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Increasing response rates to lifestyle surveys:

A review of methodology and 'good practice'

(The National Joint Strategic Needs Assessment Dataset Project)

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EXECUTIVE SUMMARY

Background

Lifestyle surveys are traditionally used for collecting detailed population information about individual behaviours that impact on health. However, declining response rates and the under-representation of certain population groups in lifestyle survey data has led to uncertainty over the accuracy of any findings. In order to maximise response rates, a mixed-methods approach is now recommended. This review was carried out in order to examine the methodological literature related to the administration of lifestyle surveys and the implications for response rates. It was envisaged that the results of this review could provide a valuable resource for those involved in undertaking lifestyle surveys.

Methods

A review of the empirical evidence and published literature on the methodological considerations associated with administration of lifestyle surveys, specifically in relation to maximising response rates, was carried out. A search for 'grey literature' was also conducted using the internet, and citation tracking was performed on all retrieved articles. A request for examples of relevant lifestyle survey work, particularly those incorporating mixed-methods designs and/or strategies to increase response rates, was distributed to several Primary Care Trusts (PCTs) across England. The responses are illustrated as 'good practice' case studies.

Results

The postal questionnaire remains an important lifestyle survey tool, but response rates have decreased rapidly in recent years. Interviews and telephone surveys are recommended in order to supplement data from postal questionnaires to overcome any literacy and language barriers. These approaches are advocated to increase response rates in some population groups, but costs may be prohibitive. Electronic surveys are a cheaper alternative, but the evidence seems to suggest that the use of the internet does not appear to increase overall response rates to surveys. Evidence on the use of incentives suggests they can be effective at increasing response rates, but only if their use is tailored to the design of the survey and to the characteristics of target populations.

Conclusions

The empirical evidence was not robust enough to make definitive recommendations, but information from the published literature, along with examples of 'good practice' in lifestyle survey work suggests that supplementing, or offering different survey modes, alongside targeted maximisation strategies can increase coverage and also, with careful planning, can prove to be cost-effective.

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Aim of this review

The requirement for Joint Strategic Needs Assessment (JSNA) was created in the Local Government and Public Involvement in Health Act (Department of Health, 2007). It is proposed that JSNA will lead to stronger partnerships between communities, local government, and the NHS, providing a firm foundation for commissioning that improves health and social care provision and reduces inequalities. JSNA identifies areas for priority action through Local Area Agreements (LAAs), and it helps commissioners to specify outcomes that encourage local innovation, and help providers shape services to address needs.

Local lifestyle surveys are an appropriate mechanism for collecting detailed population measures of individual behaviours that impact on health, and therefore are often a key component of JSNA. Lifestyle surveys carried out to inform JSNA often need to be administered to a large number of people in order to provide a comprehensive profile of population health. Lifestyle surveys tend to be lengthy, and as more health questionnaire surveys are used, 'survey fatigue' may be developing among the general public [1]. Declining response rates and the under-representation of certain populations in lifestyle survey data introduces non-response bias, which leads to reservations about the accuracy of any findings. In order to boost declining response rates and overcome non-response bias, it is now recommended that surveys are conducted in different modes designed to suit the target respondents [2];[3]. The literature that focuses on the methodological considerations associated with the design and conduct of lifestyle surveys, and the subsequent impact on response rates, has not previously been collated. Therefore, this

review was carried out in order to draw together that empirical evidence in order to improve survey design and response rates, and to provide a valuable resource for those involved in conducting lifestyle survey work as part of JSNA.

This work comprised two phases:

(1) A review of the empirical evidence and published literature on lifestyle surveys, with a focus on methodological considerations and maximising response rates. Electronic databases were searched, including MEDLINE, CINHAL, DARE, EMBASE and PsychINFO. A search for 'grey literature' was also conducted using the internet, and citation tracking was performed on all retrieved articles. Findings from this literature search are documented on pages 7-21.

(2) A request for examples of relevant lifestyle survey work, with a focus on the use of mixed-methods and/or strategies employed to increase response rates was distributed to Primary Care Trusts (PCTs) across England. The responses are illustrated as 'good practice' case studies and can be found on pages 22-36.

Overview of lifestyle survey methodology

Lifestyle surveys seek to elicit population data on a range of health issues. These commonly include coverage of some of the following topic areas:

- Smoking
- Alcohol Consumption
- Body Mass Index
- Dental Health Status
- Diet and Nutrition
- Drug Consumption
- Mental Health
- Neighbourhood Perceptions
- Physical Activity Levels
- Prevalence of Disease
- Self-Reported General Health
- Sexual Health History and Behaviour

(source: North West Public Health Observatory)

There are a plethora of approaches for conducting lifestyle surveys, and an overview of common methodologies has been collated and published as the Lifestyle Survey Toolkit by the South East Public Health Observatory (SEPHO) (www.lifestylesurvey.org.uk). At the time of writing, an updated version of this toolkit is about to be published by the Association of Public Health Observatories (APHO). In addition, The JSNA Core Dataset (also published by the APHO) is available from the Department of Health website (www.dh.gov.uk). These resources, along with findings from the published literature provide an evaluation of different survey methods and the implications these methods may have on response rates.

Postal Surveys

Postal questionnaires are widely used to collect lifestyle survey data and are often the only financially viable option when collecting information from large, geographically diverse populations [4]. The procedure is simple – a sample of names and addresses is drawn from a database, mailing labels are produced and the questionnaire is sent out with a covering letter. Reminder postcards and letters (sometimes with another copy of the

questionnaire) are sent to encourage response. Table 1.1 below outlines the pros and cons associated with postal surveys:

Table 1.1: Pros and Cons associated with Postal Surveys

Pros	Cons
Costs – estimated between £5,000 and £10,000 per 1,000 questionnaires completed.	Increasingly lower response rates (less than 50%), particularly from hard-to-reach groups – this introduces non-response bias
Convenience - can be managed fairly easily and allows respondents to complete at their leisure	Limited range of topics – questionnaires need to be straightforward
Little chance of direct bias	Not suitable for those with literacy or language barriers

A systematic review of randomised controlled trials (RCTs) of strategies to increase response rates to postal questionnaires was conducted in 2002 [4]. Seventy-five strategies were reviewed and it was found that:

- the odds of response was more than doubled when a monetary incentive was used, and almost doubled when incentives were not conditional on response.
- response was more likely when short questionnaires were used,
- personalised questionnaires and letters increased response, as did the use of coloured ink.
- the odds of response were more than doubled when the questionnaires were sent by recorded delivery and increased when stamped-addressed envelopes were used, and questionnaires were sent by first class post.
- contacting participants before sending questionnaires increased response, as did follow-up contact and providing non-respondents with a second copy of the questionnaire.
- questionnaires designed to be of more interest to participants were more likely to be returned, but questionnaires containing questions of a sensitive nature were less likely to be returned.
- questionnaires originating from universities were more likely to be returned than were questionnaires from other sources, such as commercial organisations.

