# USING TRIANGULATION OF RESEARCH METHODS TO INVESTIGATE FAMILY PLANNING PRACTICE IN SWAZILAND

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**ABSTRACT**
Triangulation of research methods was used to investigate family planning practices among Swazi women, men and adolescents. Seventeen focus group interviews were conducted. The findings of focus group interviews were used to develop a structured interview schedule for conducting quantitative research. Both the qualitative and quantitative research results revealed that value of children, lack of support from partners, low social status of women and poor management of family planning services contributed to the poor utilisation of family planning services.

**KEY WORDS:** Bias, Reliability, Research Methods, Triangulation, Validity

## INTRODUCTION

Burns and Grove (2001) define triangulation as the collection of data from multiple sources maintaining the same foci. The purpose of using multiple methods in a study design according to Beitmayer, Ayres and Knafl (1998) is to counteract the limitations and biases that stem from using a single method, thus increasing the reliability of findings (Duffy 1993).

The aim of triangulation, as indicated by Burns and Grove (2001) is to achieve results in which the variance that is obtained reflects the measurement of the trait being studied. The rationale is that if a hypothesis survives testing by a series of complementary methods, it has a degree of validity unattained when tested with any single method because the research results are not method bound.

Triangulation approaches can be categorised into seven types:

- *Data Triangulation* involves the collection of data from multiple sources with the intent to obtain diverse views of the studied phenomenon with the purpose of enhancing the validity (Cohen & Manion 1997; De Vos 1998).

- *Investigator Triangulation*, according to Streubert and Carpenter (1999), is a process whereby two or more investigators with diverse research training backgrounds examine the same phenomenon. The use of investigator triangulation according to Burns and Grove (2001) removes the potential for bias that may occur in a study conducted by a single investigator. Kimchi, Polivka and Stevenson (1991) noted that investigator triangulation requires that: each investigator has a prominent role in the study; the expertise of each investigator is different; and the disciplinary bias of each investigator is evident in the study.

- *Time Triangulation* is applied to both cross-sectional and longitudinal studies. Cohen and Manion (1997) maintain that cross sectional data is collected with time-related processes from different groups at one point in time, while longitudinal studies collect data from the same group at different points in time sequence. Cross sectional studies compare the measurements for the individuals in different samples at one point in time, while longitudinal studies examine selected processes in the same individuals comparing the same sample's results repeatedly over time.

- *Space Triangulation* attempts to overcome the limitations of studies conducted within one culture or subculture, as not all the behavioral sciences are culture bound, they are sub-culture-bound according to Cohen and Manion (1997).

- *Theoretical Triangulation* draws upon alternative or competing theories in preference to utilising one viewpoint only (Cohen and Manion 1997).

- *Methodological Triangulation* is defined by Kimchi et al (1991) as the use of two or more research methods in a single study. The difference can be at the level of design or data collection. LoBindo-Wood and Haber (1998) identified two different types of methodological triangulation: the within method triangulation which is used when the phenomenon being studied is multidimensional; and the across method or between method triangulation which involves combining research strategies from two or more research traditions in the same study.

- *Analysis Triangulation* is a situation whereby two or more analysis techniques are used for the same data set, and from the three principal levels identified by Cohen and Manion (1997) namely, the individual level, the interactive level, and the level of collectivities.

The blending of qualitative and quantitative data in a single project is advantageous because they are complementary and represent the two fundamental languages of human communication; words and numbers (Polit & Hungler 1995). Methodological triangulation increases support for validity (Burns & Grove 2001). Construct validity is enhanced when results are stable across multiple measures of a concept; statistical conclusion validity is enhanced when results are stable across many data sets and methods of analysis; internal validity is enhanced when results are stable across many potential threats to casual inference; external validity is supported when results are stable across multiple settings, populations and times.

## METHODOLOGY

A descriptive design was used, utilising both quantitative and qualitative research methods (methodological triangulation). A qualitative approach was used to gain insights into family planning practices and the findings of this approach were used to formulate an instrument for the quantitative approach. This integration of research methods was utilised in order to expand the understanding of the scope of family planning issues in Swaziland and increase confidence when results are generalised (Mitchel 1986).

