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# RESEARCH METHODS – QUANTITATIVE

## PROF BEVERLEY GLASS

Introduction to surveys and questionnaires

SURVEY DESIGN

SURVEY FORMAT

SURVEY QUESTIONS

# INTRODUCTION

- Common descriptive method to ask a series of questions in a standard manner – quantified
- Describe the characteristics of the sample being studied and to make generalizations
- Research phenomena that are not directly observable or measurable
- Geographically distributed
- Achieved through self-completed questionnaires or interview
- Questionnaire is written survey – structured series of questions
  - Can also include open-ended questions
  - Mix of open and closed responses
  - Accuracy of information
    - Sample selection and recruitment, question design, sensitivity of questions, motivation to respond truthfully and ability to answer accurately

# INTRODUCTION

- Why Surveys?
  - Economical and Efficient – range of personal characteristics , health symptoms and behaviours
  - Large amount of data in a short period of time
  - More sophisticated research questions can be answered – multivariate analysis of the data
  - Useful when collecting data about beliefs, attitudes, opinions , expectations, knowledge and satisfaction with health care
  - Will a subjective response yield more accurate information than an objective measure
  - Study Design linked to Research Question
    - What is the incidence of high blood pressure in a population?
    - Among people diagnosed with high blood pressure, what are the attitudes towards medication

# SURVEY DESIGNS

- Three main survey designs
- Cross sectional research – primary purpose is descriptive
  - E.g. survey of patient quality of life or use of health services
    - Tells us what proportion of a sample reports certain characteristics
- Longitudinal cohort research – to track changes over time
  - Administers the same set of questions on repeated occasions to see change over time
    - Greater range of questions, predictive questions can be tested and more complex statistics used
- Experimental or intervention research - whether a particular intervention or experiment produces a change in outcome
  - Administered before and after an intervention to determine changes in self reported outcomes

# HOW ARE SURVEYS DESIGNED?

- Three components – information letter, some instructions on how the survey should be answered and a set of questions to be asked
- Information letter
  - Aims and significance of the research
  - Names and contact details of the research team
  - Funding source – if any
  - Reasons why respondents should complete the survey
  - What's involved in completing then survey – time
  - Assurances of anonymity and confidentiality
  - Statement that participation is voluntary / can withdraw after agreeing to participate
  - Information of how the survey results will be used
  - Information of how to gain further information or make a complaint

# HOW ARE SURVEYS DESIGNED?

- Instructions
  - What participants need to know; how to return the completed questionnaire; clarify response needed to questions
- What steps are involved in constructing the survey?
  - Preparation – objectives and key constructs are measured
  - Constructing and critiquing the first draft – questions to address key variables /sociodemographic characteristics
  - External Review and Revision - reviewed by experts
  - Pre-test or pilot test of revised survey – sample similar to intended study
  - Revision and second pre-test
  - Formulation of final draft

# SURVEY FORMAT

- Approaches to ordering items within a survey
- Funnel format
  - Broad to specific content, non-sensitive to sensitive questions, impersonal to personal
    - Allows reflection on general topics – respondents that are more likely to think at an abstract level
- Inverted funnel format
  - Allows respondents primed to answer personal questions and where limited time demands that specifics are answered first
  - Questions move from more general to more specific etc.
- Mixed format
  - Longer survey containing a number of domains and formats are applied within the DOMAINS
- Structured and semi structured formats
  - Set ordering of questions for structured with semi-structured usually used in interview format to allow for flexible ordering and involve more open-ended questions

# SURVEY FORMAT

- Length of the survey
  - Response rates decline with increasing length
  - Rate questions as essential desirable and optional
  - How many questions or the maximum period for completion (15-20 minutes)
  - Removing questions the overall flow and transition must be re considered
- Strategies for respondents to navigate the survey
  - Longer surveys include headings to start each section – structure the survey
  - Feedback at certain points – tell respondents how far they are thorough the survey
  - Internet surveys – graph on each page showing the percentage of the survey completed