Despite the rapid growth of electronic communications, and the potential for cost-savings, the postal questionnaire remains an important lifestyle survey tool, and is often used over other methods [5]. However, response rates to postal surveys have continued to decline in recent years at an increasing rate [6]. This highlights the problem of non-response and

uncertainty as to the accuracy of any findings: those who respond to postal surveys may differ in some systematic way from those who do not [1]. An assessment of the characteristics of non-responders is often omitted, possibly because of the additional costs which can be considerable. However, findings from lifestyle surveys which do not incorporate an assessment of non-response (i.e. a comparison of respondent and non-respondent characteristics/demographics and discussion of how non-response may affect findings) must be treated with caution and cannot provide a true representation of the population under study.

Interview Surveys

Established ways of collecting data are often inappropriate for some minority groups, particularly where high levels of illiteracy and lack of fluency in English exist - two key issues among some ethnic minority communities [7]. It has been estimated that approximately 23% of immigrants in Britain have no functional skill in English, and 70% cannot function fully in an English-speaking environment [8]. It is suggested that interviews should be carried out to supplement data collected from postal questionnaires in surveys including ethnic minority communities. It is proposed that this would assist in overcoming language and literacy obstacles, thereby improving response rates [9].

Interview or 'face-to-face' surveys are conducted by a trained interviewer either 'in-street', 'on-the-doorstep' or 'in-house'. The person to interview can be either a named respondent selected often at random from a list or database, a person selected from within a randomly selected household or chosen to meet certain pre-defined criteria. Table 1.2 below outlines the pros and cons associated with interview surveys:

Table 1.2: Pros and Cons associated with Interview Surveys

Pros	Cons
High response rates	Managing interview data can be complex, especially for large samples
Avoids issues of low literacy and ambiguity (e.g. able to give further information)	Interviewer bias (leading or influencing respondent)
More personal	Costs – estimated between £12,000 and £50,000 per 1,000 questionnaires completed
Detailed response	Time – face-to-face interviewing requires good planning and frequent call backs to respondents, along with possible lengthy methods of data analysis

A study conducted by Allison et al (2003) [10] found that combining postal questionnaire responses and interviews as part of a population survey with South Asians was a good method to maximise response rates – if interviews had not been used the response rate would have just been 35%, but with both methods it was over 75%. Other strategies commonly employed are offering translated versions of a questionnaire, or offering interviews with bilingual researchers. However, complications that impact on the quality of data can arise around translation, for example, where different forms of the same language are used, and where the written and spoken forms of some languages are not the same. This may mean that the questions asked at interview will not be expressed the same as the questions written on the questionnaire or interview schedule (see pages 16-17 for further information on cultural factors).

Telephone Surveys

Telephone surveys offer an opportunity for good coverage of the population. Table 1.3 below outlines the pros and cons associated with telephone surveys:

Table 1.3: Pros and Cons associated with Telephone Surveys

Pros	Cons
Facilitates more effective targeting of hard-to-reach groups	Resources needed – a team of interviewers is required, preferably using a computer-assisted telephone interviewing system.
Can be fairly complex (given that they are administered by a trained interviewer)	Not everyone has access to the telephone (or is accessible if ex-directory or using caller ID to block unknown callers), or is available when the interviewer calls
Can achieve good response rates (although interviewer may have to make several calls to achieve 1 response)	Costs – estimated between £8,000 and £15,000 per 1,000 questionnaires completed.
	Time – respondents may be on the telephone for a lengthy time period.

Telephone surveys are used widely in market research, but less so in health or social surveys. One study found that recruitment rates were improved in minority ethnic populations by using telephone compared to face-to-face methods, and it was concluded that audio-recorded methods are an acceptable alternative to written methods in study populations where literacy skills are variable [11]. Another study that established first contact by telephone with mothers of young children living in areas of high deprivation yielded a recruitment rate of 77% to a home interview study [12].

Electronic Surveys

Electronic surveys are becoming more common as the proportion of people who have access to the internet increases. These can either be web-based or email surveys. In web-based surveys, individuals are invited to visit a website to complete the survey or are sent a link. Email surveys often have the survey embedded within the email, which can then be returned to the mailer. Table 1.4 below outlines the pros and cons associated with electronic surveys:

Table 1.4: Pros and Cons associated with Electronic Surveys

Pros	Cons
Costs – estimated between £3,000 and £8,000 per 1,000 questionnaires completed	Bias against those without access to the internet/those who are unable to use the internet
Speed – internet or email surveys can be conducted quickly with lower costs, as there are no postage or data entry costs	Low response rates (if the email is used only to invite and remind the sample to take part, the response rate is unlikely to be over 20%)
Responses may be more honest	Difficult to guarantee confidentiality

A systematic review of strategies to increase response rates to postal questionnaires [4] updated in 2009 to include electronic surveys [13] reported that:

- the odds of response were increased by more than a half using non-monetary incentives, shorter e-questionnaires, including a statement that others had responded, and a more interesting topic.
- the odds of response increased by a third using a lottery with immediate notification of results, an offer of survey results, and using a white background.
- the odds of response were also increased with personalised e-questionnaires, using a simple header, using textual representation of response categories and giving a deadline.
- the odds of response tripled when a picture was included in an email.
- the odds of response were reduced when ‘survey’ was mentioned in the email subject line, and when the email included a male signature.

Findings from a meta-analysis of 45 comparisons between internet surveys versus other survey modes showed that, on average, internet surveys yield an 11% lower response rate compared to other modes [14]. It was reported that the response rate to (the disadvantage of) the internet mode is systematically influenced by:

- the sample recruitment base – response rates are lower from panel members (those who are used repeatedly in internet surveys), as compared to one-time respondents;
- the solicitation mode chosen for internet surveys – there is a greater response rate to postal mail solicitation compared to email;
- the number of contacts – it is usually found that the more contacts (i.e. letter or phonecall reminders) yield larger response rates for other survey designs, whereas this works in the opposite direction for internet surveys.

Another meta-analysis of response rates to internet surveys helps to clarify these findings [15]. This study suggests the decrease in response rate observed amongst those receiving the largest number of reminders to internet surveys may be due to individuals reaching a saturation point in email volume, and becoming resistant to being reminded more than once about a survey. However, as with postal surveys, using personalised correspondence was found to be associated with higher response rates to internet surveys in this review, as was precontact.

An experimental comparison of internet and telephone surveys found that fewer respondents completed an online version of a questionnaire, compared with telephone respondents [16]. An analysis of the demographic differences between the two samples showed that internet users were more educated, younger, more likely to be white, and were more supportive of research and its impact on everyday life, yet these populations were not well represented in the response rates to the surveys. The authors concluded that internet surveys create somewhat different cognitive demands (or burden) from telephone surveys, and this seems to affect how certain types of people respond to certain types of survey.

Another study found that an internet survey achieved a comparable response rate to a postal survey when both were preceded by an advance mail notification [17]. However, those who responded to the postal survey were significantly older than those who responded to the internet survey. A similar study comparing response rates to postal and internet surveys found that the internet survey had a significantly smaller turnaround time, but it had a lower response rate, both overall and for each of three mailings attempted [18]. The advantage of the postal survey over the internet survey is the response rate seemed

to become greater as repeated mailings were attempted. The internet survey was found to have lower item non-response and longer open-ended responses. In addition, younger, male, avid internet users, and those with greater technological sophistication tended to be over-represented in the internet survey.

