CHAPTER SIX

EMPIRICAL INVESTIGATION

In the preceding chapters the theoretical foundations have been laid for the present research project. The key features of IBS have been examined in some detail. In chapter three the various types of abuse have been reviewed. Of prime importance in this study is the association between IBS and abuse in childhood and adulthood. As is evident in chapter five, there are studies that attest to the incidence of gastrointestinal disorders in those women who have been abused. Not much research has been carried out in South Africa and this study sought to address this gap by investigating the links between IBS and women who had been abused. In this chapter the investigative method is considered. Section 6.1 starts with a description of the research problem and the aims of the project. Section 6.2 provides details of the subjects who participated in the study and of the selection instruments used. In section 6.3 the procedure used is discussed, while section 6.4 is concerned with the measuring instrument used. Thereafter the hypotheses of this study are proposed and the statistical procedures to be used are specified.

Research Problem and aims

The present research is unique and different from others studies previously mentioned. The researcher developed new measuring and selection instruments and these were used in conjunction with existing instruments. The method of selecting subjects also differed from those earlier reviewed. Thus the present research sought to improve on those past studies already reviewed in order to more fully understand the complex dynamics that underlie IBS.

Research problem

Thompson et al. (in Drossman, 1990, p.117) define IBS "….as a functional bowel disorder in which abdominal pain is associated with defecation or a change in bowel habit, and with features of disordered defecation and with distention." The prevalence of IIBS in the general population of Western countries affects 14-24% of women. Society is becoming increasingly abusive, and women and children often bear the brunt of physical,

emotional and sexual abuse. Accurate statistics are difficult to come by, as most of these crimes go unrecognised and unreported. Suffice to say that in South Africa there are alarmingly high rates of women and child abuse. It has been reported that these women report a significantly higher number of medical problems and health care system usage (Drossman et al., 1990; Rimsza et al., 1988). From research carried out in the United States of America it has also been found that there was a significant association between IBS and sexual, emotional and verbal abuse, and physical abuse in childhood and adulthood (Drossman et al., 1990; Talley et al., 1994). However research regarding IBS and abuse in South Africa is alarmingly lacking and the present study thus sought to investigate whether the significant association between IBS and earlier emotional, physical and sexual abuse in women would be present in this country.

The researcher seeks to investigate and explain whether women suffering from IBS, if they had been abused or not, suffer from different sub-types of IBS, and whether abused women with IBS had been subjected to different types of abuse than those who had not developed IBS. There is also the need to ascertain to what extent the subject is feeling anxious about the abuse, and whether anger about the abuse plays any significant role, and to compare this with those subjects who had not been abused.

The central research question is whether there are any statistically significant differences between:

1. Abused women with IBS versus non-abused women with IBS regarding the subtypes of IBS (pain predominant IBS, diarrhoea/constipation predominant IBS, bloating predominant IBS)

2. Abused women with IBS versus abused women without IBS regarding the types of abuse (emotional abuse, physical abuse, sexual abuse)

3. Abused women with IBS versus abused women without IBS versus non-abused women without IBS versus non-abused women with IBS regarding the sub-scales of the STAXI and the STAI (state anxiety, trait anxiety, state anger, trait anger, angry temperament, angry reaction, anger-in, anger-out and anger control).

Aims of the Project

There are two types of aims relating to this study, the first being the general aims, the focus of which concerns the first part of this dissertation, namely an integrative study of IBS and of abuse. The second is the specific aim which concerns the links between IBS and abuse.

It is hoped that the present study will lead to a greater understanding of the effects of abuse against women and children. That it will also highlight issues of aggression against women and children and that it will enable abused women to realize that they have a voice, and that someone is listening.

General Aims

From a general viewpoint all psychological research is aimed at improving knowledge and understanding of human beings and their behaviour. In order for this to occur it is important that any investigation should focus on such new information and theories which add their value to the current research. This should be done with respect to the existing constructs and body of knowledge and should build up a new and more fully inclusive body of knowledge than existed before the particular research was carried out.
The present research project forms part of a larger and broader research project initiated in 1996 by the Counselling and Research Center for Psychogastroenterology of the Rand Afrikaans University in Johannesburg, South Africa. The emphasis of this project is on improving the understanding of the association between psychology and physiology, particularly as this is manifested in Irritable Bowel Syndrome. The project aimed to enable both the public and the medical profession gain a deeper understanding of IBS, and ultimately provide sufferers with an opportunity to develop more effective coping strategies in the management of IBS.

The general aims of the present dissertation is to summarize the diverse, and sometimes conflicting research findings with respect to IBS and abuse, in order to arrive at a more integrative study of IBS and abuse, and thus to add to the existing body of knowledge.

Specific Aims of the Study

The present study aims to assess the links between IBS and abuse. This will be done by comparing four groups of women. The four groups are:

- Women who have been abused, and who suffer from IBS (Group 1)
- Women who have been abused, and who do not suffer from IBS (Group 2)
- Women who have not been abused, and who do not suffer from IBS (Group 3)
- Women who have not been abused, and who do suffer from IBS (Group 4).

Groups 1 and 4 will be compared regarding the three sub-types of IBS, namely, pain predominant IBS, IBS with diarrhoea and/or constipation, and IBS with bloating. In a study carried out by Leroi (1993, in Drossman et al., 1995) it was found that the frequency of sexual abuse was found to be greater in those patients with lower functional gastrointestinal disorders than those with upper gastrointestinal disorders. Thus the researcher hypothesized that those women who had been abused would be more likely to suffer from pain predominant IBS, and IBS with diarrhoea and /or constipation, than IBS with bloating. It appears that the literature is inconclusive and information is scant in this regard, thus this is a novel question to ask.

