The efficacy of a phytotherapeutic complex (*Angelica sinensis, Dioscorea villosa, Matricaria chamomilla, Viburnum opulus* and *Zingiber officinalis*) compared with homoeopathic similimum in the treatment of primary dysmenorrhoea

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The efficacy of a phytotherapeutic complex (*Angelica sinensis, Dioscorea villosa, Matricaria chamomilla, Viburnum opulus* and *Zingiber officinalis*) compared with homoeopathic similimum in the treatment of primary dysmenorrhoea.

By

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In the Faculty of Health Sciences at the

Durban University of Technology

Durban

I, Nondumiso Caroline Shange, do hereby declare that this dissertation represents my own work in concept and execution.

…….. ……

Signature of student Date of signature

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APPROVAL FOR FINAL SUBMISSION

…… ……

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DEDICATION

This one is for you mom and dad (Mr. S M and Mrs. T N Shange) I wouldn't be here if it wasn't for you.

Dumakude, Mdima, Nondumo – thank you for all your support, the sacrifices you made for me to reach this goal, and the love you gave throughout this journey. You have done it all thank you very much boDumakude, God bless you. Yes we did it. I LOVE YOU.

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ABSTRACT

INTRODUCTION

Dysmenorrhoea is defined as difficult menstrual flow or painful menstruation. Dysmenorrhoea is the most common gynaecological complaint in younger women who present themselves to clinicians.

Primary dysmenorrhoea is defined as painful menstrual cramps without any evident pathology present. It refers to any degree of perceived cramping pain experienced during menstruation. Around 50% of menstruating females suffer from primary dysmenorrhoea. Prevalence decreases with age, with prevalence being highest in the 20 to 24 year old age group. This trial intended to evaluate the effectiveness of a phytotherapeutic complex in the treatment of primary dysmenorrhoea compared to homoeopathic similimum in a 30 cH plussed potency. This study aimed to provide the safe and effective alternative therapy for primary dysmenorrhoea, especially for the population that is contradicted to use the readily available forms of treatments.

TRIAL DESIGN

This double-blind randomised parallel clinical trial, aimed to determine the effectiveness of a phytotherapeutic complex consisting of *Angelica sinensis1:10, Dioscorea villosa1:10, Matricaria chamomilla 1:10, Viburnum opulus 1:10,* and *Zingiber officinalis 1:10* in the treatment of primary dysmenorrhea, compared to homoeopathic similimum in a 30cH plussed potency.

METHODOLOGY

A sample group of 26 participants were voluntarily selected for the study on the basis of an inclusion and exclusion criteria. These participants were then randomly divided into two groups, 17 in the group receiving the phytotherapeutic complex, 8 in the control group receiving the similimum and 1 drop-out. Each participant had to attend a total of four consultations with the researcher over a three month period, at the Durban University of Technology (DUT) Homoeopathic Day Clinic.

At each consultation the participant completed the Moos Menstrual Distress Questionnaire (MDQ) (Appendix B) as well as the Pain Rating Scale (PRS) (Appendix C).

Intra-group analysis was performed using the non-parametric test for analysis of variance: Friedman's test. Inter-group analysis was conducted using the Mann-Whitney U test for two independent samples.

RESULTS

Results from the intra-group analysis showed that in both groups most measured parameters relating to experience during the previous menstrual flow showed statistically significant reductions in intensity. This is to say that both the group receiving phytotherapy and the group receiving similimum experienced reductions in their symptoms as measured by both the MDQ and the PRS.

Results from the inter-group analysis showed that there is no significant difference between the phytotherapy and similimum group in all symptoms except the water retention category, with regard to symptom perception during the last menstrual flow of the trial.

CONCLUSION

The conclusion reached in this study was that both the phytotherapeutic complex treatment and the homoeopathic similimum treatment were effective at reducing the clinical features of primary dysmenorrhea, but there was no significant difference between the phytotherapy and similimum group in all except the water retention category during the last menstrual period as measured by the MDQ Further, there was no statistically significant difference between groups treated with phytotherapy compared to similimum as measured by the PRS.

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GLOSSARY OF TERMS

Endometriosis: Endometriosis is the abnormal growth of the endothelial cells similar to those found in the inner layer of the uterus, but in a location outside of the uterus. Endometrial cells are cells that are shed each month during menstruation. The cells of endometriosis attach themselves to tissue outside the uterus and are called endometriosis implants. These implants are most commonly found on the ovaries, the Fallopian tubes, outer surfaces of the uterus or intestines, and on the surface lining of the pelvic cavity. They can also be found in the vagina, cervix, and bladder, although less commonly than other locations in the pelvis (Stöppler 2014).

Follicle stimulating hormone (FSH): FSH naturally produced by the pituitary gland, it is primarily responsible for stimulating growth of the ovarian follicle, which includes the developing egg, the cells surrounding the egg that produce the hormones needed to support a pregnancy, and the fluid around the egg**.**

Gonadotropin-Releasing Hormone (GnRH): GnRH is produced by the hypothalamus. It stimulates the pituitary gland to produce LH and FSH (Healthwise 2012).

Luteinizing hormone (LH): LH is the hormone produced by the pituitary gland. The sharp rise in the blood level of LH that triggers ovulation. After ovulation, the hormone-producing follicle cells in the ovaries become the corpus luteum, which will produce estrogen and large amounts of another hormone, progesterone (Mayo clinic 2013).

Nerviness: acts on or relieving disorders of the nerves, soothing the nerves (Sinadinos 2009).

Oocyte: an immature ovum, derived from an oogonium, and is called a primary oocyte prior to completion of the first maturation division, and a secondary oocyte between the first and second maturation division (Tortora and Derrickson 2006).

Ovarian torsion (adnexal torsion): is a condition usually associated with decrease venous return from the ovary due to stromal edema, internal haemorrhage or a mass. It is not frequent but significant cause of acute lower abdominal pain in women. The ovary and fallopian tube are typically involved (Schraga 2014).

Pelvic inflammatory disease: Pelvic inflammatory disease (PID) is an infection of a woman's pelvic organs. The pelvic organs include the uterus (womb), fallopian tubes, ovaries, and cervix. Pelvic inflammatory disease develops as the result of spread of a sexu**ally transmitted disease (Womenshealth.gov 2012).**

Pituitary gland: The pituitary gland is a pea-sized gland located in the skull, inferior to the hypothalamus of the brain and posterior to the bridge of the nose. It is an important link between the nervous and endocrine systems and releases many hormones which affect growth, sexual development, metabolism and human reproduction (Tortora and Derrickson 2006).

Prostaglandin: any group of naturally occurring, chemically related fatty acids that stimulate contractility of the uterine and other smooth muscles and have the ability to lower the blood pressure, regulate body temperature and platelet aggregation and control inflammation and vascular permeability (Tortora and Derrickson 2006).

Prostanoids: any of a group of complex fatty acids derived from arachidonic acid, including the prostaglandins, prostanoic acid, and the thromboxanes (Saunders 2007).

Similimum: Homeopathic similimum is that homeopathic remedy, symptoms of which corresponds exactly to the symptoms of the patient (Cheema 2014).

Unequal randomisation: A type of randomisation used to allocate participants in clinical trials into groups at a different rate, in order to ensure that more participants are allocated to the treatment group than to the control group (Shen 2006).

Vasopressin: Vasopressin or antidiuretic hormone is a potent endogenous hormone which is responsible for regulating plasma osmolality and volume. It acts as a

neurotransmitter in the brain to control circadian rhythm, thermoregulation, and adrenocorticotrophic hormone release (ACTH) (Sharman and Low 2008: 8 134-137).

Vulvovaginitis: is inflammation or infection of the vulva and vagina. It is a common condition affecting women and girls of all ages. It has a variety of causes (Blake 2012).

CHAPTER ONE: INTRODUCTION

This double-blind randomized parallel clinical trial was conducted on two Complementary Medicine interventions for the treatment of primary dysmenorrhea.

Primary dysmenorrhoea is painful menstrual cramps without any present pathology (Dawood 2008). Approximately 50% of menstruating females suffer from it and primary dysmenorrhoea has a very significant disruption in life quality and is responsible for many events of absenteeism. It doesn't only affect woman physically, but also their mental and emotional state throughout reproductive years (Dawood 2006).

One of the most likely factors causing primary dysmenorrhea has been reported to be an increase in the production of uterine prostaglandins (Harel 2006). Research has shown that the inhibition of prostaglandin synthesis can ameliorate the severity of menstrual pain in women. Thus, current treatments for women suffering from primary dysmenorrhea are nonsteroidal anti-inflammatory drugs (NSAIDs), hormonal contraceptives, antipyretics, and analgesics. However, these medications have been reported to have a failure rate of 20% to 25%, as well as to be associated with various unwanted outcomes, such as diarrhoea, abdominal pain, and nausea. Considering the contraindications of chemical medications and their unwanted side effects, there has been an increase in the use of alternative treatments among women to relieve the symptoms associated with dysmenorrhoea. Because phytotherapy is generally considered safe and proved to be effective against various human ailments, many health problems have been treated by plant extracts, which have attracted attention in different fields of medical science in the past decade (Wilson and Murphy 2001).

Complementary and alternative treatments are said to be beneficial, however, appropriate trials are required to substantiate their claims to efficacy. This clinical trial was conducted using two types of complementary medicine interventions, homoeopathic simillimum and phytotherapy, to test their effectiveness in the treatment of primary dysmenorrhea.

This study attempted to improve awareness of homoeopathy and phytotherapy as possible alternatives to conventional drug therapy in the treatment of primary dysmenorrhoea and compared the two modalities in order to investigate if one is more effective than the other. Previous studies using homoeopathic simillimum in the treatment of dysmenorrhoea proved to be successful (Tsolakis 1995), Christie (2005), Mokabane (2009) and Shen (2006). In a study conducted by Mokabane (2009) and Christie (2005) they both used 10 participants both studies were conducted over the period of four menstrual cycles, which gave the treatment enough time to work. The baseline was obtained by a treatment free month, participants would be clear from any form of intervention, and that was hard since some people can not live without any form of intervention. The potency was not the same it was chosen to suit the individual needs. The participants were given the evaluation of symptoms form to fill at home, thereby participants if they were reliable on filling the forms in due time, would not forget the symptoms. the gynaecologist was not involved in both studies to confirm the diagnosis.

Furthermore the study provided more information on the phytotherapeutic substances *Angelica sinensis, Dioscorea villosa, Matricaria chamomilla, Viburnum opulus and Zingiba officinalis* used in combination as a phytotherapeutic complex in the treatment of dysmenorrhoea. Information on the substances when used individually is available but no information was found on the effect of these substances on dysmenorrhoea when used together as a phytotherapeutic complex.

1.1 AIM OF THE STUDY

The aim of this clinical trial was to determine the effectiveness of a phytotherapeutic complex consisting of *Angelica sinensis 1:10, Dioscorea villosa 1:10, Matricaria chamomilla 1:10, Viburnum opulus 1:10,* and *Zingiber officinalis 1:10* in the treatment of primary dysmenorrhea, compared to a homoeopathic similimum in a 30ch plussed potency.

1.2 OBJECTIVES OF THE STUDY:

1.2.1 First objective

The first objective was to determine the effectiveness of a phytotherapeutic complex consisting of *Angelica sinensis, Dioscorea villosa, Matricaria chamomilla, Viburnum opulus,* and *Zingiber officinalis* in the treatment of primary dysmenorrhea. This was determined using the Moos Menstrual Distress Questionnaire (MDQ) (Appendix B) (Moos 1968) and the Pain Rating Scale (PRS) (Appendix C) (British Pain Society 2006).

1.2.2 Second objective

The second objective was to determine the effectiveness of the homoeopathic similimum in the treatment of primary dysmenorrhoea. This was determined using the PRS and the MDQ.

1.2.3 Third objective

The third objective was to compare the effectiveness of the phytotherapeutic complex with that of the homoeopathic similimum. This was determined using the Kruskal-Wallis test.

1.3 STATEMENT OF HYPOTHESES

All hypotheses are stated in the null form.

1.3.1 The first hypothesis

The first hypothesis is that the homoeopathic similimum will have no effect on the clinical features of dysmenorrhoea as experienced by participants.

1.3.2 The second hypothesis

The second hypothesis is that the phytotherapeutic complex will have no effect on the clinical features of dysmenorrhoea as experienced by participants.

1.3.3 The third hypothesis

The third hypothesis is that there is no difference between the effectiveness of the phytotherapeutic complex compared to the homoeopathic similimum in the treatment of primary dysmenorrhoea.

1.4 ASSUMPTIONS

- Participants regularly took their medication as prescribed.
- Participants did not have a change in lifestyle for the duration of the study.

1.5 CONCLUSION

The phytotherapeutic complex and homoeopathic similimum were both effective in reducing the clinical features of dysmenorrhoea. Results from the intra-group analysis showed that in both groups most measured parameters relating to experience during the previous menstrual flow showed statistically significant reductions in intensity. However results from intergroup comparisons showed no statistically significant difference between the two groups; therefore it can be concluded that the treatment group receiving the phytotherapeutic complex did not improve significantly more than the control group receiving a homoeopathic similimum and vice versa.

Therefore the null hypothesis for objective three that there is no significant difference between data measurements from the two groups is supported while the null hypothesis for objective one and two are rejected, since both groups did indeed show a significant improvement in the clinical features associated with primary dysmenorrhoea.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

Dysmenorrhoea is defined as difficult menstrual flow or painful menstruation. And it is the most common gynaecological complaint in younger women who present themselves to clinicians (Calis 2011).

2.1 ANATOMY AND PHYSIOLOGY OF THE FEMALE REPRODUCTIVE SYSTEM

2.1.1 The ovaries

The ovaries are the female gonads (paired glands). They produce gametes/ secondary oocytes that develop into mature ova after fertilization and hormones, including progesterone and oestrogen, inhibin and relaxin (Tortora and Derrickson 2006).

2.1.2 The uterine (fallopian) tubes

Females have two uterine tubes that extend laterally from the uterus. These provide a route for sperm to reach an ovum and transport secondary oocytes and fertilized ova from the ovaries to the uterus (Tortora and Derrickson 2006).

2.1.3 The uterus

The uterus serves as part of the pathway for the sperm to reach the uterine tubes and is the site of implantation of a fertilized ovum and for the development of the foetus during pregnancy. It's the source of menstrual flow during reproductive cycles when implantation does not occur (Mandal 2014).

The uterus histologically consists of three layers of tissue:

- Perimetrium – the outer layer, which is part of the visceral peritoneum.
- Myometrium – the middle layer, which consists of three layers of smooth muscle fibers that are thickest on the fundus and thinnest on the cervix. The

middle layer is circular, the inner and outer are longitudinal or oblique. The myometrium allows for the expansion and contraction of the uterine cavity (Tortora and Derrickson 2006).

- Endometrium – the inner layer of the uterus highly vascularized and has three components: an innermost layer of simple columnar epithelium which lines the lumen; an underlying endometrial stroma, and; endometrial glands. The endometrium is divided into two layers. The stratum functionalis lines the uterine cavity and sloughs off during menstruation. The deeper layer, the stratum basalis, is permanent and gives rise to a new stratum functionalis after each menstruation. This layer breaks down during the menstrual flow. During the menstrual cycle, the stratum functionalis expands and vascularizes then sloughs off during the menstruation process (Tortora and Derrickson 2006).

2.2 THE MENSTRUAL CYCLE

The duration of the menstrual cycle typically ranges from 24 to 35 days, with an average of 28 days.

The menstrual cycle consists of four phases as outlined below.

2.2.1 Menstrual phase

The menstrual phase, which is generally called menstruation or menses, lasts for about the first 5 days of the cycle.

Events in the ovaries:
Under the influence of Follicle Stimulating Hormone (FSH), several primordial follicles develop into primary follicles then into secondary follicles. This process may take months to occur (Nelson 2012).

Events in the uterus:
Menstrual flow from the uterus consists of 50-150 ml of blood, tissue fluid, mucus, and epithelial cells shed from the endometrium. This occurs due to the declining

levels of progesterone and oestrogen which stimulates the release of prostaglandins that cause the uterine spiral arterioles to constrict. As a result, the cells they supply become oxygen-deprived and start to die. The entire stratum functionalis sloughs off. The menstrual flow passes from the uterine cavity through the cervix and vagina to the exterior.

2.2.2 Preovulatory phase / follicular phase

The preovulatory phase is the time between the end of menstruation and ovulation. This phase is more variable in length than the other phases and accounts for most of the differences in length of cycles.

Events in the ovaries:
Secondary follicles begin to secrete oestrogen and inhibin. A single secondary follicle outgrows all others to become the dominant follicle. Oestrogen and inhibin decrease the secretion of FSH, and cause other less developed follicles to stop growing and undergo atresia. The dominant follicle becomes the mature follicle and ready for ovulation.

Events in the uterus:
Oestrogen stimulates the repair of the endometrium, and stratum basalis cells undergo mitosis to produce a new stratum functionalis (Tortora and Derrickson 2006).

2.2.3 Ovulation

Ovulation is the rupture of the mature follicle and the release of the secondary oocyte into the pelvic cavity, usually occurring on day 14 in a 28 day cycle. High levels of oestrogens during the latter part of the preovulatory phase exert a positive feedback effect on the cells that secrete Luteinising hormone (LH) and gonadotropin-releasing hormone (GnRH) and cause ovulation as follows:

- High oestrogen levels stimulate more frequent release of GnRH from the hypothalamus as well as directly stimulating gonadotrophins in the anterior pituitary to secrete LH.

- GnRH promotes release of FSH and additional LH by the anterior pituitary gland.
- LH causes rupture of the mature follicle and expulsion of a secondary oocyte. The ovulated oocyte is swept into the uterine tube. The small amount of blood that sometimes leaks into the pelvic cavity from the ruptured follicle can cause pain, known as mittelschmerz at the time of ovulation.

2.2.4 Postovulatory phase/ Luteal phase

The postovulatory phase is the time between ovulation and onset of the next menses. It lasts for approximately 14 days, from day 15 to 28 (Tortora and Derrickson 2006).

Events in the ovary:
The mature follicle collapses. Once a blood clot forms from minor bleeding of the ruptured follicle, the follicle becomes the corpus haemorrhagicum. Corpus luteum cells are formed under the influence of LH. Stimulated by LH the corpus luteum secretes progesterone, oestrogen, relaxin and inhibin. If the oocyte is not fertilized, the corpus luteum has a 2 week lifespan after which it's secretory activity declines, and it degenerates into corpus albicans. As the levels of progesterone, oestrogen, and inhibin decrease, release of GnRH, FSH and LH rise due to loss of negative feedback suppression by ovarian hormones. Follicular growth resumes and a new ovarian cycle begin (Victoria 2001).

Events in the uterus:
Progesterone and oestrogen produced by the corpus luteum promote growth and coiling of the endometrial glands, vascularization of the superficial endometrium, and thickening of the endometrium. Endometrial glands begin to secrete glycogen. If fertilization doesn't occur the levels of progesterone and oestrogens decline due to degeneration of the corpus luteum. Withdrawal of progesterone and oestrogen causes menstruation (Tortora and Derrickson 2006).

2.3 DYSMENORRHOEA

Dysmenorrhoea is menstrual cramps or pain in the pelvic areas experienced by woman as a result of menstrual period, and is the most common gynaecological complaints in younger women who present themselves to clinicians (Stoppler 2014).

Dysmenorrhoea is classified as:

- Primary dysmenorrhoea (spasmodic) is defined as cramping pain in the lower abdomen occurring before or during menstruation, in the absence of secondary causes such as endometriosis. Initially present in adolescence stage. It is a common cause of absenteeism and reduced quality of life in women. Mostly this problem is often underdiagnosed and untreated. There is increased production of endometrial prostaglandin, resulting in increased uterine contractions (Coco 1999).
- Secondary dysmenorrhea (congestive) is defined as menstrual pain caused by a disorder in the reproductive system, may first present later in life than primary dysmenorrhoea and gets worse overtime as the person gets older. This condition is common in women aged 30-45 years (The American College of Obstetricians and Gynaecologist 2012).
- Membranous dysmenorrhea is a rear form of dysmenorrhoea, present with extreme forms of spasmodic. The pain is accompanied by the passage of membranes (looks like clots) which may take the form of casts of the uterine cavity (Omar and Smith 2007).

In ovarian dysmenorrhea the pain is felt for 2 or 3 days before menses in one or both lower quadrants, it associated to the ovarian diseases such as ovarian cyst (Wood 2003).

2.3.1 Aetiology for primary dysmenorrhea

The risk factors for primary dysmenorrhoea include the following: early age of menarche (below 12 years), nulliparity, heavy or prolonged menstrual flow, smoking, positive family history, obesity (Holder 2011).

Several theories try to explain the possible aetiologies for primary dysmenorrhoea. Behavioural and psychological factors, uterine ischaemia, cervical stenosis or narrowing, increased vasopressin release, increased uterine activity, increased uterine prostanoid production and release have been implicated as possible causes for primary dysmenorrhea. Evidence suggests that most women with primary dysmenorrhea have increased or abnormal uterine prostanoid production and release, giving rise to abnormal uterine activity and therefore to pain (Dawood 2008).

2.3.2 Incidence

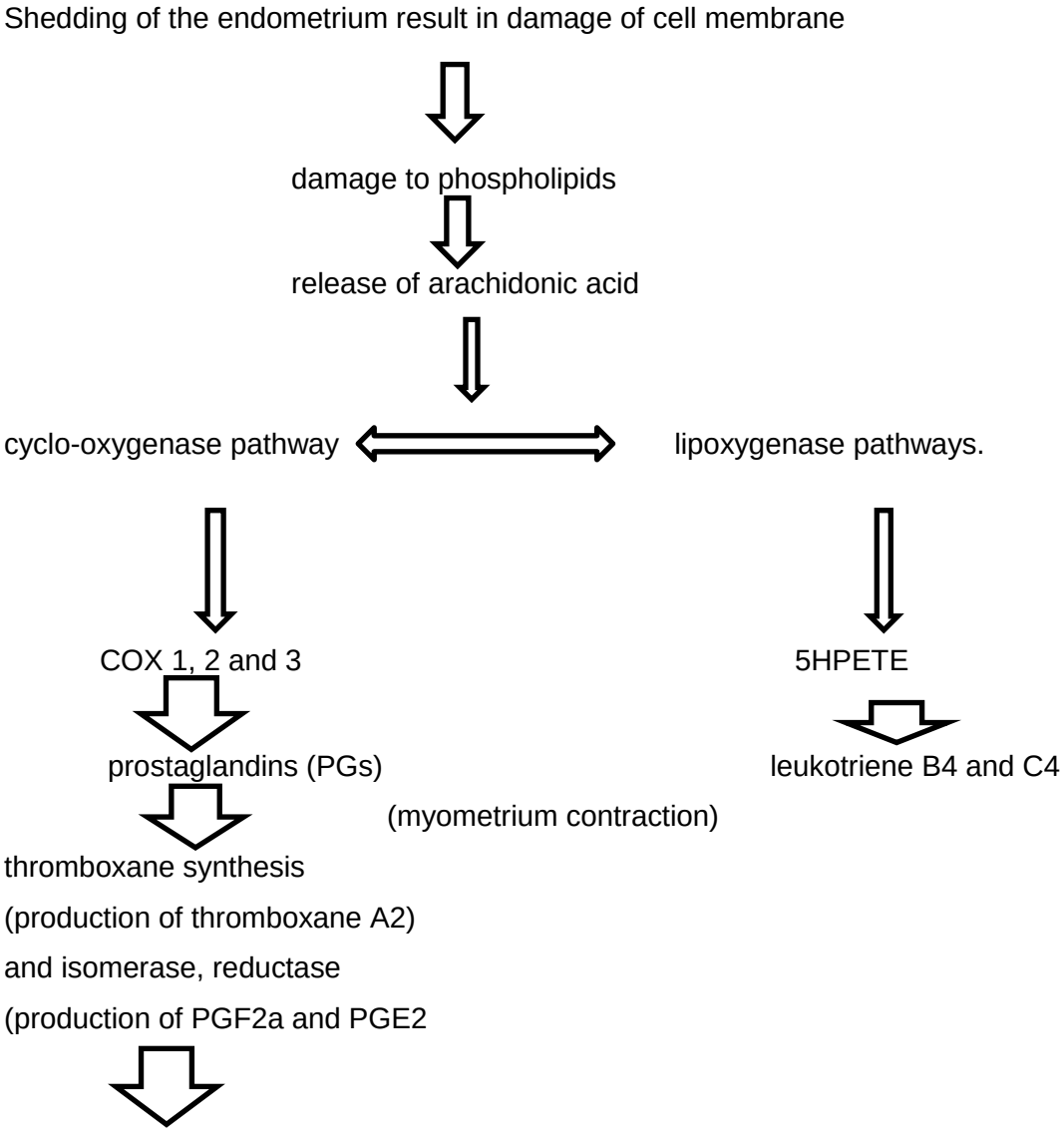
About 50% of menstruating females suffer from primary dysmenorrhea with prevalence decreasing with age. Prevalence is highest in the 20 to 24 year-old age group and decreases progressively thereafter. It worsened by smoking and occurs only during ovulatory cycles (Dawood 2008).

2.3.3 Pathophysiology

During a menstrual cycle, the endometrium thickens in preparation for potential pregnancy. After ovulation, if the ovum is not fertilized and there is no pregnancy, the built-up uterine tissue is not needed and thus sheds off (Tortora and Derrickson 2006).

The events that occur during primary dysmenorrhoea are described in Figure 1.

Figure 1: Events during primary dysmenorrhea.



Increased circulation of vasopressin → produce dysrrhythmic uterine contractions → reduced blood flow to the uterine → uterine hypoxia → ischemia → cramp-like pain (Dawood 2008: 430-431).

Prostacyclin, a potent vasodilator and uterine relaxant are reduced in primary dysmenorrhoea Dawood (2008: 430).

2.3.4 Clinical features

The pain mostly begins a few hours prior to or just after the onset of a menstrual period and may last as long as 3 days. The pain is labor-like with supra-pubic cramping and may be accompanied by backache in the lumbosacral region, pain radiating down the thighs, nausea, vomiting and diarrhoea. The pain is colicky in nature, is improved with abdominal massage, counter pressure, or body movement.

The main symptom of dysmenorrhoea is pain. Sometimes clots or pieces of bloody tissue from the lining of the uterus are expelled from the uterus, causing pain (Berek, Adashi and Hillard 1996).

2.3.5 Diagnosis

It is necessary to rule out underlying pelvic pathology and confirm the cyclic nature of pain. Pelvic examination should be performed to assess the size, shape, and mobility of the uterus. Pelvic ultra-sound examination is necessary to rule out pelvic pathologies (Berek, Adashi and Hillard 1996).

The most important differential diagnosis of primary dysmenorrhoea is secondary dysmenorrhoea. Other conditions with similar clinical presentation include abdominal trauma, dysfunctional uterine bleeding, endometriosis, inflammatory bowel disease, irritable bowel syndrome, ovarian cysts, ovarian torsion, ovarian neoplasm, pelvic inflammatory disease, ectopic pregnancy, vaginitis, vulvo-vaginitis, sexual assault, syphilis, peritonitis, urinary tract infection, uterine neoplasm, arthritis and disc lesions. All of the mentioned conditions present with abdominal pain, but there will be other clinical features present in their cases e.g. urinary tract infection, there may be ketones or haematuria present in the urine (Douglas et al 2005).

2.3.6 Assessment methods for dysmenorrhoea

No laboratory tests are specific to the diagnosis of primary dysmenorrhoea. Diagnosis is based on clinical findings.