Overall, the evidence seems to suggest that use of the internet does not appear to increase overall response rates to surveys [19]; [5]. One explanation is that less time and attention have been devoted to developing and testing motivational tools to increase internet survey response in comparison with, say, postal surveys (e.g. the use of personalisation, pre-contact letters, follow-up postcards and incentives) [17]. However, the implementation approaches that are beneficial for postal surveys may not translate directly to response rate benefits for internet surveys, because research has revealed concerns on the part of the potential survey participants that are particularly salient for internet users, including security and the receipt of electronic 'junk mail' or 'spam' [20].

Research on internet survey methodology is extensive; the online database WebSM (www.websm.org) has collected over 2,000 articles written on the topic.

Mixed-methods survey design

The above sections document the barriers and limitations that different survey methods pose. Individual survey modes often do not achieve high or representative response rates, and it is becoming increasingly common to use more than one method to overcome this problem. An enormous shift has occurred with new developments in technology and software that makes it easier to conduct mixed-method surveys. However, a general understanding of all modes is needed to be able to effectively design a mixed-methods survey, and the planning and implementation requires effective communication and coordination among people with different expertise, and often among different organisations. Several advantages to mixed-methods surveys are listed below (taken from Dillman et al, 2009) [21]:

- Lower Costs

  Many mixed-methods survey designs begin with less expensive modes and then move to more costly modes, targeting those who do not respond initially, e.g.

postal survey plus cash incentive or personal interview; or a web survey followed by telephone calls;

- Improved Timelines
  Mixed-mode surveys may also facilitate a quicker collection of responses by offering the method that is preferable.

- Reduced Coverage Error
  Mixed-mode surveys can be used to improve coverage when a single mode cannot adequately cover the population of interest, or when contact information is not available for the desired mode of data collection.

- Delivering Incentives
  Postal mail can be an effective way to provide small cash incentives for modes whereby incentives cannot otherwise be easily delivered (e.g. via telephone or web surveys). Although some incentives can be delivered electronically, many people are still suspicious of electronic financial exchanges (see pages 17-19 for empirical evidence on the use of incentives).

- Improved Response Rates and Reduced Non-Response Bias
  One aspect of the decision to use multiple modes is the recognition that some people prefer certain modes and may not respond via other modes.

The pros and cons associated with mixed methods surveys are shown in Table 1.5:

Table 1.5: Pros and Cons associated with Mixed-Methods Surveys

Type	Pros	Cons
Use one mode to contact respondents and to encourage response by a different mode	• Improved response rates • Reduced coverage and non-response error	• Increased implementation costs
Use a second mode to collect responses from the same respondents for specific questions within a questionnaire	• Reduced measurement error • Reduced social desirability bias for sensitive questions	• Increased design costs • Increased non-response if respondent must respond by other mode at a later time
Use alternative modes for different respondents in the same survey period	• Improved response rates • Reduced coverage and non-response error • Reduced survey costs	• Increased design costs • Measurement error from mode differences that may be confounded with differences among subgroups
Use a different mode to survey the same respondents in a later data collection period	• Different modes become available to survey respondents • Reduced survey costs	• Increased design costs • Measurement error from mode differences that impact the ability to measure change over time

In order to achieve increased response rates, mixed-methods lifestyle surveys appear to be preferable. However, there are problems with mixing survey methodologies which should be acknowledged. Changes to the wording and design of questionnaires for use in a different context may result in different responses. For example, questions with 'tick all that apply' response options are usually changed to 'yes/no' responses when converting from self-completion questionnaires to interviews. This change has been found to increase the proportion of 'yes' responses given by participants. Even if the wording remains unchanged, the same answers will not necessarily be gained when questions are presented in a different mode. For example, people are more likely to give socially desirable answers (responses that create a favourable impression) to attitudinal questions for interviewer-administered surveys than postal questionnaires (NWPHO). Another factor

to consider is that mixed-methods approaches may be more expensive as more time is needed to design a questionnaire or interview schedule that is transferable between modes. Other important design considerations are outlined below:

Sampling

Irrespective of the choice of survey method, a crucial aspect of conducting a lifestyle survey is the sampling procedure. The over-riding imperative is to gain survey responses from as representative a sample as possible. To achieve this, one popular technique employed is to 'oversample' certain populations. Useful information on this and other sampling strategies can be found in the Lifestyle Survey Toolkit (SEPHO) (see above) and from the North West Public Health Observatory (NWPHO) (www.nwpho.org.uk). An extract is provided below:

> *There are a number of [sampling frame] options (such as the electoral register or telephone directory), but the importance of NHS numbers to help build a more comprehensive picture of population health means the use of GP lists is often the most suitable source of the sampling frame. It should be noted, however, that all of these sources have their inaccuracies and measures should be taken to acknowledge this, especially when targeting hard-to-reach populations.*

- ***Geodemographic Segmentation***

  Geodemographics has been defined as the 'analysis of people by where they live' [22]. The term has come into common use to describe the classification of small areas and the use of geography to draw general conclusions about the characteristics and behaviours or people who live in them. Multi-level modelling has confirmed that neighbourhood classifications have an explanatory power over and above that of the socio-demographic characteristics of the individual [23]. A comparison of the leading geodemographic classification tools has been published by the North West PHO: (http://www.nwph.net/nwpho/publications/Synthesis_6_Socialmarketing.pdf).

  Geodemographic classifications can contribute towards a better understanding of the problems and needs of a particular population, and it also may help to identify which groups are particularly in need of help. Classifications may be available for very small areas, permitting the detection of inequalities that might otherwise be missed and finer

targeting of interventions to overcome them. These generalisation techniques can be valuable where local data do not exist or are unreliable due to small numbers. The APHO website (www.apho.org.uk) contains links to a range of further resources relating to geodemographic tools and their application in public health.

Cultural factors

In trying to maximise the response rate from under-represented groups, it is important to be cognisant of the customs, values and beliefs of the target group(s) before designing a project. It is a concern that the majority of commonly used health outcome measures or questionnaires were developed in English speaking countries, and more often than not are intended for use among ethnically homogenous ('white') populations. A systematic review was undertaken to explore whether any of the more routinely used health survey measures can be used and have comparable meaning or suitability among UK Black and Minority Ethnic (BME) populations (following translation or cultural adaptation) [24]. A total of 402 articles met the criteria for review and it was found that:

- the majority of studies involved administration, translation/cultural adaptation or validation of the General Health Questionnaire (GHQ) (33.3%), the Mini-Mental State Examination (MMSE) (21.9%); and the Medical Outcomes Short Form-36 (SF-36) (17.7%);
- only fifty-six studies were based within the UK either partially or fully; the overwhelming majority of papers retrieved were developed, validated and administered outside the UK;
- little attention was paid towards the needs of Black African-Caribbean groups; only the MMSE received attention in terms of the needs of this group;
- a number of studies highlighted increased levels of illiteracy and low educational attainment and developed instruments to cater for those who would normally be excluded due to inability to read and write a language;
- very few authors queried whether overall concepts of health status measurement or quality of life were an appropriate concept to measure in any of the target populations.

