has uncovered statistically significant associations between feeling involved in discussions about the care-recipient and [1] satisfaction and [2] carer-reported quality of life. In particular, carers who often or always feel excluded also tend to feel less satisfied – or even dissatisfied – and report a lower quality of life than carers who feel that they are included in discussions.		
<p><i>Which of our carers are feeling excluded?</i></p> <div> ASCOF function: identify the priorities for making improvements </div>	<p>Establish whether particular carer groups are feeling excluded by comparing the responses to Q18 for different groups. For example:</p> <ul style="list-style-type: none"> Included or consulted (Q18) + Age of care recipient (Q1) or Carer (Q26) Included or consulted (Q18) + Employment status (Q19) Included or consulted (Q18) + Duration of caring role (Q21) Included or consulted (Q18) + Primary support reason for care-recipient (data return) 	Analysis may help you to identify between-group variations in feeling included in – or conversely, excluded from – consultations.

¹⁰ Unless otherwise stated, chi-square tests are the most appropriate tests for the suggested analysis.

¹¹ As indicated by the 'I sometimes felt involved or consulted' and the 'I never felt involved or consulted' responses to Q18.

Research question(s)	Analysis strategies	Potential value
Example: Further analysis has shown Amanda that ‘new carers’ (classified in this instance as people who have been caring for less than three years) often feel excluded from consultations.		
<p><i>What factors are associated with feeling excluded from consultations?</i></p> <div> ASCOF function: inform the strategic planning and leadership role for local commissioning </div>	<p>Establish the characteristics of ‘excluded’ carers groups (e.g. ‘new carers’) and compare these with the wider carer population (e.g. more established carers).¹²</p> <p>For example:</p> <ul style="list-style-type: none"> Carer group + Age of care recipient (Q1) or Age of carer (Q26) Carer group + Employment status (Q19) Carer group + Mechanism of delivery (data return) Carer group + Method of assessment (data return) 	<p>Further statistical analysis may help you to uncover the potential reasons why some carers feel excluded (or may be being excluded).</p>
Example: Amanda conducts a series of chi-square tests and discovers that, in contrast to more established carers, many ‘new carers’ are still employed and/or have had a separate, rather than a joint, review with the person they care for.		
<p><i>Why do some of our carers feel excluded from consultations about the person they care for and what can be done to ensure that they are included in future consultations?</i></p>	<p>Supplement findings from statistical analysis with other relevant data (if available), e.g. thematic analysis of respondent comments, findings from other local or national research, insights from LA records and colleagues.</p> <p>If this information is not available or you are unsure what the findings from your analysis mean in practice, you can summarise the key findings in a presentation or report and circulate to LA decision-makers – and perhaps, external organisations (e.g. voluntary agencies) – for information.</p>	<p>Drawing on supplementary sources of data can help provide the contextual detail needed to make sense of the findings from statistical analysis and may also help to highlight possible courses of remedial action.</p>

¹² In this instance, the wider carer population refers to the other carers within the remit of the LA that have responded to the PSS SACE (i.e. the remaining dataset).

Research question(s)	Analysis strategies	Potential value
	<p>A review of the comments provided by 'new' carers in the PSS SACE does not uncover any relevant insights. Amanda wonders, however, whether new carers may be excluded from discussions about the person they care for as practitioners may not recognise them as carers or do not know how to contact them (e.g. because they have not been linked to a care-recipient as they would have been if a joint assessment had been conducted) and/or because consultations are conducted when carers are usually working.</p> <p>Follow up conversations with the carers' teams within her organisation confirmed that consultations were usually conducted during the day (i.e. when carers may be at work) and that joint assessments, while preferred, were often not possible due to difficulties in co-ordinating a mutually convenient time for the carer, care-recipient and practitioner to meet. Although care was taken to ensure that the relevant information was shared between client files, a review of a sample of files showed that the names and contact details of the informal carers were not always added to the file of the care-recipient, particularly when separate assessments are conducted, or were added a later date once the issue has been noticed.</p> <p>Although the carers' teams could not think of any feasible solutions to conducting more joint assessments, they agreed that minor amendments to the existing assessment process (e.g. to include checklists to ensure that information is shared across relevant files) may be useful and help to ensure practitioners have the details they need to include carers in consultations.</p>	

EASE OF FINDING INFORMATION [ASCOF 3D]

The proportion of people who use services and carers who find it easy to find information about support.

OVERVIEW: ASCOF 3D provides a self-reported measure of how easy or difficult carers find it to locate information about local services and support. ASCOF 3D is calculated as the percentage of carers reporting that they found it “very” or “fairly easy” to find information and advice about support, services or benefits in the last 12 months (question 16 in the 2016/7 PSS SACE). Ease of finding information [ASCOF 3D] is linked to the overarching measure ***Ensuring people have a positive experience of care and support [people know what choices are available to them locally, what they are entitled to, and who to contact when they need help]*** and, as outlined below, is believed to help carers have greater choice and control over their lives.