The following can be performed to exclude organic causes of dysmenorrhoea:

Blood tests: full blood count, white blood cell count to exclude infection, human chorionic gonadotropin level to exclude ectopic pregnancy, cancer antigen 125 (CA-125) assay (this has limited clinical value in evaluating women with dysmenorrhoea because of its relatively low negative predictive value), erythrocyte sedimentation rate (while nonspecific, erythrocyte sedimentation rate can help the physician to identify the patient with sub-acute salpingitis).

- Urine analysis.
- Imaging Studies:
  - Non-invasive studies may include abdominal and trans vaginal ultrasound. Pelvic ultrasound scans are indicated to evaluate for situations such as ectopic pregnancy, ovarian cysts, fibroids, and intrauterine contraceptive devices. This is a highly sensitive test for detecting pelvic masses.
  - Hysterosalpingograms are used to exclude endometrial polyps, leiomyomas, and congenital abnormalities of the uterus.
- Other more-invasive studies, including laparoscopy, hysteroscopy, and dilatation and curettage, may be required.
- An endometrial biopsy may be indicated if endometriosis is suspected.

(Calis 2013).

2.4 TREATMENT OF DYSMENORRHOEA

2.4.1 Allopathic treatment

Allopathic treatment focuses toward reducing the production or action of the causative prostaglandins (Smith 1997).

Nonsteroidal anti-inflammatory (NSAIDs) drugs relieve primary dysmenorrhoea by inhibiting prostaglandin production and also have direct analgesic properties at the central nervous system level. NSAIDs do not affect the development of the endometrium when given during the menstrual phase for primary dysmenorrhea but directly inhibit cyclo-oxygenase (COX) activity and thereby suppressing endometrial

prostaglandin synthesis and release. Thus, menstrual fluid volumes are not affected, but menstrual fluid prostaglandin levels are significantly decreased. Accompanying the reduction in menstrual fluid prostaglandins is a return of the uterine activity to a pattern similar to normal pain free menstruation. But the regular use of NSAIDs can lead to long term health problems due to NSAIDs side effects such as, gastrointestinal symptoms, central nervous system symptoms, nephrotoxic and hepatotoxic effects, haematologic abnormalities, bronchospasm, fluid retention, and oedema (Dawood 2008).

The oral contraceptive pill prevents menstrual pain through a different mechanism than the NSAIDs. The action of oral contraceptives is twofold: decreases the menstrual fluid volume and suppression of ovulation therefore it is not a true menstrual period but a menstrual bleed controlled by hormonally and associated with the absence of ovulation. Oral contraceptives are up to 90% effective. Ten percent of women with primary dysmenorrhea do not respond to treatment with NSAIDs or oral contraceptives and some have contraindications to these medications (Coco 1999). The oral contraceptive pill can produce side effects such as headache, depression, breast lumps, chest pain, dyspnoea and tingling of arms or legs (Calis 2011).

Allopathic treatment for primary dysmenorrhea has a 20-25% failure rate and the numerous side effects encountered point to an increased need for alternative treatment (Wilson and Murphy 2001).

2.4.2 Nutritional supplementation

Nutritional supplementation is effective in some cases. These include essential fatty acids that are anti-inflammatory and needed for hormone production. Omega 3 fatty acids, eicosapentaenoic acid (EPA) and docasahexaenoic acid (DHA) may decrease prostaglandins levels. Vitamin E improves blood supply to muscles, promoting oxygenation. Vitamin B-complex reduces stress effects. Magnesium to be taken throughout the cycle is thought to enhance hormone production and induce relaxation of muscles (Wong 2007).

2.4.3 Phytotherapy

Phytotherapy is a form of medical treatment which relies on the use of plants, either whole or in the form of prepared extracts and essences. When phytotherapy is used responsibly, the preparations used are standardized, which means that they are grown, harvested, and processed in a way which is designed to create a very reliable and stable dose of active ingredients. This technique involves the studing of plants to determine their properties, and the careful application of plants to treat medical problems. Many of the remedies used in homoeopathy are also phytotherapeutic in origin. Some commercial pharmaceuticals are prepared form the extracts of plants, and also the synthetic drugs which are based on compounds found in plants. Quality and safety are important issues in phytotherapy (Smith 2012). The herbal remedies are prepared in several standardized ways, which include:

(a) Infusions are used for delicate herbs, leaves and fresh tender plants, preparing an infusion is much like making a cup of tea. Boiled water is poured over the herb, covered allowed to sit for 10 -15 minutes.

(b) Decoctions used when working with tougher and more fibrous plants, barks and roots, the plant material is boiled in water for longer periods of time to soften the harder woody material and release active constituents.

(c) Tinctures, a tincture is an alcohol and water extract, used when plants have active chemicals which are not soluble in water, or when the prepared product is wanted for longer shelf-life.

decoctions (boiled teas), tinctures (alcohol and water extracts), and macerations (cold-soaking)

According to Hoffman (2003) when treating dysmenorrhoea using a phytotherapuetic complex, the complex should include of the following:

- Anti-spasmodic herbs to ease the muscle spasms that are the immediate cause of pain;
- Nervines helps with the associated psychological tension or anxiety;
- Diuretic remedies if the dysmenorrhoea is of a congestive nature accompanied by water retention;
- Uterine tonics

- Hormonal normalizers if the diagnosis suggests a pivotal contribution of hormonal imbalance.

In order to address all the requirements necessary for the treatment of dysmenorrhoea, the study was conducted using a phytotherapeutic complex consisting of the following substances: *Angelica sinensis, Dioscorea villosa, Matricaria chamomilla, Viburnum opulus* and *Zingiber officinalis.*

2.4.3.1 *Angelica sinensis* (Dong quai)

Common name: Dong quai or Chinese angelica

Family: Apiaceae (carrot)

Synonym: Umbelliferae family

Plant description: it grows at high altitudes in cold, damp, mountains of china, Korea, and Japan. It has smooth purplish stems and umbrella-shaped clusters of white flowers and winged fruits in July and August. The yellow brown thick branched roots are used as medicine. The plant takes three years to mature. The root is harvested and made into tablets, powders, and other medicinal forms (Steven 2012).

Angelica sinensis (Dong quai) contains phytoestrogens, which are oestrogen-like chemicals that are not strong as those that the human body produces though are nonetheless capable of binding with oestrogen receptors. *Angelica sinensis* also contains coumarins which are chemicals that cause relaxation of smooth muscle tissue. This effect dilates blood vessels, increasing blood flow and relaxes the uterus, which is also smooth muscle tissue (Avicenna 2012). *Angelica sinensis* is usually prescribed for pre-menstrual stress, and other problems related to irregular menstruation, painful menstruation, amenorrhoea and dysmenorrhoea as well as for hot flushes and other menopausal symptoms (Wong 2011). Other therapeutic benefits of *Angelica sinensis* include:

- Acting as a blood purifier, promoting blood circulation and nourishing the blood
- Rich in iron content therefore prevent iron deficiency and anemia
- Relieves stress and calms the nerves
- Stimulation of the uterus during childbirth
- Relieves insomnia
- Relieves constipation
- Relieves migraine headaches
- Some animal studies suggest that Dong quai may cure irregular heartbeat, prevent accumulation of platelets in blood vessels, protect the liver, boost urination, act as a mild laxative, promote sleep, and fight infection; and
- Treatment of traumatic injuries, abdominal pain, blocked bowels, sores and abscesses (Wong 2011).

Preparation: Dong quai is available in capsules, liquid extract, and powder form. Concentration of Dong quai may vary from product-to-product due to multiple manufacturers producing various products. For reproductive conditions (including menstrual cramps and menopause), Dong quai has been taken by mouth in the following doses and forms: 1-15 grams of Dong quai root 1-3 times daily; 4-6 fluid extract tablets 2-3 times daily; 1-8 millilitres or 10-40 drops of tincture up to three times daily; 1-2 grams of powdered root three times daily; and 1-2 grams of dong quai in tea three times daily (Ogbru 2013).

2.4.3.2 *Dioscorea villosa* (Wild yam)

Common names: Wild yam, Huang yao tzu

Family: Dioscoreaceae

Plant used: Rhizome, root

Wild yam is a perennial, climbing vine that with a trellis or other plant support will reach heights of 15 feets. It prefers moist soil. Wild yam (Dioscorea villosa) grows naturally from New England to Minnesota and Ontario, then south to Virginia and Texas. It is found in moist woods, swamps, thickets and hedges. The plant was commonly used throughout its range in North and Central Americas, being favoured by tribes in those regions for pain relief, especially for menstrual cramps. The root also helped to balance hormones (bringing the libido back into balance) and ease the pain of childbirth. The tubers were used for food (Atkinson). Dioscorea villosa is a deciduous perennial herbaceous twiner that grows counterclockwise over small and medium-size shrubs. The upper leaves are alternate, heart-shaped and shiny with long petioles, entire margins, prominent veins and acuminated apices. The lowermost leaves are usually arranged in whorls. The plants are dioecious. Small staminate (male) flowers are white and perfumed, and arranged in panicles, while carpelate (female) plants produce small solitary flowers at the leaf nodes. The fruit is a membraneous 3-valved capsule with one or two chocolate-colored winged seeds in each locule (Pengelly 2011).

Dioscorea villosa (Wild yam) is traditionally regarded as a powerful anti-spasm and has been used for the treatment of uterine and ovarian pain, including dysmenorrhoea. It contains the steroidals saponin and dioscin. Steroidal saponins or their metabolites may exert oestrogenic effects by binding with oestrogen receptors

of the hypothalamus, which are part of the negative feedback mechanism of oestrogen control. In the premenopausal woman, interaction of these compounds with receptors in the hypothalamus or pituitary displaces oestrogen from receptors and blocks oestrogen feedback. The body determines that oestrogen levels are lower than they really are and responds by increasing follicle stimulating hormone (FSH) and hence, oestrogen. This potential oestrogen modulating activity of wild yam could assist in relieving a relative excess of progesterone late in the menstrual cycle which may be an underlying or contributing factor in dysmenorrhoea (Bone 2005).

2.4.3.3 Matricaria chamomilla (chamomile)

Family: Asteraceae
Genus: Matricaria
Species: Chamomilla
Synonyms: Matricaria recutita, Chamomilla recutita
Common names: Chomomile, German chamomile, Amerale, Bayboon, Chamomile, Papatya
Part used: whole herb, flowers
(Taylor 2012)
Plant description: Chamomille is an annual wild edible. Easily recognized by the tiny daisy-like flowers (not more than 2.5 centimetres wide), one flower grows on a solitary stem. Flowers resemble daisy white petals circling a cone-shaped yellow centre. Depending on conditions, flowers bloom between May and October. The leaves are fern-like light green and feathery. It can grow to anywhere from 60 centimetres to 1 metre tall. It grows well in poor, clay soil, it thrive in open, sunny locations. It will also grow in lightly-shaded areas (Edible wild food 2011)

Matricaria chamomilla (chamomile) has a uterine tonic property; it is anti-spasmodic and has an ant-inflammatory effect. It also has calming and sedative effects; it is therefore used for irritability and agitation (Sinadinos 2009). The glycine chemical found in chamomile relieves muscle spasms and can act as a relaxant, higher levels of glycine may relax the uterus.

2.4.3.4 *Viburnum opulus* (Cramp bark)

Family: Caprifoliaceae (honeysuckle family)

Common Name(s): Cramp bark, guelder rose, snowball, squaw bush, cranberry tree , highbush cranberry , pimbina.

Plant descriptions: snowball-like flowers in the spring, shiny red berries in the summer and brightly colored leaves in the fall, this gorgeous bush can grow to 20 feet with a 15 foot spread. Growing to 4–5 m tall. The leaves are opposite, three-lobed, 5–10 cm long and broad, with a rounded base and coarsely serrated margins; they are superficially similar to the leaves of some maples, most easily distinguished by their somewhat wrinkled surface with impressed leaf venation. The leaf buds are green, with valvate bud scales. Flowers and berries, growing best on moist, moderately alkaline soils, though tolerating most soil types well. Several cu

The hermaphrodite flowers are white, produced in corymbs 4–11 cm (2–4 in) in diameter at the top of the stems; each corymb comprises a ring of outer sterile flowers 1.5–2 cm in diameter with conspicuous petals, surrounding a center of small (5 mm), fertile flowers; the flowers are produced in early summer, and pollinated by insects.

Viburnum opulus (Cramp bark) contains very strong antispasmodic substances such as, vipudial, esculetin, valerianic acid, scopoletin, calcium, iron, magnesium, manganese, phosphorus, potassium, selenium, zinc, tannin, resin, salicin, bitter glycoside and viburnine. It is an effective antispasmodic, and regulates muscle cramps, spasms, and menstrual cramps. It gives tone and provides energy to the uterus and regulates its function. Scopoletin relaxes the uterus, eases pain, and regulates blood flow. Salicin, an aspirin-like compound, is effective as an analgesic. Other therapeutic benefits of *Viburnum opulus* include alleviation of nervous constipation (Romm 2010) and improvement of circulation to clear accumulated toxins (Chevallier 2007). Dose for dysmenorrhea: Cramp Bark Tincture: 1/2 teaspoon every 2-3 hours (Hudson 2003).

Zingiber officinalis

2.4.3.5 Zingiber officinalis (Ginger)

Family: Zingiberaceae

Common names: Ginger, ginger root

Description: ginger has a perennial rhizome or stem which grows and increases in size underground. In spring it sends up from it rhizome a green reed-like stalk about 2 feet high, with a narrow lanceolate leaves. The flowering stalk rises directly from the rhizome with the leaves and consist of an oblong spike with scalloped green bracts. From each bract one or more white or yellowish-green flowers is produced. It is said to be a native China and India. It is cultivated in West Indies , Jamaica, and Africa (National tropical garden 2015).

Zingiber officinalis (Ginger) decreases nausea, stimulates circulatory activity, and stops the synthesis of arachidonic acid (Mills and Bone 2000). *Zingiber officinalis* acts as an anti-inflammatory and is an inhibitor of amino acid (AA) metabolism, inhibiting both cyclo-oxygenase and lipogenase pathways therefore can act as an alternative to aspirin to prevent synthesis of thromboxane A2 (Mills and Bone 2000). Other therapeutic actions of *Zingiber officinalis* include antipyretic and thermogenic activity, spasmolytic, digestive stimulant, anti-emetic (Chevallier 2007). *Zingiber officinalis* is as effective as mefenamic acid and ibuprofen in relieving pain in women with primary dysmenorrhea. Further studies regarding the effects of ginger on other symptoms associated with dysmenorrhea, the efficacy and safety of various doses and treatment durations of ginger, and the exact mechanism of action are warranted (Ozgol, Goli and Moattar 2009).

2.4.4 Homoeopathy

A homoeopathic prescription is based on the law of similars or like cures like. The remedy for any individual illness is the very substance that can produce a similar symptom picture and pattern of the illness if given to a healthy human being. Homoeopathic remedies help the body to heal itself, by stimulating the body's own energy or vital force (Bloch and Lewis 2003).

According to (Chauhan, Gupta 2013), homoeopathy is a system of medicine that treats disease by remedies prescribed in little or minute doses, if given to a healthy individual would develop symptoms like those of the disease. Dr Samuel Hahnemann who introduced homoeopathy provided the basic rules of homoeopathic practice. The following are the cardinal principles:

a. The law of similia – the symptoms experienced by the sick are not the disease, but are a reaction of the body's defense mechanism. The choice of remedy is based on the principle of "similia similibus curentur." The remedy must have the ability to produce similar symptoms to the disease which is to be cured in the sick person, in a healthy person if they are administered the remedy.
b. The law of simplex – only one single, simple medicinal substance is to be administered in a given case at a time, which is called a similimum. The remedies are proven singly so should be administered singly.
c. The law of minimum dose – reduction of the drug dose by succussion or trituration at every step of dilution employing an inert medium like alcohol or lactose.
d. Drug proving – systemic investigation of the disease producing power of the drug. Conducted on healthy human beings only. These recordings constitute the reliable knowledge of their capability to cure a similar symptom complex.
e. Drug dynamization – the process in which the crude medicinal substance is reduced to its sub-physiological state, by the method of potentization or dynamization. The idea is that life energy is dynamic in nature; the disease is also at the dynamic level, so the intervention can be sought at the dynamic level by a medicine which can act on the same plane.
f. The theory of vital force – this force animates the body. All life functions are carried out by this immaterial entity which animates the material organism in health and in disease.
g. The concept of causation of chronic disease – chronic diseases are due to a defect in the organism called 'miasm'. Miasm is defined as hereditary in respect to the fundamental cause (e.g. the psora) and secondary miasmatic indispositions. This helps the homoeopath in treating patients with speed, accuracy, efficiency and an ability to predict the outcome

Homoeopathic pharmacies potentise remedies according to three different scales to suit different prescribing purposes. These scales are the: centesimal scale, decimal scale and quinquagintamillesimal scale.

The Centesimal Scale

The first scale that Hahnemann developed during the early years of Homeopathy is the centesimal scale. As its name would suggest, it has a1:100 dilution ratio

Centesimal remedies are versatile. Practitioners may prescribe them aspilules, tablets or liquids in high or low potencies for the treatment of both acute and chronic disease. They can also be found in lower potencies in retail stores for self-treatment of simple acute problems. If doses are repeated unnecessarily, centesimal potencies may produce proving symptoms (Jones 2014).

The Decimal Scale

The decimal scale was the second potency scale to be produced in the development of Homeopathy. It has a dilution factor of 1:10 meaning that one part of the mother tincture or potency is diluted in 9 parts of a water alcohol mixture. Like the centesimal scale, the decimal scale still has 10 succussions between each dilution phase. Once again, the remedy's name is followed by a number to show how many stages of dilution and succussion it has been through and the Roman numeral "X" to indicate its 1:10 dilution ratio. A 3X potency, for example, indicates three stages of dilution and succussion according to the decimal scale while a 12X indicates that the process has occurred 12times. Decimal potencies are easy to use and can be dispensed as pillules, tablets or liquids. Being "low potency" remedies, they can be repeated frequently with little risk of producing proving symptoms. For this reason they are commonly sold by retail outlets for self-treatment of simple acute problems. The Schuessler Tissue Salts are one such example. They are less commonly prescribed by homeopathic practitioners as they have limited use in the treatment of deep-seated chronic conditions (Bloch, Lewis 2003).

The Quinquagintimillesimal Scale

These potencies are the third and final scale developed just prior to the death of Hahnemann. They are usually known by the simpler name of fifty-millesimal or Q potencies. The process by which fifty-millesimal potencies are prepared is different and more complex than that used for the centesimal and decimal potencies but fundamentally the dilution ratio is 1:50,000 with each stage of dilution being followed by 100 succussions. The remedy's name is followed by either the letter "Q" or the symbols, "0/.." to indicate it has been prepared in a 1:50,000dilution ratio. As with the centesimal and decimal scales, the accompanying number on the remedy indicates

how many stages of dilution and succussion have occurred. For example, a Q6 (or 0/6) remedy will have passed through six stages of potentisation while a Q30 (or 0/30) will have been potentised thirty times. The fifty-millesimal scale is deep acting and flexible. Unlike other potency scales, fifty-millesimal remedies should not be dispensed as tablets or pilules but only as liquids. Liquid dosing allows the homeopathic practitioner to adjust the degree of dilution and the number of succussions before each dose to suit the individual sensitivity of the recipient. For this reason, remedies from this scale require a greater degree of knowledge to prescribe appropriately and should be reserved for practitioner use only. They are rarely available from retail outlets for self-treatment. As with the remedies from the centesimal scale, proving symptoms may occur if fifty-millesimal remedies are repeated unnecessarily (Homeopathy plus 2014).

Homoeopathy has a the holistic approach to health, treating the person as a whole so not only focusing on getting rid of the presenting symptoms but also looking at the aetiology as well as how that individual reacted to the problem in all three dimensions i.e. physical, emotional and mental. The careful selection of an appropriate remedy, and the minute dose of that remedy, prevents any aggressive side effects of the intervention. These are the reasons homoeopathy was selected as an intervention in this study.

Related studies

Previous studies have shown the similimum to be effective in the treatment of primary dysmenorrhea (Tsolakis 1995), (Christie 2005), (Jose 2005) and (Mokabane 2009). The homoeopathic simillimum has shown significant improvement in reducing premenstrual symptoms such as irritability, depression, anxiety, breast swelling, breast tenderness, abdominal bloating and food cravings (Patel 2010). The homoeopathic simillimum showed improvement that was not statistically significant on the symptoms of endometriosis such as dysmenorrhoea, but there was significant improvement in the symptoms associated with endometriosis, such as the amount of bleeding, constipation, depression, diarrhoea, nausea and pelvic pain (Clark 2005). These symptoms are also clinical features associated with primary dysmenorrhoea.

A study conducted by Christie (2005) showed that the homoeopathic similimum had a significant effect on reducing the severity and duration of pain as well as associated symptoms of primary dysmenorrhoea. In addition, the need for allopathic pain medication was significantly reduced. The improvements were most significant after two to three months of treatment with the homoeopathic similimum, as opposed to only one month of treatment. During the first menstrual period, participants received no homoeopathic treatment and no placebo, thereby creating a baseline from which the results from the remaining three months of treatment were compared. These results, together with the progression of each participant's symptoms as noted by the researcher at each consultation, were used to determine the effect of the similimum on severity of pain during menstruation and the necessity for allopathic pain medication during the dysmenorrhoea. In striving to abide by the laws and principles of the classical homoeopathic approach, each participant was evaluated as a totality. The intent of this research was to evaluate the effect of the homoeopathic similimum on ten participants with primary dysmenorrhoea. The study aimed to provide a safe and effective alternative therapy for primary dysmenorrhoea.

A study conducted by Witt, Lüdtke and Willich (2009) concluded that homoeopathy, as a holistic therapy, was effective in treating primary dysmenorrhoea. Evaluating homeopathic treatment for dysmenorrhoea, a prospective multicentre observational study in primary care, using standardized questionnaires to record for 2 years diseases, quality of life, medical history, consultations, all treatments, other health services use was conducted. Results showed that 57 physicians treated 128 women and 11 girls. Patients received homeopathic prescriptions. Diagnoses and complaints severity improved markedly [at 24 months, dysmenorrohea relieved by > 50% of baseline rating. Conventional medication changed little and use of other health services decreased. A study conducted by Christie (2005) showed that the homoeopathic simillimum had significant effect on reducing the severity and duration of pain as well as associated symptoms of primary dysmenorrhoea. The need for allopathic pain medication was significantly reduced in this study.

2.4.4.1 Homoeopathic remedies with a strong affinity for the female genital System

Sepia officinalis

It is one of the most important uterine remedies

Mind - aversion to company, yet dreads to be alone. Angry, sensitive, irritable, easily offended and miserable. Poor memory.

Head - headache in terrible shocks at menstrual nisus, and scanty flow.

Female – menses too late and scanty, irregular, early and profuse, sharp clutching pains. Violent stitches upward in the vagina, from uterus to umbilicus. Uterus and vagina prolapse. Mania from profuse menses. Dull, heavy pain in the ovaries, especially the left ovary (Vermeulen 2001). Indications for this remedy include painful, late, or suppressed menstruation, sometimes with a feeling that the pelvic floor is weak or as if the uterus is sagging. The woman may feel irritable, dragged out, and sad—losing interest temporarily in marital and family interactions, wanting to be left alone. Dampness, perspiring, and doing housework may aggravate the symptoms. Warmth and exercise, especially dancing, often brighten the woman's outlook and restore some energy (Ezine 2014).

Causticum

Mind – great melancholy, looks on the dark side of everything, especially during menses. Irritability before menses. Cannot stand injustice

Female – menses cease at night, with clots, scanty and prosopalgia. Dysmenorrhoea, and tearing pain in back and thighs. Sadness, anxiety and weakness during menses. Cutting colic pain and diarrhoea during menses (Vermeulen 2001).

Phosphorus

Female – menses too early and scanty, not profuse but prolonged. Uterine prolapse., prolonged (Vermeulen 2001).

Nux vomica (Strychnos nux vomica, poison-nut)

Menses too early, irregular, blood black. Dysmenorrhoea, and pain in the sacrum, and constant urging to stool. During menses, nausea in morning, and chilliness and attacks faintness (Vermeulen 2001). Nux vomica: This remedy may be indicated when a woman has irregular menstrual periods with constricting pains that can extend to the rectum or the area above the tailbone. The woman tends to be impatient, irritable, and easily offended. Chilliness and constipation are also common. Mental strain, anger, physical exertion, stimulants, strong foods, and alcohol are likely to make things worse. Warmth and rest often help (Ezine 2014).

Magnesium muriatica (Mag-mur)

It also known as chloride of magnesium, generally action of centers is around the liver, nerves, uterus and rectum. Spasmodic hysterical complains. Pains are boring, spasmodic, contractive, cramping and darting. Excitement during menses. Menstrual flow is black, profuse, clotted and too prolonged. Tinea ciliaris, eruptions on the face and forehead, worse before menstrual flow. Dysmenorrhoea is worse for pressure on the back or lying on a hard pillow. Face is pale during menses and pain in loins and mental depression (Vermeulen 2001).

Natrum muriaticum (Nat-mur)

Chloride of sosium or common salt,

Sadness before menses, Prefers to be alone. Menses are irregular, usually profuse. Bearing down pains which are worse for motion, better for lying on the back. Dysmenorrhoea and convulsions. Delayed appearance of menses girls (Vermeulen 2001).

Lachesis muta

Bushmaster, Surucucu

Symptoms appear on the left side mostly then go to the right, especially on the throat and ovaries. It great female remedy. Headaches in the vertex, fainting. Menses too short, too feeble, pains are better on the onset of the flow. Left ovary painful. Menses are black, scanty, and lumpy. Dysmenorrhoea on the first day, pain shooting upward

in the left ovary. Desire to go into open air and run about before menses (Vermeulen 2001)

Magnesium phosphorica

Homoeopathic Magnesium Phosphate helps soften the deep contractions of menstrual cramps. Similarly, Mag Phos is indicated for any painful muscle cramp, especially those that follow strenuous exercise. Perhaps no remedy has achieved a greater clinical reputation in dysmenorrhea than has Magnesia phosphorica. The pains calling for it are neuralgic and crampy preceding the flow, and the great indication for the use of this remedy is the relief from warmth and the aggravation from motion. In neuralgia of the uterus Magnesia phosphorica vies with Cimicifuga. Uterine engorgements with the characteristic crampy pains will indicate the remedy. It has also been used successfully in membraneous dysmenorrhoea. We have very few remedies for this affection. Borax is one, but it is often unsuccessful, there seems to be no very special characteristic for it, unless it be the fear of downward motion which might exist in some cases. Hale mentions Viburnum, Guaiacum and Ustillago, besides Borax, for membranous dysmenorrhoea. Their indications are chiefly empirical. Colocynth, a useful remedy in dysmenorrhea, may be compared with Magnesia phosphorica. The symptoms of Colocynth are severe left-sided ovarian pains, causing patient to double up; pains extend from umbilicus to genitals (Ezine 2014).

Cimicifuga race/Actea racemosa

The characteristic indication for this remedy in dysmenorrhea is pain flying across the pelvic region from one side to the other. It is especially useful in rheumatic and nueralgic cases,and in congestive cases it may also be thought of along with Belladonna and Veratrum viride. Headache preceding menses; during menses sharp pains across abdomen, has to double up, labor-like pains, and during menstrual interval debility and perhaps a scanty flow. The resin Macrotin is preferred by many practitioners. The pains of Cimicifuga are not severe and intense nor felt with such acuteness as are those of Chamomilla (Ezine 2014).

