Increasing Response Rates to Postal Questionnaires

Background

- Many, if not most, trials use postal questionnaires to collect outcome data on participants.
- Non-response to postal questionnaires can be a serious problem.
- Methods to reduce non-response need to be used.

Non-response

- Poor response to questionnaires will produce the following problems.
 - Reduces statistical power of the study as the 'effective' sample size of study is reduced.
 - Can introduce bias if non-response is systematically different between groups.

Loss of power

- For every person that does not respond your trial will loose power. 20% nonresponse rates are typical. This means that you usually have to have 20% more participants recruited to make up for this loss.
- But MORE worryingly is BIAS.

Example of Bias

- Roberts et al undertook an RCT of paying women to (£5) to return a q'naire of HRT vs no payment. The payment group had a 9% lower ever use of HRT than the no payment group (p = 0.05).
- Because this was an RCT we KNOW both groups will have the same HRT use. The difference is due to the poorer response rate (non-HRT users less likely to respond unless given an incentive).

Roberts et al. 2000;54:71-72.

The Roberts Study

- This is a GOOD example of someone doing an MSc project based on survey data who also 'sneaked' in some proper research.
- A RANDOMISED TRIAL

Methods of reducing nonresponse • A Cochrane review has reviewed all the randomised trials of interventions to

increase response rates.
The review has identified a number of different ways of increasing response rates to surveys.

Edwards et al. BMJ 2002;324:1183

Questionnaire length

- Long questionnaires do decrease response rates.
- For example, a single page q'naire will produce a response rate of 67% compared with 50% for a 3 page q'naire.
- BUT response rate is probably not linear (i.e, doubling from 3 to 6 won't have as a detrimental effect as doubling from 1 to 2).

Example of trial of questionnaire length

- To test the effect of adding quality of life measures to an outcome questionnaire designed mainly to collect fracture data we undertook an RCT.
- Women 70 years and over were randomised to receive: a short, medium or long questionnaire.

Iglesias & Torgerson. JHSRP 2000;5:219-21

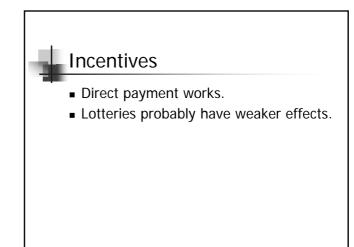
| Questionnaire experiment | | |
|--------------------------|---|--|
| Questionnaire Type | Characteristic | |
| Short (4 pages) | Socio-demographics + questions on falls and fractures | |
| Medium (5 pages) | As above but also the EuroQol | |
| Long (7 pages) | Both above plus SF12. | |

Γ

| - | Questionnaire Results | | | | |
|---|---------------------------------------|---------------|--|--|--|
| | Questionnaire Type | Response Rate | | | |
| | Short (4 pages) | 48.9% | | | |
| | Medium (5 pages) | 48.7% | | | |
| | Long (7 pages) | 40.5% | | | |
| | P = 0.04 comparison of short vs long. | | | | |

|--|

| 4 | Factorial trial of payment and incentives | | | |
|-----|--|-------|----------|--|
| F | Payment | 67.6% | P = 0.01 | |
| ٩ | No payment | 56.1% | | |
| L | ottery | 58.6% | P = 0.18 | |
| ٩ | No lottery | 53.7% | | |
| Rob | Roberts et al. J Epid Comm Hlth 2000;54:71-2 | | | |



Other response enhancements

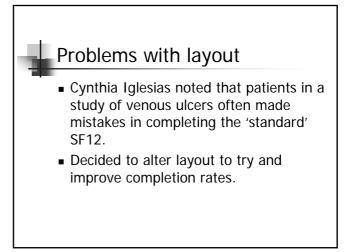
- Use of coloured ink (1);
- Use of recorded delivery (6);
- Use of stamps instead of business reply (14);
- Use of first class post (1)
- Precontact (28)
- Follow up (12)
- More interesting q'naire (2) and user friendly(1) and Factual vs attidudinal (1);
- General questions last (1);
- University sponsorship (13)



Questionnaire Design

• The layout or design of a questionnaire can have effects on response rates.

| SF12 layou | t | | | | |
|--|--------------------|---------------------|---------------------|----------------------------|------------------------|
| Your Feelings | | | | | |
| | | | (Please Circle | One Number of | n Each Line |
| These questions are about how you feel and how things have been with you during the past month. For each question please give the one answer that comes closest to the way you have been feeling. How much during the last month: | All of the time | Most of the time | Some of the time | A little of the time | None of the time |
| a) Have you felt calm and peaceful? | 1 | 2 | 3 | 4 | 5 |
| b) Did you have a lot of energy? | 1 | 2 | 3 | 4 | 5 |
| c) Have you felt so down in the dumps that nothing could cheer you up? | 1 | 2 | 3 | 4 | 5 |



| 6. During the pas | t 4 weeks, how often | 2 layou | d less than you would | have liked in your work or an |
|---------------------|------------------------|------------------------|------------------------|------------------------------------|
| other regular dally | activities as a result | or any emotional probi | ems (such as reeling o | epressed or anxious)? |
| | | | (Pl | ease circle one number only |
| All of the time | Most of the time | Some of the time | A little of the time | None of the time |
| 1 | 2 | 3 | 4 | 5 |

Layout does it make a difference?