Groups 1 and 2 will be compared with regard to the various types of abuse, namely, emotional, physical and sexual abuse, as measured by the Abuse Questionnaire. In a study carried out by Talley et al. (1993) where 32 married patients (both male and female) with IBS were evaluated, using their healthy spouses as controls it was found that although abuse was reported more frequently in IBS sufferers than in the controls, it could not be confirmed that there is a relationship between childhood sexual abuse and IBS. This is in contrast to many of the previous studies cited (Drossman et al., 1990; Drossman et al., 1995; Felitti, 1991; Lechner et al., 1993; Rimsza et al., 1988; Talley et

al., 1994; Walker et al., 1993; Walker & Katon, 1996) where the rates of physical and sexual abuse were found to be high in patients suffering from IBS. Not much research has been carried out into the rates and effects of emotional abuse, thus the researcher sought to include this factor into the research.

The four groups will also be compared with regard to state-anxiety and trait anxiety; as well as state-anger, trait-anger, angry temperament, angry reaction, anger-in, anger-out and anger control. A number of studies have reported that women suffering from IBS have high rates of anxiety (Briere et al., 1988; Lowman et al., 1987; Walker et al., 1992), thus the present research sought to have a measure of this. Nyhlin, Ford, Eastwood, Smith, Nicol, Elton and Eastwood (1993) found that IBS patients have more difficulty expressing negative feelings towards others than did the control group, thus the researcher also hypothesized that women who had been abused might have feelings of unresolved anger that may affect their health.

Subjects

According to Louw (1991) early adulthood may be considered to be the period from approximately 20-40 years of age. As IBS is commonly found in adult women, only they were invited to participate in the study. Thus women between the ages of 20 and 70 were recruited for the present study. Every woman who correctly completed the full questionnaire was eligible for one of the four Groups.

The Groups are made up as follows:

	ABUSE	IBS
Group 1	Yes	Yes
Group 2	Yes	No
Group 3	No	No
Group 4	No	Yes

Only those women who had not fully completed any part (excluding the biographical questions) of the questionnaires were excluded from the study. In the following sections the recruitment of women for the study, the procedure followed to select subjects for the present study and the selection instruments used will be explained. Thereafter the final selection procedure used and the subject variables are discussed.

Recruitment of women for the study

Only adult (above 20 years of age) women were recruited for this study. Respondents were requested to complete a battery of questionnaires consisting of the following:

- Biographical Questionnaire
- Abuse Questionnaire
- Irritable Bowel Syndrome Checklist
- State-Trait Anxiety Inventory (Spielberger, 1983)
- State-Trait Anger Expression Inventory (Spielberger, 1996).

Permission was granted from the importers of the State-Trait Anxiety Inventory and the State-Trait Anger Expression Inventory to re-type them so that the whole test was in the form of a booklet. A full copy will be found in Appendix one (examiners copies only). On the front was a covering information sheet as to the aim of the research, as well as information on counselling that was available, should the Respondent have required such a service. The biographical information sheet required the respondent to indicate information pertaining to cultural groupings, marital status, employment and age. This information was used in order to draw up a demographical profile of the women who had participated in the study. There was also a section where the respondent was asked to indicate if she felt that she had been abused, either in childhood or adulthood. If she had been abused, she was asked to indicate who the abuser had been, and at what age the abuse had taken place. The researcher had planned to use this section for the selection of the abused versus the non-abused groups. However this section was the one that most respondents felt they could not complete, even though they had indicated a number of abusive incidents further on in the questionnaire. This phenomenon will be discussed in chapter eight. The revised plan for the selection of the abused versus non-abused groups was by means of the total scores obtained from the Abuse Questionnaire.

Once the questionnaires were printed they were placed in three different settings (see section 6.2.2) in order to get a cross-section of women answering. No time limit was set for the answering of the assessment tools.

6.2.2 Subject selection procedure

Firstly, respondents were recruited at a conference for women which took place at a resort over a period of a week. The conference was arranged for those women involved in the women's work in a large church denomination. The researcher met with the conference convener to discuss the aims of the study and to give training in the administration of the questionnaires. After attending an open session the conference organizer explained the research project to the participants and invited those who felt they would like to participate to complete a questionnaire. She stressed that all information was confidential and pointed out that anyone needing counselling could call the researcher at the given number for an appointment. Not all conference delegates chose to complete the questionnaires, but those who did were provided with pens and they were asked to be seated in the conference venue in order to complete the questionnaires. Once completed these were handed back to the conference organizer. (N=30)

Secondly, questionnaires were distributed to two classes of Radiography students at the Technikon Witwatersrand in Johannesburg. The researcher met with the two Lecturers concerned to explain the project and to train them in the administration of the questionnaires. It was decided to speak with the students when they were in smaller groups doing practical work. After an explanation of the research project, emphasizing confidentiality, students were asked to voluntarily complete a questionnaire. They were made aware of the counselling service offered by the researcher. Those who chose to complete a questionnaire remained behind in the lecture room to complete the questionnaires. Once completed, the questionnaires were handed to the lecturers concerned. (N=47)

Thirdly, questionnaires were distributed to clients who had come to see the Intern Psychologist at the Centre for Peace Action, Eldorado Park, Johannesburg. The researcher was completing an internship at this unit and thus was able to invite women to participate in the study. The respondents were advised of the counselling available should they require it, and of the confidentiality of the answers. Those who wanted to complete a questionnaire were given writing materials and an office in which to sit. The completed questionnaires were either handed to the researcher, or to the receptionist who then handed them to the researcher. (N=8)

The questionnaires were coded and allocated to one of the following groups:

Group 1: abused women with IBS (n=30)

Group 2: abused women without IBS (n=24)

Group 3: non-abused women without IBS (n=13)

Group 4: non-abused women with IBS (n=12).