Caulophyllum

The dysmenorrhea of Caulophyllum is essentially spasmodic in character; the pains are bearing down in character. It produces a continued spasm of the uterus simulating first stage of labor; the flow is mostly normal in quantity. The spasmodic intermittent pains which call for Caulophyllum are in the groins, a useful remedy in these spasmodic cases if given between the periods. to various part of the body. Magnesia muriatica is also a remedy which may be studied in uterine spasm. Gelsemium is similar in many respects to Caulophyllum. It is very useful remedy in neuralgic and congestive dysmenorrhea when there is such bearing down. The pains are spasmodic and labor-like, with passages of large quantities of pale urine. It is one of the best given low in hot water. It will surely relieve the pains at the start (Ezine 2014).

Colocynthis

Sharp, cutting, tearing pains that make the person double over bring this remedy to mind. Cramping may be felt throughout the pelvic area or be focused near the ovaries. The woman feels restless from the pain, but lying down and keeping hard pressure and warmth on the area improve things. This remedy is often indicated if problems are worsened by emotional upsets, especially after feeling anger or suppressing it (Ezine 20014).

Kreosotum

The menses are accompanied by many accessory symptoms, such as nausea, deafness, and abdominal colic. The menstrual flow often ceases on the third or fourth day, and after a few hours, or a day, re-appears. In this respect Kreosotum resembles Sepia, but the flow of Sepia is scanty and retarded, while that of Kreosotum is abundant and anticipates; and the local symptoms and general condition of Sepia are less pronounced, or decidedly different. The menses are followed by leucorrhoea, which is at first very acrid and dark brown in colour, and quite offensive. Nitric acid has a dark flesh-coloured discharge after the menses, but it is thin and watery, looking like the washings of meat, and it is not offensive. In a day or two the leucorrhoea of Kreosotum becomes deep yellow, and has a peculiar odour, like that of fresh green corn when it has just been husked. Along with the leucorrhoea there is much pain in the back, a dragging pain from above downward, a

pain as if something would come out, or as after long stooping. This pain is relieved by motion and is worse during rest; just the opposite of the backache of Sepia and Nux vomica, and similar to that of Belladonna. These series of symptoms have led to the use of Kreosotum in prolapsus uteri, in which it has proved of great value. Along with Sepia, Pulsatilla, Stannum, Nux vomica, Belladonna and Podophyllum, it enables us to avoid altogether the use of those miserable make-shifts, pessaries and supporters, which, affording temporary relief, entail so great miseries on those who use them (Boericke 1999).

Platinum Metallicum / Platina

Menstrual Problems: Platinum may be of great help in a variety of menstrual problems, making it a very popular remedy in homeopathy. Many women rely on it for help with heavy, brief, or even absent menstrual cycles and therefore it is used for a wide range of conditions. It can bring relief for painful cramps and help to reduce any other pains or constrictions felt around the uterus area.

Oversensitivity of the Female Genitalia: Women may suffer from a variety of different painful and irritating issues surrounding the female genitalia, and this is where platinum is recommended. It is used as a homeopathic remedy for women who suffer from overstimulation, or pain associated with the vulva or vagina. These problems may be heightened during menstruation or may come on out of nowhere. For any sort of pain or unusual stimulation in or around the female genitalia, platinum may be of great help.

Numbness and Cramps: The numbness and pain that platinum homeopathy often helps with is usually associated with cold skin. This may be due to a constricted feeling in the limbs, and is most common in the thighs or the calves. If there is a sensation that the limbs are bandaged, even when they are not, then platinum may be a helpful homeopathic remedy (Vermeulen 2001).

Kalium carbonicum

Menses early, profuse or too late, pale and scanty, with soreness about genitals; pains from back pass down through gluteal muscles, with cutting in abdomen. Pain through left labium, extending through abdomen to chest. Delayed menses in young girls, with chest symptoms or ascites. Difficult, first menses. Complaints after

parturition. Uterine hæmorrhage; constant oozing after copious flow, with violent backache, relieved by sitting and pressure (Vermeulen 2001).

Calcarea carbonica

Before menses, headache, colic, chilliness and leucorrhœa. Cutting pains in uterus during menstruation. Menses too early, too profuse, too long, with vertigo, toothache and cold, damp feet; the least excitement causes their return. Uterus easily displaced. Leucorrhoea, milky (Sepia). Burning and itching of parts before and after menstruation; in little girls. Increased sexual desire; easy conception. Hot swelling breasts. Breasts tender and swollen before menses. Milk too abundant; disagreeable to child. Deficient lactation, with distended breasts in lymphatic women. Much sweat about external genitals. Sterility with copious menses. Uterine polypi (Kent 2000).

Calcarea Phosphorica

Her sufferings at puberty when she is slow in maturing are often met by this medicine. From taking cold at first menstrual period often comes a painful menstruation that lasts during menstrual life, unless cured by this remedy. Violent cramping in uterus and groin several hours before the flow starts, relieved after the flow has been fully established. The pains make her cry out. Intense sexual excitement (like Platina, Gratiola, Origanum). Weak, sinking sensation in the pelvis.
Prolapsus of uterus during stool and micturition. Uterine polypus. Labor-like pains at the beginning of menstruation. Copious menstrual flow, with very dark clots and membranes. Leucorrhea like white of egg day and night. Throbbing, titillating in external genitalia. Burning in the vagina and uterus during menses. Child refuses mother's milk. It may be given to a woman who has brought forth one or two children that may be considered Calc. p. babies. The next child will be stronger and have a better constitution (Kent 2000).

Lycopodium clavatum

Lycopodium produces and cures dryness in the vagina in which coition becomes very painful. Burning in the vagina during and after coition. It has disturbance of menstruation. Absence or suppression of menses for many months, the patient being withered, declining, pale and sallow, becoming feeble. It seems that she has

not the vitality to menstruate. It is also suitable in girls at puberty when the time for the first menstrual flow to appear has come, but it does not come. She goes on to 15, 16, 17 or 18 without development, the breasts do not enlarge, and the ovaries do not perform their function. When the symptoms agree, Lycopodium establishes a reaction, the breasts begin to grow, the womanly bearing begins to come, and the child becomes a woman. It has a wonderful power for developing, and in that respect it is very much like Calc phos (Kent 2000).

2.4.5 Other complimentary therapies

Chiropractic manual adjustments of the spine, physical therapeutics, acid free diets, herbal supplements and eastern therapies are effective methods for the management of primary dysmenorrhea (Spears 2005). In a study conducted by Moosa (2002), the study was designed to determine whether lumbar and sacral adjustments, full spinal adjustments or placebo is more effective in treating women with primary dysmenorrhea. Forty-five volunteers were divided into three groups of fifteen each. Group 1 received lumbar spinal and sacral adjustments, group 2 received full spinal adjustment, and group 3 received detuned ultrasound (placebo). Patients received thirteen treatments over 2 months. Results showed that all 3 groups experienced pain relief at the follow-up consultation. 35 of 45 participants reported that their pain had decreased. There was a statistically significant difference in all 3 groups. However there was no statistical difference between the 3 groups, which suggests that there was no difference between the treatments administered.

2.5 CONCLUSION

Allopathic treatment for primary dysmenorrhea has a 20-25% failure rate and the numerous side effects encountered point to an increased need for alternative treatment (Wilson and Murphy 2001).

A study conducted by Witt, Lüdtke and Willich (2009) concluded that homoeopathy, as a holistic therapy, was effective in treating primary dysmenorrhoea. One small

trial showed a phytotherapeutic combination to be more effective for pain relief than placebo, and less additional pain medication was taken by the treatment group (Proctor and Murphy 2001). At a dose of 6mg/day, the standardized phyto-drug (*Psidii guajavae folium* extract) reduced menstrual pain significantly compared with conventional treatment and placebo (Doubovaa et al 2007).

No information was found in an extensive literature search by the author, comparing these two therapies (homoeopathy and phytotherapy) in the treatment of primary dysmenorrhoea. No clinical trial has been conducted on this particular phytotherapuetic complex; the interventions of the individual herbs are well known, but no information is available on the intervention of these substances in a combined phytotherapeutic complex. Homoeopathic similimum had been proven in previous studies to be effective in primary dysmenorrhoea treatment, but people are still unaware of this as a potential therapy, therefore this study made the trial participants aware of this therapy.

This study used five herbs which act in different ways in order to relieve dysmenorrhoea, thereby the assumption was to produce better results with a combination of substances than when using a single phytotherapeutic substance.

CHAPTER THREE: MATERIALS AND METHODOLOGY

3.1 Design of the study

This clinical randomised double-blind parallel trial was performed following the approval by the ethics committee of the Durban University of Technology. The study took place at the Durban University of Technology's (DUT) Homoeopathic day clinic. Permission was granted by the Clinic Director, for the use of the facility over this period. It was conducted for the period of three menstrual cycles per participant.

The study was double blind, therefore neither the researcher nor the supervisor knew which participant belonged to which group; participants were allocated to the experimental (phytotherapeutic) group and the control (simillimum) group by means of unequal randomisation (Shen 2006). Participants were enrolled by the researcher, and an independent clinician assigned participants to interventions according to a randomisation list that was drawn up by the supervisor prior to the study. The method of randomisation used was unequal randomisation.

Similimum serves as the control in this study, since a number of studies were found to be successful, where the similimum was used in the treatment of primary dysmenorrhoea (Tsolakis 1995), (Christie 2005), (Jose 2005) and Mokabane (2009).

At the conclusion of the study eight participants receiving the similimum treatment completed the study and 17 who received the phytotherapeutic complex.

The researcher and the participants were blinded, the researcher wrote out the prescriptions (either phytotherapy or a similimum prescription) and a clinician dispensed the treatments in the absence of the researcher and explained to the participants on how to take the medicine, both the treatments were dispensed in a brown 25 ml amber glass bottles in a liquid form to ensure a similar appearance.

3.2 Sampling method

On receiving approval from the Institutional Research Ethics Committee (IREC) participants were obtained by means of advertising (Appendix E) and the distribution

of pamphlets on the Steve Biko, Ritson and ML Sultan campuses of the Durban University of Technology. The researcher recruited participants according to the selection criteria listed below. Potential participants responded to the advertisement by means of a phone call to the researcher the researcher then scheduled a meeting where a brief screening questionnaire (Appendix A) was completed in the Homoeopathic Day Clinic at DUT in order to determine if they indeed qualify for the study. If primary dysmenorrhea was suspected the participants were scheduled for an abdominal ultrasound examination of the pelvic area at the radiography clinic at the Durban University of Technology. This examination was performed by a gynaecologist, and the purpose of this was to rule out any abnormalities that could indicate secondary dysmenorrhoea and therefore exclude the participant from the study. Participants were referred to a medical physician if any abnormality was found during this examination. This procedure was explained in detail to participants and they were asked to sign an informed consent form (Appendix G 2) before the ultrasound examination was performed.

3.3 Selection criteria

Inclusion criteria:

- Participants had to be between the ages of 18 and 30 years. Smith (1997) states that common causes of secondary dysmenorrhoea are more frequent in the age group of 30 years and older.
- Clinical features of primary dysmenorrhoea during most menstrual cycles had to be present.
- Participants who did not take oral or other forms of hormonal contraceptives and those who have discontinued the use of hormonal contraceptives for at least 4-6 weeks. This is the time needed for the return to ovulatory cycles after discontinuing oral contraceptives (Smith 1997). Participants who are sexually active were advised to use other forms of contraception, such as condoms, not involving the suppression of their menses to prevent unwanted pregnancy. (Please note that no participant was asked by the researcher to discontinue hormonal contraceptives for the duration of the study as this was

a decision made by the participant alone, if she consented to take part in the study.)

Exclusion criteria:

- Persons on any medication for any chronic condition.
- Persons who were using hormonal contraceptives
- Persons with underlying conditions leading to secondary dysmenorrhea e.g. endometriosis.
- Previous pelvic surgery or any underlying physical abnormality or pelvic diseases such as endometriosis, fibroids, polycystic ovarian syndrome etc.
- Persons with religious objections to alcohol used in medicinal preparations.
- Persons on hormonal contraceptives or intra-uterine devices.
- Persons with a family or personal history of hormonally driven cancers.
- Persons who were pregnant or planned to fall pregnant in the near future. (Any participant who became pregnant during the study would have been excluded as soon as a pregnancy was confirmed.)

3.4 Participants

The study was conducted on 25 female participants residing in the larger Durban area in Kwa-Zulu Natal in South Africa. Initially the study was aimed to be conducted on 30 participants, but the researcher was only able to get up to 26 participants and one dropped out of the study, due to various logistical and other problems such as availability of the gynaecologist, time constraints, patient compliance etc. Participants were allowed to withdraw from the study without giving a reason to the researcher.

The first 26 participants that were screened by ultrasound and found to have no pathology that could potentially disqualify them from the study were asked to sign a second informed consent form (Appendix G 1) in order to continue with the rest of the study. The participants were then randomly assigned to two groups. Of the 26 participants selected, 25 managed to complete the study. The participants that were on the phytotherapeutic complex were 17 and the other 8 were assigned to the simillimum group. The reason for the uneven number was due to the fact that the

homoeopathic similimum's efficacy on the treatment of primary dysmenorrhoea have been tested before and found to be effective, as well as in other studies where it was tested on endometriosis and premenstrual syndrome, which are cases that are related to dysmenorrhoea.

Therefore, an unequal randomisation list was drawn up in order to ensure that more participants were in the experimental (phytotherapy) group than in the similimum (control) group. The similimum served as a control for the purpose of this study. The reason for excluding a placebo group was an ethical consideration; because dysmenorrhoea is a painful condition that can interfere with performance and daily activity it was decided not to include a placebo group as a control in order to ensure better compliance.

3.5 The study procedure

At the commencement of the first consultation each participant was asked to sign an informed consent form (Appendix G 1). Since this was a double-blinded trial, the researcher took every case as if it was a homoeopathic simillimum case, comprehensive and in great detail (Appendix D) and a homoeopathic simillimum remedy was prescribed for every case history taken, whether the participant received the homoeopathic remedy or the phytotherapeutic complex according to randomisation list.

The treatments were dispensed by an independent person, the clinic clinician, thereby ensuring the blindness of the study. A physical examination was performed on each patient (Appendix D). During this consultation the participant completed the MDQ (Moos 1968) (Appendix B), as well as the PRS (British Pain Society 2006) (Appendix C) to obtain information with regard to their dysmenorrhoea before treatment to provide a base line. The first consultation was the baseline and the fourth consult the end of the study. The second and third consultations took place within the first week after the menstrual period for that month. On the first and second follow-up's, the follow-up case history was taken and the participants completed again the MDQ and the PRS and the researcher decided on a

prescription as guided by the clinician on duty. An appointed homoeopathic physician dispensed medication to the respective groups according to the randomisation sheet drawn up by the research supervisor. At the third follow-up consultation, which was the final consultation, the participants came to give feedback on the treatment and completed another set of MDQ and PRS. No prescription was given at the last consultation.

The experimental medication was dispensed in liquid format (25ml) and comprised of either the phytotherapuetic complex (*Angelica sinensis , Dioscorea villosa, Matricaria chamomilla, Viburnum opulus* and *Zingiber officinalis)* or the homoeopathic similimum in a 30ch plussed potency.

Participants were asked to return for follow-up consultations in the week following the menstrual period once every month for a period of three months.

3.6 TREATMENT

The phytotherapeutic complex and the homoeopathic simillimum were used as interventions in this study.

3.6.1. Experimental medicines

The medicines utilised for the study were prepared at the Durban University of Technology Homoeopathic Day Clinic dispensary. The medicines were in a liquid format and were dispensed in 25ml amber glass bottles from the first consultation up to the second follow-up.

3.6.1.1 Manufacturing of the homoeopathic similimum

Homoeopathic similimum treatment was based on homoeopathic principles and a qualified homoeopath at the Durban University of Technology Homoeopathic Day Clinic supervised each case to confirm an appropriate remedy was chosen.

The similimum was selected based on the totality of physical, emotional and mental symptoms presented by the participant. These symptoms were elicited by taking an extensive homoeopathic case history (Appendix D).

The remedy was prepared and dispensed as a “plussed potency”, participants were asked to take 10 drops of the remedy after 10 succussions every 3 hours for the first 3 days of the menstrual period. A plussed potency is prepared by adding ten impregnated granules to a 25ml dropper bottle followed by 18ml of purified water. The bottle is then swirled to dissolve the granules and once completely dissolved 2,5ml of 96 percent alcohol is added. The bottle is then sealed and succussed (shaken vigorously) ten times and affixed with a label with the appropriate instructions. The selection of this potency provided for little or no homoeopathic aggravation and could be taken more frequently (De Schepper 2005).

The Radar computerized repertory (Radar, Version 9 - Archibel Belgium) was used to analyse the symptoms and to present remedy differentials. The symptom picture of the participant was matched with the symptom picture of the remedy differentials as can be found in the Concordant homoeopathic materia medica (Vermeulen 2001) and the most similar remedy was selected.

Each participant had four (one initial plus three follow up) consultations with the researcher at monthly intervals. During each consultation the participant’s subjective and objective responses to the treatment were assessed and recorded as per homoeopathic case history. The remedy and potency could be changed during the course of the treatment.

3.6.1.2 Manufacturing of the phytotherapeutic complex

The complex consisted of *Angelica sinensis, Dioscorea villosa, Matricaria chamomilla, Viburnum opulus,* and *Zingiber officinalis.* Equal parts of each substance were added to make the complex; therefore each 25 ml of the total complex contained 5 ml of each substance.

The phytotherapy tinctures were purchased individually from CoMed, a company based in Johannesburg, while the original tinctures were manufactured by Mediherb, an Australian based company.

The labels of each tincture were labelled as below:
-Angelica sinensis mother tincture (HAB), expiry date: 03/ 2017, batch number: 0312106, Code: 04AOO52

- Dioscorea villosa mother tincture (FP), expiry date: 12/2016, batch number: 13RA30

-Matricaria chamomilla mother tincture, expiry date: 06/ 2016, Batch number: 12RH23

-Viburnum opulus mother tincture, expiry date: 06/ 2014, Batch number: 12RA14

-Zingiber officinalis mother tincture (FP), expiry date: 01/2017, Batch number: 12R143

The researcher blended equal amounts of each mother tincture into a 25 ml amber glass bottle, which was 5ml, this was done to make sure that all the herbs gets equal amounts of chances to function, without any being compromised in anyway. These were combined into a complex in the homoeopathic laboratory in DUT, by the researcher with the help of the lab technician before the study commenced.

Table 1: Manufacturing of the phytotherapeutic complex

Herb name	Batch number	strength	Amount
Angelica sinensis	03212106	1:10	5 ml
Dioscorea villosa	13RA30	1:10	5 ml
Matricaria chamomilla	12RH23	1:10	5 ml
Viburnum opulus	12RA14	1:10	5 ml
Zingiber officinalis	12R143	1:10	5 ml

3.7. INTERVENTION

Each participant was given 25ml of either the phytotherapeutic complex or the similimum in a 30ch plussed potency at the first three consultations.

Participants were instructed to start taking their medication as soon as the menstrual flow started and to take a dose every three hours for the first three days of the menstrual period. One dose of the phytotherapeutic complex was 20 drops and one dose of the similimum was 10 drops after 10 succussions. In cases where patients still experienced pain, regardless of the treatment, they were allowed to take “rescue medication” in the form of the allopathic pain medicine they had previously taken and keep a record of it (see Appendix M). Before a patient took the allopathic medication she needed to consult with the researcher, either telephonically or in person.

3.8 OUTCOME MEASUREMENTS

During each consultation the participant completed the MDQ (Moos 1968) as well as the PRS (British Pain Society 2006) to obtain information with regard to their dysmenorrhoea symptoms during treatment.

3.8.1 The Moos Menstrual Distress Questionnaire (MDQ)

Moos (1968) states that the MDQ can be used to screen and identify patients suffering with menstrual distress and can be used to monitor each patient’s progress and evaluate the effectiveness of the treatment. The questionnaire has 46 symptoms rated from 1 (no symptoms present) to 5 (acute or partially disabling symptoms) (Moos 1968).

The MDQ is a standard method for measuring cyclical perimenstrual symptoms. It is used to help clinicians and researchers make systematic, empirical evaluations of a woman’s symptoms, of treatments, and of aetiological theories. The MDQ can distinguish cyclical from noncyclical changes in physical symptoms, mood and

behaviour, and arousal. It identifies the type and intensity of symptoms women experience during each phase of the menstrual cycle and can aid researchers and clinicians in specifying the effect of therapeutic interventions (Moss 2012).

Despite the wide usage of the MDQ in menstrual cycle research, the factor structure of the questionnaire has received relatively little attention since derived by Moos in 1968. This issue is one of considerable importance given that the methods of data collection used by Moos have since been subject to serious criticism. Nonetheless, it has been concluded that the Moos factors effectively represent the structure of menstrual cycle symptoms (Ross, Coleman and Stojanovska 2003).

3.8.2 Pain Rating Scale (PRS)

The numerical rating scale used in this study is the PRS (British Pain Society 2006).

Numerical rating scales (NRSs) and verbal numerical scales (VNSs) consist of a set of numbers (usually '0' to '10') represented along a horizontal or vertical line and may be represented as a pain thermometer or a box scale. Patients are asked to point to or draw around the number that best describes their pain intensity. In the case of a VNS, patients verbally indicate the number that best describes their pain intensity. This type of scale is quick and easy for most patients to understand and use. It also has several practical advantages in that it is extremely easy to teach, score and document and can be either written or verbal. Studies have shown that postoperative and critically ill patients, patients with visual impairment, patients with poor motor coordination, patients with reduced abstracting ability and older people are able to use the NRS/VNS (Wood 2004).

3.9 STATISTICAL ANALYSIS

Only the data obtained from the log sheets (Appendix B and C) was used for analysis. Statistical analysis was conducted using MS-EXCEL® as well as SPSS® software suite version 14,1. Various descriptive and inferential statistical techniques were used.

The statistical analysis of these results needed to elucidate the following:

- The presence or absence and statistical significance of any improvement within groups (i.e. the group treated with similimum and the group treated with phytotherapy) as measured by either of the rating instruments (i.e. MSQ and PRS); and
- The presence or absence and statistical significance of any difference in results between the groups (i.e. the group treated with similimum and the group treated with phytotherapy) as measured by either of the rating instruments (i.e. MSQ and PRS)

3.9.1 Part 1: Intra-group Analysis

Intra-group analysis was performed using a non-parametric test for analysis of variance, namely Friedman's test. This tests the null hypothesis at the level of 5% significance i.e. the possibility of the observed data being the result of chance is less than 5% (p=0.05).

Null hypothesis (H_0): The observed change in the reported observations regarding perceived symptoms is due to chance variation within each group.

Alternative Hypothesis (H_1): The observed change in the reported observations regarding perceived symptoms is due to the treatment effect

3.9.2 Part 2: Inter-group analysis

Inter-group analysis was conducted using the Mann-Whitney U test for 2 independent samples. This tests the null hypothesis at the level of 5% significance i.e. the possibility of the observed data being the result of chance is less than 5% (p=0.05).

Null hypothesis (H_0): There is no difference in the data observations between the phytotherapy group and the similimum group.

Alternative hypothesis (H_1): There is a significant difference in the data observations between the phytotherapy and similimum group.

3.10 ETHICS

Primary dysmenorrhea is not a life threatening condition. Signed informed consent (Appendix G) was obtained from all participants, and they were provided with a detailed information letter (Appendix F) pertaining to the study (risks, benefits, etc.) followed by an additional explanation provided by the researcher. Participation was purely voluntary. Both groups received treatment, no placebo was involved. All information supplied by participants throughout the study was regarded as confidential. The research will be published in a manner that will not disclose any personal information of the participants. All patient files will be kept in a locked filing cabinet which only the researcher and supervisor will have access to.

CHAPTER 4: RESULTS

4.1 **CASES**

The tables below are the statistically analysed results of both the Moos menstrual distress questionnaire (MDQ) and the Pain Rating Scales (PRS), for each consultation for every patient.

PARTICIPANT NUMBER 1

Age: 21

Race: African

Occupation: Student

Treatment group: Phytotherapeutic complex

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	12	6	6	12	6	6	10	8	6
2. Concentrations	11	8	8	8	8	8	8	8	8
3. Behavioral change	20	5	5	7	5	5	7	5	5
4. Autonomic reactions	5	3	3	5	3	3	3	3	3
5. Water retention	8	4	4	9	4	4	9	4	4
6. Negative affect	24	10	8	8	8	8	9	8	8
7. Arousal	5	5	5	6	5	5	6	5	5
8. control	5	5	5	6	5	5	5	6	5
9. Appetite changes	1	1	1	1	1	1	1	1	1

MDQ results for the third follow-up

A	B	C
8	7	6
8	8	8
6	5	5
4	3	3
9	4	4
9	8	8
5	5	5
5	6	5
1	1	1

PAIN RATING SCALE

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	7	5	2	4
How intense was it a week before your menses	2	0	3	0
How distressing was it	9	4	0	3
How distressing was it a week before	3	0	2	0
How did it interfere with your daily life	8	4	2	4

All the clinical features improved from the base line to the final follow-up

PARTICIPANT NUMBER 2

Age: 18

Race: African

Occupation: Student

Treatment group: Phytotherapuetic complex

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	10	6	6	8	6	6	9	6	6
2. Concentrations	15	8	8	12	8	8	11	8	8
3. Behavioral change	18	5	5	8	5	5	6	5	5
4. Autonomic reactions	13	3	3	8	3	3	6	3	3
5. Water retention	12	6	4	8	4	4	7	4	4
6. Negative affect	20	8	8	13	8	8	10	8	8
7. Arousal	5	5	5	5	5	5	5	5	5
8. Control	6	5	5	5	5	5	5	5	5
9. Appetite changes	3	1	1	3	1	1	3	1	1

MDQ results for the third follow-up

A	B	C
8	8	6
11	8	8
5	5	5
5	3	3
5	4	4
10	8	8
9	5	5
10	6	5
1	1	1

PAIN RATING SCALE #2

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	7	6	6	1
How intense was it a week before your menses	0	0	0	1
How distressing was it	5	6	5	1
How distressing was it a week before	0	0	0	0
How did it interfere with your daily life	8	8	5	1

On the MDQ most of the symptoms improved, excluding the arousal and the ones under the control. On the PRS all symptoms improved remarkably.

PARTICIPANT NUMBER 3

Age: 28

Race: African

Occupation: financial advisor

Control group: Homoeopathic simillimum

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	11	8	7	10	6	6	8	6	6
2. Concentrations	16	11	12	10	8	8	9	8	8
3. Behavioral change	16	8	5	8	5	5	11	5	5
4. Autonomic reactions	6	4	3	7	3	3	3	3	3
5. Water retention	13	11	4	7	4	4	7	4	4
6. Negative affect	21	14	8	16	8	8	8	8	8
7. Arousal	5	5	5	5	5	5	5	5	5
8. Control	6	5	5	5	5	5	5	5	5
9. Appetite changes	3	1	1	1	1	1	1	1	1

MDQ results for the third follow-up

A	B	C
9	6	6
9	8	8
8	5	5
3	3	3
5	4	4
9	8	8
5	5	5
7	5	5
2	1	1

PAIN RATING SCALE #3

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	7	6	5	4
How intense was it a week before your menses	5	2	0	0
How distressing was it	8	4	4	2
How distressing was it a week before	0	0	0	0
How did it interfere with your daily life	8	4	4	3

First consultation: **03/06/13**

Prescribed remedy: **Phosphorus 30ch** plussed potency

Rubrics used for repertorisation:

Female; MENSES; painful, dysmenorrhea

Abdomen; PAIN; cramping, griping; walking ; agg.

