

TRAUMA AND GLOBAL HEALTH PROGRAM

**USING QUALITATIVE AND QUANTITATIVE RESEARCH
METHODS IN THE STUDY OF MENTAL AND TRAUMA-
RELATED DISORDERS**

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I. SEARCHING THE LITERATURE

MEDICAL, PSYCHIATRIC AND PSYCHOLOGICAL DATABASES

PILOTS: <http://www.ncptsd.va.gov/ncmain/publications/pilots/dbguide.html>

The PILOTS database is an electronic index to the worldwide literature on post-traumatic stress disorder (PTSD) and other mental-health consequences of exposure to traumatic events. It is produced by the National Center for PTSD, and is electronically available to the public. There is no charge for using the database, and no account or password is required. Although it is sponsored by the U.S. Department of Veterans Affairs, the PILOTS database is not limited to literature on PTSD among veterans.

The goal of the PILOTS database is to include citations to all literature on PTSD and other mental-health sequelae of traumatic events, without disciplinary, linguistic, or geographical limitations, and to offer both current and retrospective coverage.

At the end of fiscal year 2006 there were over 30,000 references in the database. The database is updated bimonthly, and links to full text articles are included for over 38% of citations, including all National Center authored articles. PILOTS is a bibliographical database. That is, it is essentially a list of publications, rather than a collection of texts.

MEDLINE: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nlmcatalog>

This database is accessible in different formats and is one of the least expensive ones to search. It has an elaborate vocabulary of indexing terms which is updated annually. Currently, it holds citations from approximately 5,000 worldwide journals in 37 languages; 60 languages for older journals. Citations for MEDLINE are created by the NLM, international partners, and collaborating organizations.

The subject scope of MEDLINE is biomedicine and health, broadly defined to encompass those areas of the life sciences, behavioural sciences, chemical sciences, and bioengineering needed by health professionals and others engaged in basic research and clinical care, public health, health policy development, or related educational activities. MEDLINE also covers life sciences vital to biomedical practitioners, researchers, and educators, including aspects of biology, environmental science, marine biology, plant and animal science as well as biophysics and chemistry.

The majority of the publications covered in MEDLINE are scholarly journals; a small number of newspapers, magazines, and newsletters considered useful to particular segments of NLM's broad user community are also included. For citations added during 2000-2005: about 47% are for cited articles published in the U.S., about 90% are published in English, and about 79% have English abstracts written by authors of the articles.

PsycINFO: <http://psycinfo.apa.org/psycarticles/qsearch>

The American Psychological Association's PsycINFO database is a searchable version of *Psychological Abstracts* with additional entries for book chapters, conference reports, doctoral dissertations, and technical reports. For 2007, nearly 2.3 million records were listed.

SOCIAL SCIENCES DATABASES

WEB OF SCIENCE: http://images.isiknowledge.com/help/WOS/h_database.html

Web of Science® consists of five databases (three of which are described below) containing information gathered from thousands of scholarly journals. It contains 256 categories thoroughly covering the sciences, social sciences, arts, and humanities.

[Science Citation Index Expanded](#)

[Social Sciences Citation Index](#)

[Arts & Humanities Citation Index](#)

[Index Chemicus](#)

[Current Chemical Reactions](#)

Science Citation Index Expanded®

Science Citation Index Expanded is a multidisciplinary index to the journal literature of the sciences. It fully indexes over 6,650 major journals across 150 scientific disciplines—that's 2,100 more journals than the print and CD-ROM versions of the SCI. The Science Citation Index Expanded includes all cited references captured from indexed articles.

In addition, the Science Citation Index Expanded provides access to current information and retrospective data from 1900 to the present. Note that you may not have access to all data years. Averages 19,000 new records per week and includes approximately 423,000 new cited references per week.

As of January 1991, contains searchable, full-length, English-language author abstracts for approximately 70% of the articles in the index.

Social Sciences Citation Index®

The Social Sciences Citation Index is a multidisciplinary index to the journal literature of the social sciences. It fully indexes over 1,950 journals across 50 social sciences disciplines, and it indexes individually selected, relevant items from over 3,300 of the world's leading scientific and technical journals. In addition, the Social Sciences Citation Index provides access to current information and retrospective data from 1956 forward. Averages 2,900 new records per week and includes approximately 60,000 new cited references per week.

As of January 1992, contains searchable, full-length, English-language author abstracts for approximately 60% of the articles in the index.

Arts & Humanities Citation Index®

Arts & Humanities Citation Citation Index is a multidisciplinary index covering the journal literature of the arts and humanities. It fully covers 1,160 of the world's leading arts and humanities journals, and it indexes individually selected, relevant items from over 6,800 major science and social science journals. In addition, the Arts & Humanities Citation Index provides access to current information and retrospective data from 1975 forward. Averages 2,300 new records per week and includes approximately 15,250 new cited references per week. It contains a current total of over 2.5 million records, including unique implicit citations that refer you to actual representations of a book, a work of art, a music score, or other source item.

As of January 2000, the Arts & Humanities Citation Index contains searchable, full-length, English-language author abstracts.

Mental health abstracts: *Mental Health Abstracts*, produced by IFI Plenum Data Corporation, provides references and abstracts on all aspects of mental health and mental illness. International in scope, the database contains references to articles indexed and abstracted from over 1,000 periodicals as well as books, research reports, and program data. Each record includes the bibliographic citation and abstract as well as descriptors and identifiers drawn from a controlled vocabulary.

Social Work Abstracts: For more than 30 years, *NASW's* abstracting service has been the starting point for literature searches in social work and social welfare. *Social Work Abstracts* reviews over 400 U.S. and international journals and publishes approximately 450 abstracts in each issue. Abstracts originally published in other languages are translated into English. In print form, *Abstracts* can be used alone or as a guide to the *Social Work Abstracts PLUS (SWAB+)* database, available on CD-ROM and the Internet through SilverPlatter.

Sociological Abstracts: CSA abstracts and indexes the international literature in sociology and related disciplines in the social and behavioural sciences. The database provides abstracts of journal articles and citations to book reviews drawn from over 1,800+ serials publications, and also provides abstracts of books, book chapters, dissertations, and conference papers. Records published by Sociological Abstracts in print during the database's first 11 years, 1952-1962, have been added to the database as of November 2005, extending the depth of the backfile of this authoritative resource.

Social Planning, Policy and Development Abstracts: This database has an emphasis on practical, applied, problem-oriented literature and contains article abstracts and book reviews. SOPODA covers areas such as aging, violence, abuse and neglect, crisis intervention, urban development, development policy, and more. SOPODA records date back to 1979. SOPODA is updated twice a year in June and December.

II. USING QUALITATIVE METHODS

SAMPLING

The basic assumption behind most qualitative research and the usual purposes of this kind of work, make random sampling inappropriate in most cases. First, the sample size in a qualitative study is typically small – often between five to 20 units of analysis. Second, true random sampling assumes knowledge sufficient to define the larger population from which the random sample is drawn, and qualitative studies usually make no such claim. Third, true random sampling assumes that the characteristics of interest are normally distributed in the population. This is also not assumed or not known by investigators doing qualitative research. Fourth, some data sources are “richer” than others, and a random sampling strategy could cause the investigator to miss the best opportunities for gaining information (Kuzel, 1999).

Samples tend to be drawn from events, persons, artifacts, activities, and time. Choosing among these possibilities is challenging, but it helps to consider ‘what is the phenomenon of interest, and how is usually represented?’ (Briggs, 1986). To decide how to sample depends on whether one wants to observe, examine or interview. The researcher must consider how to record what he/she sees, hears, and thinks. Thereupon, he/she must choose which qualitative sampling strategies to employ (Kuzel, 1999).

Maximum variation sampling

Maximum variation sampling occurs when one seeks to obtain the broadest range of information and perspectives on the subject of study. Maximum variation sampling appeals particularly to the investigator who values critical/ecological inquiry, since the views of the powerful as well as the disenfranchised are represented (Kuzel, 1999).

Patton (1990) explains that the strategy aims at “capturing and describing the central themes or principal outcomes that cut across a great deal of participant or program variation. For small samples a great deal of heterogeneity can be a problem because individual cases are so different from each other. The maximum variation sampling strategy turns that apparent weakness into a strength by applying the following logic: “Any common pattern that emerge from great variation are of particular interest and value in capturing the core experiences and central, shared aspects or impacts of a program” (p.172). According to Hoepfl (1997), maximum variation sampling can yield detailed descriptions of each case, in addition to identifying shared patterns that cut across cases.

Typical case sampling and deviant case sampling

Typical case sampling focuses directly on the ordinary and usual. It is sometimes paired with deviant case sampling that focuses on examples at the ends of the spectrum of

a phenomenon. These extremes often help to bring to the surface and challenge the ‘taken for granted’ assumptions that guide normal behavior in typical cases (Kuzel, 1999).

Critical case sampling

Critical case sampling is where one looks for sources of data that are particularly information rich or enlightening. This sampling strategy “permits logical generalization and maximum application of information to other cases because if it’s true of this one case it’s likely to be true of all other cases” (Patton, 1990, p. 182). Thus, the researchers are looking for the particularly good story⁷ that illuminates the questions under study (Kuzel, 1999).

Theory based sampling

Theory-based sampling is undertaken when researchers sample for information in a focused manner, based on an a priori theory that is being evaluated and/or modeled (Kuzel, 1999).

Theoretical sampling

Theoretical sampling was developed by Glaser and Strauss (1967) in relation to their grounded theory approach. The central focus of grounded theory is the development of theory through constant comparative analysis of data gained from theoretical sampling (Coyne, 1997). Glaser and Strauss define theoretical sampling as “the process of data collection for generating theory whereby the analyst jointly collects codes and analyses his data and decides what data to collect next and where to find them, in order to develop his theory as it emerges. The process of data collection is controlled by the emerging theory, whether substantive or formal” (p. 44).