Research analysing the translation of local and national health surveys has uncovered numerous potential problems [25]. For example, asking Muslim respondents whether they drink more at Christmas, and the use of terms such as 'weekend' and 'hangover' is of

questionable relevance, and may be offensive to some sections of the population. These examinations of translated questionnaires has helped to explain the recently shown lesser validity of certain instruments in South Asian populations [26]. An alternative to seeking cross-cultural relevance is to define issues as, firstly, salient and meaningful within a culture, and secondly, concerns of salience between and across cultures. This strategy requires a participatory approach whereby monolingual and bilingual representatives of the target population(s) are involved to generate items for inclusion in a mode of enquiry relevant to that group [7]. It is suggested that open discussion between respondents and all the members of the investigative team should be attempted before carrying out research [27]; [11].

Incentives

The concern about declining response rates has led to the increased use of maximisation strategies, such as offering incentives. Despite the increased use of incentives, few studies have been published reporting on what type of incentive works best on whom. A randomised controlled trial of two incentives (money and lottery ticket) and pre-contact with an introductory postcard was carried out in order to assess effect on response rates in a population-based survey of midlife women [28]. It was found that each incentive/pre-contact group yielded a higher response rate than the no incentive/pre-contact group, although only the response rates for the lottery/postcard group and the money only group were significantly higher than that of the no incentive/no postcard group. A modest cash incentive was the only factor that had a significant independent effect on the likelihood of response, indicating that response rates by midlife women may be improved by this type of incentive.

The effects of a cash incentive on survey response rates have been found to be greater in minority compared with the non-minority communities [28]. A study examining the effect of incentives in low-income groups found that monetary incentives significantly improved response rates compared with no incentive [29]. It has been suggested that it is not the monetary amount of the incentive that is important, but it is the gesture of enclosing a monetary reward that influences propensity to respond. Some studies report increasing response rates with increasing monetary incentives [29]; [30]; [31], but it has been proposed that the increase in response may not be enough to justify the use of larger monetary incentives [29]. The enclosure of a scratch-off lottery ticket has been found to

modestly increase response rates[21] [28]; [30]; [32]; [33];. However, the effect of this may be limited as only a small minority of participants were likely to have received a winning ticket, and some might interpret the inclusion of a lottery ticket as an endorsement of gambling (but this has not been reported in the literature). Some studies have shown that monetary awards contingent upon the return of the questionnaire yield a similar response rate as enclosed monetary awards and are therefore more cost-effective [30]. However, there is a general consensus that upfront monetary awards are preferable [21], as contingent rewards may be considered coercive, or they might invite participants to evaluate such offers with regard to whether the amount offered is worth the effort required [34].

A study carried out by the National Centre for Social Research (NatCen) aimed to evaluate the use of incentives to motivate 'hard to get' households on the UK National Travel Survey [35]. The National Travel Survey (NTS) is a continuous household survey carried out by NatCen for the Department of Transport. The survey collects information about personal travel by residents in Great Britain by means of a household interview and personal seven-day diary of every household member. The survey imposes therefore a heavy burden on households, particularly on larger households. Therefore, the larger households are classified as 'hard-to-get' because only fully co-operating households are included in the response rate. In this particular study, it was decided that an incentive would be given to each household member conditional on full household co-operation, and it was tested whether a £5 incentive would be as effective as a £10 incentive. The results showed that the prepaid incentives significantly increased the likelihood of gaining full household co-operation; 58% among those offered £5 and 61% among those offered £10 compared with only 51% among those not offered an incentive. The overall difference between the response rates for those receiving £5 or £10 was not statistically significant, indicating that offering a larger incentive may not be cost-effective. However, a closer look at the results revealed that the £10 incentive had a far greater motivational impact than the £5 incentive on households with lone parents and dependent children (probably because this was of greater value to these households), resulting in the over-representation of these households in the sample. This result demonstrates that incentives can have selective effects on certain population sub-groups, and whether these selective effects will reduce non-response bias depends on their strength and direction. Moreover, the use of

incentives can have the unintended consequence of reducing the representativeness of other sub-groups.

Another UK study evaluating the effect of a direct payment versus a lottery to improve response rates to a postal questionnaire, found that the use of a £5 incentive increased response rates by 12% [32]. However, like other studies, a lottery did not significantly increase response rates. It was found that the marginal cost per extra response using a £5 incentive was four times that of the control group. The authors suggested that whether the extra cost was worthwhile may depend on whether increasing response rates leads to a more representative sample. The authors suggested that payment may preferentially increase response rates among those with least interest in the subject of the survey, and that this particular study was carried out on middle-aged women and may not apply to other populations.

There is a large body of evidence on the effects of incentives in survey research (although it is important to note that most of the existing evidence comes from the US or Canada, with limited evidence from studies conducted in the UK), but it has been suggested more recently that incentives can be effective only if their use is tailored to the design of the survey and to the characteristics of under-represented groups [35] (see also http://www.qmul.ac.uk/media/news/items/smd/16249.html). It has also been reported that any improvement associated with incentives may diminish over time or with repeated mailings, implying that incentives may affect early response rates but not cumulative response rates [36].

DISCUSSION

The evidence from this review suggests that adding or offering different survey modes and maximisation strategies, such as modest cash incentives, may increase coverage and can be cost-effective [37], but that unless they are tailored to the characteristics of different populations, they will not provide a solution to the problem of declining response rates. An oft-cited study examining factors influencing survey participation expands on this conclusion, and proposes that a full understanding of decisions to participate is needed, integrating the observed influences of socio-demographic and survey design factors [38]. The authors described several socio-demographic and psychological influences associated with survey response, such as:

- societal level factors - social responsibility and social cohesion are important, and these factors determine the particular persuasion factors and decision-making strategies;
- survey design factors such as mode of initial contact, as well as the selection of persuasion strategies and the effectiveness of alternative strategies. Who is eligible to answer the survey questions can permit multiple respondents (e.g. household or family) or restrict the choice to just one, the length of the survey and the survey topic can affect the respondent's level of interest and knowledge. It is important to understand which survey modes increase participation in particular groups – for instance, electronic surveys may exclude the large number of people who do not have access to the internet or who are not computer literate;
- respondent characteristics including sociodemographic factors, the environment (e.g. level of crime, urbanization), household structure and characteristics, and the past experience of the respondent;
- (if interviews are carried out) attributes of the interviewer including observable sociodemographic characteristics which are believed to influence the 'script' evoked in the respondent's mind at first contact with the interviewer. At first contact, the respondent makes judgements about the purpose(s) of the visit. An interviewer's prior experience will have an affect the on the skill and confidence they bring to the interaction with the individual approached with the survey request. Experienced interviewers tend to achieve higher levels of co-operation because they understand what behaviours are effective to engage different types of respondents.

Thus, the authors recommend incorporating these factors in order to examine the degree to which they increase response rates, and to correlate these influences with level of survey response. However, this is with the caveat that care should be taken when results from different methods are combined, since equivalence is uncertain. Survey mode effects also need to be taken into account when evaluating data quality. For example, one study showed that internet survey respondents produced higher rates of 'don't know' answers and more item non-response compared with face-to-face survey respondents [39]. Although, much of the research on internet surveys shows that item non-response can be more easily controlled due to the ability to provide alternative response categories along with intricate graphics and multimedia to encourage response [40]. Finally, zealous attempts to increase response rates may impair data validity - one study found a clear

positive relationship between questionnaire retrieval rates and the mean proportions of missing answers [41]. Future studies may want to assess the validity of data from surveys gathered with intensive recruitment efforts and assess item non-response as a measure of data quality.

