SURVEY PROCEDURES

CONTENTS

INTRODUCTION

Definitions:

"An investigation in which the information is systematically collected, but the experimental method is not used i.e. there is no active intervention by the investigators" (Abramson)

"NON–EXPERIMENTAL INVESTIGATION"

"Collecting of facts , and analysis or evaluation the interpretation of facts once they have been collected, comparisons being made between the current survey data and comparable data from other times or places" (Dunning JM).

TYPES OF INVESTIGATIONS:

Experiments	**Surveys**
(Trials)	(Observational)
-Controlled Experiments	-Descriptive Surveys
-Quasi Experiments	- Analytical Surveys
-Natural Experiments	- Cross sectional
	- Longitudinal

Experiment-

"is an investigation in which the researcher, wishing to study the effects of exposure or deprivation of a defined factor, himself decides which subjects (persons, animals, towns, etc) will be exposed to or deprived of, the factor"

Types:

Controlled experiments – presence of control group

Quasi – experiments

Observation or factor not in control of researcher or

No randomization

Natural experiments

- Famine – effect of starvation

Survey -

- Descriptive Survey

- Sets out to describe a situation.

Eg. Distribution of dental caries in a population in relation to age, sex, region etc.

- Analytic / Explanatory Survey

➢Tries to find explanations & examine causal processes.

➢Formulating & testing hypothesis

"All descriptive studies are surveys but surveys can also be analytic; experiments are obviously analytical studies"

Surveillance-

"Maintenance of an ongoing watch over the status of a group or community"

Types :

Demographic surveillance

Sentinel surveillance - is a method for identifying the missing cases of a disease and their by supplementing the notified cases

Monitoring - watch over the activities of a health services

QUESTIONNAIRE

"A list of mimeographed or printed questions that is completed by or for a respondent"

"It is an instrument or guide used by an interviewer who asks questions about a particular topic or issue"

Interview

–List of more / less structured questionnaires that are read out / verbalized by an interviewer

Types of Questionnaire:

Unstructured questionnaire

– the specific questions and the sequence in which they are asked are not precisely determined in advance

Structured questionnaire is one in which the questions asked are precisely decided in advance.

Semi-structured questionnaire

is a mix of unstructured and structured questionnaires. Some of the questions and their sequence are determined in advance, while others evolve as the interview proceeds

Other types:

Mailed questionnaire

Low cost

Requires a literate respondent

High rate of non- response

No guarantee that respondents are no different from non –respondents

T elephone interviews

Suitable in urban areas

Face to face interviews

Commonest form used in the surveys

They allows

Clarification of questions

Probing for answers (if allowed)

Use of visual aids

High response rate

Short time

But they are expensive, requires training of interviewers and introduces interviewers' bias.

When to use a questionnaire?

When resources and money are limited

When it is necessary to protect the privacy of the participants

When corroborating other findings

Information solicited by questionnaire can be

Facts - age, disease

Knowledge about – health services

Attitudes / opinions

Behavior

Compliance with doctor's instructions

Questionnaire format:

"something old, something new, something borrowed"

1. Introductory explanation

Purpose & sponsorship of the study

Confidentiality statement

Instructions & examples (if self administered)

2. Questions

Open ended / Free response Questions

- Subject answers in his own words
- Difficult to interpret and analyze
- Can be used in exploratory surveys
- Provide a guide for formulation of alternative responses to closed questions

Closed / Fixed alternative Questions

- focused & pertinent
- easy to administer
- easy to analyze

Limitation:

- limit the variety & detail of response

Forms of closed-structured questions

Dichotomous choice

Multiple choice

Rating scale

Numerical answer

Short questions preferred, but, long questions elicit more responses

Short questions – attitude, behavior studies

Long questions – symptoms, disorders and practices

Requirements of questions:

Must have face validity

Respondents can be expected to know the answers

Clear & ambiguous

Not offensive or embarrassing

3. **Language and Wording Style**

- Language should be pitched to the level of the respondent
- Local language preferred
- Wording style
- Avoid leading questions
- Avoid professional jargon and abbreviations

4. **Coding responses to questions**

Should include all possible responses

Mutually exclusive

5. **Length of questionnaire**

Half an hour or less

6. **Validity and reliability check**
7. **Layout of questionnaire**

Physically pleasant & artistically tasteful

Budget considerations

8. Sequencing:

- First question should be easy to answer, relevant & interesting
- Sensitive questions – ask later
- Identical responses should be avoided
- General questions should be asked first and specific questions later
- If a long questionnaire – change topic in between to avoid boredom
- Smooth movement from item to item

9. Auxiliary activities

- Pretesting
- Training of interviewers
- Call – backs/ repeat visits
  - -For non-respondents
  - -2-3 call – backs are enough
  - -Response rate of 70-80% is sufficient

10. Editing and coding

HOW TO CONDUCT A SURVEY?