According to Glaser (1978), in the initial stage of a study the researchers will “go to the groups which they believe will maximize the possibilities of obtaining data and leads for more data on their question. They will also begin by talking to the most knowledgeable people to get a line on relevancies and leads to track down more data and where and how to locate oneself for a rich supply of data” (p. 45). Obviously, theoretical sampling does involve the purposeful selection of a sample in the initial stages. In the next stage of data collection theoretical sampling begins (Coyne, 1997). Within this process, the framing and reframing of research questions, sample selection, data gathering, data analysis, and theory construction occurs concurrently in the inquiry (Kuzel, 1999). Glaser (1992) explains that “the general procedure of theoretical sampling is to elicit codes from the raw data from the start of data collection through constant comparative analysis as the data pour in. Then one uses the codes to direct further data collection, from which the codes are further developed theoretically with properties and theoretically coded connections with other categories until, each category is saturated” (p. 102).

Confirming and disconfirming sampling

This is a sampling strategy in which the researcher looks for data that will support or challenge his/her understanding of the topic under investigation. This technique provides more convincing evidence of the credibility of developed theory (Kuzel, 1999).

Snowball sampling

In attempting to study “hidden populations” (Faugier & Sargeant, 1997, p. 792) (including homeless people, prostitutes, and drug addicts) for whom adequate lists and consequently sampling frames are not readily available, snowball sampling methodologies may be the only feasible methods available. In this form of sampling a random sample of individuals is drawn from a given finite population. Each individual in the sample is asked to name a number of different individuals in the population. The individuals who were not in the random sample but were named by individuals in it form the first stage. Each individual in the first stage is then asked to name a number of individuals. The individuals who were not in the random sample nor in the first stage but were named by individuals who were in the first stage form the second stage. And so on... (Goodman, 1961).

According to Biernacki and Waldorf (1981), the following problem areas have to be addressed by the researcher: finding respondents and starting referral chains; verifying the eligibility of potential respondents; engaging respondents as informal research assistants; controlling the types of chains and the number of cases in any chain; and pacing and monitoring referral chains and data quality. However, most snowball samples will be biased towards inclusion of individuals who have many interrelationships and the absence of individual inclusion probabilities means that unbiased estimation is not possible (Faugier & Sargeant, 1997).

PARTICIPANT OBSERVATION

Participant observation allows the researcher to immerse himself/herself into a respective culture and daily activities of its people. Participant observation is a strategic method (Bernard 2005) to experience the lives of the people and familiarise oneself with their everyday practices; gain insight into peoples’ social lives and relationships; discover different aspects of their social system, representations, and behaviours; and find out about discrepancies between what informants say and what they actually do. Different approaches to fieldwork may be distinguished.

Phenomenological approach: the *phenomenological approach* emphasises intersubjective understanding and empathy. Bruyn (1966), discerned four elements in his approach:

1. *Awareness of time:* Record the temporal phases of research according to the sequence of experience of the observer in relation to the milieu (for example, newcomer, provisional member, categorical member, personalized rapport, and imminent migrant).
2. *Awareness of the physical environment:* Record the relations of people to their physical environment as they perceive it, not as the researcher conceptualizes or even experiences it.

3. *Awareness of contrasting experiences*: Record the experiences of people under contrasting social circumstances; meanings cannot be assessed under one set of circumstances because they are relative to the setting.
4. *Awareness of social openings and barriers*: Record the changes in meaning as the participant observer is admitted into narrower social regions, transitioning from stranger to member to insider. Determining vocabulary concepts is a major focus of participant observation, seeking to illuminate the intersubjective meanings of critical terms.

Empirical approach to participant observation: this approach stresses participation as an opportunity for in-depth systematic study of a particular group or activity. Zelditch (1962) described three elements of this approach:

1. *Enumeration of frequencies* of various categories of observed behavior, as in interaction analysis. Often there is an explicit schedule of observation geared to hypotheses framed in advance of participation. According to Reiss (1971), participation may lead to modification of hypotheses and observation schedules since the endeavor to observe systematically is ongoing.
2. *Informant interviewing* to establish social rules and statuses. There may be systematic sampling of informants to be interviewed, content analysis of documents encountered, and even recording of observations in structured question-and-answer format.
3. *Participation* to observe and detail illustrative incidents.

Where the phenomenological approach emphasizes the participant observer experiencing meanings through empathy, the empirical approach emphasizes systematic observation and recording of the milieu. This distinction is, of course, more a matter of emphasis than a dichotomy (Garson, 2007).

Participant observation tends to be undertaken over a relatively long period of time, ranging from several months to many years. Throughout this time, different qualitative and sometimes quantitative research methods are applied. Besides participating in and observing the daily lives of people under study, these include unstructured and semi-structured interviews, Focus Group Discussions, PRAs, life-histories, etc.

INTERVIEWS

The interview itself is a method of collecting information “for certain types of research questions and for addressing certain types of assumptions” (Berg 2007, 97). At least three different types of interviews can be distinguished. These include the structured, semi-structured, and unstructured interview. The difference between them is the amount of control interviewers try to have over people’s responses. Here, the focus will be on unstructured and semi-structured interviews (structured ones will be discussed elsewhere).

Unstructured interview

When conducting unstructured interviews, researchers do not use a specific set of interview questions. In other words: “interviewers begin with the assumption that they do not know in advance what all the necessary questions are. Consequently, they cannot predetermine fully a list of questions to ask” (Berg 2007, 94). Depending on the particular situation, interviewers develop, adapt and generate questions, and follow-up probes while they conduct the interview.

Often, unstructured interviews are used to develop formal guides for semi-structured interviews or to learn what questions to include, in the native language, on a highly structured questionnaire. Furthermore, it is a good method to build rapport with people before moving on to more formal interviews (Russell 2006).

Some general rules for conducting an unstructured interview include:

- Avoid leading questions
- Probe beyond the expected answer
- Explore inconsistencies
- Record participants' own words (Herman and Bently 1993)

Avoid leading questions:

It is important to word questions in a way that allows informants to answer in their own terms, voicing their own views, values, and experiences. Leading questions suggest a particular answer or imply that a certain answer is expected or more correct.

For example, “What fears do you have when your child gets sick?” “What actions do you take when your child is sick?” “What good was the treatment your child got at the health center?” These questions are phrased to receive answers related to fear, actions, and treatment. Nonleading questions could be phrased as follows: “How do you feel when your child gets sick?” “What do you do when your child does not seem to get better?” “How do you feel about the treatment your child got at the health center?” (Herman and Bently 1993)

Probe beyond the expected answer:

Same questions can be asked in different ways so as to better understand beliefs and assumptions. It is important to gain an understanding beyond “mere answers”.

Bentley provides the following example from Indonesia:

Researcher: "You say that children here often get 'regular diarrhea,' which lasts only a few days, is not accompanied by vomiting, and does not make the child very ill. What causes this 'regular diarrhea'?"

Caregiver: "I don't know, it just comes."

(A skilled interviewer does not stop here, but tries to ask the question in a different way.)

Researcher: "Is regular diarrhea more common during certain times of the year?"

Caregiver: "Yes, during the dry season."

Researcher: "Why do you think 'regular diarrhea' is more common during the dry season?"

Caregiver: "Because the river water is so dirty."

Researcher: "The river water is dirty?"

Caregiver: "Yes the water is very low so you can see all the feces and garbage and dead animals that are in the river."

Researcher: "How is that related to 'regular diarrhea'?"

Caregiver: "Sometimes children drink the river water without boiling it, or the water gets in their mouths when they are swimming."

Researcher: "And how does that lead to diarrhea?"

Caregiver: "The dirty water causes the diarrhea."

Explore inconsistencies:

Sometimes informants' statements or explanations appear to contradict previous ones. The reasons here for could be 1. that people hold beliefs that are not entirely consistent with their other beliefs or 2. they might have misunderstood the question. Nevertheless, it is important to detect and explore inconsistencies in order to clarify misunderstandings or gain more information (Herman and Bently 1993).

Record participants' own words:

When taking or rewriting notes researchers should reproduce their informants' own words and phrases as faithfully as possible. If the interview is not recorded, it is impossible to note everything a person says. In that case, the researcher should focus on new words or pieces of information and on subjects that seem unclear and confusing. Such terms or phrases often shed light on the informants' culture and belief system (Herman and Bently 1993).

Semi-structured interview

Semi-structured interviews are usually used to elicit specific, in-depth, quantitative and qualitative information on specific topics. Such interviews involve the implementation of a number of predetermined questions and topics which are prepared beforehand. These questions tend to be asked in a consistent order. However, at the same time the interviewee should be encouraged to freely express ideas and provide information that he or she find important (Berg 2007).

The interview schedule:

It is suggested to start with an outline that lists all the broad categories relevant to the study. This preliminary listing allows the interviewer to visualize the general format of the schedule.

The next step is to develop sets of open-ended questions relevant to each of the outlined categories. The specific sequencing (ordering), phrasing, level of language, adherence to subject matter, and general style of question depend partly on the informants' personal backgrounds (their education and social level as well as cultural traits, gender, age, etc.) and the researchers' interests and goals (Berg 2007).

Berg recommends that a questionnaire should include at least four styles of questions, namely: essential questions, extra questions, throw-away questions, and probing questions.

Essential questions exclusively concern the central focus of the study. They may be placed together or scattered throughout the survey, but they are geared toward eliciting specific desired information.

Extra questions are included in order to check on the reliability of responses or to measure the possible influence of change of wording might have.

Throw-away questions may be found toward the beginning of an interview. They tend to comprise essential demographic questions or general questions used to develop rapport between interviewers and subjects. One can also find these questions throughout the interview to set the interviewing pace or to allow a change in focus in the interview. Although throw-away questions are unnecessary for gathering the important information, they might, nevertheless, be necessary to elicit the complete story from the respondent.