Four research assistants were recruited, one from each region of Swaziland - investigator triangulation, removing the potential bias that may occur in a single investigator study (Burns and Grove 2001). For this study, investigators comprised community nurse researchers who were familiar with the cultural aspects of family planning issues in Swaziland. School teachers who were teaching biology were identified by the head master of each school (one teacher per school in each region) to assist the researcher in conducting the study. Data presented by these different groups according to Streubert and Carpenter (1999) served to reduce bias that might have occurred if the investigator had executed the study without the input from other experts.

Views of different groups were obtained, these groups included elderly men and women, adolescent males and females, rural health motivators as well as women of childbearing age (data triangulation). These informants were interviewed at different geographical areas including urban and rural settings (space triangulation). Data collection was undertaken for a period of six months, ensuring time triangulation. Once the trends in family planning practices in Swaziland were established, a structured interview schedule was developed for quantitative data gathering (methodological triangulation).

### *Trustworthiness of qualitative data*

De Vos (1998) states that there are four aspects which enhance trustworthiness of qualitative data, these are truth value, applicability, consistency and neutrality. To ensure that the research findings would be acceptable to the scientific community, it was important to examine these aspects.

### *Truth value*

In qualitative research, truth value is concerned with the accuracy and truthfulness of scientific findings (Brink 1991). In order to enhance the truth value Streubert and Carpenter (1999) as well as De Vos (1998) advise that prolong engagement with subjects should be established by the researcher. To this end, the research was introduced to the subjects and assisted in community health promotion activities for a month before the research commenced.

Another strategy that was employed to enhance the credibility of the findings was member checking. Five research participants from each group were invited to review, validate and verify the interpretations and conclusions of the research findings pertaining to their specific group. The objective of this exercise was to enhance the authenticity of the research results (Streubert & Carpenter 1999).

Peer debriefing was also employed as a strategy for enhancing credibility. The researcher invited the head of the Community Health Department, University of Swaziland, and four regional nurse managers of Swaziland to attend a debriefing session of the focus group results. These health experts confirmed that their knowledge about family planning issues among Swazi women corresponded with what emerged from the focus group interviews. This is in line with the view of Brink (1999) that peer evaluation enhances credibility of research findings. Data triangulation was another aspect of enhancing credibility of research results. Respondents for the focus group interviews represented various groups, including men, adolescents, elderly women and rural health motivators. Poggenpoel (in De Vos 1998) asserts that truth value is enhanced when data is drawn from multiple sources. Therefore, truth value in this study was enhanced through prolonged engagement, peer debriefing, member checking and triangulation of qualitative and quantitative research methodologies.

### *Applicability*

Applicability refers to the degree to which the findings can be applied to other contexts and settings, or with other groups (De Vos 1998). It is the degree to which the results of a study can be generalised to settings or samples other than the ones studied. According to Brink (1999), generalisability of research results enhances external validity. In the present study, applicability was enhanced by conducting cross-sectional focus group interviews with a variety of respondents including women, men, adolescents as well as elderly respondents. All group discussions revealed similar findings. Therefore, the findings from this study can be applied to various groups in the Swazi society. De Vos (1998) confims that the criteria for evaluating applicability include using diverse samples, conducting focus group interviews within a fixed set of time, and producing detailed descriptions of the findings.

### *Consistency*

The third criterion of trustworthiness considers the consistency of the data. Krefting (1991) defines consistency in terms of the dependability of the study results. In the present study, consistency was enhanced through peer examination, member checking and data triangulation.

*Neutrality*
Neutrality refers to the degree to which the findings are a function solely of the informants and conditions of the research, and not of individual researchers' biases, motivations or perspectives (Krefting 1991). Confirmability was enhanced through member checking, data triangulation and field notes that were documented from each focus group interview by three different persons.

For the focus group interviews, the Non-numerical Unstructured Data Indexing Searching and Theorizing (NU*DIST) computer program was used to analyse the results, thereby ensuring that analysis triangulation was done, as advised by Cohen and Manion (1997). Issues that emerged from the focus group interviews were grouped to formulate structured questions for the quantitative research.

*Quantitative data*
Having obtained data from the focus group interviews, it was important for the researcher to confirm the research findings using a quantitative, descriptive method. The advantages of using a quantitative method were to:

- identify and explore issues affecting the use of family planning among Swazi women
- explore and test relationships
- validate information gathered from the focus group interviews.