1. Preliminary Steps

Clarifying the purpose

- The "why" of the study

Formulating the topic

2. Planning of the survey

Design

- Type of the Study
  - Cross Sectional
  - Longitudinal
- Method of the Study
  - Case - Control
  - Cohort
  - Observational
- Decide on population to be surveyed
- Sampling method
- Subgroups
- Ages and age groups
- Number of subjects

BASIC ORAL HEALTH SURVEYS

Are used to collect information about the oral health status and treatment needs of a population, and subsequently, to monitor changes in levels and patterns of disease.

Not designed to

study etiologic factors causing diseases

Test clinical effectiveness of different preventive or care procedures

They can be used to determine

- Extent to which existing oral health services are coping with the current need of care
- The nature and extent of required preventive, curative and restorative work
- Resources needed to establish, maintain, expand or reduce an oral health care programme
- Overall prevalence of the common oral diseases and conditions affecting the population

- Variation in disease level, severity and treatment needs
- Age profiles of oral diseases

Special characteristics of oral diseases:

- Strongly age-related
- Exist in all populations, varying only in severity and prevalence
- Dental caries is irreversible disease

Pathfinder method

Practical, economical survey sampling methodology

"Stratified cluster sampling technique"

Types:

Pilot survey

- Include most important subgroup
- One or two index ages

National pathfinder survey

- Incorporate sufficient examination sites
- Cover all important subgroups
- Atleast 3 of the age groups/ index ages

Subgroups:

–Based on administrative division of a country

–Different geophysical areas, ethnic groups should be included

–Between 10-15 sampling sites are sufficient

Index ages and age groups:

5 years – primary dentition

12 years – global monitoring age for caries for international comparisons and monitoring of disease trends

15 years – assessment of periodontal disease indicators in adolescents

35- 44 years (mean 40 years) – standard monitoring group for health conditions for adults

Sample - organized or readily accessible groups

65-74 years (mean 70 years)

Number of subjects:

- Minimum 25 to 50 subjects for each cluster or sampling site
- Depends upon expected prevalence & severity of disease
- If caries prevalence is moderate to high – 40 to 50 subjects in each cluster should be examined. Can be estimated by examining 2-3 classes of 12 year old and check for caries prevalence as follows -

	Caries prevalence
> 20% children are caries-free	Low
5-20% children are caries-free	Moderate
< 5% children are caries-free	High

Sample design:

Urban:

4 sites in capital city or metropolitan area(4X25=100)

2 sites in each of 2 large towns (2X2X25=100)

Rural

1 site in each of 4 villages in different regions(4X25=100)

Total: 12 sites X 25 subjects = 300

For 4 index age groups (300X4=1200)

National oral health survey

Sampling

–Basic unit: households

–Country divided into certain homogeneous agro climatic regions based on SES indicators and agricultural parameters

–Sample size:300-600 subjects in each age group with equal number in rural and urban area and males and females

–315 households in each stratum

Total 315 X 5 = 1575

- In urban area- include sufficient sites from all areas
- In rural area

–*Three stage sampling was done*

–1st stage:2 districts randomly selected – divide list of villages into three equal sections – 5 villages selected from each section

–2nd stage: each village divided into 2 equal parts with equal households – reach mid-point of 2 parts – select one lane from currency note – cross the lane - select another number to decide 1st household for examination

–3rd stage: examine 7 members of all 5 age groups - If not complete, turn right- examine 4 males and 3 females (1st examiner) and 3 males and 4 females(2nd)

3. Organizing the Survey

Preparing a survey protocol:

- Main objective & purpose of the survey
- What questions are set to be answered from the survey
- State the characteristics you want to measure

Study objectives should –

- meet the purpose of the study
- be clear
- be expressed in measurable terms

- A description of the sampling methods to be used
- Personnel & physical arrangements

- Statistical methods to be used
- A provisional budget
- A provisional time – table of main activities & responsible staff

Know your population:

➢Sources

➢Surveying of attitude and manpower

➢Community attitudes & economic resources

✓Interest in dental health

➢Community agencies & professional resources

✓Voluntary or lay organizations

✓Paediatric supervision

✓Objectives and budget of local health department

➢Social and economic level

➢Environmental preventive services

-Water fluoridation

-School lunch program

➢Dental health education program

➢Dental manpower

-Dentists

-Dental hygienists

- Geographical factors
  - -Size of community
  - -Mode of transportation

Obtaining approval from the authorities

- Concerned authority
- Inform health authorities
- Dental professional & oral health administrator

Budgeting

Scheduling :

- Basic examination of a child : 5-10 min.
- Complete examination of an adult : 15-20 min.
- Don't make schedule too demanding – to avoid fatigue

Emergency care & referral:

Examination and examiners:

WHO expert committee report (1962)

- Radiographs not recommended

American Dental Association (1970):

Type 1

-Complete examination : mouth mirror, explorer, good illumination, full mouth radiographs & additional diagnostic methods – study models, pulp testing, transillumination & laboratory investigations

-Intensive clinical studies

Type 2

Limited examination – mouth mirror & explorer, adequate illumination, posterior bite – wing radiographs, periapical radiographs

- Clinical trials

Type 3

-Inspection – mouth mirror, explorer & adequate illumination

-Most commonly used method in public health surveying.