Limitations of review

It is important to highlight that the majority of empirical evidence cited in this review was published in market research or educational research journals and therefore may not readily transfer to health or social care [42]. Of those studies that were conducted in a healthcare arena, many were trials conducted with patient populations, who may be motivated to participate in surveys for different reasons. Furthermore, the methods used in the conduct of clinical trials may not be directly transferable to lifestyle survey methodology, and therefore the generalisability of such findings may be limited. A final consideration on the point of generalisability is that few studies were conducted in the UK – the majority of published evidence comes from the US and Canada.

‘GOOD PRACTICE’ CASE STUDIES

The following section documents some examples of ‘good practice’ in national lifestyle survey work, with a focus on the use of mixed-methods and/or strategies employed to increase response rates. Overall response rates and cost information is given (where available). It is recognised that only a few examples of lifestyle survey work have been represented here – this was very much dependent on the provision of relevant contact information, resource and time limitations, and the participation and support of relevant organisations.

THE HULL HEALTH AND LIFESTYLE SURVEY
Self- and interviewer-completed questionnaires using quota sampling

Two Health and Lifestyle surveys were carried out in Hull in 2007. The main survey had a target of 4,000 respondents (2% of Hull population), and the second survey focused on people from BME backgrounds, with a target of 950 respondents (8% of Hull's BME population). The aim of the surveys was to examine health status, health related behaviour and social capital in a representative sample of Hull's adult (18+) population. The questionnaire collected information on:

- Health status (using the Health Utility Index and SF-36 mental health index)
- Diet
- Smoking
- Alcohol consumption
- Exercise
- Ethnicity and fluency of English (if not British)
- Employment status
- Household information, tenure and income
- Social Capital

Sampling

For the main survey, quota sampling was used based on gender, ten-year age group, nine geographical areas and employment status, so that the resulting sample was broadly representative of Hull's overall population with regard to these characteristics. There was no sampling frame available for the BME survey, but local knowledge and connections to BME networks were utilised to derive the sample. The two different approaches employed in deriving the two samples means that the two surveys are not strictly comparable, with the BME survey unlikely to be representative.

Methods used to try and maximise response

- ✓ For the main survey, responders were targeted through interviewers knocking on doors in specific geographical areas;
- ✓ For the later stages of the main survey when particular hard-to-reach groups needed to be approached to fulfil the quota requirements, other methods of approach were used. This particularly applied to young working men who were more difficult to reach through knocking on doors, and to obtain the sample for these groups, colleges and workplaces were approached;
- ✓ The interviewer gave the choice of completing the questionnaire by interview, or having the questionnaire self-completed with the interviewer collecting the questionnaire at an agreed time and date;
- ✓ For the BME survey, some questionnaires were translated for self-completion, and in other cases, bilingual interviewers were used in administering the questionnaires;
- ✓ Both questionnaires were identical in appearance, except for being a different colour to immediately distinguish which survey the responders were to be included;
- ✓ A letter signed by the Director of Public Health was issued with each questionnaire which explained the validity and purpose of the project and included a freephone number (external agency) in case anyone wanted to further check the validity, as well as a contact telephone number at the PCT;
- ✓ A blank envelope was provided so that the completed questionnaire was not exposed to the interviewer
- ✓ A freepost envelope was provided so that the questionnaire could be returned by post if a collection time could not be agreed

Response rate

4,086 responses were collected in the main survey, and 1,163 responses were collected in the BME survey *(the majority of questionnaires in the main survey were self-completed, and the majority of questionnaires in the BME survey were interviewer completed)*

Contact: Mandy.Porter@hullpct.nhs.uk – Costs for both surveys were estimated to be around £80K, using an external agency to conduct the survey.

SMOKING PREVALENCE IN KNOWSLEY
In-depth survey method and segment classification

A borough wide representative interview survey conducted in early 2007 (n=8,564) established that smoking was more prevalent in Knowsley than was previously thought. With deaths from lung cancer 74% higher in Knowsley than nationally, smoking is the number one health priority in the borough. A number of population segments were identified in the survey, and using these segments a series of on-street directed interviews were carried out in 2008 in order to assess the current and previous smoking behaviour of adults living in Knowsley. The interviews were carried out using a questionnaire developed from the Tobacco Control Research Centre in order to find out the following information:

- Segment classification
- Segment demographics
- Assess stage of change
- Number of attempts at giving up smoking
- Social aspects of smoking
- Concern about health
- Barriers to giving up smoking
- Attitudes to the smoking ban
- Services used
- Likelihood of using stop smoking services

Sampling

For the six wards in Knowsley, 95 sampling points were utilised (with no fewer than 14 points in any single ward). A random sample was selected and, in total, 1,000 in-street interviews were completed. Data were weighted at ward level, by gender and age to correspond to the Knowsley residential profile. In addition to Mosaic categories, additional information derived from the smoking prevalence survey allowed a more in-depth segmentation list to be defined. Screening criteria were established for the in-street interviews in order to determine whether the defined segment groups were accurate. These included:

- Young Invincibles or Young but not Parents
- Unemployed Depressed Young/Competitive Mums
- Driven by Job Pressures - health concerned
- Why Should I?
- Economically Inactive – deprived, put upon and resentful
- Economically Inactive – bored and apathetic
- Established Professional/White Collar Workers
- Old School Values

Methods used to try and maximise response

- ✓ Interviews were conducted with members of the public in busy areas of towns within the borough;
- ✓ Respondents were screened to ensure they were smokers;
- ✓ Screening questions were also asked to ensure respondents were residents and over 18 years of age;
- ✓ Respondents were allocated into a previously defined demographic segment;
- ✓ Six focus groups were conducted following the in-street work in order to provide more in-depth, attitudinal information to support the programme.

The study was conducted with a representative sample of Knowsley smokers *(costs for the prevalence survey, in-street interviews/segment classification work and focus group work was estimated to be £95k)*

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ASSESSING HEALTH AND SOCIAL NEEDS IN NORTH EAST LINCOLNSHIRE
a mixed-methods survey of older people

A survey was carried out in 2007 to assess the health and social needs of older people in North East Lincolnshire (aged 65 and over). The objectives of the study were:

- to identify current needs and to forecast future needs and the likely demand on services, given the increasing number of older people in the area;
- to determine older people's perceptions of their needs;
- to explore some needs in greater depth and to provide an opportunity for older people to raise other issues;
- to explore the needs of carers of older people with dementia;
- to review the current older people's mental health service provision and identify any gaps with the older people's mental health services development guide.

In addition to the data collected using a postal questionnaire, routinely available health data were analysed to determine the current demand for physical and mental health services and to compare with people's perceived health status and illness and disability. Social care data were also analysed.