The researcher and two research assistants conducted structured interviews. The interviews were conducted over a period of six months. At the end of each day, interview forms were collected by the researcher and checked for completeness and clarity of information.

*Advantages and disadvantages of conducting structured interviews*
According to Polit and Hungler (1995), the advantages of collecting data using face to face interviews are as follows:

- a high response rate: a well designed interview study achieves 80-90% response rate, thus reducing bias that might exist if the response rate was low
- high audience coverage: many individuals, such as illiterate, elderly, blind or physically deformed people cannot complete questionnaires but can provide verbal responses to questions from a structured interview schedule.
- clarity: interviews offer some protection against ambiguous questions. Rephraising can offer a better clarification of the question
- conducting interviews permit greater control over the the sample as opposed to asking respondents to personally complete questionnaires, where this could be done by inappropriate persons
- supplementary data may be obtained in an interview, where the interview can observe and judge the respondents' level of understanding and degree of cooperativeness

The disadvantages of interviews include; interview bias, anonymity of respondents cannot be maintained, interviews tend to be costly and time consuming as only one person can be interviewed at any given time by one interviewer. Structured interviews provided information that confirmed the results obtained from the focus group interviews.

Quantitative data was analysed using the Statistical Packages for Social Sciences (SPSS) computer program, cross tabulation of data was done using the SPSS, in order to compare the participants' attitudes about family planning issues.

*Reliability, validity and bias*
In order for the research findings to be acceptable to the scientific community, it was important to examine the aspects of reliability, validity and bias of the quantitative data.

*Reliability*
Reliability is the degree of consistency or dependability with which a research instrument measures the attributes it is designed to measure (Burnad & Morrison 1994). Therefore, reliability is concerned with consistency, stability and repeatability of the informants' accounts as well as the investigators' ability to collect and record information accurately (Brink & Wood 1998). In this study, reliability was enhanced by means of the following:

- pre-tested questions yielded similar findings when compared with the main study
- different sub-groups of the society were interviewed and revealed similar findings
- clinic records were reviewed and they served to confirm the family planning history given by participants
- the interviews were conducted by three people who obtained similar findings. Therefore, the instrument can be acceptable as being reliable

*Validity*
Validity, as observed by Polit and Hungler (1995), is concerned with the accuracy and truthfulness of scientific findings. A valid study, according to Brink (1991) should demonstrate what actually exists and a valid instrument should measure what it is supposed to measure. To enhance validity of this study, the following steps were taken:

- respondents were selected from the four regions of Swaziland and included different categories of women in the society (high school pupils, young adults, and elderly women).
- the literature was examined to identify variables to be delineated
- a senior lecturer from UNISA and a statistician from UNISWA examined each item for its appropriateness to the research questions
- pre-testing of the data collection instrument was done with 10 respondents who did not participate in the main study.

Torn and McNichol (1998) advise that validity should be evaluated against four measures: the inter-rater validity, content validity, correctional validity and semantic validity. In this study the inter-rater validity was enhanced by inviting an independent statistician to analyse the research results. Content validity was enhanced by comparing the findings from the structured interviews with those from the focus group interviews. These findings were found to be similar. Semantic validity was enhanced by the categories being mutually exclusive and exhaustive, as judged by the researcher and the statistician who was consulted after the structured interview schedule had been completed.

*Bias*

Bias is defined by Woods and Catanzaro (1988) as a systematic distortion of responses by the researcher, the respondents or by the instrument. In order to decrease bias:

- the researcher was dressed in accordance with the dress code of the Swazi society and never wore a nurse's uniform
- the researcher made use of the services of two research assistants
- research was conducted in all four regions of Swaziland.

*Ethical Considerations*

According to Holloway and Wheeler (1998), research participants must grant permission voluntarily. In addition, permission also needs to be obtained from any relevant authorising body or institution. To this end, all relevant authorities were contacted in order to obtain the required permission.

For the focus group interviews, permission was obtained from the following parties:

- Swaziland's Ministry of Health and relevant head masters for the school going adolescents
- the regional health team for the rural health motivators as well as for clients in health care institutions
- meetings were convened with community leaders in order to allow the researcher to conduct structured interviews with community members.