Probing questions provide interviewers with a way to draw out more complete stories from subjects. Probes frequently ask subjects to elaborate on what they have already answered in response to a given question. For instance, “Could you tell me more about that?” “What happened next?” “How come?” etc. Other probing techniques include the so-called silent probe and echo probe. *Silent probe*: When people talk, they tend to pause to gather thoughts and prepare to say something. The silent probe is effective in these moments. An interviewer remains quiet and waits for an informant to continue. A silent probe can produce more information than direct questions since the interviewer does not interrupt his/her informant. *Echo probe*: When the echo probe is used, interviewers repeat the informants’ phrase and ask them to continue. This technique is effective when an informant is describing the process of an event.

When asking questions, it is important to communicate the intention of the question to the interviewee. That is, “the interviewers’ language must be understandable to the subject; ideally, interviews must be conducted at the level or language of the respondent” (Berg 2007, 102). Moreover, it is crucial that interviewers share the meanings for terms commonly held by members of the research population.

McGill illness narrative interview (MINI)

The McGill Illness Narrative Interview (MINI) (Groleau, Young and Kirmayer 2006) is a theoretically driven, semi-structured, qualitative interview protocol designed to elicit illness narratives in health research. The MINI is structured into three sections: 1) A basic temporal narrative of symptom and illness experience, organised in terms of the contiguity of events; 2) salient prototypes related to current health problems, based on previous experience of the interviewee, family members or friends, and mass media or other popular representations; and 3) any explanatory models, including labels, causal attributions, expectations for treatment, course and outcome. The supplementary sections of the MINI explore help seeking and pathways to care, treatment experience, adherence and impact of the illness on identity, self-perception and relationships with others.

The MINI Survey

Section I. Initial illness narrative

1. When did you experience your <health problem or difficulties (HP)> for the first time?
 [Let the narrative go on as long as possible, with only simple prompting by asking:
 “What happened then? And then?”] [Substitute respondent’s terms for ‘HP’ in this and subsequent questions.]

2. We would like to know more about your experience. Could you tell us when you realized you had this (HP)?
3. Can you tell us what happened when you had your (HP)?
4. Did something else happen? [*Repeat as needed to draw out contiguous experiences and events.*]
5. If you went to see a helper or healer of any kind, tell us about your visit and what happened afterwards.
6. If you went to see a doctor, tell us about your visit to the doctor/hospitalization and about what happened afterwards.
 - 6.1. Did you undergo tests or treatments after your (HP)? [*The relevance of this question depends on the type of health problem.*]

Section II. Prototype narrative

7. In the past, have you ever had a health problem that you consider similar to your current (HP)?
[If answer to #7 is Yes, then ask Q.8]:
8. In what way is that past health problem similar to or different from your current (HP)?
9. Did a person in your family ever experience a health problem similar to yours?
[If answer to #9 is Yes, then ask Q.10]
10. In what ways do you consider your (HP) to be similar to or different from this other person's health problem?
11. Did a person in your social environment (friends or work) experience a health problem similar to yours?
[If answer to #11 is Yes, then ask Q.12]
12. In what ways do you consider your (HP) to be similar to or different from this other person's health problem?
13. Have you ever seen, read or heard on television, radio, in a magazine, a book or on the Internet of a person who had the same health problem as you?
[If answer to #13 is Yes, then ask Q.14]
14. In what ways is that person's problem similar to or different from yours?

Section III. Explanatory model narrative

15. Do you have another term or expression that describes your (HP)?
 16. According to you, what caused your (HP)? [List primary cause(s).]
 - 16.1 Are there any other causes that you think played a role? [List secondary causes.]
 17. Why did your (HP) start when it did?
 18. What happened inside your body that could explain your (HP)?
 19. Is there something happening in your family, at work or in your social life that could explain your health problem?

[If answer to #19 is Yes, then ask Q.20]
 20. Can you tell me how that explains your health problem?
 21. Have you considered that you might have <INTRODUCE POPULAR SYMPTOM OR ILLNESS LABEL>?
 22. What does <POPULAR LABEL> mean to you?
 23. What usually happens to people who have <POPULAR LABEL>?
 24. What is the best treatment for people who have <POPULAR LABEL>?
 25. How do other people react to someone who has <POPULAR LABEL>?
 26. Who do you know who has had <POPULAR LABEL>?
 27. In what ways is your (HP) similar to or different from that person's health problem?
 28. Do you consider that your (HP) is somehow linked or related to specific events that occurred in your life?
 29. Can you tell me more about those events and how they are linked to your (HP)?
- Section

Section IV. Services and response to treatment

30. During your visit to the doctor (healer) for your HP, what did your doctor (healer) tell you that your problem was?
31. Did your doctor (healer) give you any treatment, medicine or recommendations to follow? [List all]

32. How are you dealing with each of these recommendations? [*Repeat Q. 33 @ Q. 36 as needed for every recommendation, medicine and treatment listed.*]

33. Are you able to follow that treatment (or recommendation or medicine)?

34. Could you explain to me what made that treatment work well?

35. Could you explain to me what made that difficult to follow or work poorly?

36. What treatments did you expect to receive for your (HP) that you did not receive?

37. What other therapy, treatment, help or care have you sought out?

38. What other therapy, treatment, help or care would you like to receive?

Section V. Impact on life

39. How has your (HP) changed the way you live?

40. How has your (HP) changed the way you feel or think about yourself?

41. How has your (HP) changed the way you look at life in general?

42. How has your (HP) changed the way that others look at you?

43. What has helped you through this period in your life?

44. How have your family or friends helped you through this difficult period of your life?

45. How has your spiritual life, faith or religious practice helped you go through this difficult period of your life?

46. Is there any thing else you would like to add?

Data analysis

The narratives produced by the MINI can be analysed according to their form or structure (genre, plot, characters, temporal structure, modes of reasoning) or their content (themes, images, metaphors) at individual as well as collective levels.

A central criterion of the interview process is meaning making which reflects: 1. previously acquired and organised interpretations of illness; 2. new reflections on illness experience promoted by the interview situation and specific questions; and 3. the unfolding relationship of interviewer and respondent.

The verbatim transcript of the MINI interview may be interpreted in different ways drawn from critical and interpretive medical anthropology, literary theory, grounded theory, and cultural analysis (Groleau, Young, Kirmayer 2006).

FOCUS GROUP DISCUSSION

Definition

A focus group discussion session may be defined as “a discussion in which a small number (usually six to 12) of respondents, under the guidance of a moderator, talk about topics that are believed to be of special importance to the investigation” (Folch-Lyon 1981, 444). The participants are chosen from a specific target group whose opinions and ideas are crucial to the particular investigation.

Focus group discussion applications

Focus groups are important when:

- Existing knowledge of a subject is inadequate and elaboration of pertinent issues or the generation of new hypotheses is necessary before a relevant and valid questionnaire can be constructed or an existing one enhanced;
- The subject under investigation is complex and current use of additional data collection methods is required to ensure validity;
- The subject under investigation is complex and comprises a number of variables. A focus group enables the researcher to concentrate time and resources on the study's most pertinent variables;
- The results of a quantitative survey are ambiguous or misleading and statistical associations require clarification, elaboration of ‘salvaging’ (Powel and Singe 1996, 500).

Moreover, it is possible to identify common traits, beliefs, and motives of culture, subculture, social class, etc. because the group situation may encourage participants to disclose behavior and attitudes that they might not have revealed in an individual interview. Folch-Lyon summarizes that “[i]n groups discussions, the internalized influence of cultural factors and the value structures of the social group to which participants belong and on which they have modeled their perceptions are reinforced and manifest themselves readily” (Folch-Lyon 1981, 44-445).

Methodology

Sampling

Group discussions tend to comprise individuals of the same sex, age range, and socioeconomic background. In case people with different backgrounds are expected to partake in the study, a number of group sessions should be arranged, each containing a group selected from a population segment. Heterogeneity is, however, sought with regards to opinions, views, and experiences.

Recruiters should select neighborhoods or localities at random that match the specific variables of the study. Within the randomly selected households, people are screened for eligibility and are invited to participate in a discussion.

The selected participants should be strangers to one another since “the anonymity engenders an atmosphere that encourages honest airing of what could be critical personal views and negative experiences” (Powel and Singe 1996, 500).

Excluded should be individuals who are professionals in the particular field of research. In a study concerned with health issues, such professionals would include family doctors, nurses, pharmacists, etc. The reason for excluding them is that due to their seemingly superior knowledge regarding the specific subject, they might be perceived as intimidating by the other participants.

Scheduling of sessions, number of participants, and duration

The sessions should be scheduled 10 to 14 days in advance at a time which is convenient for all participants. One to ten sessions tend to be sufficient for most studies since at some point the group's discussion will replicate existing data.

A focus group should be comprised between 6 and 12 individuals and last about 90-120 minutes (Folch-Lyon 1981; Powel and Singe 1996).

Location

It is important to find a meeting place that is considered neutral by the participants. In a study concerned with health services this should be a non-health service related setting (Folch-Lyon 1981; Powel and Singe 1996).

Preparing and conducting the session

Before the actual session takes place, a discussion guide should be prepared and completed. It is recommended to sequence the questions from less to more sensitive questions or from general topics up to more specific topics. However, since the sequence of the discussion is not fixed, the discussion guide should not be designed as a formal (structured) questionnaire.

Ideally, the moderator should share some of the individuals' characteristics such as age, sex, or language. This is especially important when sensitive topics are covered. The moderator may be accompanied by a person designated to take notes that is, someone who documents important aspects of the participants' interactions such as expressive body-language

During the session, all participants should be encouraged to present their point of view and feel like they are talking to each other. In case participants raise issues that are not included in the discussion guide, they should be followed up as they may represent unexpected findings that contribute to the value of the discussion. The role of the moderator is to guide the conversation and make sure that all topics on his/her discussion guide will be covered and, thus, should estimate the amount of time to be spent on each broad topic (Folch-Lyon 1981; Powel and Singe 1996).