- To test the effectiveness of the two layouts Iglesias et al undertook an RCT.
- 1500 women aged 70+ years were randomised to be sent the standard or the changed version.

Results

- Overall response rates were the same.
- Item non completion rates were significantly different. The standard SF12 26.6% of responses had 1 or more missing items compared with 8.5% of the modified SF12 (difference = 18.1%, 95% CI 11.1% to 25.1%)

Iglesias et al. QJM 2001;94:695-98.

Item response rates

| | Standard | New | Diff |
|----|----------|---------------|------|
| Q1 | 99.1% | 99 % | -0.1 |
| Q2 | 96.8% | 99% | 2.2 |
| Q3 | 93.2% | 99% | 5.8 |
| Q4 | 94.6% | 99% | 4.4 |
| Q5 | 86.4% | 98.5% | 12.1 |
| Q6 | 94.6% | 97.5% | 2.9% |
| Q7 | 89.6% | 97.5% | 7.9% |
| Q8 | 94.6% | 9 8.5% | 3.9% |

Single vs Double sided

- Anecdotally we noted that some older respondents to double sided questionnaires 'missed' questions on the back.
- Puffer et al in a factorial trial tested whether or not single vs double sided printing made a difference. Also tested whether a single or multiple booklet was best.

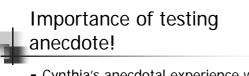
Puffer et al. JHSRP; 2004: 213-17.

Method

- 3869 women were randomised to receive a single vs double sided questionnaire (includes: SF12; EuroQol; questions on medications and fractures). Also single vs multiple booklet.
- Study had more than 85% power to detect an absolute difference of 5%.

| 50.0% |
|---------------------------|
| 47.4% |
| -0.56% to 5.76%, p = 0.11 |
| |

| Results | | | |
|---|-------------------------|--|--|
| Multiple booklet | 52.2% | | |
| Single booklet | 50.3% | | |
| 95% CI of difference = | -1.6% to 4.8%, p = 0.33 | | |
| Single booklet average of 61/68 vs 59/68 items p = 0.02 | | | |



- Cynthia's anecdotal experience was proven in a trial but Suezann's anecdotes were not.
- RCTs of questionnaire design easy to do particularly in pilot phase of trials.

Trial of offering study results

 As part of her MSc project a student sensibly undertook an RCT, comparing the response rates of trial participants who were offered the study results with those who were not offered.

Method

- As part of the Calcium and D trial 1,000 women as part of their final follow-up were randomised 3:1 to be offered the results on study completion or not to be told they would get their results.
- The aim was to see if this increased response rates for the final questionnaire.

Results

- 94.3% responded when they were not offered the option of getting their results compared with 93.6% (no significant difference).
- 90% of those asked wanted a copy of the results.

Questionnaire position

 In a RCT within a backpain study Garratt compared quality of response with position of questions in questionnaire. SF36 and Roland and Morris back pain were randomly put either at the front or the back of a long questionnaire. Item response and internal consistency were measured.

Results.

- SF36 had a mean of 0.56 missing items when placed at the back compared with 0.68 when placed at the front.
- Internal reliability was better for SF36 when placed at the front.
- The RDQ was not affected.

Sensitive questions

 There is a suggestion that response rates tend to be a little lower if sensitive questions are used. Although one study found a reduction in asking about housing tenure (Windsor) but not about ethnic origin, and another found no difference asking about sexual health.

Windsor, 1992, J Epi Comm Hlth 46:83-85

Barker & Cooper J Epi Com Hlth 1996;50:688

Layout

- From the trial by Puffer we can conclude that it is best to use double sided and a single booklet.
- From Iglesias et al, we also need to change the SF12 layout to make it clearer.
- From Cockayne's study we know that offering results has no effect (should do so as good practice).
- Garratt study suggests best results are obtained if QoL instrument is placed near the front.

What do I do?

- Try to keep q'naire short (easier said than done).
- For the crucial outcome measure, put up close to front of questionnaire.
- For main follow-up sometimes I drop all secondary measures and just put in the main one to keep follow-up short.
- Reminders, keep short.
- Incentives for final follow-up (e.g., £5 per questionnaire not conditional on return).
- Telephone follow-up and telephone completion if necessary.

Discussion

- There are a number of methods of improving response rates. High response rates are important to prevent bias and loss of power in trials.
- BEFORE you use a q'naire in a trial need to read systematic reviews of how to maximise your response rates and/or test them in a RCT.

Finally

 If you are not lucky enough to be doing a trial for your thesis (but a survey) you could still include an RCT of different methods of doing the survey.