With regard to the structured interviews that were conducted, a consent form was read to each participant, who was requested to raise a hand signifying acceptance to participate in the study, as advised by De Vos (1998). Literate respondents were requested to sign a consent form signifying their acceptance to participate in the study. Participation was voluntary and respondents were allowed to discontinue at any stage of the process if they wanted to do so, without incurring any disadvantage by such withdrawal. Results were presented statistically and person's names nor institutions were linked to any responses in order to maintain anonymity of results. This was in line with the recommendations of Brink and Wood (1998). It was agreed that the research findings would be reported to the Ministry of Health and Social Welfare, Family Life Association of Swaziland and WHO Reproductive Health Section. No remuneration was paid to any participant.

## PRESENTATION AND DISCUSSION OF RESULTS

A total of 171 informants participated in focus group interviews. The informants includes 60 school-going adolescents (30 males and 30 females), 12 female rural health motivators (30-45 years of age), 14 elderly males (40-55 years of age), 55 women of childbearing age and 30 elderly women ranging from 46-60 years of age. Seventeen different focus groups were conducted, each comprising 6-12 participants. With regard to the quantitative research, the statistical information was derived from of 205 structured interviews conducted by the researcher and two research assistants.

## RESEARCH RESULTS

Themes and sub-themes were identified from the results of the focus groups interviews. These were compared and contrasted with the results obtained from the structured interviews.

Theme 1: Childbearing practices

Childbearing practices were perceived by the focus group as the cause for poor utilization of family planning in Swaziland. The majority of the respondents (74,0%) had more than 3 children and 83,0% of those who had children indicated that they desired additional children.

The study also demonstrated a negative association between marital status and the use of family planning methods (Chi-square test 0,214, $P<0,05$). Children were perceived as enhancing the social status of women, thus single women as well as adolescents desired (more) children.

The majority (75%) of married women did not routinely use contraceptives. Married women are expected by society to bear children as indicated by elderly women in the focus group interview. Gule (1993) indicated that it would be unthinkable for Swazi women to limit the size of their families for economic or personal reasons.

It was also revealed that the use of family planning depended on the area of residence as supported by Chi-Square test of 10,452 and Cramer's Value of 0,229. Rural based residents were less likely to use modern contraceptives while 53,0 % reportedly used traditional family planning methods. They relied on natural and traditional family planning methods that were deemed to be ineffective by Center for Disease Control and Prevention (CDC 1999). Focus group informants perceived oral and injectable contraceptives to be the main cause of infertility. Oral contraceptives were associated with abortion and condoms were perceived to cause sexually transmitted infections including HIV. About 50% of respondents who participated in the interview were not aware of the benefits of using contraceptives. Sixty percent of interview respondents stated that family planning information was not available in the society. Family planning providers should promote community-based distribution of contraceptives in an effort to reach all groups of women.

Theme 2: Cultural values

Participants in focus group discussions identified cultural values as cause of poor use of family planning methods. The majority (98,5%) of respondents revealed that the main

responsibility of a married Swazi woman was to bear children. Any efforts aimed at terminating fertility were a bad practice, as fertility will terminate at the appropriate age without any interference.

Children in Swaziland were perceived to be the social security for old age according to the focus group informants, thus it was necessary for families to bear many children. A woman was expected by society to start bearing children at an early age (18 years of age) in order to bear the optimal number of children.

Approximately 95,0% of the respondents in the interview stated that society would stigmatise a barren woman, call her derogatory names, insult her and blame her for infertility. Further more, a substitute wife is secured to produce children on behalf of a relative and cleansed the family of the shame that has been brought on them by the infertile woman. This finding confirms the information that was revealed by elderly women during a focus group interview.

Swazi women find themselves in a context that is predominately controlled by a strong patriarchal system as reflected by the 90% of participants in the structured interviews who indicated that men did not approve of their wives' using contraceptives. Only 3% of the respondents stated that their partners sometimes used condoms.

Theme 3: Health Practices

There was a general complaint about family planning services, which were not user friendly according to focus group informants. Elderly women complained about the lack of family planning education by family planning providers. Adolescents and women of childbearing age were concerned about the negative attitudes that were displayed by family planning providers to their clients. The rural health motivators and women of childbearing age were concerned about limited resources and inaccessible contraceptive services. As many as 60% of the participants in the structured interviews confirmed that Swaziland's family planning services were of a poor standard, and that family planning providers' negative attitudes contributed to the poor quality of this service.