A total of 85 questionnaires were returned, but six questionnaires were not eligible for allocation into any group as not all the sections were fully completed. From the above it can be seen that 47% of women in the total sample do not suffer from IBS, while 53% of the women are IBS sufferers. Of the women in the total sample, 68% have been abused, while 32% had not suffered any form of abuse.

Selection Instruments

In order to select women into the various groups, as indicated above, two selection instruments were used: the Abuse Questionnaire and the Irritable Bowel Syndrome Checklist. These are discussed below.

The Abuse Questionnaire

After an extensive search, nationally as well as internationally, for a questionnaire assessing abuse, the researcher was unable to find a suitable test instrument and so

decided to draw up a questionnaire for the purposes of the current study. In this questionnaire questions were asked about the following types of abuse:

i) Emotional and verbal abuse which involves being bullied, belittled, and being made to feel inadequate, for example:

" Does your husband (or partner) tell you that you are inferior as a mother?"

" Did your father call you hurtful names?"

This subscale contained 22 items.

ii) Physical abuse which involves being kicked, hit or beaten, for example: "When you were a child did a teacher ever beat you so that you had bruises?''

" Have you ever been hospitalised because of injuries that someone has inflicted on you by force?"

This subscale contained 17 items.

iii) Sexual abuse, which involves all forms of unwanted and unsolicited sexual behaviour, and overtures that make the respondent feel uncomfortable, for example,

" Has your father ever exposed his sex organs to you when you did not want this?"

"Has a stranger ever made you touch the sex organs of his body when you did not want this?"

This subscale contained 21 items.

Questions were asked about abuse during childhood as well as adulthood. The questionnaire was only presented in the English language. The researcher made use of a random number generating computer program in order to present the items randomly, thus the scale was not obvious.

Drossman et al. (1995) believe that by stipulating “unwanted or forced” sexual experience in the questions about sexual abuse, the possibility of consensual sexual activity between peers can be eliminated. The researcher followed this line of reasoning.

Once a draft questionnaire was prepared it was distributed to a number of psychology students as well as to friends and acquaintances of the researcher. They suggested certain changes in the content as well as in the language in order to make the questionnaire more easily understandable.

- *Contents*

The questionnaire consists of 75 questions where the respondent is asked to answer the question by marking the appropriate block with the following responses; “never”, “seldom”, “sometimes”, “often”.

- *Administration*

The questionnaire was administered as part of a larger battery of tests. No time limit was set and respondents were asked to respond with answers which they felt were appropriate for their situation.

- *Scoring*

Each response had a value attached to it:

1=never

2=seldom

3=sometimes

4=often.

A computer program was written for the researcher that computed the scores for each respondent and sorted them into scores obtained for each of the measured abuse scales, i.e. emotional abuse, physical abuse and sexual abuse. The higher this score, the more the respondent had experienced abuse. For selection the total score was used which had to have a value higher than two. The subscales constituted emotional and verbal abuse, physical abuse and sexual abuse.

- *Psychometric properties*

As no suitable questionnaire could be found, the researcher drew up the abuse questionnaire for use in the present study. Due to the limited scope of the present study, the questionnaire has not been submitted for statistical analysis and thus no values have been computed relating to consistency or validity. It is argued that this might form the basis of a Doctoral research project, as a questionnaire of this sort would fill a definite gap in the study and research of abuse against women and children. Since the questions all relate to abuse, the questionnaire has face validity. Regarding reliability it is important to note that when asking respondents about abuse which may have happened a long time ago, these memories may have been clouded by time and judgment. These issues are briefly discussed below.

Reliability of childhood memories

A study made of childhood abuse is usually by its very nature, a study with a retrospective character. This is particularly true when studying the connections between childhood sexual abuse and psychological symptoms in adult life. Ensink (1992) reports that no studies on child sexual abuse with a prospective nature have been performed to study this link, as not to intervene when a child is being abused so as to study the later effects is ethically objectionable.

A study with a retrospective character necessarily struggles with the question of reliability of information on childhood incidents. According to Ensink (1992) the memory processes in women with a history of childhood sexual abuse may be rather complicated. Firstly, memories of childhood incidents may simply have been forgotten. Secondly, memories of traumatic childhood incidents may have been repressed or denied. Thirdly, childhood circumstances may be rated more negatively when women are in a depressed mood during an interview, than when they are not depressed. Thus, memories of childhood sexual abuse may be forgotten, repressed or dissociated. Women who are aware of their history of sexual abuse are often not willing to share such personal

information, especially if they are dealing with feelings of guilt. This view is shared by Salter (1995) who notes that it is possible to know that abuse has occurred, and to refuse to acknowledge it, thus "withholding it from a shared consensual reality and denying oneself the confirmation of that joint reality. The survivor simply does not allow the abuse to be part of her…" (Salter, 1995, p.224).

What constitutes abuse?

Abuse is such a subjective act with many variations. What constitutes abuse and sexual harassment for one woman may simply be too much attention from a pest for another, which requires no more than a cursory mention. Being pushed and shoved by a partner or family member may be seen as part of everyday living for some women, whereas for others it very much constitutes an abusive act. While being made to feel uneasy because of belittling remarks, may for some women be part of teasing and nothing more, this may be construed as an act of betrayal and emotional abuse by another. Thus it is difficult to objectively quantify abuse across the spectrum, as abuse is very much a question of perception. But for the purposes of this dissertation, if a woman feels she has been abused, then she has.

The Irritable Bowel Syndrome Checklist

- *Contents*

  The IBS Checklist consists of 20 questions based on the Rome Criteria (Heaton & Thompson, 1999) for the identification of the Irritable Bowel Syndrome (refer to Appendix one for the questions). In order to make a positive diagnosis, any gastrointestinal symptoms have to have been present for at least three months. This is printed in bold at the top of the page. The participants were asked to mark their responses in the appropriate block with the following responses: "never", "seldom", "sometimes", "often".