Analysis of results

In analyzing research results, Powel and Sing recommend two steps:

Step 1. The raw data should be coded and classified by reviewing the transcribed discussions for potential conceptual categories. Thereby, the guideline questions should

be used as initial categories. Upon this, the coded data are regrouped or indexed along the lines of the nature of the response provided and the intensity with which they are expressed.

Step 2. The second step consists of the analysis of the original data in combination with the transformed conceptual data. This involves a great deal of creativity as constant comparisons are carried out with the data to detect divergent views among the participants and to contrast observations that relate to variables within the sample population. It is an inductive approach because themes evolve from the empirical data.

Advantages and Disadvantages

The advantages of focus group discussions are that it is a socially oriented method which studies participants in an atmosphere which is more natural than artificial experimental circumstances and more relaxed than in a one-to-one interview. Furthermore, the method is useful for gaining access, focusing site selection and sampling, and checking tentative conclusions.

Disadvantages concern: 1. the issue of power dynamics in the focus group setting; 2. the interviewer's lack of control over the group interview; 3. time loss due to lengthy discussions of irrelevant topics; 4. the analysis of the data since the context is essential to understanding the participants' comments; and 5. the variability of the group and the fact that it may be hard to assemble the participants (Marshall and Rossman 2006).

PARTICIPATORY RURAL APPRAISAL

Definition

The Participatory Rural Appraisal (PRA) approach may be defined as “[a] growing family of approaches, methods, *attitudes, behaviors and relationships* to enable and empower people to share, analyze and enhance their knowledge of life and conditions, and to plan, act, monitor, evaluate and reflect” (Chambers 2006, 3). It is a method for interacting with primarily villagers so as to understand them, learn from them, and enable them to make their own analysis with a practical goal in mind (Mukherjee 1993).

PRA applications

The PRA approach tends to be applied in areas concerned with natural resource management, agriculture, poverty and social programs, and health and food security. The goal of a ‘health PRA’ is, for example, to learn from rural people about issues related to health. According to Mukherjee, rural people are often victims of poor health conditions. Therefore, they are the ones who can tell researchers as well as practitioners about their experiences and perceptions. That is, “villagers can participate to make us learn about their health conditions, their kind and nature of illness, the causes, the nature of treatment adopted and their preferences and priorities” (Mukherjee 1993, 123). The following insights may be gained through a health PRA:

- a) the health status of rural community;
- b) frequency of illness and villagers' perceptions;
- c) sources of treatment of illness;
- d) local treatment and indigenous medicines available;

- e) number of villagers going without treatment;
- f) planning health interventions with periodicity as required;
- g) support for poor villagers for whom health is a critical factor for their day to day life (Mukherjee 1993, 126)

Moreover, it is possible to learn from villagers what they describe as factors leading to their ill health. It is important to note that the reasons must not correspond with medical opinions.

PRA Methodology

The PRA approach combines a variety of methods which can be combined in different ways so as to analyze issues at hand and conduct an appraisal of the respective subject of interest.

Primary and secondary sources

Before conducting a PRA study, it is important to gain background information on the area under study. Such data can be elicited from primary as well as secondary sources.

Primary sources

Primary sources are materials gathered first hand which relate to the people, situations, or events that are being studied. The materials may include court records, letters, minutes, memoranda, notes, and diaries (Mukherjee 1993).

Secondary sources

Secondary sources can be found in published materials and may include transcripts or summaries of primary source materials. They include: surveys, books, reports, plans, photographs, journalistic articles, newspaper cuttings, research papers, and data files from computers (Mukherjee 1993).

Although, the gathering of primary and secondary data is an important step, methods with direct participation are the most important and vital ones. They may be grouped into different categories.

Interviews and participant observation

Focus group discussions

For more information please turn back to “Focus Group Discussion”

Key informant interviews

Key informants are defined as people “who know a lot about their culture and are, for this reason of their own, willing to share all their knowledge with you” (Bernard 2006, 196). Often they are people who occupy leadership positions in different community sectors (such as government, business, health care etc.) and tend to be knowledgeable about how a community makes decisions, who the powerful are, and what the community’s crucial needs are. Key informants tend to be useful to build rapport with

others. The interviews conducted with key informants may be semi-structured, unstructured, or informal (for more information please turn to “Types of Interviews”).

Semi-structured interviews

For more information please turn to “Types of Interviews”

Do-It- Yourself (DIY)

The activities conducted by villagers are often better understood when the outsider (interviewers) try them out themselves. It is, thus, possible to get a practical idea of the complexities involved in rural activities. For example “one can plough a field and have a first hand experience of the activities of a farmer or accompany a rural woman to collect fuelwood or fodder and appreciate the difficulties involved in such jobs” (Mukherjee 1993, 48). This may also be a first step in rapport building.

They do it

Informants may be involved in the research as investigators and researchers. That is, they do transects, observe, and interview other local people. Thereupon, they get the opportunity to analyze, present, and evaluate their own data in order to develop plans for action.

Space-related PRA methods

Maps and models

The PRA approach considers maps and models as highly important. The reason is that 1. diagrams help to build consensus and can form a base for resolving conflicts and difference of opinion; 2. they are useful for cross-checking information and building up knowledge on this basis; 3. literate as well as illiterate villagers can be easily involved in the project; 4. maps are open for group discussion and, thus, facilitate the exchange of views; and 5. perceptions and preferences may be revealed relatively fast (Mukherjee 1993, 45)

Maps and models can reflect different aspects of rural life, including: social issues, resources, health, wealth, literacy, census, livestock, economic activity, social stratification, forms of livelihood, etc. They may portray images of dwellings in a village, of farms and fields, water collections, forests, soils, and of many other aspects.

Location: The exercise should take place at a central place which is convenient for everyone involved. It should have enough capacity to hold the required number of participants.

Number of participants: A very large number of participants may be involved as everyone in the village could have a valuable contribution to make. Even people who appear to be onlookers are often able to point out errors and omissions while the process is on.

Material required: The villagers themselves draw the maps on paper or on the ground with the help of chalks, colors, or other materials such as sticks. It is crucial to transfer the maps which were drawn on the ground on paper later on.

With the help of the map it will be easy for the villagers to explain locations within the village in terms of roads and rivers, the characteristics and conditions of the

households, the ownership of dwellings and buildings, and land-use patterns. Furthermore, other information may be presented such as dependency ratios, ownership of assets, cattle, beneficiaries under state programs, health characteristics, etc.

Seasonal calendars

Each season has its own problems and people need to adapt to each season differently. Seasons influence the availability of water, food, fuel, and fodder which in turn influence the living condition of the population. That is, issues such as the occurrence of certain diseases, employment, and work load are all connected to these factors.

The villagers prepare the diagrams and charts themselves either on the ground or on paper portraying various socio-economic and physical phenomena such as seasonal wages received, food consumed, prices, crops grown, rainfall patterns, sickness, and others.

It is important to note that people have their own systems and units of time. Therefore, it is crucial for the interviewers to first have a good sense of the system of time of the local people. Their system has to be given primacy during the session.

Symbols: When working with largely illiterate communities symbols should be used. It has been shown that people easily find something with which to represent a given month. Symbols tend to include fruits and crops unique to the month; equipment, work, clothing, and games unique to the month; unique items or articles associated with the festivals falling during the month; seasonal aspects like rain, snow and sun, etc.

Material required: Seeds, cards, marker pens, chalk of different colors, and other locally available materials.

Time required: 2 to 3 hours should be sufficient.

Food calendar

The food calendar is a specific form of seasonal diagramming. The seasonal variations of food availability are a crucial aspect of village life. Through the calendar it is possible to show both the quantity and quality of food available throughout the year. Often health issues are directly connected to the quantity and quality of food available to the villagers.

Material required: Seeds, cards, marker pens, chalk of different colors, and other locally available materials.

Time required: 2 to 3 hours should be sufficient.

Transect walks

Transect walks involve walking with villagers through an area and discussing about different aspects of, for example, land-use and agro-ecological zones which may be observed during the walk. It is a good way of getting to learn local ecological conditions. Moreover, it enables the researcher to get a better understanding about participating villagers of such zones in the village, their uses, problems and opportunities.

Number of participants: The walk can be carried out by one to three facilitators as well as several village people who can be engaged in a discussion. Different teams may be created which may provide complementary information once the diagram is drawn.

Material required: Pen and notebook are the crucial items required. If maps of the village are available, they should be carried along. To create the transect diagram after the walk, color pens, markers, and large and small sized papers are required.

Time required: The time required varies considerably depending on the area, length and terrain of the transect path, number of participants, interest of members in the topic, and targeted details.

PRA relation methods

Body mapping

Body mapping is a visual method used to depict people's perception of their bodies, the function of different body parts, their concept of conception, health, etc. It should not be confused with a regular anatomical map. Instead, it portrays the body or part of the body as it is perceived by individuals or groups.

Drawing the map is not an end in itself; the main purpose is to organize discussion around it. Such discussions could focus on issues such as reproductive health, contraception, sexuality, health, and functions of different parts of the body. Other issues which could be discussed are the extent to which women have control over their bodies, what women can do to increase their control over their own bodies, and fertility.

However, body mapping is a sensitive exercise and in some communities it is even taboo. Therefore, it should only be undertaken if the facilitator enjoys a good rapport with the participants.

Number of participants: Body mapping is done in small groups. In most cases the participants are women.

Material required: Chart paper, color pens, chalk, seeds of different types, etc.

Time required: 1 ½ to 2 ½ hours should be sufficient.