Abdomen; PAIN; cramping, griping; pressure; amel

Mind, COMPANY; aversion to, agg.; alone; amel.

Generalities; FOOD and drinks; coffee; amel.

Stomach; VOMITING; sour; menses; during

Differential remedies:

Nux-vomica and Magnesium phos

First follow-up: 26/06/2013

Prescribed remedy: **Nux vomica 30ch plussed potency**

Rubrics used for repertorisation:

Stomach; Vomiting; Menses; during

Generalities; FOOD and drinks; water; Aversion

Generalities; FOOD AND drinks; coffee; desires

Differential remedies:

Pulsatilla, Lachesis and Phosphorus

Second follow-up: 28/07/2013

Prescribed remedy: Nux vom 30ch plussed

Third follow-up: 29/08/2013

No remedy was prescribed on the final follow-up

On the MDQ and PRS all the symptoms improved.

PARTICIPANT NUMBER 4

Age: 20

Race: African

Occupation: Student

Treatment group: Phytotherapuetic complex

The results from the Moss questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	19	6	6	16	6	6	12	6	6
2. Concentrations	28	8	8	12	8	8	8	8	8
3. Behavioral change	20	5	5	13	5	5	14	5	5
4. Autonomic reactions	12	3	3	6	3	3	5	3	3
5. Water retention	10	4	4	5	4	4	5	4	4
6. Negative affect	30	8	8	16	8	8	19	8	8
7. Arousal	5	5	5	5	5	5	5	5	5
8. Control	5	5	5	5	5	5	5	5	5
8. Appetite changes	5	1	1	5	1	1	3	1	1

MDQ results for the third follow-up

A	B	C
9	6	7
8	8	8
9	5	5
5	3	3
6	4	4
14	8	8
6	5	5
7	5	5
4	1	1

PAIN RATING SCALE

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	10	6	5	2
How intense was it a week before your menses	0	0	0	0
How distressing was it	8	5	4	2
How distressing was it a week before	0	0	0	0
How did it interfere with your daily life	7	4	1	1

On both the MDQ and the PRS the symptoms improved excluding the ones under arousal and control.

PARTICIPANT NUMBER 5

Age: 19

Race: African

Occupation: Student

Treatment group: Phytotherapuetic complex

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	13	8	6	9	6	6	9	6	6
2. Concentrations	11	9	8	9	8	8	9	8	8
3. Behavioral change	12	7	5	8	5	5	8	5	5
4. Autonomic reactions	7	6	3	5	3	3	6	3	3
5. Water retention	7	5	4	5	4	4	4	4	4
6. Negative affect	14	12	8	13	10	8	11	8	8
7. Arousal	5	5	5	5	5	5	5	5	5
8. Control	6	6	6	5	5	5	5	5	5
9. Appetite changes	2	1	1	1	1	1	1	1	1

MDQ results for the third follow-up

A	B	C
8	6	6
9	8	8
8	5	5
5	3	3
5	4	4
13	8	8
5	5	5
6	5	5
1	1	1

PAIN RATING SCALE # 5

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	7	5	4	2
How intense was it a week before your menses	0	0	0	0
How distressing was it	8	5	3	3
How distressing was it a week before	0	0	0	0
How did it interfere with your daily life	8	5	3	2

PATIENT NUMBER 6

Age: 21

Race: African

Occupation: Self employed

Control group: Homoeopathic simillimum

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	10	6	6	8	6	6	8	6	6
2. Concentrations	15	9	8	8	8	8	8	8	8
3. Behavioral change	19	11	5	10	5	5	5	5	5
4. Autonomic reactions	5	4	3	4	3	3	4	3	3
5. Water retention	5	4	4	7	4	4	8	4	4
6. Negative affect	17	11	7	12	8	8	8	8	8
7. Arousal	5	5	5	5	5	5	5	5	5
8. Control	8	6	5	5	5	5	5	5	5
9. Appetite changes	4	2	1	2	1	1	1	1	1

MDQ results for the third follow-up

A	B	C
8	6	6
9	8	8
6	5	5
4	3	3
5	4	4
8	8	8
5	5	5
6	5	5
2	1	1

PAIN RATING SCALE # 6

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	7	4	3	3
How intense was it a week before your menses	1	0	1	0
How distressing was it	8	5	3	3
How distressing was it a week before	0	0	0	0
How did it interfere with your daily life	8	5	3	2

First consultation: 05/06/13

Prescribed remedy: Lachesis 30ch plussed potency

Rubrics used for repertorisation:

Female; MENSES; painful, dysmenorrhea

Abdomen; PAIN; cutting; menses; during

Female; MENSES; short, too

Mind; DREAMS; dead; people, of; relatives

Mind; DREAMS; cutting; knife, of being cut with

Diferential remedies:

Kali carbonicum,Sulphur, Kreosotum,Phosphorus and Cocculus

First follow-up: 26/06/13

Lachesis 30ch plussed potency

Second follow-up 14/08/13

Lachesis 30ch plussed potency

Third follow-up: 16/10/13

No prescription: final follow-up

PARTICIPANT NUMBER 7

Age: 22

Race: African

Occupation: Student

Treatment group: Phytotherapuetic complex

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	28	17	10	11	6	6	12	6	6
2. Concentrations	12	9	8	9	8	8	8	8	8
3. Behavioral change	18	10	5	9	5	5	6	5	5
4. Autonomic reactions	10	4	3	7	3	3	4	3	3
5. Water retention	10	8	4	4	4	4	4	4	4
6. Negative affect	24	15	8	9	8	8	11	8	8
7. Arousal	6	6	5	5	5	5	5	5	5
8. Appetite changes	9	8	6	5	5	5	5	5	5
9. Appetite changes	4	3	1	1	1	1	4	1	1

MDQ results for the third follow-up

A	B	C
10	8	6
11	8	8
7	5	5
4	3	3
4	4	4
12	8	8
5	5	5
7	5	5
2	1	1

PAIN RATING SCALE # 7

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	7	4	3	1
How intense was it a week before your menses	5	5	0	0
How distressing was it	7	2	3	1
How distressing was it a week before	0	0	0	0
How did it interfere with your daily life	8	3	3	1

PARTICIPANTNT NUMBER 8

Age: 18

Race: Indian

Occupation: Student

Treatment group: Phytotherapuetic complex

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	25	6	6	23	8	6	14	6	6
2. Concentrations	17	9	9	20	9	9	13	8	8
3. Behavioral change	17	5	5	18	5	5	10	5	5
4. Autonomic reactions	8	3	3	10	3	3	7	3	3
5. Water retention	9	4	4	7	4	4	5	4	4
6. Negative affect	23	8	8	20	8	8	14	8	8
7. Arousal	5	5	5	5	5	5	5	5	5
8. Control	5	5	5	5	5	5	5	5	5
9. Appetite changes	4	1	1	4	1	1	2	1	1

MDQ results for the third follow-up

A	B	C
12	6	6
10	8	8
8	5	5
6	3	3
6	4	4
10	8	8
5	5	5
5	5	5
1	1	1

PAIN RATING SCALE # 8

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	9	10	5	3
How intense was it a week before your menses	8	5	1	1
How distressing was it	8	9	5	3
How distressing was it a week before	9	0	0	0
How did it interfere with your daily life	9	10	5	2

PARTICIPANT NUMBER 9

Age: 20

Race: African

Occupation: Student

Control group: Homoeopathic similimum

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	12	6	7	10	6	6	8	6	6
2. Concentrations	9	8	8	9	8	8	10	8	8
3. Behavioral change	15	5	5	5	5	5	6	5	5
4. Autonomic reactions	5	3	3	4	3	3	3	3	3
5. Water retention	10	4	4	4	4	4	4	4	4
6. Negative affect	16	8	8	13	8	8	11	8	8
7. Arousal	5	5	5	5	5	5	5	5	5
8. Control	5	5	5	5	5	5	5	5	5
9. Appetite changes	4	1	1	1	1	1	1	1	1

MDQ results for the third follow-up

A	B	C
7	6	6
10	8	8
6	5	5
3	3	3
4	4	4
10	8	8
6	5	5
5	5	5
2	1	1

PAIN RATING SCALE # 9

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	6	4	3	2
How intense was it a week before your menses	0	0	0	0
How distressing was it	7	3	2	0
How distressing was it a week before	0	0	0	0
How did it interfere with your daily life	8	2	1	1

First consultation: 07/06/2013

Prescribed remedy: Sepia 30ch plussed potency

Rubrics used for repertorisation:

Female; MENSES; painful, dysmenorrhea

Abdomen; PAIN; cramping; griping; pressure; amel

Mind; COMPANY; aversion to, agg.; alone; amel. when

Stomach ;APPETITE; diminished

Abdomen; PAIN; cramping, griping; menses; during

Mind; IRRITABILITT; menses; during; agg

Mind; IRRITABILITY; pain, during

Differential remedies:

Sulphur, Nux vomica, Colocynthis, Ammonium carb and Conium

First follow-up: 12/06/13

No remedy was prescribed, the patient still had some medicine left, and symptoms improved

Second follow-up: 24/07/13

Sepia 30ch plussed potency

Third follow-up: 17/09/13

No prescription done

PARTICIPANT NUMBER 10

Age: 19

Race: African

Occupation: Student

Control group: Phytotherapuetic complex

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	12	6	6	9	6	6	8	6	6
2. Concentrations	11	8	8	8	8	8	8	8	8
3. Behavioral change	12	5	5	8	5	5	10	5	5
4. Autonomic reactions	5	3	3	3	3	3	3	3	3
5. Water retention	9	4	4	6	4	4	5	4	4
6. Negative affect	12	8	8	8	8	8	10	8	8
7. Arousal	5	5	5	5	5	5	6	5	5
8. Control	6	5	5	5	5	5	5	5	5
9. Appetite changes	1	1	1	2	1	1	2	1	1

MDQ results for third follow-up

A	B	C
7	6	6
8	8	8
8	5	5
3	3	3
5	4	4
10	8	8
7	5	5
5	5	5
2	1	1

PAIN RATING SCALE # 10

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	6	2	3	2
How intense was it a week before your menses	5	0	0	0
How distressing was it	7	2	2	1
How distressing was it a week before	6	0	0	0
How did it interfere with your daily life	8	2	3	2

PARTICIPANT NUMBER 11

Age: 20

Race: African

Occupation: Student

Treatment group: Phytotherapuetic complex

The results from the Moss questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	21	11	6	10	6	6	15	6	6
2. Concentrations	27	10	8	12	8	8	13	8	8
3. Behavioral change	22	5	5	5	5	5	8	5	5
4. Autonomic reactions	11	3	3	7	3	3	7	3	3
5. Water retention	16	12	4	11	4	4	7	4	4
6. Negative affect	34	13	8	12	8	8	10	8	8
7. Arousal	6	5	5	5	5	5	5	5	5
8. Control	5	5	5	5	5	5	5	5	5
9. Appetite changes	5	5	1	5	1	1	4	1	1

MDQ results for the third follow-up

A	B	C
14	6	6
13	8	8
10	5	5
5	3	3
7	4	4
11	8	8
6	5	5
5	5	5
3	1	1

PAIN RATING SCALE # 11

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	8	5	8	4
How intense was it a week before your menses	3	0	0	0
How distressing was it	9	4	8	4
How distressing was it a week before	0	0	0	0
How did it interfere with your daily life	9	8	7	2

PARTICIPANT NUMBER 12

Age: 19

Race: Indian

Occupation: Student

Control group: Homoeopathic simillimum

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	21	6	6	17	6	6	13	6	6
2. Concentrations	18	8	8	17	8	8	13	8	8
3. Behavioral change	12	5	5	8	5	5	12	5	5
4. Autonomic reactions	5	3	3	3	3	3	5	3	3
5. Water retention	4	5	4	7	4	4	5	4	4
6. Negative affect	22	8	8	18	8	8	14	8	8
7. Arousal	5	5	5	5	5	5	5	5	5
8. Control	12	5	5	6	5	5	5	5	5
9. Appetite changes	2	1	1	4	1	1	2	1	1

MDQ results for the third follow-up

A	B	C
9	6	6
10	8	8
9	5	5
3	3	3
4	4	4
12	8	8
5	5	5
5	5	5
2	1	1

PAIN RATING SCALE # 12

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	10	8	7	5
How intense was it a week before your menses	10	0	0	0
How distressing was it	10	3	3	2
How distressing was it a week before	10	0	0	0
How did it interfere with your daily life	8	6	4	2

First consultation: 10/06/13

Prescribed remedy: Lachesis 30ch plussed potency

Rubrics used for repertorisation:

Female; MENSES; painful, dysmenorrhea

Female; MENSES; profuse

Extremities; NUMBNESS, insensibility; Lower limbs

Mind; COMPANY; Aversion to, agg

Mind; MEMORY; Weakness, loss of

Differential remedies:

Nux-vomica, Sepia, Belladonna, Platinum, and Lycopodium

First follow up: 19/07/13

Lachesis 30ch plussed potency

Second follow-up: 17/09/13

Sepia 30ch plussed potency

Third follow-up: 28/10/13

Final consultation, no remedy prescribed

PATIENT NUMBER 13

Age: 22

Race: African

Occupation: Student

Treatment group: Phytotherapeutic complex

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	14	6	6	11	6	6	12	6	6
2. Concentrations	14	8	8	13	8	8	10	8	8
3. Behavioral change	13	5	5	10	5	5	10	5	5
4. Autonomic reactions	5	3	3	6	3	3	5	3	3
5. Water retention	16	4	4	10	4	4	8	4	4
6. Negative affect	16	8	8	12	8	8	15	8	8
7. Arousal	5	5	5	5	5	5	5	5	5
8. Control	5	5	5	5	5	5	5	5	5
9. Appetite changes	5	1	1	1	1	1	1	1	1

MDQ results for the third follow-up

A	B	C
14	8	6
15	8	8
14	5	5
5	3	3
8	4	4
15	8	8
5	5	5
5	5	5
1	1	1

PAIN RATING SCALE # 13

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	8	7	5	7
How intense was it a week before your menses	1	0	0	3
How distressing was it	7	6	5	6
How distressing was it a week before	0	0	0	3
How did it interfere with your daily life	9	6	5	5

PARTICIPANT NUMBER 14

Age: 23

Race: African

Occupation: Student

Treatment group: Phytotherapeutic complex

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	13	7	6	10	6	6	6	6	6
2. Concentrations	11	8	8	10	8	8	8	8	8
3. Behavioral change	12	5	5	7	5	5	5	5	5
4. Autonomic reactions	5	3	3	4	3	3	3	3	3
5. Water retention	10	4	4	9	4	4	4	4	4
6. Negative affect	12	8	8	8	8	8	8	8	8
7. Arousal	5	5	5	5	5	5	10	5	5
8. Control	6	5	5	7	5	5	5	5	5
9. Appetite changes	3	1	1	1	1	1	1	1	1

MDQ results for the third foloow-up

A	B	C
8	6	6
8	8	8
5	5	5
4	3	3
5	4	4
11	8	8
5	5	5
5	5	5
1	1	1

PAIN RATING SCALE # 14

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	5	5	0	1
How intense was it a week before your menses	0	0	0	0
How distressing was it	5	4	0	1
How distressing was it a week before	0	0	0	0
How did it interfere with your daily life	5	4	0	0

PARTICIPANT NUMBER 15

Age: 22

Race: African

Occupation: Student

Control group: Homoeopathic similimum

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	26	11	6	16	19	6	14	6	6
2. Concentrations	18	8	8	14	14	8	10	8	8
3. Behavioral change	16	5	5	11	8	5	7	5	5
4. Autonomic reactions	10	3	3	7	3	3	5	3	3
5. Water retention	8	4	4	6	7	4	8	4	4
6. Negative affect	21	8	8	18	10	8	11	8	8
7. Arousal	5	5	5	5	5	5	5	5	5
8. Control	7	5	5	5	5	5	6	5	5
9. Appetite changes	4	1	1	3	1	1	1	1	1

MDQ results for the third follow-up

A	B	C
9	6	6
9	8	8
7	5	5
4	3	3
4	4	4
10	8	8
5	5	5
5	5	5
1	1	1

PAIN RATING SCALE # 15

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	8	5	4	2
How intense was it a week before your menses	0	7	0	0
How distressing was it	9	6	3	1
How distressing was it a week before	0	7	0	0
How did it interfere with your daily life	10	6	3	2

First consultation: 12/06/13

Prescribed remedy: Magnesium muriaticum 30 ch plussed potency

Rubrics used for repertorisation:

Female;MENSES;painful,dysmenorrhea

Abdomen; PAIN;Constrictive

Back;PAIN;Constricting

Generalities;FOOD and drinks;Bread;aversion

Generalities;FOOD and drinks; milk,milk products;agg

Face;PALE;menses; during

Differential remedies:

Pulsatilla ,Nux vomica, Lycopodium, Rhustoxicodendron

HAD TO TAKE THE MEDICINE EVERY 2 HOURS IN ORDER TO GET RELIEVE FROM SYMPTOMS

First follow-up : 31/07/13

Magnesium muriaticum 30ch plussed potency

Second follow-up: 28/08/13

Magnesium muriaticum 30ch plussed potency

Third follow-up:06/11/13

Final consultation, no remedy prescribed

PARTICIPANT NUMBER 16

Age: 23

Race: African

Occupation: Student

Treatment group: Phytotherapeutic simillimum

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	17	6	6	16	6	6	11	6	6
2. Concentrations	13	8	8	10	8	8	9	8	8
3. Behavioral change	17	5	5	12	5	5	5	5	5
4. Autonomic reactions	3	3	3	4	3	3	4	3	3
5. Water retention	10	6	4	11	4	4	11	4	4
6. Negative affect	15	8	8	10	8	8	10	8	8
7. Arousal	5	5	5	5	5	5	5	5	5
8. Control	5	5	5	5	5	5	5	5	5
9. Appetite changes	5	1	1	5	1	1	4	1	1

MDQ results for the third follow-up

A	B	C
10	6	6
11	8	8
6	5	5
3	3	3
4	4	4
10	8	8
5	5	5
5	5	5
2	1	1

PAIN RATING SCALE # 16

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	7	6	4	4
How intense was it a week before your menses	0	0	0	0
How distressing was it	7	4	4	3
How distressing was it a week before	0	0	0	0
How did it interfere with your daily life	8	5	4	3

PARTICIPANT NUMBER 17 (DROPPED-OUT)

	A	B	C	A	B	C	A	B	C
1.Pain	18	6	6						
2. Concentrations	12	8	8						
3. Behavioral change	12	5	5						
4. Autonomic reactions	4	3	3						
5. Water retention	4	4	4						
6. Negative affect	8	8	8						
7. Arousal	5	5	5						
8. Control	5	5	5						
9. Appetite changes	3	1	1						

A	B	C

PAIN RATING SCALE # 17

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up

How intense was your pain on the previous menses	9			
How intense was it a week before your menses	1			
How distressing was it	9			
How distressing was it a week before	0			
How did it interfere with your daily life	10			

PARTICIPANT NUMBER 18

Age: 18

Race: African

Occupation: Student

Treatment group: Homoeopathic similimum

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	16	6	6	11	6	6	8	6	6
2. Concentrations	11	8	8	9	8	8	8	8	8
3. Behavioral change	15	5	5	9	5	5	7	5	5
4. Autonomic reactions	9	3	3	7	3	3	4	3	3
5. Water retention	12	12	4	6	4	4	5	4	4
6. Negative affect	15	8	8	9	8	8	10	8	8
7. Arousal	5	5	5	5	5	5	7	5	5
8. Control	5	5	5	5	5	5	5	5	5
9.Appetite changes	4	1	1	1	1	1	1	1	1

MDQ results for the third follow-up

A	B	C
8	6	6
10	8	8
5	5	5
5	3	3
4	4	4
10	8	8
5	5	5
6	5	5
2	1	1

PAIN RATING SCALE # 18

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	7	4	2	2
How intense was it a week before your menses	0	0	0	0
How distressing was it	5	4	2	3
How distressing was it a week before	0	0	0	0
How did it interfere with your daily life	9	3	2	2

First consultation:19/06/13

Prescribed remedy: Causticum 30 ch plussed potency

Rubrics used for repertorisation:

Female; MENSES; Painful, dysmenorrhea

Female; MENSES; Clotted, coagulated; dark

Female; PAIN; Cramping

Back; PAIN; Aching; menses; during

Mind; IRRITABILITY; Menses; during; agg

Head; PAIN; Pulsating, throbbing

Skin; ERUPTIONS; Pimples; menses; during

First follow-up: 18/08/13

Causticum 30 ch plussed potency

Second follow-up: 06/11/13

NO REMEDY PRESCRIBED – the patient had some medication left and was doing well on it.

Third follow-up: 20/11/13

Final consultation – no remedy prescribed

PARTICIPANT NUMBER 19

Age: 25

Race: African

Occupation: Unemployed

Treatment group: Phytotherapeutic complex

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	23	20	6	12	6	6	16	6	6
2. Concentrations	22	8	8	14	8	8	16	8	8
3. Behavioral change	13	5	5	7	5	5	10	5	5
4. Autonomic reactions	6	3	3	7	3	3	3	3	3
5. Water retention	10	9	5	8	4	4	6	4	4
6. Negative affect	16	10	8	8	8	8	16	8	8
7. Arousal	6	5	5	5	5	5	5	5	5
8. Control	5	5	5	5	5	5	5	5	5
9. Appetite changes	5	1	1	2	1	1	1	1	1

MDQ results for the third follow-up

A	B	C
9	8	6
10	8	8
6	5	5
5	3	3
8	7	6
10	8	8
5	5	5
6	5	5
2	1	1

PAIN RATING SCALE 19

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	7	6	7	4
How intense was it a week before your menses	2	0	0	4
How distressing was it	6	5	6	3
How distressing was it a week before	1	0	0	2
How did it interfere with your daily life	7	5	6	2

PARTICIPANT NUMBER 20

Age: 19

Race: African

Occupation: Student

Treatment group: Phytotherapeutic complex

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	16	6	6	15	12	6	12	7	6
2. Concentrations	14	8	8	13	9	8	13	8	8
3. Behavioral change	15	5	5	8	5	5	5	5	5
4. Autonomic reactions	6	3	3	6	3	3	5	3	3
5. Water retention	6	4	4	6	4	4	5	4	4
6. Negative affect	13	8	8	13	9	8	12	8	8
7. Arousal	5	5	5	5	5	5	5	5	5
8. Control	12	5	5	9	5	5	7	5	5
9. Appetite changes	4	1	1	3	2	1	2	1	1

MDQ results for the third follow-up

A	B	C
9	6	6
8	8	8
8	5	5
3	3	3
7	4	4
10	8	8
5	5	5
5	5	5
2	1	1

PAIN RATING SCALE

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	9	4	2	2
How intense was it a week before your menses	5	2	0	0
How distressing was it	5	4	0	0
How distressing was it a week before	0	3	0	0
How did it interfere with your daily life	9	5	3	2

PARTICIPANT NUMBER 21

Age: 21

Race: African

Occupation: Student

Control group: Homoeopathic simillimum

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	12	8	6	8	6	6	7	6	6
2. Concentrations	12	8	8	8	8	8	11	8	8
3. Behavioral change	13	5	5	8	5	5	6	5	5
4. Autonomic reactions	7	3	3	3	3	3	4	3	3
5. Water retention	7	4	4	5	4	4	5	4	4
6. Negative affect	18	8	8	9	8	8	10	8	8
7. Arousal	5	5	5	5	5	5	5	5	5
8. Control	7	5	5	6	5	5	5	5	5
9.Appetite change	1	1	1	1	1	1	2	1	1

MDQ results for the third follow-up

A	B	C
7	6	6
8	8	8
6	5	5
4	3	3
4	4	4
10	8	8
5	5	5
5	5	5
2	1	1

PAIN RATING SCALE

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	8	4	2	2
How intense was it a week before your menses	0	0	0	0
How distressing was it	7	3	1	1
How distressing was it a week before	0	0	0	1
How did it interfere with your daily life	7	3	2	2

First consultation: 08/08/13

Natrum Muriaticum (Nat-mur) 30 ch plussed potency

Rubrics used for repertorisation:

Female; MENSES; Painful, dysmenorrhea

Female; PAIN; Bearing down

Back; PAIN; Aching; menses; during

Female; PAIN; bending double, amel

Mind; COMPANY; agg

Differential remedy:

Sepia

Motivation for Natrum muriaticum

Pain on first 3 days

Heavy flow, backache, pulling down pain, blood black and clotted, pain better for bending double, bad relationship with the father, alone amel,, cheating partner

First follow-up: 18/09/13

Natrum muriaticum 30 ch plussed potency

Second follow-up: 06/11/13

Natrum muriaticum 30 ch plussed potency

Third follow-up: 27/11/13

Final consultation, no remedy prescribed

PARTICIPANT NUMBER 22

Age: 20

Race: White

Occupation: Student

Treatment group: Phytotherapeutic complex

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	19	9	6	16	13	6	12	10	6
2. Concentrations	14	9	8	20	17	8	17	10	8
3. Behavioral change	13	5	5	18	22	5	10	5	5
4. Autonomic reactions	15	6	3	9	6	3	8	6	3
5. Water retention	11	9	4	13	13	4	10	11	4
6. Negative affect	32	29	8	28	22	8	21	20	8
7. Arousal	5	5	5	5	5	5	5	5	5
8. Control	5	5	5	5	5	5	5	5	5
9. Appetite changes	1	1	1	3	2	1	2	2	1

MDQ results for the third follow-up

A	B	C
11	6	6
12	9	8
7	5	5

7	3	3
6	5	4
16	8	8
5	5	5
5	5	5
2	1	1

PAIN RATING SCALE

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	9	7	5	4
How intense was it a week before your menses	1	2	3	2
How distressing was it	9	7	5	4
How distressing was it a week before	1	2	3	3
How did it interfere with your daily life	9	9	6	5

PARTICIPANT NUMBER 23

Age: 22

Race: African

Occupation: Student

Treatment group: Phytotherapeutic complex

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	22	10	6	12	12	6	13	7	6
2. Concentrations	16	8	8	9	8	8	11	8	8
3. Behavioral change	16	5	5	13	7	5	10	5	5
4. Autonomic reactions	13	3	3	7	3	3	8	3	3
5. Water retention	8	8	4	4	7	4	5	4	4
6. Negative affect	27	8	8	27	8	8	16	8	8
7. Arousal	6	5	5	6	5	5	5	5	5
8. Control	5	5	5	5	5	5	5	5	5
9. Appetite changes	5	1	1	3	1	1	4	1	1

MDQ results for the third follow-up

A	B	C
8	7	6
10	8	8
6	5	5
4	3	3
5	4	4
12	8	8
5	5	5
5	5	5
2	1	1

PAIN RATING SCALE

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	9	4	3	2
How intense was it a week before your menses	6	4	3	0
How distressing was it	8	5	4	2
How distressing was it a week before	7	0	0	0
How did it interfere with your daily life	9	2	3	3

PARTICIPANT NUMBER 24

Age: 19

Race: African

Occupation: Student

Treatment group: Homoeopathic simillimum

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	32	8	6	29	6	6	16	6	6
2. Concentrations	16	8	8	13	8	8	10	8	8
3. Behavioral change	20	9	5	11	5	5	14	5	5
4. Autonomic reactions	14	5	3	14	3	3	6	3	3
5. Water retention	8	4	4	10	10	4	6	4	4
6. Negative affect	19	11	8	18	8	8	14	8	8
7. Arousal	5	5	5	5	5	5	5	5	5
8. Control	5	5	5	5	5	5	5	5	5
9. Appetite changes	3	1	1	2	1	1	2	1	1

MDQ results for the third follow-up

A	B	C
10	6	6
9	8	8
8	5	5
4	3	3
4	4	4
13	8	8
5	5	5
5	5	5
2	1	1

PAIN RATING SCALE

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	9	10	6	5
How intense was it a week before your menses	4	5	0	0
How distressing was it	7	9	5	2
How distressing was it a week before	5	5	0	0
How did it interfere with your daily life	9	9	5	3

First consultation

Remedy prescribed: Sepia 30 cH plussed potency

Rubrics used for repertorisation:

FEMALE; MENSES; painful, dysmenorrhea

ABDOMEN; PAIN; general; menses; agg. ; before

BACK; PAIN; General; menses; agg.; during

MIND; IRRITABILITY; menses; during; agg

FEVER, HEAT; menses;during

STOMACH; NAUSEA; menses; during
EXTREMETIES; WEAKNESS; lower limbs; menses; during
EXTREMETIES; HEAVINESS,t ired limbs; lower limbs; menses; during

Differential remedies:
Sulphur, Nux-vomica, Calc carb

First follow-up: 09/09/13
Nux-vom 30 ch plussed potency

Second follow-up: 16/10/13
No remedy prescribed – the patient still had some extra medication and was doing well on it.