Sampling

A questionnaire was sent to a stratified random sample of people aged 65 and over living in North East Lincolnshire or registered with a North East Lincolnshire Care Trust GP and likely to use other services in the area. A sample size of 3,400 (12% of older population group) was calculated and selected with sufficient power to allow the results to be representative. The sample size was also calculated to enable robust comparisons between the younger elderly (64-75 years) and older elderly (75 and over), men and women, those living in more deprived areas (Neighbourhood Renewal Areas) and those in more affluent areas.

Methods used to try and maximise response

- ✓ A3 posters were produced and sent out to all GP practices, care and nursing homes, wardens of sheltered accommodation, luncheon clubs, day centres, Age Concern, and libraries in North East Lincolnshire;
- ✓ Posters were also sent to hospital consultants involved in the care of older people to be displayed in relevant wards, and were placed at customer access points at North East Lincolnshire County Council. A covering letter explaining the aims of the project to staff was included, with a request letter that the poster be displayed in a prominent position and that they assist the recipient if required;
- ✓ A press release was submitted to the local paper;
- ✓ A helpline number at the Public Health Department was manned by researchers during office hours to respond to enquiries. A Frequently Asked Questions document was produced with answers to provide enquirers with;
- ✓ If wrong or incomplete questionnaires were returned, then a repeat questionnaire was sent along with an appropriately worded letter;
- ✓ A reminder letter and questionnaire was sent to initial non-responders (*additional mailings were deemed inappropriate due to the vulnerability of the target group*);
- ✓ Focus groups were undertaken to explore some issues in greater depth. Six small groups were held involving 21 participants;
- ✓ Semi-structured interviews were undertaken with 11 carers of people with dementia;
- ✓ Semi-structured interviews were undertaken with approximately 60 health and social care professionals and managers, referred to as stakeholders.

The overall response rate to the postal questionnaire was 71% *(cost information was unavailable)*

Contact: Cynthia Manson-Siddle – cynthia.manson-siddle@nelctp.nhs.uk.

CENTRAL LANCASHIRE LIFESTYLE SURVEY
a postal survey with targeted BME recruitment

A community health survey was initiated by the three former PCT's of Preston, Chorley & South Ribble and West Lancashire in 2007. The main aims of the survey were:

- to provide up-to-date information on lifestyle health in different part of the district;
- to highlight how health inequalities are related to the social environment and community 'capital' (access to social, collective and economic resources);
- to provide a new baseline for monitoring future changes in residents' health.

The questionnaire comprised of forty-nine questions, with many grouped together to form composite indicators. Questions were asked about:

- general health status
- mental health status (measured using the GHQ)
- smoking
- drinking
- exercise
- long-standing illness
- neighbourhood connections
- community involvement
- crime
- safety
- access to services
- deprivation
- extent of informal care

Sampling

Questionnaires were posted to 13,530 adults aged 18 or over. Names were selected randomly from the lists of GP patients held by the Lancashire and South Cumbria Agency (LaSCA). The overall area covering Central Lancashire PCT was split into 20 'survey locality' areas, these being relevant combinations of local electoral wards. Within each of these areas, a set number of respondents were targeted (n=615) to ensure a reasonable number of respondents for localised analysis. Data were weighted to ensure that at least 500 people from each area were surveyed.

Methods used to try and maximise response

- ✓ The survey was launched with a publicity exercise;
- ✓ Flyers were produced in the main languages of the BME populations;
- ✓ A centralised translation service was made available;
- ✓ BME community leaders were approached for help with signposting the survey;
- ✓ The questionnaires were accompanied by a letter from the Director of Public Health which explained the purpose of the survey and the process by which people had been randomly selected;
- ✓ An assurance of confidentiality was given;
- ✓ Up to two reminders were sent to non-respondents at three-week intervals – the first reminder was a brief postcard message, while second reminders included a further copy of the questionnaire and follow-up letter from the Director of Public Health.

The overall response rate to the survey was 48%. ***(Cost information was estimated to be £75k).***

Contact: Jim Mechan – Jim.Mechan@centrallancashire.nhs.uk

BRADFORD AND AIREDALE HEALTH AND LIFESTYLE SURVEY
a postal survey with telephone follow-up plus interviews

A lifestyle survey was conducted in Bradford and Airedale in 2007/8 using firstly a mixed method approach of postal questionnaire, with a telephone follow-up, and secondly, a phase of face-to-face interviewing using a team of locally recruited interviewers. The core objectives of this survey were:

- to undertake a population survey of health and lifestyle determinants using a representative sample of residents from the area;
- use an appropriate methodology to ensure the inclusion of different subgroups of residents from across the area;
- to provide data at ward and locality level across the district.

A questionnaire was designed to include the main elements of health and lifestyle, and measures were included from national surveys, the previous Bradford City PCT Lifestyle Survey, and from well-being measures provided by Professor Paul Dolan of Imperial College London. The content of the questionnaire briefly comprised:

- general health and limiting long-term illness;
- height and weight
- food and eating, including changes in eating; fruit and vegetable consumption and purchase;
- smoking prevalence and various measures of smoking and quitting behaviour;
- mental well-being, including measures of satisfaction with various aspects of life;
- alcohol consumption;
- physical activity, including measures of light, moderate and vigorous activity;
- housing;
- a range of demographics and employment status.

Sampling

The sampling frame used for the survey was the 'Exeter' database of patients registered with a GP in the Bradford area. A sample of 15,000 residents was selected from the register using stratified random sampling. Residents aged 18 and over were selected to produce a survey sample stratified by age, gender and electoral ward (to provide geographical stratification). Data were weighted by age, gender, ethnic group and alliance area.

Methods used to try and maximise response

- ✓ Two reminders were sent out to non-responders of the initial postal survey, including copies of the questionnaire;
- ✓ Telephone reminders were also conducted using interviewers with skills in community languages;
- ✓ Booster samples were selected at ward level to determine targets for the face-to-face interviews – this was intended to boost the response rate from BME groups in the area and to obtain higher responses from the areas where the initial response was poor;
- ✓ Both telephone and face-to-face interviewers were able to cover the diverse range of languages and dialects needed to ensure that the diverse communities participated in the survey.

The overall response rate to the survey was 40%. The unweighted sample was found to be representative of the Bradford population.

Contact: Duncan Cooper – duncan.cooper@bradford.nhs.uk. (***Cost information was unavailable***)

OLDHAM: YOU AND YOUR COMMUNITY
a postal survey with interviews

Oldham PCT and Oldham Metropolitan Borough Council conducted a joint survey in 2006 to assess public health and progress towards community cohesion within the borough.

The PCT's primary objectives from the survey were:

- to inform them on the health of the residents in the borough, particularly in relation to diet, exercise, smoking and alcohol consumption;
- to identify areas where there is greatest need for resources, thus improving access to and quality of health services and reducing health inequalities across the area;

Previous survey work conducted by the Council highlighted the importance of community cohesion, and also the perceived lack of it in some neighbourhoods. The Council wished to revisit some of the questions asked within these surveys with the objective:

- to determine whether progress has been made towards community cohesion in the previous two years;
- to provide information to assist in building cohesion and increase community involvement and engagement.

The objective of the combined survey was to enable an investigation of the links between community cohesion and health factors.