- *Administration*

The Irritable Bowel Syndrome Checklist was administered as part of a battery of tests contained in a booklet. Participants were not given any time limit in which to complete the questionnaires.

- *Scoring*

Each response had a value attached to it:

1=never

2=seldom

3=sometimes

4=often.

The questionnaires were hand scored and categorized into the IBS sub-groups of: constipation/diarrhoea predominant IBS (this subscale contained 6 items)
pain predominant IBS (this subscale contained 5 items)
bloating predominant IBS (this subscale contained 5 items).

The total score for selection needed to be greater than 3 for any one of the subscales, namely, constipation/diarrhoea predominant IBS, pain predominant IBS or bloating predominant IBS.

- *Psychometric properties*

This checklist is based on the Rome criteria where seven multinational working teams, after careful literature reviews, came to consensus and developed a standard for the diagnosis of IBS that can be used for research as well as clinical care. This checklist is also currently widely used by Gastroenterologists in medical practice. Thus it may be assumed that this checklist has face validity.

The women who have been living with IBS and its consequences know the course of this syndrome, thus their responses are unlikely to change over time. This facet of testing, i.e. the same response at consecutive testing is known as consistency, and it may thus be assumed that the Irritable Bowel Syndrome Checklist has a high degree of consistency.

Final Selection and Subject Variables

All women who successfully completed the questionnaires were eligible for the study, and could be allocated into one of the four groups. Only those questionnaires that had not been fully completed were excluded from the study. The following flow-chart illustrates how the respondents were selected into the various groups

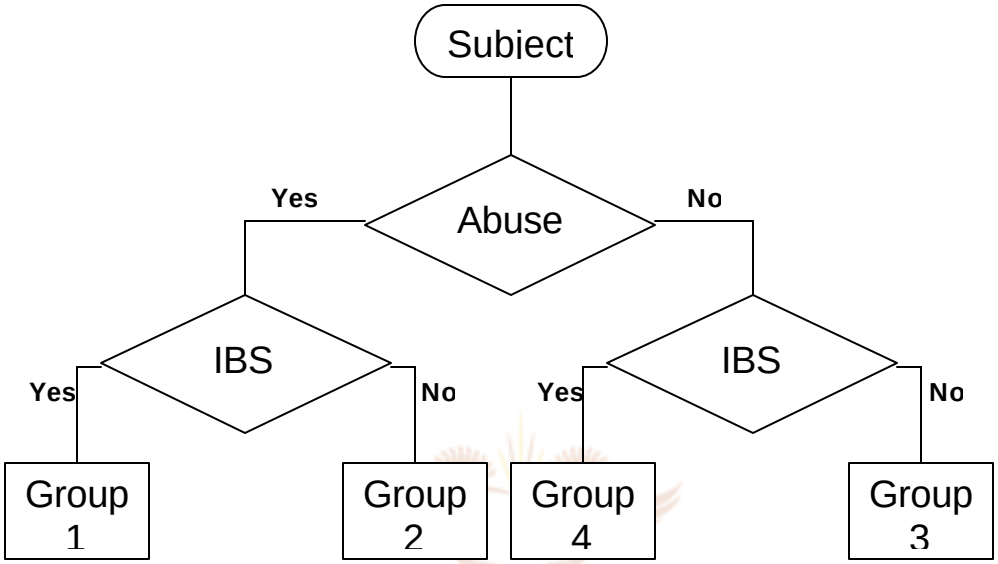

Figure 5.2 – Flow chart for group selection

Women were selected for Groups 1 (women who had been abused and suffered from IBS) and 2 (women who had been abused and who did not suffer from IBS) on the basis of their total scores obtained from the Abuse Questionnaire. As long as a woman obtained a score greater than two for any of the abuse subscales, she was included in the study as a low score would be indicative of a once off act of abuse. Most women, however had higher scores, and most had scores for more than one type of abuse.

Women were selected into the two Groups of women who suffered from IBS (Group 1= women who had been abused and suffered from IBS and Group 4= women who had not been abused and who suffered from IBS) on the basis of the information obtained from the Irritable Bowel Syndrome Checklist. In order to make a positive diagnosis of IBS the

respondent had to have had either continuous pain in the lower abdomen for at least three months, or episodes of pain for that same time. In addition that pain is relieved by a bowel movement, or it is associated with a change in the consistency of the stool. Furthermore any two of the following needed to be present:

- Fewer than three bowel movements per week
- More than three bowel movements per day
- Hard or lumpy stools
- Loose or watery stools
- Alternating constipation and diarrhoea
- Abdominal fullness or bloating
- Excessive gas
- Straining during bowel movement
- Urgency- having to rush to the bathroom for bowel movement
- Passing mucus during a bowel movement.

All of the above responses had to have a numerical value of 3 or 4 (i.e. that these statements were true for "sometimes" or "often"). Those with responses of "never" or "seldom" were deemed not to suffer from IBS. On the basis of the above responses the researcher categorized each of the IBS sufferers into an IBS sub-group, i.e. Pain predominant IBS, bloating predominant IBS or diarrhoea/constipation predominant IBS.

The Groups were made up as follows:

GROUPS	ABUSE	IBS	N (%)
1	Yes	Yes	30 (38)
2	Yes	No	24 (30)
3	No	No	13 (16)
4	No	Yes	12 (15)

Tables 6.1 –6.8 present information pertaining to the subject variables. (The percentages are rounded up to the nearest whole number)

Table 6.1 Age as a variable in Groups 1,2,3 and 4.