Third follow-up: 29/11/13

Final consultation, no remedy prescribed

PARTICIPANT NUMBER 25

Age: 20

Race: African

Occupation: Student

Treatment group: Phytotherapeutic complex

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	24	20	6	10	15	6	11	9	6
2. Concentrations	15	10	8	11	10	8	9	8	8
3. Behavioral change	13	13	5	11	6	5	12	6	5
4. Autonomic reactions	8	6	3	5	4	3	4	3	3
5. Water retention	10	9	4	7	10	4	4	4	4
6. Negative affect	10	10	8	9	9	8	10	8	8
7. Arousal	5	5	5	5	5	5	5	5	5
8. Control	8	10	5	6	9	5	7	5	5
9. Appetite changes	1	1	1	1	1	1	2	1	1

MDQ results for the third follow-up

A	B	C
10	7	6
10	8	8
6	5	5
4	3	3
5	4	4
9	8	8
5	5	5
7	5	5
1	1	1

PAIN RATING SCALE

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	6	4	3	3
How intense was it a week before your menses	7	3	0	0
How distressing was it	5	5	3	2
How distressing was it a week before	6	3	0	0
How did it interfere with your daily life	9	6	4	3

PARTICIPANT NUMBER 26

Age: 20

Race: African

Occupation: Student

Treatment group: Phytotherapeutic complex

The results from the Moos questionnaire

The first three columns represent the baseline, second three= first follow-up, third three columns represent the scores of the second follow-up.

	A	B	C	A	B	C	A	B	C
1.Pain	18	6	6	11	6	6	9	6	6
2. Concentrations	23	8	8	15	8	8	8	8	8
3. Behavioral change	18	5	5	11	5	5	8	5	5
4. Autonomic reactions	10	3	3	8	3	3	5	3	3
5. Water retention	16	4	4	6	4	4	9	10	4
6. Negative affect	26	8	8	14	8	8	11	8	8
7. Arousal	5	5	5	5	5	5	5	5	5
8. Control	11	5	5	6	5	5	5	5	5
9. Appetite changes	4	1	1	3	1	1	1	1	1

MDQ results for the third follow-up

A	B	C
8	6	6
8	8	8
6	5	5
4	3	3
8	8	4
9	8	8
5	5	5
5	5	5
1	1	1

PAIN RATING SCALE

	Base line 1st consultation	1st follow-up	2nd follow-up	3rd follow-up
How intense was your pain on the previous menses	8	5	3	3
How intense was it a week before your menses	0	0	0	0
How distressing was it	9	5	2	3
How distressing was it a week before	0	0	0	0
How did it interfere with your daily life	7	6	2	2

Consort flow diagram

Assessed for eligibility (n=35)

Excluded, not meeting the inclusion criteria (n=9)

Randomized (n =26)

1. Allocated to the phytotherapeutic complex (n=20) – Lost to follow-up, discontinued intervention in the first month (n=1) – analyzed (n=19).
2. Allocated to the homoeopathic simillimum (n=9) – Lost to follow-up (n=0) – Analyzed (n=9)

RESULTS FOR ALL THE PARTICIPANTS

4.1 Part 1: Intra-group analysis

The intra-group analysis was performed using the non-parametric test for analysis of variance the Friedman's test. This tests the null hypothesis at the level of 5% significance i.e. the possibility of the observed data being the result of chance is less than 5% (p=0.05).

Null hypothesis (H_0): The observed change in the reported observations regarding perceived symptoms is due to chance variation within each group.

Alternative Hypothesis (H_1): The observed change in the reported observations regarding perceived symptoms is due to the treatment effect.

Tables 1 to 3 summarise the results of the intra-group analysis of each of the individual measurement parameters measured by the questionnaires the respondents completed. These constitute answers pertaining to the following observed time cycles:

- A – during the most recent menstrual flow (Table 2);
- B – one week before the menstrual flow (Table 3); and
- C – during the remainder of the most recent menstrual cycle (Table 4).

Each of these time cycles were investigated at baseline and at each subsequent follow up.

In addition the respondents completed the Pain Rating Scale (PRS) at each consultation. This instrument measured participants' observations of global parameters of their menstrual period. Table 5 summarises the findings of Friedman's test applied to the data obtained from this scale.

Table 2: Table Showing results of Friedman's score for participant responses pertaining to the most recent menstrual flow (S.s. = Statistically Significant, Y= yes, N = No).

Parameter Measured	Treatment Group	Chi Square Value	P value	S.s.
Experience of Pain	Phytotherapy	36.782	.000	Y
	Similimum	21.892	.000	Y
Concentration	Phytotherapy	26.586	0.000	Y
	Similimum	10.000	0.019	Y
Behaviour Change	Phytotherapy	29.646	0.000	Y
	Similimum	15.320	0.002	Y
Autonomic Reaction	Phytotherapy	30.928	0.000	Y
	Similimum	14.229	0.000	Y
Water Retention	Phytotherapy	21.196	0.000	Y
	Similimum	11.958	0.008	Y
Negative Affect	Phytotherapy	29.284	0.000	Y
	Similimum	17.182	0.001	Y
Arousal	Phytotherapy	1.286	0.733	N
	Similimum	2.000	0.572	N
Control	Phytotherapy	8.724	0.033	Y
	Similimum	6.882	0.076	N
Appetite Changes	Phytotherapy	15.520	0.001	Y
	Similimum	8.585	0.035	Y

As can be seen from the above table, most measured parameters relating to experience during the previous menstrual flow showed statistically significant reductions in intensity. This is to say that both the phytotherapy group and the similimum group experienced reductions in their symptoms as measured by the MDQ.

Neither group noted any significant improvements in the symptoms grouped under the Arousal heading (Affectionate, Orderliness, Excitement, Feeling of well-being, Burst of energy, Activity). This may have been due to the subtle and highly subjective nature of these symptoms. It may have been difficult for the subjects to note and recall changes in these parameters in detail at the time of the next consultation.

Note that under the “Control” heading (feeling of suffocation, chest pain, ringing in the ears, heart pounding, blind spots, and fuzzy vision) the phytotherapy group recorded a significant reduction while the similimum group did not.

Table 3: Results of Friedman’s score for participant responses pertaining to the week before most recent menstrual flow (S.s. = Statistically Significant, Y= yes, N = No).

Parameter Measured	Treatment Group	Chi Square Value	P value	S.s.
Experience of Pain	Phytotherapy	3.178	0.365	N
	Similimum	8.333	0.040	Y
Concentration	Phytotherapy	9.122	0.028	Y
	Similimum	3.667	0.300	N
Behaviour Change	Phytotherapy	5.909	0.116	N
	Similimum	6.000	0.112	N
Autonomic Reaction	Phytotherapy	8.778	0.032	Y
	Similimum	9.000	0.029	Y
Water Retention	Phytotherapy	10.145	0.017	Y
	Similimum	5.400	0.145	N
Negative Affect	Phytotherapy	17.754	0.000	Y
	Similimum	6.000	0.112	N
Arousal	Phytotherapy	3.000	0.392	N
	Similimum	-	-	N
Control	Phytotherapy	2.415	0.491	N
	Similimum	3.000	0.392	N
Appetite Changes	Phytotherapy	2.538	0.468	N
	Similimum	3.000	0.392	N

In the above table it is evident that less change was experienced in the week before the last period than in the actual menstrual cycle itself. This may be due to the fact that a number of the symptoms of measurement only arise primarily in the period of menstrual flow. It may also be an artefact of subjects’ decreased likelihood of noting and recalling symptoms experienced in a general unmarked time frame (the week before the last menses).

This interpretation is given some support by the fact that significant changes experienced in the rest of the menstrual cycle (Table 4) were hardly noted (only one heading was seen to statistically reduce in intensity – Appetite Changes).

Table 4: results of Friedman's score for participant responses pertaining to the remainder of the most recent menstrual cycle (S.s. = Statistically Significant, Y= yes, N = No).

Parameter Measured	Treatment Group	Chi Square Value	P value	S.s.
Experience of Pain	Phytotherapy	2.000	0.572	N
	Similimum	6.000	0.112	N
Concentration	Phytotherapy	3.000	0.392	N
	Similimum	3.000	0.392	N
Behaviour Change	Phytotherapy	-	-	N
	Similimum	-	-	N
Autonomic Reaction	Phytotherapy	-	-	N
	Similimum	-	-	N
Water Retention	Phytotherapy	3.000	0.392	N
	Similimum	-	-	N
Negative Affect	Phytotherapy	3.000	0.392	N
	Similimum	3.000	0.392	N
Arousal	Phytotherapy	-	-	N
	Similimum	-	-	N
Control	Phytotherapy	6.333	0.096	N
	Similimum	-	-	N
Appetite Changes	Phytotherapy	33.000	0.000	Y
	Similimum	12.000	0.000	Y

Table 5: results of Friedman's score for participant responses to the Pain Rating Scale questions (S.s. = Statistically Significant, Y= yes, N = No).

Parameter Measured	Treatment Group	Chi Square Value	P value	S.s.
Intensity of Pain During previous menses	Phytotherapy	38.269	0.000	Y
	Similimum	19.500	0.000	Y
Intensity of Pain in the week before the previous Menses	Phytotherapy	7.667	0.053	N
	Similimum	7.200	0.066	N
Distress during the previous Menses	Phytotherapy	36.242	0.000	Y
	Similimum	17.866	0.000	Y
Distress in the week before the previous Menses	Phytotherapy	4.136	0.247	N
	Similimum	2.538	0.468	N
Interference with daily life	Phytotherapy	39.356	0.000	Y
	Similimum	19.708	0.000	Y

The results seen in the above table support the previous discussion as to the notability of symptoms outside of the menstrual flow time. In both question categories no significant changes were noted in questions relating to the week before the last menses. Possible reasons for this are:

- The week before the last menses is a less remarkable or memorable time because it is not distinguished in the subjects' mind (e.g. by menstruation);
- Fewer symptoms experienced in the week before the menses; and
- The action of the treatment modalities (phytotherapy and similimum) is more effective as relating to the symptoms arising during the actual menstrual flow.

4.2 Part 2: Inter-group analysis

4.2.1 Inter-group Mann-Whitney

The inter-group analysis was conducted using the Mann-Whitney U test for 2 independent samples. This tests the null hypothesis that there is no significant difference between data measurements from the different treatment groups (i.e. phytotherapy and similimum group). This hypothesis is tested at a 5% significance

level (p=0.05). The null hypothesis is rejected if there is less than a 5% chance that an observed difference in the data is due to chance.

Null hypothesis (H_0): There is no difference in the data observations between the phytotherapy group and the similimum group.

Alternative hypothesis (H_1): There is a significant difference in the data observations between the phytotherapy and similimum group.

Tables 5 to 8 show the results of the Mann-Whitney U test conducted on the data.

This hypothesis testing was conducted for data derived from participants' responses to the MDQ in regard to each of the following time cycles:

- A – during the most recent menstrual flow (Table 5);
- B – one week before the menstrual flow (Table 6); and
- C – during the remainder of the most recent menstrual cycle (Table 7).

Each of these time cycles were investigated at baseline and at each subsequent follow up.

In addition the respondents completed the PRS at each consultation. This instrument measured participant's observations of global parameters of their menstrual period. Table 9 summarises the findings of Mann-Whitney U test applied to the data obtained from this scale.

The final comparisons of the two group's results were obtained using data from the third and final consultation (Follow up 3). This marks the conclusion of the study and any effect from treatment group differences should be statistically discernible at this point.

Note: Comparisons of the data pertaining to the baseline consultation were not conducted. This is in accord with the Concord Protocol as the randomisation and

blinding should render the different treatment groups essentially statistically similar. Comparing baselines before treatment is therefore redundant.

Table 6: results of Mann-Whitney U for participant responses pertaining to the most recent menstrual flow (S.s. = Statistically Significant, Y= yes, N = No).

Parameter Measured	Mann Whitney U value	Z value	P-value	S.s.
Experience of Pain	46.000	-1.316	0.188	N
Concentration	56.000	-0.718	0.473	N
Behaviour Change	63.500	-0.271	0.787	N
Autonomic Reaction	40.500	-1.687	0.092	N
Water Retention	16.000	-3.138	0.002	Y
Negative Affect	55.000	-0.778	0.437	N
Arousal	59.500	-0.710	0.478	N
Control	67.500	-0.052	0.959	N
Appetite Changes	51.500	-1.089	0.276	N

As can be seen in the above table there is no significant difference between the phytotherapy and similimum group in all except the water retention category, as a reflection of the subjects' answers to questions relating to the symptom perception during the last menstrual flow of the trial.

This may be explained by referring to Table 2 in which it was observed that both groups demonstrated significant improvements across most categories, particularly as measured by the symptoms during the menstrual flow.

Figure 2 illustrates the difference in values for Water Retention between phytotherapy and similimum groups.

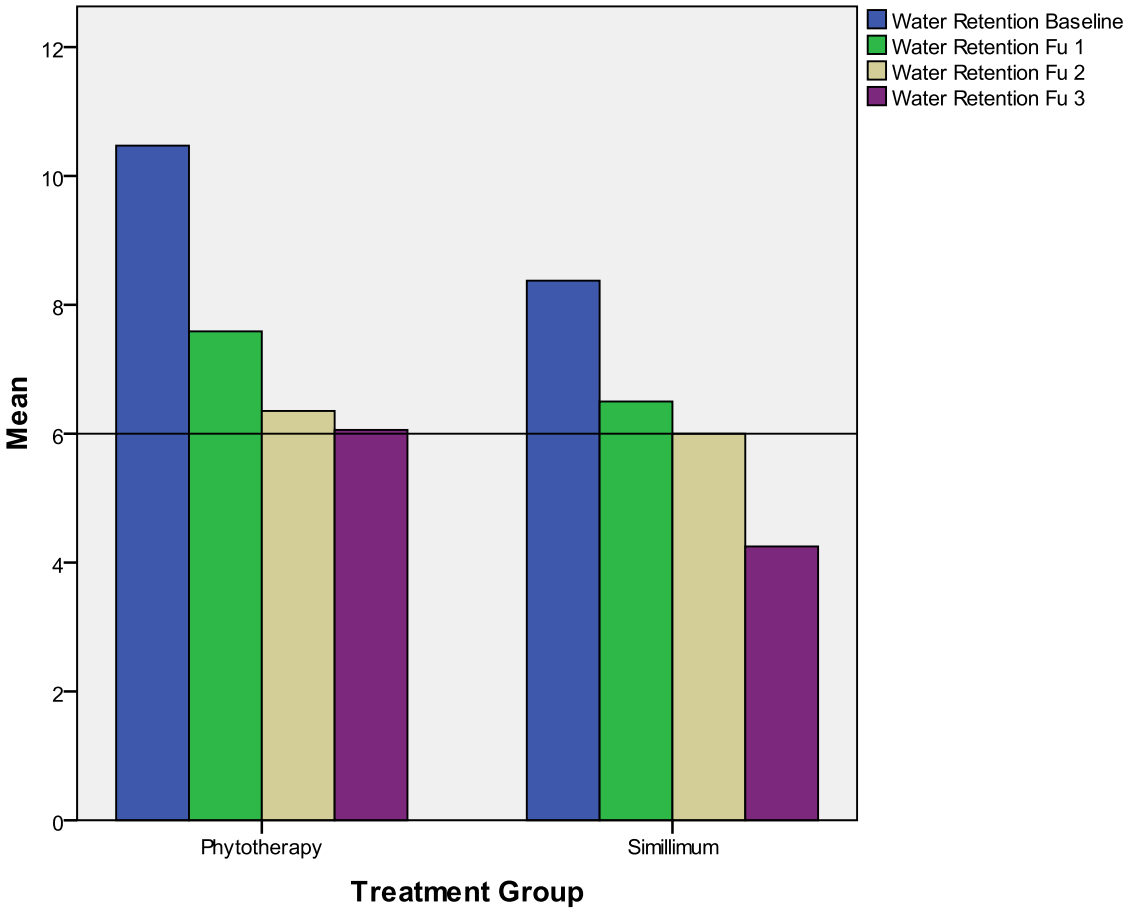


Figure 2: The difference in observed values for water retention (ordered by treatment group)

The difference observed between the improvement in water retention symptoms is statistically significant, as can be seen from Table 7.

Table 7: Table Showing results of Mann-Whitney U for participant responses pertaining to the week before the most recent menstrual flow (S.s. = Statistically Significant, Y= yes, N = No).

Parameter Measured	Mann Whitney U value	Z value	P-value	S.s.
Experience of Pain	40.000	-2.068	0.039	Y
Concentration	64.000	-0.686	0.493	N
Behaviour Change	68.000	0.000	1.000	N
Autonomic Reaction	68.000	0.000	1.000	N
Water Retention	56.000	-1.238	0.216	N
Negative Affect	64.000	-0.686	0.493	N
Arousal	68.000	0.000	1.000	N
Control	64.000	-0.413	0.680	N
Appetite Changes	68.000	0.000	1.000	N

Again it is evident that there were almost no statistical differences between the phytotherapy and similimum group for the week preceding the last menstrual flow. The only exception is the rating for the experience of pain. In this case the two groups did demonstrate a statistically significant difference.

Figure 3 illustrates the difference in values for Experience of Pain between phytotherapy and similimum groups for the week before the last period.

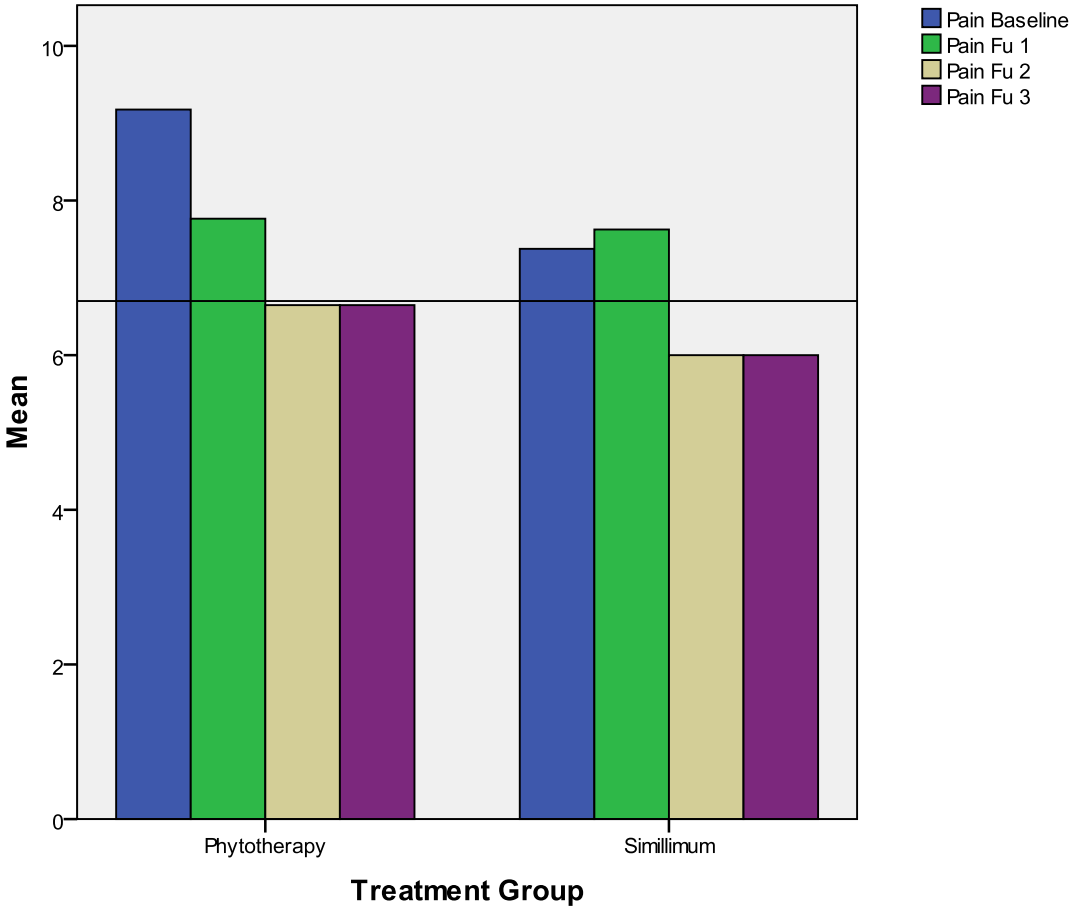


Figure 3: The difference in observed values for experience of pain (ordered by treatment group)

The improvement in the Experience of Pain between the phytotherapy and similimum groups is not statistically significant, as can been seen from Table 8.

Table 8: Results of Mann-Whitney U for participant responses pertaining to the remainder of the last menstrual cycle (S.s. = Statistically Significant, Y= Yes, N = No).

Parameter Measured	Mann Whitney U value	Z value	P-value	S.s.
Experience of Pain	64.000	-0.686	0.493	N
Concentration	68.000	0.000	1.000	N
Behaviour Change	68.000	0.000	1.000	N
Autonomic Reaction	68.000	0.000	1.000	N
Water Retention	64.000	-0.686	0.493	N

Negative Affect	64.000	-0.686	0.493	N
Arousal	68.000	0.000	1.000	N
Control	64.000	-0.686	0.493	N
Appetite Changes	68.000	0.000	1.000	N

There were no significant differences noted between the phytotherapy and the similimum group in terms of their experience of symptoms in the remainder of the last menstrual cycle, as can be seen from Table 8.

Table 9: results of Mann-Whitney U for participant responses to the Pain Rating Scale (S.s. = Statistically Significant, Y= yes, N = No).

Parameter Measured	Mann Whitney U value	Z value	P-value	S.s.
Intensity of Pain during the previous menses	51.500	-0.527	0.598	N
Intensity of Pain the week before the previous menses	42.000	-1.566	0.117	N
Distress during the previous menses	65.000	-1.470	0.141	N
Distress the week before the previous menses	56.000	-0.342	0.732	N
Interference with activities of daily living	57.500	-0.135	0.893	N

There is no evidence that the null hypothesis can be rejected i.e. there is no statistically significant difference between groups treated with phytotherapy compared to similimum (as measured by the Pain Rating Scale).

CHAPTER 5

5.1 INTRODUCTION

The purpose of this double blind, clinical trial was to compare the efficacy of a phytotherapeutic complex: *Angelica sinensis, Dioscorea villosa, Matricaria chamomilla, Viburnum opulus,* and *Zingiber officinalis* with a homoeopathic similimum in a 30ch plussed potency, in the treatment of primary dysmenorrhoea in terms of the participant's perception of the treatment. The study was conducted over a period of three menstrual cycles for each participant.The intra-group analysis of data was obtained from the MDQ (Moos 1968) as well as the PRS (British Pain Society 2006) using the non-parametric test for analysis of variance. Results from the intra-group analysis showed that in both groups most measured parameters relating to experience during the previous menstrual flow showed statistically significant reductions in intensity. This is to say that both the group receiving phytotherapy and the group receiving simillimum experienced reductions in their symptoms as measured by both the MDQ(Moos 1968) and the PRS (British Pain Society 2006). Results on table 2 with the MDQ results show that both treatment modalities had a statistically significant effect on the menstrual flow excluding those symptoms under the "arousal" heading (affectionate, orderliness, excitement, feeling of well-being, burst of energy and activity), as well as on those under the "control" heading (feeling of suffocation, chest pain, ringing in the ears, heart pounding, blind spots and fuzzy vision). Phytotherapy was statistically effective and the homoeopathic simillimum had no significant effect on the "control" symptoms. The homoeopathic simillimum had a greater statistically significant effect on water retention, when compared to the phytotherapeutic complex.

In the studies that were conducted by Mokabane (2009) where they tested the efficacy of the homoeopathic similimum in the treatment of the symptoms of primary dysmenorrhea on black females, conducted for the period of three months, and the one done by Christie (2005), which was a qualitative study on the effect of the homeopathic similimum on the treatment of primary dysmenorrhoea conducted for

the period of four months. Similar approach was used, they both used the same measurement tool, used number of 10 participants in their studies, there was no control used in these two studies, and the homoepathic similimum was found effective on both trials, even though different population groups were used. This study results also showed the homoepathic similimum to be effective in the treatment of primary dysmenorrhoea. But on this study a different form of recruitment was used, since participants had to see the gynaecologist for the ultrasound exam to confirm the diagnosis suspected by the researcher. This study used two treatments forms, homoeopathic similimum being a control, the study was also conducted for the period of three menstrual cycles. The number of 25 participants were used, including all races even though there was a majority of African participants which was not intended. This study used two measurement tools which are different from the ones used on the previous studies but the MDQ have the similar symptoms which were evaluated on the measurement tool used on the other trials in it. On this study the evaluation of symptoms was done on the follow-up, and that might have affected the results as it easy for participants to forget what exactly happened during the menses. There was no treatment free month to obtain the baseline.

5.2 COMPARISON BETWEEN GROUPS

Friedman's test showed that most measured parameters relating to experience during the previous menstrual flow showed statistically significant reductions in intensity. This is to say that both the phytotherapy group and the similimum group experienced reductions in their symptoms as measured by the MDQ. Neither group noted any significant improvements in the symptoms grouped under the Arousal heading (affectionate, orderliness, excitement, feeling of well-being, burst of energy and activity). This may have been due to the subtle and highly subjective nature of these symptoms. It may have been difficult for the subjects to note and recall changes in these parameters in detail at the time of the next consultation. Under the "Control" heading (feeling of suffocation, chest pain, ringing in the ears, heart pounding, blind spots and fuzzy vision) the phytotherapy group recorded a significant reduction while the similimum group did not. There was evidence that less change was experienced in the week before the last period than in the actual menstrual

period itself. Pertaining to the remainder of the most recent menstrual cycle significant changes experienced in the rest of the menstrual cycle were hardly noted (only one heading was seen to statistically reduce in intensity, namely "Appetite Changes"). The results of Friedman's score for participant responses to the PRS questions showed that both interventions resulted in the decrease of pain during the menstrual cycle. These results support the previous discussion as to the notability of symptoms outside of the menstrual flow time. In both question categories no significant changes were noted in questions relating to the week before the last menses.