Sampling

6,000 households were selected, drawn from the Post Office Small User database (PAF). The sample was stratified to ensure that at least 100 responses were received from each ward in the borough. For the face-to-face interviews with hard-to-reach groups, the survey was conducted across 90 sample points in the borough, selected at the Census Output Area level, and points were selected from those areas with the highest proportion of BME residents in the 2001 census. To correct the skew from the stratified sampling, weighting was carried out at ward level for age, gender and ethnicity based on Census 2001 figures provided by the Council.

Methods used to try and maximise response

- ✓ An initial mailout was followed with two reminders sent to those who had not responded;
- ✓ A booster mailout was undertaken to achieve the required sample size. A further 3,200 addresses were drawn from PAF;
- ✓ Two prize draws, one for each wave, were offered to encourage response giving respondents the chance to win £250 in shopping vouchers per wave;
- ✓ Face-to-face interviews of the survey were undertaken with specific hard-to-reach groups. These were older (aged 45+) BME women, older (aged 45+) men, and younger (aged 16-24) men and women. Whilst the latter two groups were open to residents of all ethnic backgrounds, interviewers were encouraged to interview those from BME backgrounds.

The overall response rate to the postal survey was 24%. Following face-to-face interviews, the response rate increased to 29%.

Contact: Rose Neville/Sandy Ochojna – Ipsos MORI North. (*Cost information was unavailable*)

THE CAERPHILLY HEALTH AND SOCIAL NEEDS STUDY
a postal questionnaire survey

The Caerphilly Health and Social Needs Study is a long-term collaborative study of health and social inequality set in Caerphilly county borough, South East Wales. A questionnaire was designed to include questions on:

- smoking
- alcohol consumption
- diet
- physical activity
- height and weight
- limiting long-term illness
- chronic disease
- general health status (measured using the SF-36 short form)
- occupational status
- housing tenure

Sampling

The sampling frame was the adult resident population of 132,613 residents aged between 18 and over, as recorded on the former Gwent Health Authority 'Exeter' GP administrative register.
The Council Tax and Benefits division of Caerphilly council supplied an electronic extract of property address and Council Tax Valuation Band (CTVB) from the council tax register. The sampling frame dataset was matched to the CTVB extract by address to assign the property CTVB to each resident in the sampling frame as a measure of socio-economic status. The Geographical Information System, *MapInfo* was used to link postcodes of each resident to the ward of residence.

Methods used to try and maximise response

- ✓ An evidence based approach to question wording, order and format was used, and where possible, validated questions were included that had previously been used in the Welsh Health Survey 1998;
- ✓ A suitably worded covering letter signed, where possible, by the recipients GP was included, along with pre-paid return envelopes;
- ✓ Publicity posters were used in GP surgeries, articles appeared in the local newspapers and the survey was publicised on local radio;
- ✓ The survey was carried out timed to link in with the electoral registration process in the Caerphilly borough, during which electoral register canvassers call on each property to collect the completed electoral registration forms;
- ✓ Standardised study briefing sessions were held for canvassers who received an information pack containing a Frequently Asked Questions sheet, the study sample for their patch and contact record sheet, spare questionnaires and envelopes, and 'sorry you were out' slips. The canvassers visited on up to three separate occasions to collect completed questionnaires in a sealed envelope, and they noted on the contact sheet whether the subject had moved away or withheld consent. The canvassers again visited each subject up to three times if necessary to complete the contact sheet;
- ✓ The third and final wave of the survey was completed using a postal return.

The adjusted overall response rate was 62.7% *(the lowest response was from young males, and there was a small under-representation of respondents in Council Tax Band A)*

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(*Cost information unavailable)*

THE PREVALENCE OF MUSCULOSKELETAL PAIN AMONG ETHNIC MINORITIES IN GREATER MANCHESTER
a postal questionnaire with interviews

This study was set in three general practices in Greater Manchester in 2002, and focused on the four ethnic minority communities with the largest populations – Indian, Pakistani, Bangladeshi and African Caribbean. The questionnaire included questions in English about:

- The presence of musculoskeletal pain in the past month lasting more than one week;
- The sites of any musculoskeletal pain;
- The presence of pain in most joints;
- Physical function (measured by the modified Health Assessment Questionnaire)
- Access to healthcare
- Ethnicity

Sampling

The study group was stratified by sex and age, and all people aged 16 or over were identified whose name suggested south Asian ethnicity. Practice staff identified people who might classify themselves as African Caribbean.

Methods used to try and maximise response

- ✓ A personally addressed covering letter from the recipient's GP endorsing the study and encouraging participation was sent with the questionnaire, along with pre-paid return envelopes;
- ✓ People who did not respond were sent a reminder and then a repeat questionnaire;
- ✓ Those who did not respond to the second questionnaire were visited by an interviewer who administered orally a standardised validated translation of the questionnaire in the participant's preferred language;
- ✓ Translations of the questionnaire were made in Guajarati, Urdu, Punjabi, Bangla, and Sylheti

The initial response rate to the postal survey was 33%, but with interviews the overall response rate was 75% among the south Asian community, and 47% among the African Caribbean community.

Contact: Dr T R Allison – tim.allison@erypct.nhs.uk. East Riding of Yorkshire PCT. Further study information can be found in Allison et al (2002) [44]
(*Cost information was unavailable*)

WEST MIDLANDS REGIONAL LIFESTYLE SURVEY
a postal survey with face-to-face 'boosts'

The West Midlands Regional Observatory, in partnership with the West Midlands Public Health Observatory, conducted a region-wide survey in 2005. The questionnaire covered a range of issues, including:

- healthy lifestyle and well-being;
- crime and fear of crime;
- economic activity and travel to work;
- local environment;
- quality of life;
- access to services and amenities;
- environmental issues.

Previous survey work conducted by the Council highlighted the importance of community cohesion, and also the perceived lack of it in some neighbourhoods. The Council wished to revisit some of the questions asked within these surveys with the objective:

- to determine whether progress has been made towards community cohesion in the previous two years;
- to provide information to assist in building cohesion and increase community involvement and engagement.

The objective of the combined survey was to enable an investigation of the links between community cohesion and health factors.

Postal Survey Sampling

The survey covered all adults aged 18 and over across the whole region, from which a random sample of 170,000 potential respondents was drawn from the Public Electoral Register. There were two levels of sample stratification, firstly by the 34 Local Authority Districts (LADs), and secondly by dividing each LAD into five national deprivation groups using the Index of Multiple Deprivation (IMD). This provided a total of 159 strata or groups from which sub-samples were drawn. The size of each sub-sample was determined using proportionate to population sampling. Population sizes for each of the strata were derived using Census 2001 Super Output Area (SOA) tables.