	Ages										
	20-30		31-40		41-50		51-60		61-70		
Subjects	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	Total
Group 1	7	(23)	5	(17)	7	(23)	9	(30)	2	(7)	30
Group 2	15	(63)	2	(8)	4	(17)	2	(8)	1	(4)	24
Group 3	5	(38)	3	(23)	3	(23)	2	(15)	0	(0)	13
Group 4	2	(17)	5	(42)	1	(8)	4	(33)	0	(0)	12
Total	29	(37)	15	(19)	15	(19)	17	(22)	3	(4)	79

Table 6.2 Somatic Symptoms (asthma, migraines, stomach ulcers, pre-menstrual stress) as a variable in Groups 1,2,3 and 4.

	Somatic Symptoms				
	Yes		No		
Subjects	N	(%)	N	(%)	Total
Group 1	18	(60)	12	(40)	30
Group 2	14	(58)	10	(42)	24
Group 3	4	(31)	9	(69)	13
Group 4	4	(33)	8	(67)	12
Total	40	(51)	39	(49)	79

Table 6.3 Cultural Group as a variable in Groups 1,2,3 and 4.

	Cultural Groups						
	White		Black		Coloured/Indian		
Subjects	N	%	N	%	N	%	Total
Group 1	19	63%	3	10%	8	27%	30
Group 2	12	50%	4	17%	8	33%	24
Group 3	9	69%	3	23%	1	8%	13
Group 4	6	50%	3	25%	3	25%	12
Total	46	58%	13	16%	20	25%	79

Table 6.4 Emotional, Physical and Sexual Abuse as a variable in Groups 1 and 2.

	Abuse					
	Emotional		Physical		Sexual	
Subjects	N	(%)	N	(%)	N	(%)
Group 1	25	(83)	26	(87)	19	(63)
Group 2	22	(92)	22	(92)	15	(63)
Total	47	(87)	48	(89)	34	(63)

Table 6.5 IBS Subtypes as a variable in Groups 1 and 4.

	IBS								
	Pain		Diarrhoea / Constipation		Bloating		No IBS		
Subjects	N	(%)	N	(%)	N	(%)	N	(%)	Total
Group 1	11	(37)	6	(20)	13	(43)	0	(0)	30
Group 2	0	(0)	0	(0)	0	(0)	24	(100)	24
Group 3	0	(0)	0	0	0	(0)	13	(100)	13
Group 4	6	(50)	3	(25)	3	(25)	0	(0)	12
Total	17	(22)	9	(11)	16	(20)	37	(47)	79

Table 6.6 Educational level as a variable in Groups 1,2,3 and 4.

	Education Level						
	High School		Matric		Post matric		
Subjects	N	(%)	N	(%)	N	(%)	Total
Group 1	8	(27)	14	(47)	8	(27)	30
Group 2	7	(29)	15	(63)	2	(8)	24
Group 3	0	(0)	11	(85)	2	(15)	13
Group 4	2	(17)	8	(67)	2	(17)	12
Total	17	(22)	48	(61)	14	(18)	79

Table 6.7 Marital status as a variable in Groups 1,2,3 and 4.

	Marital Status						
	Single		Married		Divorced/Widowed		
Subjects	N	(%)	N	(%)	N	(%)	**Total**
Group 1	7	(23)	18	(60)	5	(17)	30
Group 2	13	(54)	8	(33)	3	(13)	24
Group 3	5	(38)	8	(62)	0	(0)	13
Group 4	2	(17)	9	(75)	1	(8)	12
Total	27	(34)	43	(54)	9	(11)	79

Table 6.8 Employment status as a variable in Groups 1,2,3 and 4.

	Employment Status				
	Employed		Not Employed		
Subjects	N	(%)	N	(%)	Total
Group 1	18	(60)	12	(40)	30
Group 2	21	(88)	3	(13)	24
Group 3	9	(69)	4	(31)	13
Group 4	7	(58)	5	(42)	12
Total	55	(70)	24	(30)	79

The above tables show the demographic and abuse history characteristics of the women in the present study:

- The largest percentage of the women in the study were in the age group of 20-30 year (37%), 22% of the women were in the age group of 51-60 years, there were 19% in each of the age groups 31-40 and 41-50 years, and 4% of the women were over the age of 61, but younger than 70.
- The highest percentage of women who had been abused and suffered from IBS (30%) were in the age group of 51-60 years, while the highest percentage (63%) of those women who had been abused, but who did not suffer from IBS, were found in the age group of 20-30 years.
- 54 women in the study had suffered some form of abuse, that is, 68%. Of these women, the most prevalent abuse was physical abuse (89%), with rates of emotional abuse also being very high (87%), and 63% of women having suffered from sexual abuse.

- Women who had been abused (Group 1 and Group 2), whether they suffered from IBS or not, were more likely to also suffer from somatic symptoms than those who had not been abused.
- The racial distribution was 58% White, 16% Black and 25% Coloured or Indian.
- Of those women who had been abused and who had IBS, the highest percentage suffered from IBS with bloating (43%), thereafter 37% suffered from IBS with pain, and 20% suffered from IBS with diarrhoea and/or constipation.
- Half of the women who had not been abused, but who suffered from IBS, suffered from IBS with pain (50%).
- 61 % of the women in the study had a matric qualification, while 18 % had completed post matric studies. Only 22% of the women had not completed high school.
- 54% of the women were married. Married women were in the majority in all of the groups, except in the group of women who had been abused and who had not developed IBS, where the majority (54%) was single.
- In all of the groups most of the women were employed (70%) with only 30% of the women not employed, or on pension.

The information regarding somatic complaints, cultural groupings, educational level, marital status and employment status was requested for the possible use of future researchers but was not further investigated, controlled for, or analysed in the present study of limited scope.

Measuring Instruments

Four measuring instruments were used, namely the State-Trait Anxiety Inventory (STAI) (Spielberger, 1983), the State-Trait Anger Expression Inventory (STAXI) (Spielberger, 1996), the Abuse Questionnaire (Rossouw, 1998) and the Irritable Bowel Syndrome Checklist. As the Abuse Questionnaire and the Irritable Bowel Syndrome Checklist have already been discussed, only the STAI and the STAXI will be discussed below.