The inter-group analysis was conducted using the Mann-Whitney U test for two independent samples. This tests the null hypothesis that there is no significant difference between data measurements from the different treatment groups (i.e. phytotherapy and similimum group). The final comparisons of groups' results were obtained using data from the third and final consultation (Follow up 3). There was no significant difference between the phytotherapy and similimum group in all except the water retention category, as a reflection of the subjects answers to questions relating to the symptom perception during the last menstrual flow of the trial. Therefore, according to this study homoeopathic similimum and phytotherapeutic complex provided the same result in the treatment of primary dysmenorrhea.

The participants were directed to take the treatment on the first three days of the menstrual flow. However, administration of the treatment could have started a week before the menstrual periods to cover the pre-menstrual symptoms experienced at that time. This could be one of the reasons why there were no statistically significant improvements of the pre-menstrual symptoms. In addition, it may have been difficult for the subjects to note and recall changes at that time or it could have been that they didn't recognize these symptoms as part of the menstrual cycle.

Considering that both phytotherapy and homoeopathic similimum were effective in reducing the symptoms of dysmenorrhoea, either one could be used as a treatment modality with a favourable response. Similimum is more cost effective as a prescription, but it is more time consuming to arrive at with regard to case taking, analysis and final choice of remedy. Phytotherapy would be suitable, therefore, when

there is not enough time for a full case history and analysis, although the prescription would be more expensive.

Homoeopathic prescriptions

Each prescription was based on a full, detailed homoeopathic case history and physical examination. Analysis of the resulting case history narrative resulted in the researcher arriving at the similimum. The researcher used the homoeopathic materia medica and homoeopathic repertory to confirm the selection of each appropriate similimum remedy. The main remedies were as follows:

Lachesis

Latin name: Trigonocephalus lachesis

Common name: Surucuccu or Bushmaster

Genus: ophidia

Origin: it was first proved by Constantine Hering, he developed symptoms whilst handling the crude venom.

Keynotes and characteristics:

Worse after sleep, worse in autumn, worse in the sun or heat. Symptoms mostly start from the left side to right, sensitive to touch, worse for slightest touch and better for firm touch. Venous congestion. Worse for before menses, suppression of discharges (Roy 1994).

Mind and emotions: overactive, continually talkative, conversation jumps from one subject to another. The patient will be jealous and suffer from ailments caused by disappointment in love. May be very highly sexual or spiritual (Wauters 2007).

Sepia

Latin name: Sepia officinalis

Common name: Cuttlefish

Origin: Hahnemann noted the effects of the poisoning from an artist who used Sepia ink. And the proving from a trituration of the dried contents of the cuttlefish's ink sac was done by Goullon, Gross, and Hartlaub (Roy 1994).

Mind and emotions: the patient feels that they are slowing down mentally and emotionally, experiences confusion, indifference to loved ones, negativity about her

life, unable or unwilling to give love and affection. The remedy is for sad, unhappy women, who are misery, defensive, uncommunicative, often weep (Wauters 2007). Worse for occupation, after anger, before menses, during menopause, standing, hormone change, and for coition (Roy 1994).

5.3 LIMITATIONS OF THE STUDY

Several difficulties were experienced during the planning and execution of this study. These include feasibility, cost, time constraints and ethical considerations. Although the study was originally designed to include 30 participants, the researcher had to request for a reduction in numbers towards the end of the study, due to time constraints. The final study included 25 participants. 26 were included and one did not complete the study. 17 participants received the phytotherapeutic complex while 8 received homoeopathic simillimum.

The study excluded a placebo group due to recommendations from the IREC. Since dysmenorrhoea is a painful condition, the recommendation was to exclude a placebo group. Subsequently, the decision was made to include a “simillimum” group as a control, since “simillimum’ treatment proved to be successful in the treatment of primary dysmenorrhoea in previous studies conducted by Tsolakis (1995), Witt, Lűdtke and Willich (2009) and Christie (2005), Mokabane (2009) and Jose (2005).

If medication could be administered a week before the menstrual period instead of at the onset it could potentially had an impact on pre-menstrual symptoms and possibly a greater effect on symptoms during the period. This is an area that could be explored in future studies Due to the cost of medication and the limited funds available this was not possible.

Although participants were provided with clear instructions with respect to recording of the symptom changes and administration of the medication, and requested not to make changes to their lifestyle, diet and, quantity of exercise, it was not possible to

verify objectively whether each patient complied accordingly. There was a long interval of approximately four weeks between consultations, since follow ups were done after each menstrual period.

Participants had to answer how they felt during the entire menstrual cycle and this was only done when they came back for the next follow-up, this could have affected the results recoded on this column since some may have forgotten how they really felt. It would have been better if they were given a diary to jot down all their symptoms.

The frequency at which treatments were taken was not enough in some cases, and could have caused poorer results. Due to the fact that there was no placebo group in this study, the positive results seen may have not always been as a result of the therapies used in the study, but could have been a placebo effect in some cases. The only way to verify this could be a future study where both treatment modalities and a placebo group are included.

The relative inexperience of the researcher in taking a case history and prescribing may have affected the accuracy of the simillimum prescription and therefore could have influenced the final outcome

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

The aim of treating primary dysmenorrhea in this study was to reduce the clinical features of primary dysmenorrhea experienced during the menstrual cycle, and to explore alternative methods of treatment of this condition.

6.1 CONCLUSION

Both the phytotherapeutic and similimum interventions were effective in reducing the clinical features of dysmenorrhoea experienced during the menstrual flow, but they were both equally effective i.e. there was no significant difference between the groups. The therapies were less effective in reducing the clinical features of dysmenorrhoea experienced in the week before menstruation, and no effects were noted in the remainder of the menstrual cycle, except for changes in appetite.

6.1.1 First and second objectives

The first and second objectives were to determine the effectiveness of a phytotherapeutic complex and similimum, respectively, in the treatment of primary dysmenorrhea.

Results from intragroup analysis showed that in both groups most measured parameters relating to experience during the previous menstrual flow showed statistically significant reductions in intensity. This is to say, both the phytotherapy group and the similimum group experienced reductions in their symptoms as measured by the MDQ. The PRS results showed that both interventions resulted in the decrease of pain during the menstrual cycle. However, in both question categories no significant changes were noted in questions relating to the week before the last menses. The first and second hypothesis were therefore rejected, since both the phytotherapeutic complex and the simillimum group were effective in the treatment of the clinical features of primary dysmenorrhoea.

6.1.2 Third objective

Results from intergroup analysis showed that there was no significant difference between the phytotherapy and similimum group in all aspects, except the water retention category during the last menstrual period as measured by the MDQ Furthermore, there was no statistically significant difference between groups treated with phytotherapy compared to similimum as measured by the PRS. The third hypothesis is therefore supported.

6.1.3 Benefits of the study

Participants taking part in this study benefitted in various ways. A significant number of them did experience an improvement in the clinical features associated with primary dysmenorrhoea, which as the main objective of the study.

Furthermore other benefits were experienced; participants gained information about homoeopathy. Most of them had little understanding of what homoeopathy is and began to appreciate the profession as a natural complementary method, in its holistic approach.

Participants gained more knowledge about their bodies and their health, especially regarding the connection between mental/psychological symptoms and physical symptoms.

Participants were educated on the condition itself, dysmenorrhoea (primary and secondary) as well as on the menstrual periods.

6.2 RECOMMENDATIONS

The following recommendations are made for future research studies:

i. It would be advisable to use a larger sample size. This will ensure more reliable statistical data and greater external validity.

ii. Symptoms of primary dysmenorrhoea occurs during menstruation, but in a number of patients the onset of the symptoms are also pre-menstrually, thereby a study where the administration of treatment starts a week before the menstrual flow, would possibly reveal significant results.

iii. A comparative study, comparing homoeopathic similimum, phytotherapy and allopathic treatment could be of benefit.

iv. The study could be repeated with greater flexibility with regard to potency selection in the simillimum group.

v. A future study with a placebo in addition to the homoeopathic similimum and phytotherapy treatment could be of benefit and rule out the possibility of treatments causing improvement because of a placebo effect.

vi. A longer period of study over six months or longer is recommended, since if this has been a long standing problem left unattended short-term treatment will not have a lasting effect.

vii. A double-blind randomized factorial trial should be done on these two therapies, during this study, the researcher discovered that some participants could have benefited more from the study if they had the opportunity of receiving both treatments, reason being the fact that phytotherapy doesn't cover the mental picture of the case.

viii. Administration of the treatment could possibly be changed to intervals as required, instead of fixed times like in this study where it was taken every three hours. The researcher noticed in at least one participant that the effect of treatment only lasted for two hours.

The impact of lifestyle and dietary changes should not be underestimated in the improvement of symptoms related to primary dysmenorrhoea. Future studies could include aspects related to this such as diet, supplementation, stress management, exercise etc.

ix Although this study did not target African females in particular, the majority of the participants turned out to be African females due to the demographic distribution of students at the Durban University of Technology. Future studies could focus on a more equal distribution of different race groups.

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APPENDICES

APPENDIX A: QUICK SCREENING QUESTIONNAIRE

Participant's Name: _____

Age: _____ Telephone: _____

1. Age at menarche (First period)? _____
2. Are your periods regular (Yes/No)? _____ How long does it last (length)? _____ Days
3. Do you usually experience pain with your periods (Yes/No)? _____
    - When does the pain occur? _____
    - How often do you experience the pain? _____
4. Is there anyone else in your family suffering with period pain (Yes/No)? _____
5. When did you experience period pain for the first time? _____
    - How long have your periods been painful? _____
6. What do you use to relieve your pain (painkillers or others)?
    - Name: _____
    - How many? _____
    - How often? _____
    - When do you take them?
      Before your period starts _____
      Throughout your period _____
7. Do you experience any other symptoms with your pain?
8. Are you sexually active (Yes/No)? _____
   Are you using any contraceptive methods (Yes/No
   _____
9. If yes, which form of contraception do you use?
   _____
10. Are you suffering from any chronic illness? (Yes/No)
    _____
11. If yes, do you take any medicine for it ?(Yes/No) and what type of medicine?
    _____
12. Did you have any previous pelvic / abdominal surgery? (Yes/No)
    _____
13. If yes, describe the surgery.

_____

14. Were you ever been diagnosed with any condition that could cause painful menstrual periods e.g. endometriosis, pelvic inflammatory disease, polycystic ovarian disease, uterine fibroids, ovarian cysts etc.? (Yes/No)

_____

15. If yes, please describe.

_____

16. Do you have any religious objections to taking medicine that contains alcohol? (Yes/No)

_____

17. Has anyone in your immediate family, or yourself ever been diagnosed with cancer? (Yes/No)

_____

18. If yes, who and what type of cancer?

_____

APPENDIX B: MOOS MENSTRUAL DISTRESS QUESTIONNAIRE

This is the original questionnaire as developed by Moos.

Moos, R. H.1968. The development of a menstrual distress questionnaire. *Psychosomatic medicine*, 30 :853-867. Available: http://www.psychosomaticmedicine.org/ (1 April 2012).

Patient: _____

Entry No. : _____

Write the appropriate date of your most recent menstrual flow:

A: Most recent flow from _____to _____.

B: week before the most recent flow.

C: other times during the cycle. Write the date of the menstrual flow that preceded the most recent flow:

D: flow preceding the most recent menstrual flow _____to _____.

On the following pages is list of symptoms that women sometimes experience. Please describe your experience of these symptoms during the three different periods listed before:

Column 1: during the most recent menstrual flow (A)

Column 2: one week before the menstrual flow (B)

Column3: during the remainder of your most recent menstrual cycle (C)

Note: The answers you put in column 1, 2 and 3 should describe your experience specifically during your **most recent menstrual cycle**. Please do not report your general symptoms. Please report if the symptoms are related to your menstrual cycle or not. For each answer choose the category listed below which best describes your experience of each symptoms during that particular time. Write the number of that category in the space provided below. If none of the options accurately describe the symptoms, please choose an option that is closest to your experience.

CATEGORIES:

1 = no experience of symptoms

2 = barely noticeable

3 = present, mild

4 = present, strong

5 = acute or partially disabling

CATEGORIES:

1= NO EXPERIENCE OF SYMTOMPS

2= BARELY NOTICEBLE

3= PRESENT, MILD

4= PRESENT, STRONG

5= ACUTE OR PARTIALLY DISABLING

	Most recent flow (A)	The week before (B)	Rest of the month (C)
Muscle stiffness			
Headache			
Cramps			
Backache			
Fatigue			
General aches and pain			
Insomnia			
Forgetfulness			
Confusion			
Lowered judgement			
Difficulty concentrating			
Distractible			
Accident prone			
Lowered motor coordination			
Lowered school or work performance			
Take naps, stay in bed			
Stay at home			
Avoid social activities			
Decreased efficiency			
Dizziness, faintness			
Nausea, vomiting			
Hot flushes			
Weight gain			
Skin disorders			
Painful breasts			
Swelling			
Crying			

	Most recent flow (A)	The week before (B)	Rest of the month (C)
Loneliness			
Anxiety			
Restlessness			
Irritability			
Mood swings			
Depression			
Tension			
Affectionate			
Orderliness			
Excitement			
Feeling of well-being			
Burst of energy, activity			
Feeling of suffocation			
Chest pain			
Ringing in the ears			
Heart pounding			
Blind spots, fuzzy vision			
Change in eating habits			

SYMPTOMS SCALES ON THE MOOS MENSTRUAL DISTRESS QUESTIONNAIRE

PAIN

Muscle stiffness

Headache

Cramps

Fatigue

General aches and pains

Backache

CONCENTRATION

Insomnia

Forgetfulness

Confusion

Lowered judgement

Difficulty concentrating

Distractible

Accidents

Lowered motor coordination

BEHAVIOURAL CHANGES

Lowered performance

Take naps, stay in bed

Stay at home

Avoid social activities

Decreased efficiency

AUTONOMIC REACTIONS

Dizziness

Nausea, vomiting

Hot flushes

Cold sweats

WATER RETENTION

Weight gain

Skin disorders

Painful breasts

Swelling

NEGATIVE AFFECT

Crying

Loneliness

Anxiety

Restlessness

Irritability

Mood swings

Depression

Tension

AROUSAL

Affectionate

Orderliness

Excitement

Feeling of well-being

Burst of energy, activity

CONTROL

Feeling of suffocation

Chest pain

Ringing in the ears

Heart pounding

Blind spots, fuzzy vision.

APPETITE CHANGES

APPENDIX C: PAIN RATING SCALE

British Pain Society. 2006. *Pain Rating Scale* (online). Available: www.britishsociety.org

(Accessed 14 July 2012).

(English)

Title: ..... Date:.....
First Name:..... Patient number:.....
Surname:..... Clinic: .....

Please mark the scale below to show how intense your pain is.
A zero (0) means no pain, and ten (10) means extreme pain.

How **intense** is your pain **now**?
I I I I I I I I I I I I I I I I I I I I I
0 1 2 3 4 5 6 7 8 9 10
no pain extreme pain

How **intense** was your pain **on average last week**?
I I I I I I I I I I I I I I I I I I I I I
0 1 2 3 4 5 6 7 8 9 10
no pain extreme pain

Now please use the same method to describe how **distressing** your pain is.
How **distressing** is your pain **now**?
I I I I I I I I I I I I I I I I I I I I I
0 1 2 3 4 5 6 7 8 9 10
not at all extremely distressing

How **distressing** was your pain **on average last week**?
I I I I I I I I I I I I I I I I I I I I I
0 1 2 3 4 5 6 7 8 9 10
not at all extremely distressing

Now please use the same method to describe **how much your pain interferes** with your normal
everyday activities.
I I I I I I I I I I I I I I I I I I I I I
0 1 2 3 4 5 6 7 8 9 10
does not interfere interferes completely

If you have had treatment for your pain, how much has this relieved (taken away) the pain?
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
no relief complete relief

The Pain Society. An alliance of professionals advancing the understanding and management of pain for the benefit of patients

APPENDIX D: HOMOEOPATHIC CASE TAKING AND PHYSICAL EXAMINATION

DATE OF BIRTH : AGE:

MARITAL STATUS: CHILDREN:

OCCUPATION:

MAIN COMPLAINT:

PAST MEDICAL HISTORY

Allergies

Vaccinations

Medication

Alcohol and cigarettes

SURGICAL HISTORY

FAMILY HISTORY

Cardiovascular disease, Diabetes mellitus, Tuberculosis, Mental illnesses, cancer, Epilepsy, and bleeding disorders

GENERALITIES

Energy

Sleep

Dreams

Time modalities

Weather modalities

Temperature modalities

Appetite

Cravings

Aversions

Thirst

Bowel habits

Urination

MENSTRUAL CYCLE

Menarche

Time interval

Duration

Regular or irregular

Nature of bleed

Premenstrual symptoms

Postmenstrual symptoms

Head

Eyes and vision

Ears and hearing

Nose and sinus

Mouth, gums, teeth

Throat

Respiratory system

Cardiovascular

GIT

Genito-urinary system

Musculoskeletal

Skin

Hair and nails

PSYCHIC

Disposition

Fears

Relationships

Ambitions

Regrets

Hobbies or interest

PHYSICAL EXAMINATION

Vital signs:

Height : _____m

Weight : _____kg

Pulse rate : _____beats/ min

Resp. rate : _____ breaths / min

Temperature : _____

Blood pressure : _____mmHg

Findings on physical examination

Jaundice

Anemia

Cyanosis

Clubbing

Oedema

Lymphadenopathy

Hydration

APPENDIX E: ADVERT

IS THAT TIME OF THE MONTH GETTING YOU DOWN???

ARE YOU SUFFERING FROM PEROID PAINS???

YOU MAY QUALIFY FOR TREATMENT OF PAINFUL MENSTRUAL PERIODS.

HOMOEOPATHIC RESEARCH IS BEING CONDUCTED AT THE DURBAN UNIVERSITY OF TECHNOLOGY (DUT), IF YOU ARE FEMALE AND BETWEEN THE AGES OF 18-30 YEARS AND SUFFERING FROM PAINFUL PEROIDS, PLEASE CALL:

NONDUMISO SHANGE on 076 9366 521

APPENDIX F: LETTER OF INFORMATION

INSTITUTIONAL RESEARCH ETHICS COMMITTEE (IREC)

LETTER OF INFORMATION

Dear participant

Title of the Research Study: The efficacy of a phytotherapeutic complex compared with homoeopathic similimum in the treatment of primary dysmenorrhoea.

Principal Investigator/s/researcher: Nondumiso Caroline Shange, BTech: Homoeopathy

Co-Investigator/s/supervisor/s: Dr. C Hall, MTech: Homoeopathy and Co-supervisor: Dr. Gangaram,

Brief Introduction and Purpose of the Study: Primary dysmenorrhea is a very common problem in young women. It is usually defined as cramping pain in the lower abdomen occurring at the onset of menstruation in the absence of any identifiable pelvic disease. It is distinguished from secondary dysmenorrhea, which refers to painful menses resulting from pelvic pathology such as endometriosis. Cramping pain during menstruation typically occurs in the first few years after menarche (age at which periods start). The purpose of this clinical trial is to compare the efficacy of a phytotherapeutic complex with a homoeopathic similimum, in the treatment of primary dysmenorrhoea in terms of the participant's perception of the treatment using the Moos Menstrual Distress Questionnaire (Moos 1968). (Appendix B) as well as the Pain Rating Scale (British Pain Society 2006) (Appendix C).

Outline of the Procedures: The research will be conducted in the DUT Homoeopathic Day Clinic. This study will compare the efficacy of the phytotherapuetic complex to the homoeopathic similimum in alleviating the symptoms of primary dysmenorrhea. In order to do this I appeal to you for your assistance by becoming actively involved and informing me about your symptoms as well as their effect on your daily life. Each participant must comply with the selection criteria in order to participate in this study. The study will include those that fulfill the following criteria:

Inclusion criteria

- Participants have to be between the ages of 18 to 30 years.
- Clinical features of primary dysmenorrhea during most menstrual cycles.
- Literacy in English in order to interpret the questions in the questionnaire correctly.

- Participants who have discontinued the use of hormonal contraceptives for at least 4-6 weeks. Participants who are sexually active will be advised to use other form of contraceptives, such as condoms, not involving the suppression of their menses to prevent unwanted pregnancy. (Please note that no participant will be asked by the researcher to discontinue hormonal contraceptives for the duration of the study; this will be a decision made by the participant alone, if she considers to take part in the study.)

Exclusion criteria

- Persons on any medication for any chronic condition.
- Persons with underlying conditions leading to secondary dysmenorrhea e.g. endometriosis.
- Previous pelvic surgery or any underlying physical abnormality/ pelvic diseases such as endometriosis, fibroids, polycystic ovarian syndrome.
- Persons with religious objections to alcohol used in medicinal preparations.
- Persons on hormonal contraceptives or intra-uterine devices.

Screening: Respondents will be screened telephonically to determine if they fit the inclusion criteria and will then be scheduled for an ultrasound examination of the pelvic area at the radiology clinic at the Durban University of Technology. This examination will be performed by a gynaecologist, and the purpose of this is to rule out any abnormalities, that would indicate secondary dysmenorrhoea and therefore exclude the participant from the study. This procedure will be explained in detail to participants and they will be asked to sign an informed consent form (Appendix H) before this examination is done. The first 40 participants that are screened by ultrasound and found to have no pathology that could potentially disqualify them from the study will sign a second informed consent form (Appendix G) in order to continue with the rest of the study.

Procedure outline: The study will be conducted for the period of three months. The initial consultation, the full medical case history will be taken, physical examination. If primary dysmenorrhea is suspected the participant will be booked for the gynecological exam to prove the diagnosis using the abdominal ultra-sound (An ultrasound scan is a painless test that uses sound waves to create images of organs and structures inside your body. It is a very commonly used test. As it uses sound waves and not radiation, it is thought to be harmless). If the participant is diagnosed with primary dysmenorrhea after the ultra-sound the participant will be booked for the first proper homoeopathic consultation, which will last for about 1 hour 30 minutes, then they will be assigned to the phytotherapuetic complex group or homoeopathic similimum group each consisting of 20 participants, set of medication will be prescribed to them. Then you will need to come back for a follow up after your periods for two months, the follow-up consultations will only last for 45 minutes max.

Measurement tools: Moos Menstrual Distress Questionnaire as well as the Pain Rating Scale

Risks or Discomforts to the Participant: There are no known risk that a participants may be exposed to.

Benefits: You get an abdominal ultra-sound check up, treatment from your suffering.

Reason/s why the Participant May Be Withdrawn from the Study: You are welcome to withdraw from this study at any time, without giving any reasons.

Remuneration: Treatment of primary dysmenorrhea and pelvic ultrasound check up.

Costs of the Study: Your participation in this study is on voluntary basis and will not cost you anything, the consultation and medicines are covered by the DUT.

Confidentiality: All information supplied by you throughout the study will be regarded as confidential. The research will be published in a manner that will not disclose personal information of the participants. All patient files will be kept in a locked filing cabinet, only the researcher and supervisor will have access to it.

Research-related Injury: There are no injuries that partipants may be exposed to during the course of the study.

Persons to Contact in the Event of Any Problems or Queries: Please contact the researcher Nondumiso Shange (076 9366 521.), my supervisor Dr. Hall (082 9216 149) or the Institutional Research Ethics administrator on 031 373 2900. Complaints can be reported to the DVC: TIP, Prof F. Otieno on 031 373 2382 or dvctip@dut.ac.za.

APPENDIX G1: CONSENT

INSTITUTIONAL RESEARCH ETHICS COMMITTEE (IREC)

CONSENT

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, _____ (name of researcher), about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: _____,
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

_____ _____ _____

_____

Full Name of Participant **Date** **Time** **Signature / Right Thumbprint**

I, _____ (name of researcher) herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

_____ _____ _____

Full Name of Researcher **Date** **Signature**

_____ _____ _____

Full Name of Witness (If applicable) **Date** **Signature**

_____ _____ _____

Full Name of Legal Guardian (If applicable) **Date** **Signature**

APPENDIX G2: CONSENT (ABDOMINAL ULTRASOUND)

INSTITUTIONAL RESEARCH ETHICS COMMITTEE (IREC) - CONSENT

Statement of Agreement to undergo an abdominal ultrasound examination

- I hereby confirm that I have been informed by the researcher, _____ (name of researcher), about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: _____,
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

_____ _____ _____

_____

Full Name of Participant **Date** **Time** **Signature / Right Thumbprint**

I, _____ (name of researcher) herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

_____ _____ _____

Full Name of Researcher **Date** **Signature**

_____ _____ _____

Full Name of Witness (If applicable) **Date** **Signature**

_____ _____ _____

Full Name of Legal Guardian (If applicable) **Date** **Signature**

ULTRA-SOUND EXAMINATION INFORMATION

Dear participants,

This study will be investigating the efficacy of homoeopathic and herbal medicines to treat period pains. An ultrasound examination of your lower abdomen performed by a registered gynaecologist will be used to identify the cause of your period pains.

This is the procedure:

1. The following **questions** will be asked:
    - Last menstrual period.
    - Are your periods regular (every month)?
    - When did the pain first start?
    - How long did it last?
    - Have you suffered from previous pelvic diseases (endometriosis, pelvic masses or infections)?
2. **Physical Examination**

    Abdominal examination:
    - The gynaecologist will palpate / touch your abdomen to look for any masses.
    - *No pelvic/internal examination will be performed.*
3. **Ultrasound examination procedure**
    - You will be asked to lie on your back on the examination table and expose your lower abdomen.
    - A clear water-based gel will be applied to the area and a transducer (part of the ultrasound machine) will be pressed against the skin and moved back and forth to obtain the desired image of your organs.
4. **Requirement**
    - You will be required to drink a lot of liquid before the examination is performed in order to fill up your bladder.
5. **Location**: This examination will take place at the Radiographic Clinic at the Durban University of Technology.
6. **Important notice**
    - This examination is painless, fast and easy.

- There is usually no discomfort from pressure as the transducer is pressed against the area being examined.
- You may feel pressure or minor pain only if the scanning is performed over an area of tenderness.
- The gel can easily be wiped off your skin.
- The ultrasound examination will not interfere with the rest of your day.
- **You will be referred to a doctor if any abnormality is found during this examination.**

7. **<u>You will be excluded from the study if :</u>**
    - You are on any medication for any chronic condition.
    - You are older than 30 years.
      (Common causes of secondary dysmenorrhoea are more frequent in this age group).
    - Any underlying causes of period pain are found during this examination. e.g. endometriosis, fibroids, abdominal masses.
    - You had a pelvic surgery.
    - You currently have an underlying physical abnormality/ pelvic diseases such as endometriosis, fibroids, polycystic ovarian syndrome
    - You have religious objections to alcohol used in medicinal preparations.
    - You are on hormonal contraceptives or intra-uterine devices.
    - You have a family history of cancer (e.g: hormonal cancer).
    - You are currently pregnant or become pregnant during the course of this study.