Methods used to maximise response

- ✓ The questionnaire was sent to named individuals, not households, and only these individuals were asked to complete the questionnaire;
- ✓ Questionnaires were sent with a freepost return envelope;
- ✓ Up to two reminders were sent out to non-responders;
- ✓ Concurrent to the postal questionnaires, face-to-face interviews were undertaken by individual partners who wanted to boost the sample size in their area and from particular groups in the population. More than 4,000 people were interviewed using quota sampling set on gender, age and ethnicity based on Census 2001 figures to provide a sample that was as representative as possible. Face-to-face 'boosts' were carried out in the following areas:
- ✓ Birmingham – interviews were distributed proportionately to populations in the two most deprived national IMD quintiles;
- ✓ East Birmingham – interviews were conducted in pre-selected postcode areas that define the Eastern Corridor;
- ✓ South Birmingham – interviews were conducted in the Three Estates New Deal for Communities area;
- ✓ Stoke-on-Trent – interviews were conducted in some of the most deprived areas, with targets set proportionate to population;

- ✓ In order to maintain a consistent self-completion methodology, interviewers handed respondents a questionnaire in an envelope, asked them to complete it themselves, and either waited for the respondent to complete it, or arranged to return to collect the completed survey at an agreed time

The overall response rate to the survey was 35%.

Contact: West Midlands Regional Observatory – info@wmro.org. (*Cost information was unavailable*)

A PICTURE OF HEALTH IN BOLTON?
a postal survey with targeted recruitment

The Bolton Health Survey was carried out in 2007. Following the success of their 2001 survey (68% response rate), it was decided to follow the format and content of the 2001 survey as much as possible, and this also allowed changes to be monitored.

Nearly all of the questions included in the survey came from existing national or local health surveys and had therefore been through strict validation procedures. Such sources include the Health Survey for England, the General Household Survey, the Office for National Statistics harmonised questions and recommended questions from the North West Public Health Observatory. The main survey was a 16-page, 51 question, A4-sized booklet. Topics included:

- general health
- pain
- mental health
- use of health services
- alcohol
- diet
- fear of crime
- demographics
- height and weight
- neighbourhood issues and perceptions
- symptoms of ill-health
- mobility difficulties
- social support
- physical activity
- smoking
- crime
- socio-economics
- caring

Sampling

The sampling frame was the Bolton GP patient register of people aged 18 or over. A sample size of 10% was deemed to be necessary in order to accurately analyse data at the Lower and Middle Super Output Area (MSOA) level. The sample was stratified by age group, sex and geography to ensure representativeness. Information was used from the 2001 survey to oversample those population groups that responded less well – this included younger people (men in particular) and people living in the most deprived areas of Bolton. Names were also run through Nam Pehchan to establish response rates in the BME populations, and they were found to be approximately 5% lower in general.

Methods used to try and maximise response

- ✓ The survey was piloted;
- ✓ The local media were used to promote the survey and posters were put up in all PCT and LA facilities;
- ✓ The questionnaires were sent to named individuals accompanied by a letter from the Director of Public Health which highlighted the findings from the 2001 survey;
- ✓ A helpline was made available for people having difficulty answering the questions;
- ✓ Translations into the major languages spoken in Bolton were placed on the back of the introductory letter, offering a translated survey or the help of a translator to complete the survey;
- ✓ The option of a large font survey was offered for those with sight difficulties;

- ✓ Up to two reminders were sent to non-respondents at three-week intervals – the first reminder was a brief postcard message, while second reminders included a further copy of the questionnaire and follow-up letter from the Director of Public Health.

The overall response rate to the survey was 53%. *(Cost information was unavailable).*

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GET MOVING NOTTINGHAM
a postal survey of physical activity in the over-50s

In 2005 NHS Nottingham City (formally Nottingham City PCT) commissioned IPSOS MORI to conduct a postal lifestyle survey to determine physical activity and other health-related behaviours amongst residents aged 50-74 years. Between 2003 and 2006 Nottingham City Council and NHS Nottingham City had a Local Public Service Agreement (LPSA) target, which aimed to narrow the gap in circulatory disease between the most deprived wards and the rest of the city. One of the sub-group targets was to increase physical activity in people aged 50 years and over living in the most deprived wards. This target was set as it would contribute to reduce health inequalities in the city.

The survey primary objectives were to:

- measure physical activity levels;
- determine knowledge and awareness of the *Get Moving Nottingham* campaign; and
- determine knowledge and awareness of the physical activity recommendations/

Secondary objectives were to determine:

- prevalence of obesity;
- prevalence of tobacco use;
- levels of fruit and vegetable consumption; and
- to describe differences in the above risk factors in relation to age, gender, ethnicity, socio-economic status and area of residence.

To determine current levels of physical activity among 50-74 year olds in Nottingham, the International Physical Activity Questionnaire (IPAQ) was used.

Sampling

A random sample of 5,500 people aged 50-74 years who were registered with local GPs via the Exeter GP registration system was selected. The data were weighted by gender, age, ethnicity and core and non-core ward response (see below).

Methods used to try and maximise response

- ✓ 4,500 questionnaires were sent out to residents living in the 16 most deprived wards in Nottingham (core wards);
- ✓ 1,000 questionnaires were sent to those living in the remaining areas (non-core wards);
- ✓ 120 questionnaires were distributed by an interviewer to people from BME communities living in the core wards
- ✓ The survey was launched with a press release and a small feature in the local paper;
- ✓ The questionnaires were accompanied by a letter from the Director of Public Health;
- ✓ A prize draw was offered with the option to win high street vouchers;
- ✓ Up to two reminders were sent to non-respondents.

The overall response rate to the survey was 42% - 40% from core wards and 51% from non-core wards. *(Cost information was estimated to be £30k). The survey was repeated in 2008/9.*

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Recommendations

The empirical evidence was not robust enough to make definitive recommendations, but based on the findings of this review along with information from the individual case studies, the following recommendations are outlined:

Recommendations	*Issues to consider*
Consider targeting smaller, representative samples;	*The sampling strategy should be carefully planned and appropriate strategies employed. Consider the use of geographic segmentation tools (e.g. Mosaic) if available. The sampling frame can be constructed using:* *Exeter system (GP records)* *Electoral Register* *Council Tax Bands* *Post Office* *Nam Pehchan* *The ethical issues around accessing this information should be addressed;* *Samples derived using the above tools would not likely include hard-to-reach, vulnerable groups (e.g prisoners, travellers, those in care).*
Consider the survey length carefully – only collect data that is needed;	*Where possible, select a standardised questionnaire so data can be compared with other previously collected data/national datasets;* *Are the selected survey instruments culturally appropriate/sensitive?* *Can other routinely collected data be used? (ethical issues may also apply here if accessing patient records)*
Follow the evidence-based strategies to maximise response (see pages 8 & 11)	*If using a smaller sample for postal/electronic surveys, more resources can be devoted to employing strategies to maximise response;* *Also think about who is likely to respond to what method, and design the survey around the context in order to maximise response. For example, an electronic survey might be most useful in a workplace.* *Consider the use of an incentive (see pages 17-19)*
Incorporate an assessment of non-response (e.g. what are the characteristics of non-respondents, how does non-response affect the interpretation of results?)	*This can result in extra costs, but will allow tailoring of future survey design;* *Data should be stratified and weighted (see individual case studies for further information)*

Offer additional survey modes to small, representative target groups.	*Costs can be expensive, so careful planning should go into selecting the sample, recruitment of participants, and topics to be explored;* *Caution should be applied when analysing data collected from different survey modes – data may not be comparable* *See individual cases studies for examples of mixed-methods surveys*

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