'Chappati' or Venn diagrams

'Chappati' or Venn diagrams are created to represent the role of individuals/institutions and the degree of their importance in decision-making. Circles symbolize individuals and institutions. Its size shows the respective individual's or institution's degree of influence and importance in decision-making. Overlapping circles stand for interacting individuals and institutions. In case that individuals or institutions do not touch one another, no information is passing between them.

These diagrams are useful in that they show how village people communicate with the rest of the village and other governmental and nongovernmental institutions. It reflects their respective role in decision-making regarding village planning, running of projects, distribution of land, construction of roads, school buildings, etc.

Materials required: The most frequently used materials are paper circles. The diagram can also be drawn directly on the ground or on paper, but this does not allow the size or location of circles to be changed.

Time required: 2 to 3 hours should be sufficient

Case study

A case study is one that focuses on an individual, household, group, or community in relation to one or more events or a phenomenon. Alternatively, it can be a study of some socio-economic or political change in relation to an individual, household, group or a community. This methodology can be used for analyzing coping strategies or rural households during, for example, disaster.

Flow diagrams

These diagrams show cause-effect relationships that is, inter-linkages amongst different aspects of rural life. The villagers may be encouraged to talk about different causes of problems which they are experiencing and then asked to inter-connect the different aspects so as to have a causal analysis of the problem at hand. This can help in suggesting policies for minimizing constraints.

Materials required: Cards of small size, seeds, colors, markers, chalks, large-size paper, etc.

Time required: A minimum of 2 hours should be planned for.

Ranking and scoring

Ranking and scoring is supposed to reveal priorities and preferences. It is good method for researchers to gain information on relationships amongst several different criteria. Furthermore, it provides insights into rural people's criteria for ranking as well as the relative position of their priorities, preferences, and choices in matters of occupation, food, fodder, energy-use, medicines, healing practices, etc.

Materials required: Cards of small size, seeds, colors, markers, chalks, large-size paper, etc.

Time required: A maximum of 2 hours should be planned for.

Wealth ranking and grouping

This is a method of ranking or grouping of households on the basis of income, wealth, and other local measures of well-being. This may generate information on well-being of different households or members of a community through comparison of households by different criteria of rural people. Ways of distinguishing between households may not be obvious to the outsider from the beginning. Therefore, this is a means to get insight into local perceptions of well-being.

Materials required: Cards of small size, seeds, colors, markers, chalks, large-size paper, etc.

Time required: A maximum of 2 hours should be planned for.

Time-related PRA methods**Daily routine diagram**

Daily routine diagrams show activities which are carried out on a day-to-day basis. It shows the time spent on different tasks as well as the workload involved. It may be possible to extract general patterns from individual ones.

Number of participants: This exercise should be conducted with small groups of people. It is hard to create a 'typical' daily routine table when the group is too heterogeneous.

Materials required: The diagrams could be directly drawn on paper, but could also be drawn on the ground. Seeds, small cards, marker pens, chart paper, chalk, and other local material could be used.

Time required: 1 ½ to 2 hours should be sufficient.

Historical profile

Past and future profiles are possible to create by applying the PRA method. In a historical profile, villagers provide an historical account of how different aspects of village life have changed over the years. It is useful for probing aspects of quality of life or rural people and the different changes which have taken place over a period of time.

Yet, it is important to note that people may relate differently to time and local time frames exist (especially in communities which do not use a calendar). Thus, it may be difficult to establish a precise time of the event. Mukherjee distinguishes between the so called 'historical transect' and 'time line' approach.

Historical transect: The historical transect is usually conducted together with elderly people who have knowledge of their village for a long time and are able to provide historical data concerning the village development. This historical context can uncover knowledge about major events and changes in conditions.

Time line: Elderly villagers are encouraged to narrate their life histories. These are often connected to major events, political regimes and, thus, summarize changes which have taken place during their lifetime.

Material required: Useful material includes cards, chalks, chart paper, bold markers of different colors, seeds and pebbles.

Time required: It is estimated that 1 ½ to 2 hours is enough time.

Livelihood analysis

Livelihood analysis represents the behavior and adjustment strategies of households with different social and economic characteristics. Households have different strategies to cope with difficult situations due to its size, age and gender composition, wealth, assets, livestock, income and expenditure pattern, dept pattern, consumption pattern, seasonality, income by sources, disease, and social obligations.

Materials required: The diagrams could be directly drawn on paper, but could also be drawn on the ground. Seeds, small cards, marker pens, chart paper, chalk, and other local material could be used.

Time required: 1 ½ to 2 hours should be sufficient

Other methodologies

The PRA approach contains a great number of methods. Throughout the years they developed and new methods were/are added. Descriptions of additional methodologies may be found in the works of Chambers (2006), Kumar (2002), Mukherjee (1993), and others. Some of the methodologies to look for include:

- Census method

- Genealogical method
- Impact diagram
- Institutional diagramming
- Farm map
- Future possible
- Key probes
- Mobility map
- Participatory planning, budgeting, implementation and monitoring
- Report writing
- Pie diagram
- Resource map
- Sequences
- Time trends

III. USING QUANTITATIVE METHODS

STRUCTURED OBSERVATION

Definition

Structured observation is used to study particular issues in people's behaviour. One interest is to gain a better understanding of the process of a particular behaviour. The other is to measure how much or how often people engage in a particular behaviour during a given time period (Bryman, 1988).

Tasks of the observer

The task of the observer is to record the target behaviour, its observable antecedents, and observable sequelae. In contrast to participant observation, the investigator is at great caution not to participate in the behaviour under study (Hennessy & Pallone, 1992).

The researchers specify in advance the behaviours or events they want to observe and use record keeping forms that provide numeric information. The creativity lays not so much in the process of observation than in the formulation of a system of accurately categorising, recording, and encoding the observations.

Category systems

A common approach to making structured observations is constructing a category system for classifying observed phenomena. A category system represents an attempt to designate in a systematic or quantitative way the qualitative behaviours and events. An important requirement for a good category system is the careful and explicit definition of behaviours and characteristics to be observed. Each category has to be explained in detail with an operational definition so that observers have relatively clear-cut criteria for determining the occurrence of a specified phenomenon (Pollit & Beck, 2004).

Issues of consistency

Two crucial aspects of using structured observation are observer consistency and inter-observer agreement. Observer consistency is the extent to which an observer obtains the same results when measuring the same behaviour on different occasions. Inter-observer agreement is the extent to which two or more observers obtain the same results when measuring the same behaviour.

Challenges

Because structured intervention techniques depend on plans developed before the actual observation, they are not appropriate when researchers have limited knowledge about the phenomena under investigation (Pollit & Beck, 2004). Another challenge is reactivity that is, when people are aware that they are being observed, they tend to act differently than they usually do. This may prevent researchers to record people's authentic behaviour.

SELF-REPORT INSTRUMENTS AND STRUCTURED INTERVIEWS TO MEASURE PTSD SYMPTOMS

Almost every trauma-related study should include some measure of PTSD symptoms. These measures provide information about how respondents view their symptoms in a context that is not influenced by direct interaction with an interviewer. With the help of self-report instruments and structured interviews, response accuracy may be increased, especially for those informants who are reluctant to reveal their experiences to another person directly (Solomon et al., 1996).

A number of different measures of PTSD exist. For studies that are broad in scope (e.g. epidemiological studies), one should choose a measure that is brief and can be administered by paraprofessionals. In studies where an accurate determination of PTSD 'caseness' is a principal importance (e.g. treatment effectiveness studies; biological studies), one should include an in-depth structured clinical interview that yields an exact measure of the diagnosis, including its one-month timeframe.

However, it is important to note that no single measure can definitely determine whether or not an individual has PTSD. Instead, multiple measures should be administered (Solomon et al., 1996).

Self-report instruments

Until the late 1980s, standardized screening instruments for measuring PTSD were mainly applied to the assessment of American war veterans (Mollica, Caspi-Yavin, Bollini, Truong, Tor, & Lavelle, 1992, 111; Wolfe & Keane, 1990). This kind of self-report measures included the Impact of Event Scale (IES); Minnesota Multiphasic Personality Inventory (MMPI) Mississippi Scale for Combat-Related Posttraumatic Stress Disorder; and the Penn Inventory of Posttraumatic Stress.

However, due to the great flow of refugees into the United States, the development of culturally sensitive psychological tests and symptom checklists for assessing anxiety and depression has been promoted (Mollica, Caspi-Yavin, Bollini, Truong, Tor, & Lavelle, 1992). These include among others the General Health Questionnaire-28 (GHQ-28); the Harvard Trauma Questionnaire (HTQ); the Hopkins Symptom Checklist-25; the Medical Outcomes Study 20 (MOS-20); the Mini International Neuropsychiatric Interview (MINI); the NIMH-Diagnostic Interview Schedule; the Post Traumatic Stress Disorder Symptom Scale (PSS); and the Self-rating Inventory for PTSD.