Thank you for your interest in this research.

```
GET
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NPAR TESTS
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RED)
  /MISSING ANALYSIS.

NPAR TESTS
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  /MISSING LISTWISE.

NPAR TESTS
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Bl Arousal_Bl Control_Bl AptteChnge_Bl WITH Pain_Fu3 Conc_Fu3 BhvChange_Fu
3 AutnRxn_Fu3 WtrRtntn_Fu3 NegAffect_Fu3 Arousal_Fu3 Control_Fu3 AptteChng
e_Fu3 (PAIRED)
  /STATISTICS DESCRIPTIVES
  /MISSING ANALYSIS.

NPAR TESTS
  /FRIEDMAN=Pain_BL Pain_FU1 Pain_Fu2 Pain_Fu3
  /MISSING LISTWISE.

SORT CASES  BY Group.
SPLIT FILE LAYERED BY Group.
NPAR TESTS
  /FRIEDMAN=Pain_BL Pain_FU1 Pain_Fu2 Pain_Fu3
  /MISSING LISTWISE.
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NPar Tests

Notes

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	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
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	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

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```

Friedman Test

Ranks

Group		Mean Rank
1	Pain_BL	3.94
	Pain_FU1	2.41
	Pain_Fu2	2.32
	Pain_Fu3	1.32
2	Pain_BL	4.00
	Pain_FU1	2.88
	Pain_Fu2	1.75
	Pain_Fu3	1.38

Test Statistics[a]

1	N	17
	Chi-Square	36.782
	df	3
	Asymp. Sig.	.000
2	N	8
	Chi-Square	21.892
	df	3
	Asymp. Sig.	.000

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=Conc_Bl Conc_Fu1 Conc_Fu2 Conc_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

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	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Conc_Bl Conc_Fu1 Conc_Fu2 Conc_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.011
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet1] E:\Stats\nondomiso\A Responses data.sav
```

Friedman Test

Ranks

Group		Mean Rank
1	Conc_Bl	3.76
	Conc_Fu1	2.44
	Conc_Fu2	1.88
	Conc_Fu3	1.91
2	Conc_Bl	3.69
	Conc_Fu1	2.31
	Conc_Fu2	2.06
	Conc_Fu3	1.94

Test Statistics[a]

1	N	17
	Chi-Square	26.586
	df	3
	Asymp. Sig.	.000
2	N	8
	Chi-Square	10.000
	df	3
	Asymp. Sig.	.019

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=BhvChange_Bl BhvChange_Fu1 BhvChange_Fu2 BhvChange_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

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	Split File	Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=BhvChange_Bl BhvChange_Fu1 BhvChange_Fu2 BhvChange_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.011
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet1] E:\Stats\nondomiso\A Responses data.sav
```

Friedman Test

Ranks

Group		Mean Rank
1	Bhv Change	3.82
	BhvChange_Fu1	2.53
	BhvChange_Fu2	2.03
	BhvChange_Fu3	1.62
2	Bhv Change	3.94
	BhvChange_Fu1	2.19
	BhvChange_Fu2	2.25
	BhvChange_Fu3	1.63

Test Statistics[a]

1	N	17
	Chi-Square	29.646
	df	3
	Asymp. Sig.	.000
2	N	8
	Chi-Square	15.320
	df	3
	Asymp. Sig.	.002

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=AutnRxn_Bl AutnRxn_Fu1 AutnRxn_Fu2 AutnRxn_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

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Comments		
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	Split File	Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=AutnRxn_Bl AutnRxn_Fu1 AutnRxn_Fu2 AutnRxn_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.015
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	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet1] E:\Stats\nondomiso\A Responses data.sav
```

Friedman Test

Ranks

Group		Mean Rank
1	Aut Rxn	3.56
	AutnRxn_Fu1	3.00
	AutnRxn_Fu2	1.97
	AutnRxn_Fu3	1.47
2	Aut Rxn	3.75
	AutnRxn_Fu1	2.63
	AutnRxn_Fu2	2.00
	AutnRxn_Fu3	1.63

Test Statistics[a]

1	N	17
	Chi-Square	30.928
	df	3
	Asymp. Sig.	.000
2	N	8
	Chi-Square	14.229
	df	3
	Asymp. Sig.	.003

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=WtrRtntn_Bl WtrRtntn_Fu1 WtrRtntn_Fu2 WtrRtntn_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 19:43:37
Comments		
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	Weight	<none>
	Split File	Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=WtrRtntn_Bl WtrRtntn_Fu1 WtrRtntn_Fu2 WtrRtntn_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.011
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet1] E:\Stats\nondomiso\A Responses data.sav
```

Friedman Test

Ranks

Group		Mean Rank
1	Wtr Rtntn	3.56
	WtrRtntn_Fu1	2.62
	WtrRtntn_Fu2	1.76
	WtrRtntn_Fu3	2.06
2	Wtr Rtntn	3.19
	WtrRtntn_Fu1	2.88
	WtrRtntn_Fu2	2.69
	WtrRtntn_Fu3	1.25

Test Statistics[a]

1	N	17
	Chi-Square	21.196
	df	3
	Asymp. Sig.	.000
2	N	8
	Chi-Square	11.958
	df	3
	Asymp. Sig.	.008

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=NegAffect_Bl NegAffect_Fu1 NegAffect_Fu2 NegAffect_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 19:43:55
Comments		
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	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=NegAffect_Bl NegAffect_Fu1 NegAffect_Fu2 NegAffect_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.012
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet1] E:\Stats\nondomiso\A Responses data.sav
```

Friedman Test

Ranks

Group		Mean Rank
1	Neg Affect	3.88
	NegAffect_Fu1	2.15
	NegAffect_Fu2	2.15
	NegAffect_Fu3	1.82
2	Neg Affect	4.00
	NegAffect_Fu1	2.50
	NegAffect_Fu2	1.94
	NegAffect_Fu3	1.56

Test Statistics[a]

1	N	17
	Chi-Square	29.284
	df	3
	Asymp. Sig.	.000
2	N	8
	Chi-Square	17.182
	df	3
	Asymp. Sig.	.001

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=Arousal_Bl Arousal_Fu1 Arousal_Fu2 Arousal_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

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	Weight	<none>
	Split File	Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Arousal_Bl Arousal_Fu1 Arousal_Fu2 Arousal_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.010
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet1] E:\Stats\nondomiso\A Responses data.sav
```

Friedman Test

Ranks

Group		Mean Rank
1	Arousal_Bl	2.59
	Arousal_Fu1	2.35
	Arousal_Fu2	2.44
	Arousal_Fu3	2.62
2	Arousal_Bl	2.38
	Arousal_Fu1	2.38
	Arousal_Fu2	2.63
	Arousal_Fu3	2.63

Test Statistics[a]

1	N	17
	Chi-Square	1.286
	df	3
	Asymp. Sig.	.733
2	N	8
	Chi-Square	2.000
	df	3
	Asymp. Sig.	.572

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=Control_Bl Control_Fu1 Control_Fu2 Control_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 19:44:30
Comments		
Input	Data	E:\Stats ondomiso\A Responses data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Control_Bl Control_Fu1 Control_Fu2 Control_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.011
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet1] E:\Stats\nondomiso\A Responses data.sav
```

Friedman Test

Ranks

Group		Mean Rank
1	Control_Bl	2.97
	Control_Fu1	2.38
	Control_Fu2	2.06
	Control_Fu3	2.59
2	Control_Bl	3.25
	Control_Fu1	2.19
	Control_Fu2	2.00
	Control_Fu3	2.56

Test Statistics[a]

1	N	17
	Chi-Square	8.724
	df	3
	Asymp. Sig.	.033
2	N	8
	Chi-Square	6.882
	df	3
	Asymp. Sig.	.076

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=AptteChnge_Bl AptteChnge_Fu1 AptteChnge_Fu2 AptteChnge_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 19:44:46
Comments		
Input	Data	E:\Stats ondomiso\A Responses data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=AptteChnge_Bl AptteChnge_Fu1 AptteChnge_Fu2 AptteChnge_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.012
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet1] E:\Stats\nondomiso\A Responses data.sav
```

Friedman Test

Ranks

Group		Mean Rank
1	Aptte Chnge	3.24
	AptteChnge_Fu1	2.71
	AptteChnge_Fu2	2.26
	AptteChnge_Fu3	1.79
2	Aptte Chnge	3.44
	AptteChnge_Fu1	2.19
	AptteChnge_Fu2	1.81
	AptteChnge_Fu3	2.56

Test Statistics[a]

1	N	17
	Chi-Square	15.520
	df	3
	Asymp. Sig.	.001
2	N	8
	Chi-Square	8.585
	df	3
	Asymp. Sig.	.035

a. Friedman Test

```
GET DATA /TYPE=XLSX
  /FILE='E:\Stats\nondomiso\B Responses1.xlsx'
  /SHEET=name 'Sheet1'
  /CELLRANGE=full
  /READNAMES=on
  /ASSUMEDSTRWIDTH=32767.

SAVE OUTFILE='E:\Stats\nondomiso\B Responses.sav'
  /COMPRESSED.
GET DATA /TYPE=XLSX
  /FILE='E:\Stats\nondomiso\C Responses.xlsx'
  /SHEET=name 'Sheet1'
  /CELLRANGE=full
  /READNAMES=on
  /ASSUMEDSTRWIDTH=32767.

SAVE OUTFILE='E:\Stats\nondomiso\C Responses.sav'
  /COMPRESSED.
GET DATA /TYPE=XLSX
  /FILE='E:\Stats\nondomiso\PRS Final.xlsx'
  /SHEET=name 'Sheet1'
  /CELLRANGE=full
  /READNAMES=on
  /ASSUMEDSTRWIDTH=32767.

SAVE OUTFILE='E:\Stats\nondomiso\PRS Final.sav'
  /COMPRESSED.
DATASET ACTIVATE DataSet3.
SAVE OUTFILE='E:\Stats\nondomiso\C Responses.sav'
 /COMPRESSED.
DATASET ACTIVATE DataSet2.
SAVE OUTFILE='E:\Stats\nondomiso\B Responses.sav'
 /COMPRESSED.
DATASET ACTIVATE DataSet3.
```

```
SAVE OUTFILE='E:\Stats\nondomiso\C Responses.sav'
 /COMPRESSED.
DATASET ACTIVATE DataSet2.
SAVE OUTFILE='E:\Stats\nondomiso\B Responses.sav'
 /COMPRESSED.
DATASET ACTIVATE DataSet1.
SAVE OUTFILE='E:\Stats\nondomiso\A Responses data.sav'
 /COMPRESSED.
DATASET ACTIVATE DataSet4.
SAVE OUTFILE='E:\Stats\nondomiso\PRS Final.sav'
 /COMPRESSED.
DATASET ACTIVATE DataSet2.
SORT CASES  BY Group.
SPLIT FILE LAYERED BY Group.
NPAR TESTS
  /FRIEDMAN=Pain_Bl Pain_Fu1 Pain_Fu2 Pain_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:52:46
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Pain_Bl Pain_Fu1 Pain_Fu2 Pain_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.011
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet2] E:\Stats\nondomiso\B Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Pain Baseline	2.82
	Pain Fu 1	2.56
	Pain Fu 2	2.26
	Pain Fu 3	2.35
2	Pain Baseline	3.13
	Pain Fu 1	2.50
	Pain Fu 2	2.19
	Pain Fu 3	2.19

Test Statistics[a]

1	N	17
	Chi-Square	3.178
	df	3
	Asymp. Sig.	.365
2	N	8
	Chi-Square	8.333
	df	3
	Asymp. Sig.	.040

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=Conc_Bl Conc_Fu1 Conc_Fu2 Conc_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:53:06
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Conc_Bl Conc_Fu1 Conc_Fu2 Conc_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.011
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet2] E:\Stats\nondomiso\B Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Concentration Baseline	2.79
	Concentration Fu 1	2.71
	Concentration Fu 2	2.29
	Concntration Fu 3	2.21
2	Concentration Baseline	2.81
	Concentration Fu 1	2.56
	Concentration Fu 2	2.31
	Concntration Fu 3	2.31

Test Statistics[a]

1	N	17
	Chi-Square	9.122
	df	3
	Asymp. Sig.	.028
2	N	8
	Chi-Square	3.667
	df	3
	Asymp. Sig.	.300

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=BhvChng_Bl BhvChng_Fu1 BhvChng_Fu2 BhvChng_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:53:23
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=BhvChng_Bl BhvChng_Fu1 BhvChng_Fu2 BhvChng_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.000
	Elapsed Time	0:00:00.011
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet2] E:\Stats\nondomiso\B Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Behaviour Change Baseline	2.71
	Behaviour Change Fu 1	2.62
	Behaviour Change Fu 2	2.38
	Behaviour Change Fu 3	2.29
2	Behaviour Change Baseline	3.00
	Behaviour Change Fu 1	2.50
	Behaviour Change Fu 2	2.25
	Behaviour Change Fu 3	2.25

Test Statistics[a]

1	N	17
	Chi-Square	5.909
	df	3
	Asymp. Sig.	.116
2	N	8
	Chi-Square	6.000
	df	3
	Asymp. Sig.	.112

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=AutRxn_Bl AutRxn_Fu1 AutRxn_Fu2 AutRxn_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:53:56
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=AutRxn_Bl AutRxn_Fu1 AutRxn_Fu2 AutRxn_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.000
	Elapsed Time	0:00:00.012
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet2] E:\Stats\nondomiso\B Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Autonomic Reaction Baseline	2.79
	Autonomic Reaction Fu 1	2.50
	Autonomic Reaction Fu 2	2.41
	Autonomic Reaction Fu 3	2.29
2	Autonomic Reaction Baseline	3.06
	Autonomic Reaction Fu 1	2.31
	Autonomic Reaction Fu 2	2.31
	Autonomic Reaction Fu 3	2.31

Test Statistics[a]

1	N	17
	Chi-Square	8.778
	df	3
	Asymp. Sig.	.032
2	N	8
	Chi-Square	9.000
	df	3
	Asymp. Sig.	.029

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=WtrRtnt_Bl WtrRtnt_Fu1 WtrRtnt_Fu2 WtrRtnt_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:54:16
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=WtrRtnt_Bl WtrRtnt_Fu1 WtrRtnt_Fu2 WtrRtnt_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.011
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet2] E:\Stats\nondomiso\B Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Water Retention Baseline	3.06
	Water Retention Fu 1	2.44
	Water Retention Fu 2	2.29
	Water Retention Fu 3	2.21
2	Water Retention Baseline	2.94
	Water Retention Fu 1	2.69
	Water Retention Fu 2	2.19
	Water Retention Fu 3	2.19

Test Statistics[a]

1	N	17
	Chi-Square	10.145
	df	3
	Asymp. Sig.	.017
2	N	8
	Chi-Square	5.400
	df	3
	Asymp. Sig.	.145

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=NegAffect_Bl Neg_affect_Fu1 Neg_Affect_Fu2 NegAffect_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:54:33
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=NegAffect_Bl Neg_affect_Fu1 Neg_Affect_Fu2 NegAffect_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.012
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet2] E:\Stats\nondomiso\B Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Negative Affect Baseline	3.12
	Negative Affect Fu 1	2.56
	Negative Affect Fu 2	2.24
	Negative Affect Fu 3	2.09
2	Negative Affect Baseline	3.00
	Negative Affect Fu 1	2.50
	Negative Affect Fu 2	2.25
	Negative Affect Fu 3	2.25

Test Statistics[a]

1	N	17
	Chi-Square	17.754
	df	3
	Asymp. Sig.	.000
2	N	8
	Chi-Square	6.000
	df	3
	Asymp. Sig.	.112

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=Arousl_bl Aroul_Fu1 Arousl_Fu2 Arousl_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:54:47
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Arousl_bl Aroul_Fu1 Arousl_Fu2 Arousl_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.000
	Elapsed Time	0:00:00.011
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet2] E:\Stats\nondomiso\B Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Arousal Baseline	2.59
	Arousal Fu 1	2.47
	Arousal Fu 2	2.47
	Arousal Fu 3	2.47
2	Arousal Baseline	2.50
	Arousal Fu 1	2.50
	Arousal Fu 2	2.50
	Arousal Fu 3	2.50

Test Statistics[a]

1	N	17
	Chi-Square	3.000
	df	3
	Asymp. Sig.	.392
2	N	8
	Chi-Square	.
	df	3
	Asymp. Sig.	.

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=Contl_Bl Contl_Fu1 Contl_Fu2 Contl_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:55:11
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Contl_Bl Contl_Fu1 Contl_Fu2 Contl_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.011
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet2] E:\Stats\nondomiso\B Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Control Baseline	2.71
	Control Fu 1	2.41
	Control Fu 2	2.44
	Control Fu 3	2.44
2	Control Baseline	2.69
	Control Fu 1	2.44
	Control Fu 2	2.44
	Control Fu 3	2.44

Test Statistics[a]

1	N	17
	Chi-Square	2.415
	df	3
	Asymp. Sig.	.491
2	N	8
	Chi-Square	3.000
	df	3
	Asymp. Sig.	.392

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=ApptChng_Bl ApptChng_Fu1 ApptChng_Fu2 ApptChng_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:55:23
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=ApptChng_Bl ApptChng_Fu1 ApptChng_Fu2 ApptChng_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.000
	Elapsed Time	0:00:00.010
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet2] E:\Stats\nondomiso\B Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Appetite Change Baseline	2.59
	Appetite Change Fu 1	2.59
	Appetite Change Fu 2	2.47
	Appetite Change Fu 3	2.35
2	Appetite Change Baseline	2.69
	Appetite Change Fu 1	2.44
	Appetite Change Fu 2	2.44
	Appetite Change Fu 3	2.44

Test Statistics[a]

1	N	17
	Chi-Square	2.538
	df	3
	Asymp. Sig.	.468
2	N	8
	Chi-Square	3.000
	df	3
	Asymp. Sig.	.392

a. Friedman Test

```
DATASET ACTIVATE DataSet3.
NPAR TESTS
  /FRIEDMAN=Pain_Bl Pain_Fu1 Pain_Fu2 Pain_Fu3
  /MISSING LISTWISE.

SORT CASES  BY Group.
SPLIT FILE LAYERED BY Group.
NPAR TESTS
  /FRIEDMAN=Pain_Bl Pain_Fu1 Pain_Fu2 Pain_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:57:06
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Pain_Bl Pain_Fu1 Pain_Fu2 Pain_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.011
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Pain Baseline	2.56
	Pain Fu 1	2.44
	Pain Fu 2	2.44
	Pain Fu 3	2.56
2	Pain Baseline	2.88
	Pain Fu 1	2.38
	Pain Fu 2	2.38
	Pain Fu 3	2.38

Test Statistics[a]

1	N	17
	Chi-Square	2.000
	df	3
	Asymp. Sig.	.572
2	N	8
	Chi-Square	6.000
	df	3
	Asymp. Sig.	.112

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=Conc_Bl Conc_Fu1 Conc_Fu2 Conc_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:57:20
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Conc_Bl Conc_Fu1 Conc_Fu2 Conc_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.000
	Elapsed Time	0:00:00.009
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Concentration Baseline	2.56
	Concentration Fu 1	2.56
	Concentration Fu 2	2.44
	Concntration Fu 3	2.44
2	Concentration Baseline	2.69
	Concentration Fu 1	2.44
	Concentration Fu 2	2.44
	Concntration Fu 3	2.44

Test Statistics[a]

1	N	17
	Chi-Square	3.000
	df	3
	Asymp. Sig.	.392
2	N	8
	Chi-Square	3.000
	df	3
	Asymp. Sig.	.392

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=BhvChng_Bl BhvChng_Fu1 BhvChng_Fu2 BhvChng_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:57:31
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=BhvChng_Bl BhvChng_Fu1 BhvChng_Fu2 BhvChng_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.011
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Behaviour Change Baseline	2.50
	Behaviour Change Fu 1	2.50
	Behaviour Change Fu 2	2.50
	Behaviour Change Fu 3	2.50
2	Behaviour Change Baseline	2.50
	Behaviour Change Fu 1	2.50
	Behaviour Change Fu 2	2.50
	Behaviour Change Fu 3	2.50

Test Statistics[a]

1	N	17
	Chi-Square	.
	df	3
	Asymp. Sig.	.
2	N	8
	Chi-Square	.
	df	3
	Asymp. Sig.	.

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=AutRxn_Bl AutRxn_Fu1 AutRxn_Fu2 AutRxn_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:57:44
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=AutRxn_Bl AutRxn_Fu1 AutRxn_Fu2 AutRxn_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.014
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Autonomic Reaction Baseline	2.50
	Autonomic Reaction Fu 1	2.50
	Autonomic Reaction Fu 2	2.50
	Autonomic Reaction Fu 3	2.50
2	Autonomic Reaction Baseline	2.50
	Autonomic Reaction Fu 1	2.50
	Autonomic Reaction Fu 2	2.50
	Autonomic Reaction Fu 3	2.50

Test Statistics[a]

1	N	17
	Chi-Square	.
	df	3
	Asymp. Sig.	.
2	N	8
	Chi-Square	.
	df	3
	Asymp. Sig.	.

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=WtrRtnt_Bl WtrRtnt_Fu1 WtrRtnt_Fu2 WtrRtnt_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:58:03
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=WtrRtnt_Bl WtrRtnt_Fu1 WtrRtnt_Fu2 WtrRtnt_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.000
	Elapsed Time	0:00:00.009
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Water Retention Baseline	2.53
	Water Retention Fu 1	2.44
	Water Retention Fu 2	2.44
	Water Retention Fu 3	2.59
2	Water Retention Baseline	2.50
	Water Retention Fu 1	2.50
	Water Retention Fu 2	2.50
	Water Retention Fu 3	2.50

Test Statistics[a]

1	N	17
	Chi-Square	3.000
	df	3
	Asymp. Sig.	.392
2	N	8
	Chi-Square	.
	df	3
	Asymp. Sig.	.

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=NegAffect_Bl Neg_affect_Fu1 Neg_Affect_Fu2 NegAffect_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:58:13
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=NegAffect_Bl Neg_affect_Fu1 Neg_Affect_Fu2 NegAffect_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.000
	Elapsed Time	0:00:00.010
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Negative Affect Baseline	2.53
	Negative Affect Fu 1	2.53
	Negative Affect Fu 2	2.53
	Negative Affect Fu 3	2.41
2	Negative Affect Baseline	2.31
	Negative Affect Fu 1	2.56
	Negative Affect Fu 2	2.56
	Negative Affect Fu 3	2.56

Test Statistics[a]

1	N	17
	Chi-Square	3.000
	df	3
	Asymp. Sig.	.392
2	N	8
	Chi-Square	3.000
	df	3
	Asymp. Sig.	.392

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=Arousl_bl Aroul_Fu1 Arousl_Fu2 Arousl_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:58:32
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Arousl_bl Aroul_Fu1 Arousl_Fu2 Arousl_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.012
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Arousal Baseline	2.50
	Arousal Fu 1	2.50
	Arousal Fu 2	2.50
	Arousal Fu 3	2.50
2	Arousal Baseline	2.50
	Arousal Fu 1	2.50
	Arousal Fu 2	2.50
	Arousal Fu 3	2.50

Test Statistics[a]

1	N	17
	Chi-Square	.
	df	3
	Asymp. Sig.	.
2	N	8
	Chi-Square	.
	df	3
	Asymp. Sig.	.

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=Contl_Bl Contl_Fu1 Contl_Fu2 Contl_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:58:49
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Contl_Bl Contl_Fu1 Contl_Fu2 Contl_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.011
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Control Baseline	2.71
	Control Fu 1	2.47
	Control Fu 2	2.47
	Control Fu 3	2.35
2	Control Baseline	2.50
	Control Fu 1	2.50
	Control Fu 2	2.50
	Control Fu 3	2.50

Test Statistics[a]

1	N	17
	Chi-Square	6.333
	df	3
	Asymp. Sig.	.096
2	N	8
	Chi-Square	.
	df	3
	Asymp. Sig.	.

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=ApptChng_Bl ApptChng_Fu1 ApptChng_Fu2 ApptChng_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:58:56
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=ApptChng_Bl ApptChng_Fu1 ApptChng_Fu2 ApptChng_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.009
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Appetite Change Baseline	2.18
	Appetite Change Fu 1	3.47
	Appetite Change Fu 2	2.18
	Appetite Change Fu 3	2.18
2	Appetite Change Baseline	2.25
	Appetite Change Fu 1	3.25
	Appetite Change Fu 2	2.25
	Appetite Change Fu 3	2.25

Test Statistics[a]

1	N	17
	Chi-Square	33.000
	df	3
	Asymp. Sig.	.000
2	N	8
	Chi-Square	12.000
	df	3
	Asymp. Sig.	.007

a. Friedman Test

```
DATASET ACTIVATE DataSet4.
SORT CASES  BY Group.
SPLIT FILE LAYERED BY Group.
NPAR TESTS
  /FRIEDMAN=Intns_prv_Bl Intns_prv_Fu1 Intns_prv_Fu2 Intns_prv_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 20:59:52
Comments		
Input	Data	E:\Stats ondomiso\PRS Final.sav
	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Intns_prv_Bl Intns_prv_Fu1 Intns_prv_Fu2 Intns_prv_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.012
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet4] E:\Stats\nondomiso\PRS Final.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Intensity of pain during previous Menses- Baseline	3.85
	Intensity of pain during previous Menses- Fu 1	2.82
	Intensity of pain during previous Menses- Fu 2	1.97
	Intensity of pain during previous Menses- Fu 3	1.35
2	Intensity of pain during previous Menses- Baseline	3.86
	Intensity of pain during previous Menses- Fu 1	3.14
	Intensity of pain during previous Menses- Fu 2	1.86
	Intensity of pain during previous Menses- Fu 3	1.14

Test Statistics[a]

1	N	17
	Chi-Square	38.269
	df	3
	Asymp. Sig.	.000
2	N	7
	Chi-Square	19.500
	df	3
	Asymp. Sig.	.000

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=Intns_prv_wk_b4_Bl Intns_prv_wk_b4_Fu1 Intns_prv_wk_b4_Fu2 Int
ns_prv_wk_b4_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 21:00:14
Comments		
Input	Data	E:\Stats ondomiso\PRS Final.sav
	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Intns_prv_wk_b4_BlIntns_prv_wk_b4_Fu1 Intns_prv_wk_b4_Fu2 Intns_prv_wk_b4_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.010
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet4] E:\Stats\nondomiso\PRS Final.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Intensity of pain the week before previouse Menses- Baseline	3.06
	Intensity of pain the week before previouse Menses- Fu 1	2.41
	Intensity of pain the week before previouse Menses- Fu 2	2.21
	Intensity of pain the week before previouse Menses- Fu 3	2.32
2	Intensity of pain the week before previouse Menses- Baseline	2.93
	Intensity of pain the week before previouse Menses- Fu 1	2.93
	Intensity of pain the week before previouse Menses- Fu 2	2.07
	Intensity of pain the week before previouse Menses- Fu 3	2.07

Test Statistics[a]

1	N	17
	Chi-Square	7.667
	df	3
	Asymp. Sig.	.053
2	N	7
	Chi-Square	7.200
	df	3
	Asymp. Sig.	.066

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=Distrss_prv_bl Distrss_prv_Fu1 Distrss_prv_Fu2 Distrss_prv_fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 21:00:26
Comments		
Input	Data	E:\Stats ondomiso\PRS Final.sav
	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Distrss_prv_bl Distrss_prv_Fu1 Distrss_prv_Fu2 Distrss_prv_fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.010
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet4] E:\Stats\nondomiso\PRS Final.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Distress during the previous Menses- Baseline	3.79
	Distress during the previous Menses- Fu 1	2.85
	Distress during the previous Menses- Fu 2	2.00
	Distress during the previous Menses- Fu 3	1.35
2	Distress during the previous Menses- Baseline	3.86
	Distress during the previous Menses- Fu 1	3.00
	Distress during the previous Menses- Fu 2	1.93
	Distress during the previous Menses- Fu 3	1.21

Test Statistics[a]

1	N	17
	Chi-Square	36.242
	df	3
	Asymp. Sig.	.000
2	N	7
	Chi-Square	17.866
	df	3
	Asymp. Sig.	.000

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=Distrss_prv_wk_b4_bl Distrss_prv_wk_b4_fu1 Distrss_prv_wk_b4_F
u2 Distrss_prv_wk_b4_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 21:00:36
Comments		
Input	Data	E:\Stats ondomiso\PRS Final.sav
	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Distrss_prv_wk_b4_bl Distrss_prv_wk_b4_fu1 Distrss_prv_wk_b4_Fu2 Distrss_prv_wk_b4_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.000
	Elapsed Time	0:00:00.010
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet4] E:\Stats\nondomiso\PRS Final.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	Distress the week before previous Menses- Baseline	2.82
	Distress the week before previous Menses- Fu 1	2.35
	Distress the week before previous Menses- Fu 2	2.32
	Distress the week before previous Menses- Fu 3	2.50
2	Distress the week before previous Menses- Baseline	2.71
	Distress the week before previous Menses- Fu 1	2.71
	Distress the week before previous Menses- Fu 2	2.14
	Distress the week before previous Menses- Fu 3	2.43

Test Statistics[a]

1	N	17
	Chi-Square	4.136
	df	3
	Asymp. Sig.	.247
2	N	7
	Chi-Square	2.538
	df	3
	Asymp. Sig.	.468

a. Friedman Test

```
NPAR TESTS
  /FRIEDMAN=Intfre_ADL_Bl Intfre_ADL_Fu1 Intfre_ADL_Fu2 Intfre_ADL_Fu3
  /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		14-Apr-2014 21:00:49
Comments		
Input	Data	E:\Stats ondomiso\PRS Final.sav
	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	Treatment Group
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Intfre_ADL_Bl Intfre_ADL_Fu1 Intfre_ADL_Fu2 Intfre_ADL_Fu3 /MISSING LISTWISE.
Resources	Processor Time	0:00:00.000
	Elapsed Time	0:00:00.010
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

```
[DataSet4] E:\Stats\nondomiso\PRS Final.sav
```

Friedman Test

Ranks

Treatment Group		Mean Rank
1	How did it interfere with your daily life- Baseline	3.88
	How did it interfere with your daily life- Fu 1	2.79
	How did it interfere with your daily life- Fu 2	2.00
	How did it interfere with your daily life- Fu 3	1.32
2	How did it interfere with your daily life- Baseline	3.93
	How did it interfere with your daily life- Fu 1	3.00
	How did it interfere with your daily life- Fu 2	1.86
	How did it interfere with your daily life- Fu 3	1.21

Test Statistics[a]

1	N	17
	Chi-Square	39.356
	df	3
	Asymp. Sig.	.000
2	N	7
	Chi-Square	19.708
	df	3
	Asymp. Sig.	.000

a. Friedman Test

```
DATASET ACTIVATE DataSet1.
SPLIT FILE OFF.
NPAR TESTS
  /M-W= Pain_BL Pain_FU1 Pain_Fu2 Pain_Fu3 BY Group(1 2)
  /MISSING ANALYSIS.