State-Trait Anxiety Inventory (STAI)

Trait anxiety refers to the relatively stable anxiety-proneness, that is, the individual's tendency to respond to situations perceived as threatening with elevated state anxiety. Individuals who are high in trait anxiety tend to exhibit state anxiety elevations more often than do individuals low in trait anxiety, because they react to a wider range of situations as threatening or dangerous.

- *Contents*

The State-Trait Anxiety Inventory (Spielberger, 1983) contains 40 items in two sections. The first section yields a state-anxiety score. Respondents indicate on a 1-4 point scale how they feel regarding each of 20 statements (e.g. "I feel nervous and restless") at this moment. The second section yields a trait-anxiety score. Respondents indicate how they generally feel regarding the same 20 statements presented in a different sequence.

- *Administration*

The State-Trait Anxiety inventory was administered to the Respondents as part of a battery of tests, without any set time limits. Complete and clear instructions were printed on the test form.

- *Scoring*

Each STAI item is given a weighted score of 1 to 4. A rating of 4 indicates the presence of a high level of anxiety for ten S-Anxiety items and eleven T-Anxiety items. A high rating indicates the absence of anxiety for the remaining ten S-Anxiety items and nine T-Anxiety items. A small computer-scoring program was written for scoring the STAI, taking into account the scoring weights that are reversed. Thus the STAI was scored using this program in order to arrive at a raw score.

- *Psychometric Properties*

The development of the STAI has shown high internal consistency reliability: in the 0,80s for the trait anxiety and in the 0,90s for the state anxiety forms (Anastasi, 1988). The construct validity of both the state-anxiety and trait-anxiety subscales have been demonstrated in various ways, including evaluation of items and total scores in the final inventories, and subsequent research by the authors of the inventory and by independent investigators (Anastasi, 1988).

State-Trait Anger Expression Inventory (STAXI)

- *Contents*

The STAXI provides concise measures of the experience and expression of anger. **The experience of anger** as conceptualised by the STAXI has two major components – state and trait anger. *State anger* is defined as "an emotional state marked by subjective feelings that vary in intensity from mild annoyance or irritation to intense fury and rage" (Spielberger, 1996, p.1). State anger is usually associated with increased muscular tension and arousal of the autonomic nervous system. Over time, the intensity of state anger fluctuates as a function of perceived injustice, attack or unfair treatment by other people, and frustration. *Trait anger* is defined as "the disposition to perceive a wide range of situations as annoying or frustrating and the tendency to respond to such situations with more frequent elevations in state anger" (Spielberger, 1996, p.1). Those people high in trait anger experience state anger more often, and with greater intensity, than those low in trait anger.

The expression of anger is conceptualised as having three components, namely, the expression of anger toward other people or objects in the environment (Anger-out), anger directed inwards- that is, holding in or suppressing angry feelings (Anger-in), and finally, individual differences in the extent to which a person attempts to control the expression of anger (Anger Control).

In responding to each of the 44 STAXI items, respondents rate themselves on 4-point scales that assess either the intensity of their angry feelings or the frequency with which that anger is experienced, expressed, suppressed, or controlled. For each scale and subscale, the higher the number rated, the greater the intensity and frequency of the feelings of anger.

The names, the number of items, and the component of anger assessed by each scale are described as follows:

State Anger (S-Anger): A 10-item scale that measures the intensity of angry feelings at a specific time.

Trait Anger (T-Anger): A 10-item scale that measures individual differences in the disposition to experience anger. The T-Anger scale has two subscales:

> **Angry Temperament** (T-Anger/T): A 4-item T-Anger subscale that measures a general propensity to experience and express anger without provocation.
>
> **Angry Reaction** (T-Anger/R): A 4-item T-Anger subscale that measures individual differences in the disposition to express anger when criticized or treated unfairly by others.

Anger-in (AX/In): An 8-item anger expression scale that measures the frequency with which angry feelings are held in or suppressed.

Anger-out (AX/Out): An 8-item anger expression scale that measures how often an individual expresses anger toward other people or objects in the environment.

Anger Control (AX/Con): An 8-item scale that measures the frequency with which an individual attempts to control the expression of anger.

- *Administration*

The administration of the STAXI is straightforward and can be accomplished by most adults. No time limits were set and it was administered as part of a battery of tests for the current study.

- *Scoring*

The questionnaires were hand scored, and a raw score was obtained for each of the scales and subscales.

- *Psychometric Properties*

The high degree of internal consistency of the S-Anger scale is reflected in the alpha coefficient of 0,93. This would seem to indicate that subjects were quite sensitive to their experience of angry feelings, and highly consistent in reporting the level of intensity of state anger at a particular time (Spielberger, 1996). Alpha coefficients were computed for the T-Anger items and found to be 0,87, indicating a high degree of internal consistency. The internal consistency of the 20-item total scale and the 8-item AX/In and AX/Out scales was evaluated by computing the alpha coefficients. The alphas ranged from 0.73 to 0.84 and were the highest for the AX/In scale. Although somewhat lower, the alphas for the AX/Out scale were nevertheless satisfactory for an 8-item scale (Spielberger, 1996).

In order to evaluate the convergent validity of the T-Anger scale, the scale was administered to 280 undergraduate college students and 270 Navy recruits. Significant correlations were found across samples for both males and females, providing strong concurrent validity of the T-Anger scale as a measure of anger (Spielberger, 1996).

Hypotheses

The aim of this study is to establish whether statistically significant differences exist in terms of IBS sub-types, abuse history, anxiety and anger in the following groups:

Group 1 = abused women with IBS

Group 2 = abused women without IBS

Group 3 = non-abused women without IBS

Group 4 = non-abused women with IBS.