## CONCLUSION

The study revealed that the following factors impacted negatively on the use of family planning services:

- because children are highly valued in the Swazi culture, the majority of the participants desired additional children
- Swazi women using family planning methods might be ostracised in their communities.
- Swazi women acquire social prestige by becoming mothers; women feared using contraceptives, which might reportedly result in infertility
- the Swazi women's partners disapproved the use of contraceptives
- a number of misconceptions existed about the use of contraceptives; condoms were associated with sexually transmitted infections and HIV; pills and injections were associated with promiscuity. Rural residents rarely used contraceptives because family planning services were inaccessible to them
- family planning services and providers were regarded as being unsatisfactory.

## LIMITATIONS

Limitations that were identified in the study were as follows:

- the views of health care providers (nurses, family planning providers, traditional healers, spiritual healers) were not obtained; such information might further contextualise the research results obtained from the focus groups and from the structured interviews.
- a longitudinal study of fertility intentions and the utilisation of family planning was not conducted. Such an approach might yield information not obtained from a cross sectional study.

## RECOMMENDATIONS

- a longitudinal study is needed that will address all health care givers is recommended in order to identify family planning methods suggested by individuals.
- a replication of this study using a large sample and widening the population to include opinions and practices of men, couples, traditional healers, policy makers and family planning personnel.
- gender disparity in decision-making related to family planning practices must be addressed.
- negative attitudes of family planning providers deserve attention in order to offer various family planning services.
- the community-based distribution of family planning methods should be introduced in order to make the services more accessible to communities.

## REFERENCES


Beitmayer, BJ, Ayres, L, & Knafl, KA. 1993. Triangulation in qualitative research: evaluation of completeness and confirmation purposes. *Image*, 25:237-243.

Brink, HLI. 1991. Validity and reliability in qualitative research. *Curationis*, 16 (2):35-38.

Brink, HI. 1999. *Fundamentals of research methodology for health care professionals*. 2nd edition. Kenwyn: Juta.

Brink, PJ & Wood, MJ. 1998. Advanced design in nursing research. 2nd edition. London: Sage.

Burnard, P & Morrison, P.1994. *Nursing research in action: developing basic skills*. 2nd edition. London: Macmillan.

Burns, N & Grove, SK. 2001. The practice of nursing research: conduct, critique and utilization. 4th edition. Philadelphia: WB Saunders.

CDC - see Centers for Disease Control and Prevention.

Centres for Disease Control and Prevention. 1999. *Family planning methods and practice:Africa.* 2nd edition. Atlanta: US Department of Health and Human Services.

Cohen, L & Manion, L. 1997. *Research in education.* 4th edition. New York: Routledge.

De Vos, AS. 1998. *Research at grass roots: a primer for the caring professionals*. Pretoria: Van Schaik.

Duffy, ME. 1993. *Methodological triangulation in practical research: planning and design,* edited by PD Leedy. 5th edition. New York: MacMillan.

Gule, G. 1993. Socio-cultural constraints to family planning in Swaziland. *Africa Insight,* 23 (4): 240-245.

Holloway, I & Wheeler, S. 1998. *Qualitative research for nurses.* London: Blackwell Science.

Krefting, L. 1991. Rigor in qualitative research: the assessment of trustworthiness. *The American Journal of Occupational Therapy,* 45(3):214-222.

Kimchi, J, Polivka, B & Stevenson, JS. 1991. Triangulation: operational definition. *Nursing Research,* 4(6):364-366.

LoBiondo-Wood, G & Haber, J. 1998. Nursing research: methods, critical appraisal and utilization. 4th edition. St. Louis: CV Mosby.

Mitchel, ES. 1986. Multiple triangulation: a methodology for nursing science. *Advances in Nursing Science,* 8 (3): 18-26.

Polit, DF & Hungler, BP. 1995. *Nursing research: principles and methods.* 3rd edition. Philadelphia: JB Lippincott.

Streubert, HJ & Carpenter, DR. 1999. *Qualitative research in nursing: Advancing the humanistic imperative.* 2nd edition. Philadelphia: JB Lippincott.

Torn, A & McNichol, E. 1998. A qualitative study utilizing a focus group to explore the role and concepts of the nurse practitioner. *Journal of Advanced Nursing,* 27 :1202-1211.

Woods, NF & Catanzaro, M. 1988. Nursing research: theory and practice. St Louis: CV Mosby.