**END of Lecture 3**



# HOW ARE SURVEYS CONSTRUCTED ?

- Types of question content
- **Behaviour questions** – ask what people do
- **Belief questions** – ask what people believe to be true or false about topics
- **Attitude questions** seek to establish what people believe to be true or false about a topic – e.g. would be to ask respondents whether they agree with a statement
- **Knowledge questions** seek to determine what people know about a particular topic
- **Attribute questions** seek information about more objective characteristics of respondents such as age, gender, occupation and place of residence
- Questions about more subject information pose design challenges – use standardized scales to increase reliability of validity

# HOW ARE SURVEYS CONSTRUCTED

- Design a question (related to a health topic )in each of these five categories – behaviour, beliefs, attitudes, knowledge and attributes
- Behaviour
- Belief
- Attitudes
- Knowledge
- Attributes

# HOW ARE SURVEYS CONSTRUCTED

- Standardized Scales
- Provide a scientific form of health assessment to measure subjective constructs such as pain, mood or level of symptoms
- Made up of a series self-report questions, ratings or items that measure a specific concept
- Scale can produce a number on a standard interval or ratio scale e.g. 0-100 to reflect a level of functioning, symptoms, pain affect or beliefs
- Standardization = number assigned can be compared within or across individuals or groups
- E.g. used to test for change over time as a result of treatment
- Concepts of reliability and validity are important for standardized scales
- **Reliability** – ability of the scale to provide consistent and stable information over time and across respondents

# HOW ARE SURVEYS CONSTRUCTED

- **Validity** – degree to which the scale measures what it is supposed to measure i.e. does it have a good correlation with another “gold standard measure”
- Standardised rating scales cover a wide range of purposes
  - Diagnostic scales
  - Symptom-based scales
  - Quality of life scales
  - Functional level scales
  - Client satisfaction Scales
  - Scales that assess psychosocial factors such as attitudes and beliefs, social support, optimism or loneliness

# HOW ARE SURVEYS CONSTRUCTED

- Principles for Constructing Survey Questions
  - Simple everyday language
  - Avoid jargon
  - Avoid ambiguity
  - Avoid double negatives
  - Avoid making suggestive statements or assumptions
  - Provide sufficient instructions
  - Pre-coded questions should have sufficient response categories
  - When asking respondents to record past events provide a time frame

# HOW ARE SURVEYS CONSTRUCTED

- Response Formats
- Questions classified as open (rich data) or closed (an economical method)
  - QUESTION - In general would you say you health is good?
  - Yes/No/Don't know
  - Verbal and Numerical rating scale (in general would you sat you health is)
  - Excellent(1) Very Good (2) Good (3) Fair (4) Poor (5)
  - Likert scale (ordinal) ( in general would you say your health is good)
  - Strongly agree (1) Agree (2) Neither agree nor disagree (3) Disagree (4) Strongly disagree (5)
  - Visual Analogue scale (interval) - In general how would you rate your health
  - Mark a position on the line from 0 (very poor) to 100 (extremely good)
  - 0 ----- 100
  - Open -ended question
  - In general how would you rate your health
  - -----

# HOW ARE SURVEYS CONSTRUCTED

- Content Analysis
- Analysis of **textual data** - Code data, generate themes and categories (predetermined or arising from data)
- Various types dependent on theoretical perspective and the focus of the research
- Emphasis on classifying or categorising to identify issues
- Textual data coded, inductively themed and/or categorized
- Counts the occurrences of themes and subthemes
- Application 1 - quantify qualitative data
- Application 2 – identification of specific content

# HOW ARE SURVEYS CONSTRUCTED

- Designing response options to closed questions
- Closed questions produce numeric data for analysis efficiently – design appropriate response categories
- Categories are mutually exclusive and all options are catered for
- ABS distinguishes registered marital status and social marital status
- What is your current marital status?
  - Never married
  - Widowed
  - Divorced
  - Separated but not divorced
  - Registered married
  - QUESTION – are we leaving any people out of this list



# HOW ARE SURVEYS ADMINISTERED ?

- Strategies to enhance accuracy of survey responses
  - Ask respondents to take accurate measurements ; Ask questions in various ways
  - Use scales for subjective constraints ; Keep the survey as short as possible
- How are surveys administered ?
  - Self-completion questionnaire
  - Group self completion
  - Mail self completion
  - Internet based self completion
  - Face to Face interview / telephone interview
  - Internet interview

END of Lecture 4