Within the framework of quantitative research in which hypotheses are tested it is customary to refer to the statistical hypothesis and the null hypothesis (Mouton & Marais, 1990). A statistical hypothesis is a statement in which the statistical relationship between phenomena is postulated, it is a prediction of the nature of the outcome of the statistical analysis of the quantitative data in an investigation. It may however not always be possible to test the statistical hypothesis in its original form and then it has to be tested against something else. This *something else* is the null hypothesis. The null hypothesis is a statistical statement in which it is postulated that no relationship or difference exists between the variables that are being studied. Kerlinger (1973, in Mouton & Marais, 1990, p.135) describes the null hypothesis in the following terms: "the null hypothesis says you're wrong, there is no relation; disprove me if you can". If the null hypothesis is shown to be false, the researcher is able to accept that a significant relationship exists between the variables that are being studied.

COMPOSITE NULL HYPOTHESIS 1.

There are no statistically significant differences between Group 1 (abused women with IBS) and Group 4 (non-abused women with IBS) regarding the three sub-types of IBS (pain predominant IBS, IBS with diarrhoea/constipation, IBS with bloating).

COMPOSITE NULL HYPOTHESIS 2

There are no statistically significant differences in the vectors of averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) regarding the three types of Abuse (emotional abuse, physical abuse, sexual abuse) taken together.

This composite null hypothesis can be subdivided into three sub-null hypotheses:

Sub-Null Hypothesis 2.1

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) regarding the Emotional Abuse sub-scale of the Abuse Questionnaire.

Sub-Null Hypothesis 2.2

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) regarding the Physical Abuse sub-scale of the Abuse Questionnaire.

Sub-Null Hypothesis 2.3

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) regarding the Sexual Abuse sub-scale of the Abuse Questionnaire.

COMPOSITE NULL HYPOTHESIS 3.

There are no statistically significant differences in the vectors of averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the nine subscales of the State-Trait Anxiety Inventory (STAI) and the State-Trait Anger Expression Inventory (STAXI) taken together.

This composite hypothesis can be subdivided into nine sub-null hypotheses:

Sub-Null Hypothesis 3.1

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the State-Anxiety sub-scale of the STAI.

Sub-Null Hypothesis 3.2

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Trait-Anxiety sub-scale of the STAI.

Sub-Null Hypothesis 3.3

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the State-Anger sub-scale of the STAXI.

Sub-Null Hypothesis 3.4

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Trait-Anger sub-scale of the STAXI.

Sub-Null Hypothesis 3.5

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Angry Temperament (T-Anger/T) sub-scale of the STAXI.

Sub-Null Hypothesis 3.6

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Angry Reaction (T-Anger/R) sub-scale of the STAXI.

Sub-Null Hypothesis 3.7

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Anger-in (AX/In) sub-scale of the STAXI.

Sub-Null Hypothesis 3.8

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Anger-out (AX/Out) sub-scale of the STAXI.

Sub-Null Hypothesis 3.9

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Anger Control (AX/Con) sub-scale of the STAXI.

The above sub-null hypotheses can be further subdivided into hypotheses to address the possible differences between individual groups:

Sub-Null Hypothesis 3.1.1

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) regarding the State-Anxiety subscale of the STAI.

Sub-Null Hypothesis 3.1.2

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 3 (non-abused women without IBS) regarding the State-Anxiety subscale of the STAI.

Sub-Null Hypothesis 3.1.3

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 4 (non-abused women with IBS) regarding the State-Anxiety subscale of the STAI.

Sub-Null Hypothesis 3.1.4

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) regarding the State-Anxiety subscale of the STAI.

Sub-Null Hypothesis 3.1.5

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the State-Anxiety subscale of the STAI.

Sub-Null Hypothesis 3.1.6

There are no statistically significant differences in the averages of Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the State-Anxiety subscale of the STAI.

Sub-Null Hypothesis 3.2.1

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) regarding the Trait-Anxiety subscale of the STAI.

Sub-Null Hypothesis 3.2.2

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 3 (non-abused women without IBS) regarding the Trait-Anxiety subscale of the STAI.

Sub-Null Hypothesis 3.2.3

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 4 (non-abused women with IBS) regarding the Trait-Anxiety subscale of the STAI.

Sub-Null Hypothesis 3.2.4

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) regarding the Trait-Anxiety subscale of the STAI.

Sub-Null Hypothesis 3.2.5

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Trait-Anxiety subscale of the STAI.

Sub-Null Hypothesis 3.2.6

There are no statistically significant differences in the averages of Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Trait-Anxiety subscale of the STAI.

Sub-Null Hypothesis 3.3.1

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) regarding the State-Anger subscale of the STAXI.

Sub-Null Hypothesis 3.3.2

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 3 (non-abused women without IBS) regarding the State-Anger subscale of the STAXI.

Sub-Null Hypothesis 3.3.3

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 4 (non-abused women with IBS) regarding the State-Anger subscale of the STAXI.

Sub-Null Hypothesis 3.3.4

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) regarding the State-Anger subscale of the STAXI.

Sub-Null Hypothesis 3.3.5

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the State-Anger subscale of the STAXI.

Sub-Null Hypothesis 3.3.6

There are no statistically significant differences in the averages of Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the State-Anger subscale of the STAXI.

Sub-Null Hypothesis 3.4.1

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) regarding the Trait-Anger subscale of the STAXI.

Sub-Null Hypothesis 3.4.2

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 3 (non-abused women without IBS) regarding the Trait-Anger subscale of the STAXI.

Sub-Null Hypothesis 3.4.3

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 4 (non-abused women with IBS) regarding the Trait-Anger subscale of the STAXI.

Sub-Null Hypothesis 3.4.4

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) regarding the Trait-Anger subscale of the STAXI.

Sub-Null Hypothesis 3.4.5

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Trait-Anger subscale of the STAXI.