Improved and/or more information benefits carers and the people they support by helping them to have greater choice and control over their lives. This may help to sustain caring relationships through, for example, reduction in stress, improved welfare and physical health improvements. These benefits accrue only where information is accessed that would not otherwise have been accessed, or in those cases where the same information is obtained more easily.¹³

MAKING SENSE OF ASCOF 3D: the ease at which carers can find information about local services and support may vary considerably, so you may find it useful to explore ASCOF 3D by the **characteristics associated with the carer** (e.g. age, ethnicity), the **care-recipient** (e.g. primary support reason), and/or the **caring role** (e.g. the intensity of the caring role, i.e. the number of hours spent caring per week).

¹³ Source: NHS Digital, ASCOF handbook of definitions 2015-6

As the PSS SACE also includes a question about the potential usefulness of the information about local services and support (Q17 in the 2016/7 PSS SACE), you may also like to determine whether there are any issues with information quality.

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SUGGESTIONS FOR FURTHER ANALYSIS ¹⁴

Research question(s)	Analysis strategies	Potential value
Scenario 5: a considerable number of carers are reporting difficulties in finding information about local services and support		
<i>Are carers who are struggling to find information about local services reporting poor outcomes in other areas?</i>	<p>Determine whether difficulties in finding information about local services and support is associated with other poor outcomes. For example:</p> <ul style="list-style-type: none"> Ease of finding info (Q16) + Carer QOL (composite score) [ANOVA] Ease of finding info (Q16) + QOL variables (e.g. Control, Q8) Ease of finding info (Q16) + Encouragement and support (Q12) Ease of finding info (Q16) + Impact on health (Q14) Ease of finding info (Q16) + Included in consultations (Q18) 	Analysis may help to establish whether action (e.g. changes to service provision) are required and that further analysis can be justified.
<p>Example: Jo has found that a number of carers are reporting difficulties in finding information about local services and support. Some preliminary further analysis has now confirmed that carers who report such difficulties also report a lower quality of life, less control over daily life and greater dissatisfaction with services. This suggests that further analysis to explore which groups of carers are experiencing difficulties, and why, may be useful and may help to guide the planned revisions to the LA information strategy.</p>		
<p><i>Which of our carers are reporting difficulties in finding information?</i></p> <div> <p>ASCOF function: identify the priorities for making improvements</p> </div>	<p>Establish whether particular carer groups are reporting difficulties in finding information by exploring the responses to Q16 for different groups. For example:</p> <ul style="list-style-type: none"> Ease of finding info (Q16) + Age of care recipient (Q1) or Carer (Q26) Ease of finding info (Q16) + Gender of carer (Q27) Ease of finding info (Q16) + Ethnicity of carer (Q28) 	Analysis may help you to identify between-group variations.

¹⁴ Unless otherwise stated, chi-square tests are the most appropriate tests for the suggested analysis.

Research question(s)	Analysis strategies	Potential value
	Ease of finding info (Q16) + Primary support reason for care-recipient (data return)	
Example: Further statistical analysis has shown Jo that older carers (aged 75+) – particularly those that are providing intense levels of care (defined in this instance as 50+ hours per week) – often report difficulties in finding information about local services and support.		
<i>What can be done to improve satisfaction ratings and the reported outcomes of these groups?</i> <div> ASCOF function: inform the strategic planning and leadership role for local commissioning </div>	<p>Supplement findings from statistical analysis with other relevant data (if available), e.g. thematic analysis of respondent comments, findings from other local or national research, insights from LA records and colleagues.</p> <p>If this information is not available or you are unsure what the findings from your analysis mean in practice, you can summarise the key findings in a presentation or report and circulate to LA decision-makers – and perhaps, external organisations (e.g. voluntary agencies) – for information.</p>	<p>Drawing on supplementary sources of data can help provide the contextual detail needed to make sense of the findings from statistical analysis.</p>
<p>As comments boxes were not included in the survey, Jo conducts a brief review online and finds a recent ONS report which notes that approximately 2/3 of people in the UK aged 75+ do not access the internet.¹⁵ A subsequent review of the current information strategy for her organisation confirms that information about local services is provided online and via surgeries and health centres. This suggests that more targeted information strategies (e.g. sending information by post and/or providing information at assessments or via carers and visiting health professionals) may be useful. To enable decision-makers to consider whether the corporate information strategy needs to be amended, Jo adds these findings to her analysis report.</p>		

¹⁵ For further information, see <http://visual.ons.gov.uk/internet-use/>

Research question(s)	Analysis strategies	Potential value
Jo's findings indicate that minor amendments to the existing information strategy may help to improve the accessibility of information about local services and support (e.g. by ensuring that information is also circulated by post and/or provided at assessments or home visits). To enable decision-makers to consider the options, Jo adds these findings and her preliminary thoughts to her analysis report.		