Comprehensive Trauma Inventory-104

The Comprehensive Trauma Inventory-104 (CTI-104) is a self-administered questionnaire that assesses war-related events in community dwelling refugees. It has English, Kurdish, and Vietnamese versions, and has 104 event items divided among 12 event-type scales. The response format has participants check whether or not they experienced the event and, if they did, how much impact the event had in terms of fear or threat to their life or safety. This response format was meant to be relevant to Criterion A of the DSM-IV. Thus, each item has five possible responses: "did not happen", "a little fear or threat", "moderate fear or threat", "a lot of fear or threat", and "extreme fear or

threat”. Scoring may be either a sum of dichotomous values (number of events) or a sum of 5-point severity scores, which were both modeled as continuous data (Hollifield, Warner, Jenkins, Sinclair-Lian, Krakow, Eckert, et al., 2006)

Impact of Event Scale (IES)

The IES scale is the oldest and most widely used self-report instrument for assessing the psychological consequences of exposure to traumatic events and has been administered to several different kinds of traumatised and bereaved populations. It is a 15-item measure and focuses mostly on intrusive and avoidant symptoms (Zilberg, Weiss, & Horowitz, 1982). Respondents must be able to link their symptoms to a single traumatic event, which might lead to an underestimate of these symptoms (Solomon et al., 1996). (Requires 10 minutes to administer)

General Health Questionnaire-28 (GHQ-28)

The GHQ-28 is a self-report instrument and used as a community screening tool and for the detection of non-specific psychiatric disorders among individuals in primary care settings. The mental health status of the respective patients is measured with the help of the four subscales somatic symptoms, anxiety and insomnia, social dysfunction, and depression. Although the GHQ was developed in the United Kingdom during the 1960s and 1970s, there have consequently been many applications in other countries as well. In 1988 Goldberg and Williams reported that the GHQ had been translated into about 38 languages, and over 50 validity studies have been published. However, these validity studies were conducted mainly in Western European countries and the USA. Some publications exist which refer to the utilisation of the GHQ in Central and Eastern Europe (CEE), particularly in Belarus, Croatia, Hungary, Poland, and Yugoslavia (Nagyova, Krol, Szilasiova, Steward, van Dijk, & van den Heuvel, 2000)

Harvard Trauma Questionnaire (HTQ)

The HTQ is the most frequently applied screening tool and consists of a checklist for measuring trauma, torture events, and trauma-related symptoms. Consistent with the concept of PTSD as it was outlined in the DSM-III-R, both trauma events and associated symptoms are included in the same questionnaire. It is designed as a self-report scale which includes three sections. The first section comprises seventeen items that describe a range of traumatic experiences, from “lack of food or water” to “torture”, “rape”, and “murder of family or friend”. For each item exist four categories of response: “experienced”, “witnessed”, “heard about, and “no”. Section two consists of an open-ended question that inquires about the respondents subjective descriptions of the most traumatic event(s) that they experienced during their refuge. The final section includes thirty symptom items. Sixteen of these items stem from the DSM-III-R criteria for PTSD and the other fourteen are created to “capture symptoms associated with the refugees’ traumatic life events” (Mollica, Caspi-Yavin, Bollini, Truong, Tor, & Lavelle, 1992, p. 112).

For more information: http://www.hpvt-cambridge.org/Layer3.asp?page_id=9)

The Hopkins Symptoms Checklist-25 (HSCL-25)

The HSCL was originally designed by Parloff, Kelman, and Frank at John Hopkins University. The HSCL is a symptom inventory that measures symptoms of anxiety and depression. It consists of 25 items: Part I of the HSCL-25 has 10 items for anxiety symptoms; Part II has 15 items for depression symptoms. The scale for each question includes four categories of response: "Not at all," "A little," "Quite a bit," "Extremely," rated 1 to 4, respectively. Two scores are calculated: the total score is the average of all 25 items, while the depression score is the average of the 15 depression items. It has been consistently shown in several populations that the total score is highly correlated with severe emotional distress of unspecified diagnosis, and the depression score is correlated with major depression as defined by the Diagnostic and Statistical Manual of the American Psychiatric Association, IV Version (DSM-IV).

The HSCL-25 has been translated for its use into Bosnian, Cambodian, Croatian, Japanese, Laotian, and Vietnamese .

(For more information: http://www.hpvt-cambridge.org/Layer3.asp?page_id=10)

Medical Outcomes Study 20 (MOS-20)

The MOS-20 consists of 20 items on 6 different scales that assess “physical functioning” (six items), “bodily pain” (one item), “role functioning” (two items), “social functioning” (one item), “mental health” (five items), and “self-perceived general health status” (five items)(Cardozo, Vergara, Agani, & Gotway, 2000, p. 571). The MOS-20 is scored by summing item responses after reversing some items to ensure that a higher score always indicates better health status. Raw scale scores are then linearly transformed to a 0-100 scale with 0 representing the lowest possible score and 100 the highest possible score (Smith, Feldman, Kelly, DeHovitz, Chirgwin, Minkoff, 1996).

Mini International Neuropsychiatric Interview (MINI)

The Mini-International Neuropsychiatric Interview (MINI) is a short structured diagnostic interview, developed jointly by psychiatrists and clinicians in the United States and Europe, for DSM-IV and ICD-10 psychiatric disorders. It was designed to meet the need for a short but accurate structured psychiatric interview for multicenter clinical trials and epidemiology studies and to be used as a first step in outcome tracking in nonresearch clinical settings. The MINI interview exists in various versions including the MINI-Screen, the MINI-Plus, and the MINI-Kid. Furthermore, the MINI has been translated into 43 languages and is used by mental health professionals and health organizations in more than 100 countries (Sheehan, Lecrubier, Sheehan, Amorim, Janavs, Weiller, et al., 1998) (Requires 15 minutes to administer)

Mississippi Scale for Combat-related PTSD

The Mississippi Scale for Combat-related PTSD is available both in combat and civilian versions. The 35- and 39-item scales have performed effectively in both clinical and community settings. It was originally developed to assess the severity of DSM-III PTSD symptoms, and also assesses a number of features associated with PTSD as they are delineated in the DSM (Keane, Caddell, Taylor, 1988; Solomon et al., 1996). Ratings are made on a 5-point Likert scale measuring PTSD symptom severity. Several versions of the Mississippi Scale have been developed in order to apply them to other populations (Solomon et al. 1996). (Requires 15 minutes to administer)

NIMH-Diagnostic Interview Schedule

The NIMH-DIS was developed by the National Institute of Mental Health (NIMH) in 1978. The DIS integrates two traditions in psychiatric epidemiology: it resembles the Home Interview Survey (HIS), Health Opinion Survey (HOS), and PERI in that it requires relatively little judgment from the interviewer by specifying each question to be asked. It emphasizes distinguishing significant symptoms from the ordinary worries and concerns of daily life by setting requirements for clinical significance. Furthermore, it distinguishes psychiatric symptoms from symptoms caused by physical illness or the side effects of drugs or alcohol.

It offers a lifetime history of symptoms. In addition, it ascertains when symptoms of a disorder first appeared and were most recently experienced, and asks whether a doctor was ever consulted about the symptoms. With the exception of a few open-ended questions which are used by an editor to validate the interviewer's judgment but not entered into the computer, answers to the interview are completely pre-coded so that the interview can be adapted to computerization or can be keyed into the computer immediately after editing, for prompt diagnostic assessment. Its questions can be asked and coded by lay interviewers according to clearly stated rules.

It is acceptable to both patients and members of the general population.
(For more information: <http://epi.wustl.edu/dis/dishisto.htm>)

Penn Inventory for Posttraumatic Stress Disorder

The Penn Inventory for PTSD is a 26-item self-report measure of the severity of PTSD. Each item in the Penn Inventory comprises four sentences, modeled on the Beck Depression Inventory. The meanings of the series of sentences measure the presence or absence of PTSD symptoms as well as their degree, frequency, or intensity. The scale numbers of the sentences range from 0-3, anchoring these sentences to an I-scale (the I or the 'individual point) on the scale), enabling individuals to locate themselves at different reference points. Example: 0 = I have not experienced a major trauma in my life; 1 = I have experienced one or more traumas of limited intensity; 2 = I have experienced very intense and upsetting traumas; 3 = The traumas I have experienced were so intense that memories of them intrude on my mind without warning (Hammarberg, 1992). The Penn Inventory has been developed and validated on different trauma populations including accident survivors, combat veterans, and veteran psychiatric patients in different cultures (Solomon et al. 1996). (Requires 15 minutes to administer)

PK subscale of the Minnesota Multiphasic Personality Inventory (MMPI)

This scale consists of 49 items that were initially successful in differentiating PTSD from non-PTSD patients. However, succeeding studies have found a lower rate of correct classification. The PK subscale was developed for the MMPI for identifying PTSD (Keane, Malloy, & Fairbank, 1984). The PK subscale seems to work as well when it is applied as a separate measure as it does when imbedded in the MMPI. The scale was slightly revised for MMPI-2 by deleting three item repetitions. The scale does not comprehensively reflect DSM PTSD symptoms and may be most useful for analyses of the many archived datasets which include the MMPI, but no measures of PTSD (Solomon et al., 1996). (Requires 15 minutes to administer)

PTSD Symptom Scale Self-Report

The PSS consists out of 17 items that diagnose PTSD according to DSM criteria and assess the severity of PTSD symptoms. They are rated on a 4-point scale: 0 = not at all; 1 = a little bit; 2 = somewhat; 3 = very much. This permits the scale to be used as either a categorical or dimensional measure. The total severity score is calculated as the sum of the severity ratings for the 17 items (Foa, Riggs, Dancu, & Rothbaum, 1993).

Since it has been only used on rape victims, there is no psychometric data for other traumatised samples. Another disadvantage of this scale is that respondents are required to link their C and D Criterion symptoms of PTSD to a particular traumatic event; this may lead to underreporting symptoms. A modified version of this scale includes both frequency and intensity ratings. Unlike the PSS, this modified version allows assessment of symptoms related to multiple traumatic events (Solomon et al., 1996). (Requires 5-10 minutes to administer)

Self-rating Inventory for PTSD

The SIP comprises 47 items, 22 of which are the core symptoms of DSM criteria for PTSD. The remaining items assess associated features of PTSD, especially the “Disorders of Extreme Stress Not Otherwise Specified” (DESNOS) category of symptoms believed to be found in chronically traumatised populations. The items are rated independently of the traumatic stressor, and are assessed on a 4-point Likert scale, allowing for a dimensional measure of PTSD. Tested on war traumatised and psychiatric patients in the Netherlands, the scale has been found to have good psychometric properties, and appears to discriminate not only between PTSD and non-PTSD cases, but also between non-PTSD cases who have been through a traumatic event and those have not (Solomon et al., 1993).

