Surveying hard to reach populations

A part of the Population Research and Outcome Studies core business is the monitoring and surveillance of population health and related issues. Information obtained from population health surveys is used to inform policy, programs and planning of health service resource allocation that will promote the health and well being of the South Australian population.

The advantage of obtaining large samples lies in the opportunity to describe health problems and compare the health status and activities of different population or regional groups, either cross-sectionally or over time.

Standard methods of sample selection involve fixed channels of access to people such as permanent households and fixed telephone numbers (those not attached to a fax or answering machine) to obtain a representative sample.

Who are hidden/ hard to reach populations?
Existing surveillance systems (face-to-face and Computer Assisted Telephone Interviewing [CATI] surveys) generally under-represent some groups of people. These include people who may be 'hidden' because of their itinerancy, such as:
- Indigenous people living in rural/remote areas;
- Homeless people; and
- Drug users, criminals, or prostitutes.

Other people may be hard to reach because they either have an answering machine or facsimile machine or only a mobile telephone. Some populations, such as Indigenous and other people living in rural/remote areas, may not have a telephone in the household.

What are the strategies that could be used to reach these people?
It is recognised that the following strategies are not random sampling and therefore cannot be considered representative of the population. Each of the following methodologies would therefore be biased.

Snowball sampling or chain referral (adaptive sampling)
This kind of sampling is based on respondents who satisfy the criteria of interest being asked to mention other people in the same situation to extend the sample. It relies on linkage between people and social networks in the sample population.

Snowball sampling can be used as an informal way of reaching the 'hidden' population or a more formal way of making inferences about population. This methodology has the potential to produce a growing database, may be suitable for statistically rare events, and can be readily expanded.

This type of sampling may require culturally-sensitive approaches including adequate consultation, collaboration/ partnership and ownership. It has been found to be economical, efficient and effective in some studies, may be used to examine changes over time, and can produce in-depth results relatively quickly.
Capture/recapture methods

This indirect methodology was derived from techniques developed for studies of animal abundance. It utilises documented/anecdotal contact with individuals to estimate the size of the population and prevalence rates. These figures are calculated by evaluating the degree of overlap of cases from two or more samples from existing data sources.

Interpretation of results requires a clear understanding of the researched disorder, the dynamics of the reference population and knowledge of the assumptions and robustness of the models used.

Accidental, haphazard or convenience and purposive sampling

This is the traditional “person on the street” interview – which may be modified to target particular age, gender, ethnic and socioeconomic groups. It can be useful in situations where a targeted sample is required quickly and where sampling for proportionality is not the primary concern.

Time-space sampling

This venue-based application entails identifying days and times when the target population gathers at specific venues, randomly selecting and visiting venue day-time (VDTs) units, and systematically intercepting and collecting information from consenting members of the target population. It allows construction of a sample with known properties, make statistical inferences to the larger target population, and theorisation about the introduction of biases that may limit generalisation to the target population. It is currently being trialled at community level with HIV prevention interventions by the Centers for Disease Control and Prevention, United States of America.

Internet-based surveys

There is a possibility that this kind of methodology could be adapted to target groups of people who are difficult to reach due to long working hours or weekend work, but who use the Internet for business or recreation purposes.

However, there are a number of issues about how to initially contact people as well as concerns about privacy, ethics, etc which need addressing.

Limitations

The primary concerns with these methodologies relate to the quality of data that may be obtained, and possible selection and gatekeeper bias due to the subjective nature of the selection process. Validity of the results may be compromised because of these issues, and generalisability of the results may be restricted.

References

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