Sub-Null Hypothesis 3.4.6

There are no statistically significant differences in the averages of Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Trait-Anger subscale of the STAXI.

Sub-Null Hypothesis 3.5.1

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) regarding the Angry Temperament (T-Anger/T) subscale of the STAXI.

Sub-Null Hypothesis 3.5.2

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 3 (non-abused women without IBS) regarding the Angry Temperament (T-Anger/T) subscale of the STAXI.

Sub-Null Hypothesis 3.5.3

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 4 (non-abused women with IBS) regarding the Angry Temperament (T-Anger/T) subscale of the STAXI.

Sub-Null Hypothesis 3.5.4

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) regarding the Angry Temperament (T-Anger/T) subscale of the STAXI.

Sub-Null Hypothesis 3.5.5

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Angry Temperament (T-Anger/T) subscale of the STAXI.

Sub-Null Hypothesis 3.5.6

There are no statistically significant differences in the averages of Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Angry Temperament (T-Anger/T) subscale of the STAXI.

Sub-Null Hypothesis 3.6.1

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) regarding the Angry Reaction (T-Anger/R) subscale of the STAXI.

Sub-Null Hypothesis 3.6.2

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 3 (non-abused women without IBS) regarding the Angry Reaction (T-Anger/R) subscale of the STAXI.

Sub-Null Hypothesis 3.6.3

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 4 (non-abused women with IBS) regarding the Angry Reaction (T-Anger/R) subscale of the STAXI.

Sub-Null Hypothesis 3.6.4

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) regarding the Angry Reaction (T-Anger/R) subscale of the STAXI.

Sub-Null Hypothesis 3.6.5

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Angry Reaction (T-Anger/R) subscale of the STAXI.

Sub-Null Hypothesis 3.6.6

There are no statistically significant differences in the averages of Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Angry Reaction (T-Anger/R) subscale of the STAXI.

Sub-Null Hypothesis 3.7.1

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) regarding the Anger-in (AX/In) subscale of the STAXI.

Sub-Null Hypothesis 3.7.2

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 3 (non-abused women without IBS) regarding the Anger-in (AX/In) subscale of the STAXI.

Sub-Null Hypothesis 3.7.3

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 4 (non-abused women with IBS) regarding the Anger-in (AX/In) subscale of the STAXI.

Sub-Null Hypothesis 3.7.4

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) regarding the Anger-in (AX/In) subscale of the STAXI.

Sub-Null Hypothesis 3.7.5

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Anger-in (AX/In) subscale of the STAXI.

Sub-Null Hypothesis 3.7.6

There are no statistically significant differences in the averages of Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Anger-in (AX/In) subscale of the STAXI.

Sub-Null Hypothesis 3.8.1

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) regarding the Anger-out (AX/Out) subscale of the STAXI.

Sub-Null Hypothesis 3.8.2

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 3 (non-abused women without IBS) regarding the Anger-out (AX/Out) subscale of the STAXI.

Sub-Null Hypothesis 3.8.3

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 4 (non-abused women with IBS) regarding the Anger-out (AX/Out) subscale of the STAXI.

Sub-Null Hypothesis 3.8.4

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) regarding the Anger-out (AX/Out) subscale of the STAXI.

Sub-Null Hypothesis 3.8.5

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Anger-out (AX/Out) subscale of the STAXI.

Sub-Null Hypothesis 3.8.6

There are no statistically significant differences in the averages of Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Anger-out (AX/Out) subscale of the STAXI.

Sub-Null Hypothesis 3.9.1

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 2 (abused women without IBS) regarding the Anger Control (AX/Con) subscale of the STAXI.

Sub-Null Hypothesis 3.9.2

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 3 (non-abused women without IBS) regarding the Anger Control (AX/Con) subscale of the STAXI.

Sub-Null Hypothesis 3.9.3

There are no statistically significant differences in the averages of Group 1 (abused women with IBS) versus Group 4 (non-abused women with IBS) regarding the Anger Control (AX/Con) subscale of the STAXI.

Sub-Null Hypothesis 3.9.4

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 3 (non-abused women without IBS) regarding the Anger Control (AX/Con) subscale of the STAXI.

Sub-Null Hypothesis 3.9.5

There are no statistically significant differences in the averages of Group 2 (abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Anger Control (AX/Con) subscale of the STAXI.

Sub-Null Hypothesis 3.9.6

There are no statistically significant differences in the averages of Group 3 (non-abused women without IBS) versus Group 4 (non-abused women with IBS) regarding the Anger Control (AX/Con) subscale of the STAXI.

Statistical Analysis

The Statistical Consultants at the Rand Afrikaans University using the BMDP statistical package of the University of California, Los Angeles, performed the statistical processing.

Pearson's Chi-square test was carried out to ascertain if there were any significant differences between Group 1(abused women with IBS) and Group 4 (non-abused women with IBS) regarding the sub-types of IBS, namely pain predominant IBS, diarrhoea/constipation predominant IBS and bloating predominant IBS.

Manova and Anova tests were carried out for differences between Group 1 (abused women with IBS) and Group 2 (abused women without IBS) regarding the three abuse subscales, namely emotional abuse, physical abuse and sexual abuse.

Manova, Anova and Scheffe tests were carried out to ascertain if there were any significant differences between Group 1 (abused women with IBS), Group 2 (abused women without IBS), Group 3 (non-abused women without IBS) and Group 4 (non-abused women with IBS) regarding the two anxiety sub-scales and the seven anger sub-scales.

Conclusion

The practical features of the present study have been presented in this chapter, with attention having been given to the women who participated, the instruments used in their selection into the study and the measuring instruments utilized. The hypotheses to be tested were also presented. The data were collected and statistically analysed as detailed.

The next chapter presents the results of the investigation in terms of the research hypotheses.