Structured interviews

When the central purpose of a study requires obtaining an accurate diagnosis of PTSD, Solomon et al. (1996) recommends the use of a structured clinical interview. The reason is that structured clinical interviews allow for a detailed exploration of PTSD symptomatology. Different interviews are available to assess PTSD and/or PTSD comorbidity. These include among others: the Anxiety Disorders Interview-Revised (ADIS-R); Clinician-Administered PTSD Scale (CAPS); PTSD Interview (PTSD-I); PTSD Symptom Scale Interview; Structured Clinical Interview for DSM-III-R (SCID); and Structured Interview for PTSD (SI-PTSD).

The Anxiety Disorders Interview-Revised (ADIS-R)

The ADIS-R provides a comprehensive assessment of anxiety and mood disorders. Therefore, it is useful for studies of PTSD comorbidity with affective or other anxiety disorders. It is the only interview that includes a section about trauma-related panic symptoms, a feature that may be most useful when the relationship between panic disorder and PTSD needs to be explored.

However, the ADIS does not provide specific prompts or anchors for coding the presence or absence of PTSD symptoms. Consequently, frequency and intensity cannot be distinguished (Solomon, 1996). (Requires 15-25 minutes to administer)

Clinician-Administered PTSD Scale (CAPS)

The CAPS addresses both the 17 primary PTSD symptoms and 13 associated characteristics, including impairment in social and occupational functioning. Its symptoms are behaviourally defined and its one-month time frame for current symptoms is consistent with DSM criteria. The CAPS provides both categorical and dimensional indices of PTSD. It is the only interview to assess the C and D criterion symptoms without reference to a particular traumatic event; that is, trauma exposure is not even assessed at all in this instrument since it is intended for use in conjunction with a separate trauma exposure measure.

However, it has only been administered with veterans (Solomon et al., 1996). (Requires 45-90 minutes to administer)

PTSD Interview (PTSD-I)

The PTSD-I is a 21-item interview that provides both categorical and dimensional ratings of PTSD symptoms and overall diagnosis. It assesses onset, frequency and severity of symptoms. It can be administered by lay interviewers. However, it lacks interviewer probes and was only tested on veterans (Solomon et al., 1996). (Requires 10 minutes to administer)

PTSD Symptom Scale Interview

The PSS-I is a 17-item semi-structured interview that assesses the severity of PTSD as a continuous measure. It can be administered by lay interviewers who are trained to recognise the clinical picture presented by traumatised individuals (Foa, Riggs, Dancu, & Rothbaum, 1993). So far, it has only been validated with female rape victims. A disadvantage of this scale is that respondents are required to link their C and D Criterion symptoms of PTSD to a particular traumatic event. This may lead to under-reporting of symptoms (Solomon et al., 1996). (Requires 10 minutes to administer)

Structured Clinical Interview for DSM-III-R (SCID)

The SCID is designed to provide a comprehensive clinical assessment of DSM Axes I and II. This makes its application in studies of PTSD comorbidity advantageous. Furthermore, it is useful for cross-study comparisons with other traumatised populations. It includes a measurement of the recency, onset and duration of PTSD symptoms. However, it does not include assessment of the frequency and intensity of these symptoms. Furthermore, it only provides categorical assessments of both the symptoms and the diagnosis, and is, thus, insensitive to changes in symptom patterns over time (Solomon et al., 1996). (Requires 15-30 minutes to administer)

Structured Interview for PTSD (SI-PTSD)

The SI-PTSD is a 28-item interview. Its unique feature of the interview is that it uses observer ratings to measure 'constricted affect', in addition to obtaining the more common assessments of feelings of estrangement, detachment, and diminished interest.

The interview provides both categorical and dimensional ratings of DSM-III PTSD symptoms. Furthermore, the SI-PTSD's ratings are directly tied to the severity or frequency of particular behaviours of each symptom. The SI-PTSD requires respondents to be able to link their C and D Criterion symptoms of PTSD to a particular traumatic event, thereby constraining the reporting of these symptoms.

The interview has only been validated with veterans (Solomon et al., 1996).
(Requires 15-25 minutes to administer)

SELECTION OF SOCIAL SCALES AND INDICES

Scales and indices are important because they provide quantitative measures that are amenable to greater precision, statistical manipulation, and explicit interpretation. According to Miller (1983), the general rule is to only use the available scale if it has qualities of validity, reliability, and utility.

Thurstone Equal-Appearing Interval Scale

Nature: This scale consists of a number of items whose position on the scale has been determined previously by a ranking operation performed by judges. The subject selects the responses that best describe how he/she feels.

Utility: This scale approximates an interval level of measurement. This means that the distance between any two numbers on the scale is of known size. Parametric and nonparametric statistics may be applied.

Construction: (1) The investigator gathers several hundred statements conceived to be related to the attitude being investigated; (2) A large number of judges (50-300) independently classify the statements in eleven groups ranging from most favorable to neutral to least favorable; (3) The scale value of a statement is computed as the median position to which it is assigned by the group of judges; (4) Statements that have too broad a spread are discarded as ambiguous or irrelevant; (5) The scale is formed by selecting items that are evenly spread along the scale from one extreme to the other.

Research application: Scales have been constructed to measure attitudes toward war, the church, capital punishment, institutions, etc.

Likert-Type Scale

Nature: This is a summated scale consisting of series of items to which the subject responds. The respondent indicates agreement or disagreement with each item on an intensity scale. The Likert technique produces an ordinal scale that generally requires nonparametric statistics.

Utility: This scale is highly reliable when it comes to a rough ordering of people with regard to a particular attitude or attitude complex. The score includes a measure of intensity as expressed on each statement.

Construction: (1) The investigator assembles a large number of items considered relevant to the attitude being investigated and either clearly favorable or unfavorable; (2) These items are administered to a group of subjects representative of those with whom the questionnaire is to be used; (3) The response to the various items are scored in such a way that a response indicative of the most favorable attitude is given the highest score; (4) Each individual's total score is computed by adding his/her item scores; (5) The

responses are analyzed to determine which items differentiate most clearly between the highest and lowest quartiles of total scores; (6) The items that differentiate best (at least six) are used to form a scale.

Guttman Scale-Analysis

Nature: This technique attempts to determine the unidimensionality of a scale. Only items meeting the criterion of reproducibility are acceptable as scalable. If a scale is unidimensional, then a person who has a more favorable attitude than another should respond to each statement with equal or greater favorableness than the other.

Utility: Each score corresponds to a highly similar response pattern or scale type. It is one of the few scales where the score can be used to predict the response pattern to all statements. Only a few statements (5-10) are needed to provide a range of scalable responses.

Construction: (1) Select statements that are felt to apply to the measurable objective; (2) Test statements on a sample population (about 100); (3) Discard statements with more than 80% agreement or disagreement; (4) Order respondents from most favorable responses to fewest favorable responses. Order from top to bottom; (5) Order statements from most favorable responses to fewest favorable responses. Order from left to right; (6) Discard statements that fail to discriminate between favorable respondents and unfavorable respondents; (7) Calculate coefficient of reproducibility; (8) Score each respondent by the number of favorable responses or response pattern.

Rating Scales

Nature: This technique seeks to obtain an evaluation or a quantitative judgment of personality, group, or institutional characteristics based upon personal judgments. The rater places the person or object being rated at some point along a continuum or in one of an ordered series of categories; a numerical value is attached to the point or the category.

Utility: Rating scales can be used to assess attitudes, values, norms, social activities, and social structural features.

Construction: (1) Divide the continuum to be measured into an optimal number of scale divisions (5-7); (2) The continuum should have no breaks or divisions; (4) Introduce each trait with a question to which the rater can give an answer; (5) Use descriptive adjectives or phrases to define different points on the continuum; (6) Decide beforehand upon the probable extremes of the trait to be found in the group in which the scale is to be used; (7) Only universally understood descriptive terms should be used; (8) The end phrase should not be so extreme in meanings as to be avoided by the rater; (9) Descriptive phrases need not be evenly spaced; (10) Pretest. Ask respondents to raise any questions about the rating and the different points on the continuum if they are unclear; (11) To score, use numerical values as assigned.

Paired Comparisons

Nature: This technique seeks to determine psychological values of qualitative stimuli without knowledge of any corresponding respondent values. By asking respondents to select the more favorable of a pair of statements or objects over a set of several pairs, an attempt is made to order the statements or objects along a continuum.

Utility: The ordering by paired is a relatively rapid process for securing a precise and relatively positioning along a continuum. Comparative ordering generally increases reliability and validity over arbitrary rating methods.

Construction: (1) Select statements that relate to the attribute being measured; (2) Combine statements in all possible combination of pairs; (3) Ask judges to select which statement of each pair is the more favorable; (4) Calculate the proportion of judgments each statement received over every other statement; (5) Total the proportions for each statement; (6) Translate the proportions into standardized scale values; (7) Apply an internal consistency check by computing the absolute average discrepancy; (8) Present statements to respondents and ask them to indicate favorableness or unfavorableness to each statement; (9) Respondent's score is the median of his favorable response.

Other Scales

For more information on other scales see Miller (1983)

- Latent-Distance Scales
- Multidimensional Scaling
- Scale- Discrimination Technique
- Semantic Differential

IV. DATA ANALYSIS

COMPUTER-ASSISTED ANALYSIS OF QUALITATIVE INTERVIEW DATA

Computer-assisted qualitative data analysis software (CAQDAS) for social research is a more recent development that, unlike statistical or string-search software, has depended largely on the proliferation of personal computers since the early 1980s. The chief contribution of CAQDAS is automation of the retrieval of text segments (for example, sections of an interview) that have been categorized as examples of some analytic concept (coding).

Various CAQDAS programs exist, from the relatively simple "Ethnograph" to the more complex NUD*IST and variations such as ATLAS/ti and Nvivo which implement some basic hypertext functionality.