Type 4

-Screening – tongue depressor & available illumination

-Individuals in urgent need of treatment

-Too unreliable for public health surveying

Examiners :

- Keep the number of examiners to a minimum.
- Discuss interpretation of borderline problems carefully in advance
- Use only one make and design of explorer. Discard dull explorers.
- Have all members of the team examine a few cases in sequence and then exchange cases until each examiner has examined each patient.
- Type and circulate among the examiners any rules or systems which may seem pertinent.
- The supervisor should recheck an occasional case throughout the entire survey.

(Dunning J M)

Training & Calibration*:*

Objectives:

- To ensure uniform interpretation, understanding and application by all examiners the codes and criteria for the various diseases and conditions to be observed and recorded.
- To ensure that each examiner can examine consistently.

There are two main reasons for variability of clinical scoring: -

The difficulty in scoring the different levels of oral diseases, particularly dental caries and periodontal diseases.

Physical and psychological factors, such as

Fatigue

Fluctuations in interest in the study

Variations in visual acuity and tactile sense

➢Experienced epidemiologist should be employed

For WHO oral health survey form

–Training : 2 days

–Calibration : 2-3 days

➢If only one examiner & no experience trainer available -

10 subjects with wide range of oral diseases are examined

↓

Examine 20 subjects twice, ideally on successive days or at 30 minutes interval

- Calculate intra and inter examiner reproducibility using kappa statistic:

  1 – total agreement

  > 0.8 – good agreement

  0.6 – 0.8 – substantial agreement

  0.4 – 0.6 – moderate agreement

Duplicate examination:

–5-10% of the sample reexamined (not less than 25 subjects)

–Conducted at the beginning (i.e. immediately after calibration), about half-way through & at the end of the survey

–Experience epidemiologist can act as validator

-When examiners are used over repeatedly, the reversal rate – demands attention.

-A large no. of reversals – carelessness on part of the bored examiner.

C. IMPLEMENTING THE SURVEY

GENERAL

- Contacts with persons in authority
- Keeping a log book
- Record location, number of persons examined etc.
- Preliminary exercise
  - Examine 2 classes of 12 year old children (if planning survey for first time)
  - Training & calibration can also be done here
- Sources of fluorides
    - A sample of drinking-water should be collected at each examination site
    - Other sources of fluorides
    - Levels of usage of topical fluorides, especially dentifrices

PERSONNEL AND ORGANIZATION

Recording clerk

Organizing clerk

- maintain a constant flow of subjects to the examiner(s)
- Check the finished records for accuracy and completeness
- Ensure adequate supply of sterile instruments.

Daily review of assessment forms

INSTRUMENTS AND SUPPLIES

For each examiner:

plane mouth mirrors

periodontal probes which conform to WHO specifications

several pairs of tweezers

containers (one for used instruments and one for sterilizing instruments) and concentrated sterilizing solution

a wash basin

cloth or paper hand towels

gauze

Minimum of 30 mouth mirrors & 30 periodontal probes per examiner

Infection control

EXAMINATION AREA

Should be planned for maximum efficiency and ease of operation

Proper seating of the examiners & subjects

Adequate source of light – consistent throughout the survey

Avoidance of crowding, noise

COURTESY REPORTING

D. ANALYZING THE DATA

➢Sequence of analysis:

- Examine each variable separately
    - Frequency distribution of all variables
- Examine pair of variables
    - Compare independent & dependent variables
- Examine three or more variables
    - Consider number of variables at same time by stratification
    - Multivariate analysis

- Data can be supplied to WHO for analysis & tables
- Can be done with the help of computer
- Rechecking & labeling is important

E. PREPARATION OF SURVEY REPORT

➢Statement of the purposes of the survey

➢Materials & Methods

- Area & population

- Types of information collected
- Methods of collecting data
- Sampling method
- Examiner personnel & equipment
- Statistical analysis & computation procedure
- Cost analysis
- Reliability & reproducibility of the results

➢Results

➢Discussion and conclusions

Oral health status

Compare with previous surveys or with similar / neighbouring population

Treatment needs

➢Summary / abstract

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