Atlas/Ti

According to Muhr, Atlas/ti is an explorative approach to theory-building. With linear textual data, such as transcribed interviews, as a starting point, segmentation and coding ("textual phases") of the text alternates with the building of conceptual networks and hypertextual structures ("conceptual phase"). The researcher may draw actual "maps," consisting of boxes and connecting lines, which depict the linkages among concepts as a network. Memos can be written for any entity at any stage in the process. For proceeding to a coherent text-outcome, features like the compilation of text units, and cut and paste operations between different text windows are available. All interaction with the program is through a graphic user interface containing windows, menus and icons, since special emphasis is placed in this program on its "readiness-at-hand" (Muhr, 2005).

Features overview:

- Coding of text, image, audio and video materials (interactive and automated)
- Rich Text and Rich Media support with embedded active objects (MS Excel, images, etc, incl. East Asian and Middle Eastern language)
- Interactive margin area with drag & drop linking, coding, merging
- Search & retrieve functions (incl. Boolean, semantic, and proximity-based operators)
- Visual model building and "mind mapping" (Network Editor)
- Creation and navigation of hyperlinks between resources (Hypertext)
- Searching for textual patterns (Object Crawler)
- Semi-automatic coding with multi-string text search and professional pattern matching ("GREP")
- Proximity analysis of coded data (Cooccurrence Explorer)
- Project data export to SPSS, HTML, XML, CSV
- Creation of presentations (XML/XSLT converter)

For more information: http://www.atlasti.com/downloads/atlas.ti5_brochure_2006.pdf

Ethnograph

<http://www.qualisresearch.com/default.htm>

http://www.pop.upenn.edu/cores/computing/help/faqs/ethno_faq.html

The Ethnograph was first developed in 1985. Since then the Ethnography has continued to be developed by qualitative data analysts for social scientists, historians, literary critics, health researchers, business and market analysts, legal researchers and others.

It is possible to import text-based qualitative data, typed in any word processor, straight into the program. Ethnograph supports the coding of data files, management of codebooks and master lists, and comprehensive search capabilities. Among other tools it provides are (1) attaching memos to specific lines in a data file, (2) importation of text from several word processors, and (3) attaching memos to specific lines in a data file, or the project background notes. The Ethnograph handles project data files and documents coming from interview transcripts, field notes, open-ended survey responses, or other text based documents.

NUD*IST

NUD*IST stands for Non-numerical, Unstructured, Data: Indexing, Searching and Theorising. This software system was created to facilitate the development, support, and management of qualitative data analysis projects. It works with textual documents (including focus group or individual interview transcripts, e-mails or Web sites, etc.), facilitates indexing of components of such documents, is able to search for words and phrases, and claims to support theorising by enabling the retrieval of indexed text segments, related memos, and text and index searches.

Before documents are imported into NUD*IST they must be saved as plain text files without styles, pictures, formatted tables, or other non-text material. The subsequent step requires to add information to each individual interview transcripts so as to be able to distinguish it from other transcripts. Once the data are prepared, the on-line analysis is able to commence immediately. Each document can then be opened up within NUD*IST and read through, pasting pieces of text to particular codes. One of the benefits of working with qualitative software is that a single piece of text can be allocated speedily to more than one relevant node. A “node” is NUD*IST term for a code. The researcher can create new nodes or codes as required as he/she proceeds through the transcripts. For example, each new node is allocated a title and the program automatically assigns it a reference number. Whenever the researcher wishes to highlight and paste a further piece of data to that node, he/she simply keys in the node reference (Maclaran & Catterall, 2002).

NVivo

User Guide: <http://download.qsrinternational.com/Document/NVivo7/Getting%20Started%20Guide.pdf>

NVivo is a data analysis software designed to help researchers organize, manage, code, and analyze qualitative and mixed-methods research data. Data file formats can be

imported from Microsoft Word (.doc), Rich Text Format (.rtf), and Text (.txt) files that may also include document tables and images.

The sources that may be entered into NVivo are categorised into the following types:

Documents: source materials such as field notes, transcripts, interviews, literature reviews or whatever material is relevant to your project. It is possible to import them or create them directly in NVivo.

Externals: 'proxy' sources representing material that one cannot import into NVivo (newspaper articles, books, video footage or audio tape). In an external, one can record notes or summaries relating to the material. If the external represents a file on the computer, it is possible to link to and open the file.

Memos: records of ones thoughts and observations. If a memo is related to a particular project item one can create a 'memo link' to link the two together. It is possible to 'code' sources to gather material by topic, for example, one could gather all the content relating to the concept of *community*. The container for references to this material is called a 'node'.

NVivo provides the following types of nodes:

Free Nodes: 'stand-alone' nodes that have no clear logical connection with other nodes - they do not easily fit into a hierarchical structure.

Tree Nodes: nodes that are catalogued in a hierarchical structure - moving from a general category at the top (the parent node) to more specific categories (child nodes).

Cases: nodes used to gather material about people or sites that have attributes such as gender or age. Like tree nodes, cases can also be organized in hierarchies.

Relationships: nodes that describe the connection between two project items. For example, the relationship between two cases (*Anne loves Bill*) or between two nodes (*Poverty impacts Health*).

Matrices: a collection of nodes resulting from a matrix coding query. Although one can open and explore the nodes in a matrix, one cannot code at them. NVivo enables to classify *cases* by setting up attributes such as gender, age and location as well as *relationships* by setting up relationship types (*loves, impacts, employs, is married to* and so on).

COMPUTER-ASSISTED ANALYSIS OF QUANTITATIVE INTERVIEW DATA

Analytica

Analytica is a visual software package developed for creating, analyzing and communicating quantitative decision models. Analytica includes hierarchical influence diagrams for visual creation and view of models, intelligent arrays for management of multidimensional data, Monte Carlo simulation for analyzing risk and uncertainty, and a general modeling language. It is designed to enable the creation of models that are transparent, interpretable, extensible, and flexible.

For more information see also:

Lumina homepage: <http://www.lumina.com/>

Applications for Analytica : <http://lumina.com/ana/usesofanalytica.htm>

SAS System

The SAS System (Statistical Analysis System) is an integrated system of software that enables the programmer to perform:

- data entry, retrieval, management, and mining
- report writing and graphics
- statistical and mathematical analysis
- business planning, forecasting, and decision support
- operations research and project management
- quality improvement
- applications development
- warehousing (extract, transform, load)
- platform independent and remote computing

The key features of the SAS System are: **Analysis of variance.** Analysis of variance is a technique for analyzing experimental data. With SAS/STAT software, you can perform analysis of variance for balanced or unbalanced designs, multivariate analysis of variance and repeated measurements analysis of variance. **Regression.** SAS/STAT software's general regression procedure uses least squares to estimate parameters, includes nine different model selection methods and produces a variety of diagnostic measures. More specialized procedures fit generalized linear models, mixed linear models, nonlinear models and quadratic response surface models. **Categorical data analysis.** In categorical data the outcome of interest reflects categories with data often presented in tabular form, known as contingency tables. With SAS/STAT software, you can investigate the association in a contingency table as well as produce measures that indicate the strength of that relationship. **Multivariate analysis.** Multivariate analyses encompass a variety of methods for modeling data with two or more response variables or for identifying relationships among several variables without designating particular variables as response or explanatory variables. You can use common factor analysis to explain the correlations among a set of variables in terms of a limited number of unobservable, or latent, variables.

For more information see also:

SAS homepage:

<http://www.sas.com/technologies/analytics/statistics/stat/index.html>

SAS fact sheet:

<http://www.sas.com/technologies/analytics/statistics/stat/factsheet.pdf>

SPSS

SPSS (Statistical Package for the Social Sciences) is one of the most widely used programs for statistical analysis in the social sciences. In addition to statistical analysis, it is possible to manage data (case selection, file reshaping, creating derived data) and document data (a metadata dictionary is stored with the data).

The SPSS features are accessible via pull-down menus or can be programmed with a proprietary 4GL command syntax language. Furthermore, programs can be run interactively, or unattended using the supplied Production Job Facility. Additionally a "macro" language can be used to write command language subroutines and a Python programmability extension can access the information in the data dictionary and data and dynamically build command syntax programs.

Statistics included in the base software:

- Descriptive statistics: Cross tabulation, Frequencies, Descriptives, Explore, Descriptive Ratio Statistics
- Bivariate statistics: Means, t-test, ANOVA, Correlation (bivariate, partial, distances), Nonparametric tests
- Prediction for numerical outcomes: Linear regression
- Prediction for identifying groups: Factor analysis, cluster analysis (two-step, K-means, hierarchical), Discriminant

Different versions of SPSS are available for Windows, Mac OS X and Unix. The Windows version is updated more frequently, and has more features, than the versions for other operating systems. SPSS Inc. has announced to release the 15.1 of SPSS in 2007.

For more information see also:

SPSS Homepage: <http://www.spss.com/>

SPSS Wiki: http://spss.wikia.com/wiki/SPSS_Wiki

Statistica

Statistica is a statistical and analytical software package that provides a selection of data analysis, data management, data mining, and data visualization procedures. Features of the software include basic and multivariate statistical analysis, quality control modules, neural networks, and a collection of data mining techniques. All of these tools are provided in an open architecture with a single software platform

There are three basic channels to which one can direct all analysis results spreadsheets and graphs: workbooks, reports, and standalone windows. Workbooks and reports are Active X document containers, which means they can hold all native Statistica documents as well as other types of Active X documents, including Microsoft Excel spreadsheets and Microsoft Word documents. Workbooks contain two panels: a navigation tree on the left and a document viewer on the right that allows the user to view the document that is selected on the left. Reports display a series of spreadsheets, graphs, or other objects sequentially in a word processor style document. Workbooks have a file extension of .stw and reports have a file extension of .str. Data files are typically displayed in spreadsheets. The basic form of the spreadsheet is a two-dimensional table arranged as cases (rows) and variables (columns).

For more information see also:

Statistica homepage: <http://www.statsdirect.com/>

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