NPAR TESTS
  /M-W= Pain_BL Pain_FU1 Pain_Fu2 Pain_Fu3 BY Group(1 2)
  /K-S= Pain_BL Pain_FU1 Pain_Fu2 Pain_Fu3 BY Group(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:05:07
Comments		
Input	Data	E:\Stats ondomiso\A Responses data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Pain_BL Pain_FU1 Pain_Fu2 Pain_Fu3 BY Group(1 2) /K-S= Pain_BL Pain_FU1 Pain_Fu2 Pain_Fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.014
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet1] E:\Stats\nondomiso\A Responses data.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Pain Baseline	1	17	13.68	232.50
	2	8	11.56	92.50
	Total	25		
Pain Fu 1	1	17	13.18	224.00
	2	8	12.63	101.00
	Total	25		
Pain Fu 2	1	17	13.97	237.50
	2	8	10.94	87.50
	Total	25		
Pain Fu 3	1	17	14.29	243.00
	2	8	10.25	82.00
	Total	25		

Test Statistics[b]

	Pain Baseline	Pain Fu 1	Pain Fu 2	Pain Fu 3
Mann-Whitney U	56.500	65.000	51.500	46.000
Wilcoxon W	92.500	101.000	87.500	82.000
Z	-.672	-.176	-.970	-1.316
Asymp. Sig. (2-tailed)	.502	.860	.332	.188
Exact Sig. [2*(1-tailed Sig.)]	.511[a]	.887[a]	.344[a]	.215[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Pain Baseline	1	17
	2	8
	Total	25
Pain Fu 1	1	17
	2	8
	Total	25
Pain Fu 2	1	17
	2	8
	Total	25
Pain Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Pain Baseline	Pain Fu 1
Most Extreme Differences	Absolute	.324	.191
	Positive	.191	.191
	Negative	-.324	-.191
Kolmogorov-Smirnov Z		.755	.446
Asymp. Sig. (2-tailed)		.619	.989

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Pain Fu 2	Pain Fu 3
Most Extreme Differences	Absolute	.507	.287
	Positive	.140	.000
	Negative	-.507	-.287
Kolmogorov-Smirnov Z		1.183	.669
Asymp. Sig. (2-tailed)		.122	.762

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= Conc_Bl Conc_Fu1 Conc_Fu2 Conc_Fu3 BY Group(1 2)
  /K-S= Conc_Bl Conc_Fu1 Conc_Fu2 Conc_Fu3 BY Group(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:05:48
Comments		
Input	Data	E:\Stats ondomiso\A Responses data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Conc_Bl Conc_Fu1 Conc_Fu2 Conc_Fu3 BY Group(1 2) /K-S= Conc_Bl Conc_Fu1 Conc_Fu2 Conc_Fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.015
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet1] E:\Stats\nondomiso\A Responses data.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Concentration Baseline	1	17	13.15	223.50
	2	8	12.69	101.50
	Total	25		
Concentration Fu 1	1	17	13.74	233.50
	2	8	11.44	91.50
	Total	25		
Concentration Fu 2	1	17	13.09	222.50
	2	8	12.81	102.50
	Total	25		
Concntration Fu 3	1	17	13.71	233.00
	2	8	11.50	92.00
	Total	25		

Test Statistics[b]

	Concentration Baseline	Concentration Fu 1	Concentration Fu 2	Concntration Fu 3
Mann-Whitney U	65.500	55.500	66.500	56.000
Wilcoxon W	101.500	91.500	102.500	92.000
Z	-.147	-.734	-.089	-.718
Asymp. Sig. (2-tailed)	.883	.463	.929	.473
Exact Sig. [2*(1-tailed Sig.)]	.887[a]	.475[a]	.932[a]	.511[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Concentration Baseline	1	17
	2	8
	Total	25
Concentration Fu 1	1	17
	2	8
	Total	25
Concentration Fu 2	1	17
	2	8
	Total	25
Concntration Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Concentration Baseline	Concentration Fu 1
Most Extreme Differences	Absolute	.235	.213
	Positive	.154	.022
	Negative	-.235	-.213
Kolmogorov-Smirnov Z		.549	.497
Asymp. Sig. (2-tailed)		.924	.966

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Concentration Fu 2	Concntration Fu 3
Most Extreme Differences	Absolute	.169	.353
	Positive	.154	.228
	Negative	-.169	-.353
Kolmogorov-Smirnov Z		.394	.823
Asymp. Sig. (2-tailed)		.998	.507

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= BhvChange_Bl BhvChange_Fu1 BhvChange_Fu2 BhvChange_Fu3 BY Group(1
2)
  /K-S= BhvChange_Bl BhvChange_Fu1 BhvChange_Fu2 BhvChange_Fu3 BY Group(1
2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:06:16
Comments		
Input	Data	E:\Stats ondomiso\A Responses data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= BhvChange_Bl BhvChange_Fu1 BhvChange_Fu2 BhvChange_Fu3 BY Group(1 2) /K-S= BhvChange_Bl BhvChange_Fu1 BhvChange_Fu2 BhvChange_Fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.014
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet1] E:\Stats\nondomiso\A Responses data.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Behaviour Change Baseline	1	17	13.03	221.50
	2	8	12.94	103.50
	Total	25		
Behaviour Change Fu 1	1	17	13.56	230.50
	2	8	11.81	94.50
	Total	25		
Behaviour Change Fu 2	1	17	13.03	221.50
	2	8	12.94	103.50
	Total	25		
Behaviour Change Fu 3	1	17	13.26	225.50
	2	8	12.44	99.50
	Total	25		

Test Statistics[b]

	Behaviour Change Baseline	Behaviour Change Fu 1	Behaviour Change Fu 2	Behaviour Change Fu 3
Mann-Whitney U	67.500	58.500	67.500	63.500
Wilcoxon W	103.500	94.500	103.500	99.500
Z	-.029	-.562	-.029	-.271
Asymp. Sig. (2-tailed)	.977	.574	.976	.787
Exact Sig. [2*(1-tailed Sig.)]	.977[a]	.588[a]	.977[a]	.798[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Behaviour Change Baseline	1	17
	2	8
	Total	25
Behaviour Change Fu 1	1	17
	2	8
	Total	25
Behaviour Change Fu 2	1	17
	2	8
	Total	25
Behaviour Change Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Behaviour Change Baseline	Behaviour Change Fu 1
Most Extreme Differences	Absolute	.221	.294
	Positive	.162	.110
	Negative	-.221	-.294
Kolmogorov-Smirnov Z		.514	.686
Asymp. Sig. (2-tailed)		.954	.734

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Behaviour Change Fu 2	Behaviour Change Fu 3
Most Extreme Differences	Absolute	.272	.118
	Positive	.257	.000
	Negative	-.272	-.118
Kolmogorov-Smirnov Z		.635	.274
Asymp. Sig. (2-tailed)		.816	1.000

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= AutnRxn_Bl AutnRxn_Fu1 AutnRxn_Fu2 AutnRxn_Fu3 BY Group(1 2)
  /K-S= AutnRxn_Bl AutnRxn_Fu1 AutnRxn_Fu2 AutnRxn_Fu3 BY Group(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:07:02
Comments		
Input	Data	E:\Stats ondomiso\A Responses data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= AutnRxn_Bl AutnRxn_Fu1 AutnRxn_Fu2 AutnRxn_Fu3 BY Group(1 2) /K-S= AutnRxn_Bl AutnRxn_Fu1 AutnRxn_Fu2 AutnRxn_Fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.016
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet1] E:\Stats\nondomiso\A Responses data.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Autonomic Reaction Baseline	1	17	13.50	229.50
	2	8	11.94	95.50
	Total	25		
Autonomic Reaction Fu 1	1	17	13.76	234.00
	2	8	11.38	91.00
	Total	25		
Autonomic Reaction Fu 2	1	17	14.03	238.50
	2	8	10.81	86.50
	Total	25		
Autonomic Reaction Fu 3	1	17	14.62	248.50
	2	8	9.56	76.50
	Total	25		

Test Statistics[b]

	Autonomic Reaction Baseline	Autonomic Reaction Fu 1	Autonomic Reaction Fu 2	Autonomic Reaction Fu 3
Mann-Whitney U	59.500	55.000	50.500	40.500
Wilcoxon W	95.500	91.000	86.500	76.500
Z	-.502	-.769	-1.042	-1.687
Asymp. Sig. (2-tailed)	.616	.442	.297	.092
Exact Sig. [2*(1-tailed Sig.)]	.628[a]	.475[a]	.315[a]	.110[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Autonomic Reaction Baseline	1	17
	2	8
	Total	25
Autonomic Reaction Fu 1	1	17
	2	8
	Total	25
Autonomic Reaction Fu 2	1	17
	2	8
	Total	25
Autonomic Reaction Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Autonomic Reaction Baseline	Autonomic Reaction Fu 1
Most Extreme Differences	Absolute	.169	.324
	Positive	.066	.125
	Negative	-.169	-.324
Kolmogorov-Smirnov Z		.394	.755
Asymp. Sig. (2-tailed)		.998	.619

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Autonomic Reaction Fu 2	Autonomic Reaction Fu 3
Most Extreme Differences	Absolute	.235	.346
	Positive	.000	.000
	Negative	-.235	-.346
Kolmogorov-Smirnov Z		.549	.806
Asymp. Sig. (2-tailed)		.924	.534

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= WtrRtntn_Bl WtrRtntn_Fu1 WtrRtntn_Fu2 WtrRtntn_Fu3 BY Group(1 2)
  /K-S= WtrRtntn_Bl WtrRtntn_Fu1 WtrRtntn_Fu2 WtrRtntn_Fu3 BY Group(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:07:15
Comments		
Input	Data	E:\Stats ondomiso\A Responses data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= WtrRtntn_Bl WtrRtntn_Fu1 WtrRtntn_Fu2 WtrRtntn_Fu3 BY Group(1 2) /K-S= WtrRtntn_Bl WtrRtntn_Fu1 WtrRtntn_Fu2 WtrRtntn_Fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.014
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet1] E:\Stats\nondomiso\A Responses data.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Water Retention Baseline	1	17	14.41	245.00
	2	8	10.00	80.00
	Total	25		
Water Retention Fu 1	1	17	13.91	236.50
	2	8	11.06	88.50
	Total	25		
Water Retention Fu 2	1	17	13.06	222.00
	2	8	12.88	103.00
	Total	25		
Water Retention Fu 3	1	17	16.06	273.00
	2	8	6.50	52.00
	Total	25		

Test Statistics[b]

	Water Retention Baseline	Water Retention Fu 1	Water Retention Fu 2	Water Retention Fu 3
Mann-Whitney U	44.000	52.500	67.000	16.000
Wilcoxon W	80.000	88.500	103.000	52.000
Z	-1.418	-.912	-.060	-3.138
Asymp. Sig. (2-tailed)	.156	.362	.952	.002
Exact Sig. [2*(1-tailed Sig.)]	.175[a]	.374[a]	.977[a]	.001[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Water Retention Baseline	1	17
	2	8
	Total	25
Water Retention Fu 1	1	17
	2	8
	Total	25
Water Retention Fu 2	1	17
	2	8
	Total	25
Water Retention Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Water Retention Baseline	Water Retention Fu 1
Most Extreme Differences	Absolute	.390	.346
	Positive	.015	.000
	Negative	-.390	-.346
Kolmogorov-Smirnov Z		.909	.806
Asymp. Sig. (2-tailed)		.381	.534

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Water Retention Fu 2	Water Retention Fu 3
Most Extreme Differences	Absolute	.235	.632
	Positive	.110	.000
	Negative	-.235	-.632
Kolmogorov-Smirnov Z		.549	1.475
Asymp. Sig. (2-tailed)		.924	.026

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= NegAffect_Bl NegAffect_Fu1 NegAffect_Fu2 NegAffect_Fu3 BY Group(1
2)
  /K-S= NegAffect_Bl NegAffect_Fu1 NegAffect_Fu2 NegAffect_Fu3 BY Group(1
2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:07:29
Comments		
Input	Data	E:\Stats ondomiso\A Responses data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= NegAffect_Bl NegAffect_Fu1 NegAffect_Fu2 NegAffect_Fu3 BY Group(1 2) /K-S= NegAffect_Bl NegAffect_Fu1 NegAffect_Fu2 NegAffect_Fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.014
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet1] E:\Stats\nondomiso\A Responses data.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Negative Affect Baseline	1	17	13.26	225.50
	2	8	12.44	99.50
	Total	25		
Negative Affect Fu 1	1	17	12.06	205.00
	2	8	15.00	120.00
	Total	25		
Negative Affect Fu 2	1	17	14.06	239.00
	2	8	10.75	86.00
	Total	25		
Negative Affect Fu 3	1	17	13.76	234.00
	2	8	11.38	91.00
	Total	25		

Test Statistics[b]

	Negative Affect Baseline	Negative Affect Fu 1	Negative Affect Fu 2	Negative Affect Fu 3
Mann-Whitney U	63.500	52.000	50.000	55.000
Wilcoxon W	99.500	205.000	86.000	91.000
Z	-.263	-.939	-1.066	-.778
Asymp. Sig. (2-tailed)	.793	.348	.286	.437
Exact Sig. [2*(1-tailed Sig.)]	.798[a]	.374[a]	.315[a]	.475[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Negative Affect Baseline	1	17
	2	8
	Total	25
Negative Affect Fu 1	1	17
	2	8
	Total	25
Negative Affect Fu 2	1	17
	2	8
	Total	25
Negative Affect Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Negative Affect Baseline	Negative Affect Fu 1
Most Extreme Differences	Absolute	.471	.265
	Positive	.294	.265
	Negative	-.471	-.176
Kolmogorov-Smirnov Z		1.098	.617
Asymp. Sig. (2-tailed)		.180	.840

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Negative Affect Fu 2	Negative Affect Fu 3
Most Extreme Differences	Absolute	.294	.221
	Positive	.000	.059
	Negative	-.294	-.221
Kolmogorov-Smirnov Z		.686	.514
Asymp. Sig. (2-tailed)		.734	.954

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= Arousal_Bl Arousal_Fu1 Arousal_Fu2 Arousal_Fu3 BY Group(1 2)
  /K-S= Arousal_Bl Arousal_Fu1 Arousal_Fu2 Arousal_Fu3 BY Group(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:07:40
Comments		
Input	Data	E:\Stats ondomiso\A Responses data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Arousal_Bl Arousal_Fu1 Arousal_Fu2 Arousal_Fu3 BY Group (1 2) /K-S= Arousal_Bl Arousal_Fu1 Arousal_Fu2 Arousal_Fu3 BY Group (1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.014
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet1] E:\Stats\nondomiso\A Responses data.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Arousal Baseline	1	17	13.94	237.00
	2	8	11.00	88.00
	Total	25		
Arousal Fu 1	1	17	13.47	229.00
	2	8	12.00	96.00
	Total	25		
Arousal Fu 2	1	17	13.18	224.00
	2	8	12.63	101.00
	Total	25		
Arousal Fu 3	1	17	13.50	229.50
	2	8	11.94	95.50
	Total	25		

Test Statistics[b]

	Arousal Baseline	Arousal Fu 1	Arousal Fu 2	Arousal Fu 3
Mann-Whitney U	52.000	60.000	65.000	59.500
Wilcoxon W	88.000	96.000	101.000	95.500
Z	-1.467	-.991	-.274	-.710
Asymp. Sig. (2-tailed)	.142	.322	.784	.478
Exact Sig. [2*(1-tailed Sig.)]	.374[a]	.669[a]	.887[a]	.628[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Arousal Baseline	1	17
	2	8
	Total	25
Arousal Fu 1	1	17
	2	8
	Total	25
Arousal Fu 2	1	17
	2	8
	Total	25
Arousal Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Arousal Baseline	Arousal Fu 1
Most Extreme Differences	Absolute	.235	.118
	Positive	.000	.000
	Negative	-.235	-.118
Kolmogorov-Smirnov Z		.549	.274
Asymp. Sig. (2-tailed)		.924	1.000

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Arousal Fu 2	Arousal Fu 3
Most Extreme Differences	Absolute	.066	.118
	Positive	.066	.000
	Negative	-.059	-.118
Kolmogorov-Smirnov Z		.154	.274
Asymp. Sig. (2-tailed)		1.000	1.000

a. Grouping Variable: Treatment Group

```
DATASET ACTIVATE DataSet1.
NPAR TESTS
  /M-W= Control_Bl Control_Fu1 Control_Fu2 Control_Fu3 BY Group(1 2)
  /K-S= Control_Bl Control_Fu1 Control_Fu2 Control_Fu3 BY Group(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:13:25
Comments		
Input	Data	E:\Stats ondomiso\A Responses data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Control_Bl Control_Fu1 Control_Fu2 Control_Fu3 BY Group (1 2) /K-S= Control_Bl Control_Fu1 Control_Fu2 Control_Fu3 BY Group (1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.014
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet1] E:\Stats\nondomiso\A Responses data.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Control Baseline	1	17	12.26	208.50
	2	8	14.56	116.50
	Total	25		
Control Fu 1	1	17	13.29	226.00
	2	8	12.38	99.00
	Total	25		
Control Fu 2	1	17	13.03	221.50
	2	8	12.94	103.50
	Total	25		
Control Fu 3	1	17	12.97	220.50
	2	8	13.06	104.50
	Total	25		

Test Statistics[b]

	Control Baseline	Control Fu 1	Control Fu 2	Control Fu 3
Mann-Whitney U	55.500	63.000	67.500	67.500
Wilcoxon W	208.500	99.000	103.500	220.500
Z	-.776	-.370	-.052	-.033
Asymp. Sig. (2-tailed)	.438	.711	.959	.974
Exact Sig. [2*(1-tailed Sig.)]	.475[a]	.798[a]	.977[a]	.977[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Control Baseline	1	17
	2	8
	Total	25
Control Fu 1	1	17
	2	8
	Total	25
Control Fu 2	1	17
	2	8
	Total	25
Control Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Control Baseline	Control Fu 1
Most Extreme Differences	Absolute	.265	.118
	Positive	.265	.000
	Negative	-.051	-.118
Kolmogorov-Smirnov Z		.617	.274
Asymp. Sig. (2-tailed)		.840	1.000

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Control Fu 2	Control Fu 3
Most Extreme Differences	Absolute	.118	.110
	Positive	.007	.059
	Negative	-.118	-.110
Kolmogorov-Smirnov Z		.274	.257
Asymp. Sig. (2-tailed)		1.000	1.000

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= AptteChnge_Bl AptteChnge_Fu1 AptteChnge_Fu2 AptteChnge_Fu3 BY Grou
p(1 2)
  /K-S= AptteChnge_Bl AptteChnge_Fu1 AptteChnge_Fu2 AptteChnge_Fu3 BY Grou
p(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:14:03
Comments		
Input	Data	E:\Stats ondomiso\A Responses data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= AptteChnge_Bl AptteChnge_Fu1 AptteChnge_Fu2 AptteChnge_Fu3 BY Group(1 2) /K-S= AptteChnge_Bl AptteChnge_Fu1 AptteChnge_Fu2 AptteChnge_Fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.031
	Elapsed Time	0:00:00.017
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet1] E:\Stats\nondomiso\A Responses data.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Appetite Change Baseline	1	17	13.79	234.50
	2	8	11.31	90.50
	Total	25		
Appetite Change Fu 1	1	17	14.06	239.00
	2	8	10.75	86.00
	Total	25		
Appetite Change Fu 2	1	17	14.62	248.50
	2	8	9.56	76.50
	Total	25		
Appetite Change Fu 3	1	17	12.03	204.50
	2	8	15.06	120.50
	Total	25		

Test Statistics[b]

	Appetite Change Baseline	Appetite Change Fu 1	Appetite Change Fu 2	Appetite Change Fu 3
Mann-Whitney U	54.500	50.000	40.500	51.500
Wilcoxon W	90.500	86.000	76.500	204.500
Z	-.810	-1.095	-1.709	-1.089
Asymp. Sig. (2-tailed)	.418	.274	.087	.276
Exact Sig. [2*(1-tailed Sig.)]	.440[a]	.315[a]	.110[a]	.344[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Appetite Change Baseline	1	17
	2	8
	Total	25
Appetite Change Fu 1	1	17
	2	8
	Total	25
Appetite Change Fu 2	1	17
	2	8
	Total	25
Appetite Change Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Appetite Change Baseline	Appetite Change Fu 1
Most Extreme Differences	Absolute	.353	.279
	Positive	.110	.000
	Negative	-.353	-.279
Kolmogorov-Smirnov Z		.823	.652
Asymp. Sig. (2-tailed)		.507	.789

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Appetite Change Fu 2	Appetite Change Fu 3
Most Extreme Differences	Absolute	.353	.346
	Positive	.000	.346
	Negative	-.353	-.118
Kolmogorov-Smirnov Z		.823	.806
Asymp. Sig. (2-tailed)		.507	.534

a. Grouping Variable: Treatment Group

```
SPLIT FILE OFF.
NPAR TESTS
  /M-W= Pain_Bl Pain_Fu1 Pain_Fu2 Pain_Fu3 BY Group(1 2)
  /K-S= Pain_Bl Pain_Fu1 Pain_Fu2 Pain_Fu3 BY Group(1 2)
  /STATISTICS=DESCRIPTIVES
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:21:56
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Pain_Bl Pain_Fu1 Pain_Fu2 Pain_Fu3 BY Group(1 2) /K-S= Pain_Bl Pain_Fu1 Pain_Fu2 Pain_Fu3 BY Group(1 2) /STATISTICS=DESCRIPTIVES /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.016
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet2] E:\Stats\nondomiso\B Responses.sav
```

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Pain Baseline	25	8.60	4.262	6	20
Pain Fu 1	25	7.72	3.542	6	19
Pain Fu 2	25	6.44	1.044	6	10
Pain Fu 3	25	6.44	.768	6	8
Treatment Group	25	1.32	.476	1	2

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Pain Baseline	1	17	13.29	226.00
	2	8	12.38	99.00
	Total	25		
Pain Fu 1	1	17	13.53	230.00
	2	8	11.88	95.00
	Total	25		
Pain Fu 2	1	17	14.18	241.00
	2	8	10.50	84.00
	Total	25		
Pain Fu 3	1	17	14.65	249.00
	2	8	9.50	76.00
	Total	25		

Test Statistics[b]

	Pain Baseline	Pain Fu 1	Pain Fu 2	Pain Fu 3
Mann-Whitney U	63.000	59.000	48.000	40.000
Wilcoxon W	99.000	95.000	84.000	76.000
Z	-.315	-.700	-1.668	-2.068
Asymp. Sig. (2-tailed)	.753	.484	.095	.039
Exact Sig. [2*(1-tailed Sig.)]	.798[a]	.628[a]	.262[a]	.110[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Pain Baseline	1	17
	2	8
	Total	25
Pain Fu 1	1	17
	2	8
	Total	25
Pain Fu 2	1	17
	2	8
	Total	25
Pain Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Pain Baseline	Pain Fu 1
Most Extreme Differences	Absolute	.228	.169
	Positive	.088	.125
	Negative	-.228	-.169
Kolmogorov-Smirnov Z		.532	.394
Asymp. Sig. (2-tailed)		.940	.998

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Pain Fu 2	Pain Fu 3
Most Extreme Differences	Absolute	.294	.412
	Positive	.000	.000
	Negative	-.294	-.412
Kolmogorov-Smirnov Z		.686	.960
Asymp. Sig. (2-tailed)		.734	.315

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= Conc_Bl Conc_Fu1 Conc_Fu2 Conc_Fu3 BY Group(1 2)
  /K-S= Conc_Bl Conc_Fu1 Conc_Fu2 Conc_Fu3 BY Group(1 2)
  /STATISTICS=DESCRIPTIVES
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:22:18
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Conc_Bl Conc_Fu1 Conc_Fu2 Conc_Fu3 BY Group(1 2) /K-S= Conc_Bl Conc_Fu1 Conc_Fu2 Conc_Fu3 BY Group(1 2) /STATISTICS=DESCRIPTIVES /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.015
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet2] E:\Stats\nondomiso\B Responses.sav
```

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Concentration Baseline	25	8.48	.823	8	11
Concentration Fu 1	25	8.76	2.127	8	17
Concentration Fu 2	25	8.08	.400	8	10
Concntration Fu 3	25	8.04	.200	8	9
Treatment Group	25	1.32	.476	1	2

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Concentration Baseline	1	17	13.29	226.00
	2	8	12.38	99.00
	Total	25		
Concentration Fu 1	1	17	13.38	227.50
	2	8	12.19	97.50
	Total	25		
Concentration Fu 2	1	17	13.24	225.00
	2	8	12.50	100.00
	Total	25		
Concntration Fu 3	1	17	13.24	225.00
	2	8	12.50	100.00
	Total	25		

Test Statistics[b]

	Concentration Baseline	Concentration Fu 1	Concentration Fu 2	Concntration Fu 3
Mann-Whitney U	63.000	61.500	64.000	64.000
Wilcoxon W	99.000	97.500	100.000	100.000
Z	-.354	-.542	-.686	-.686
Asymp. Sig. (2-tailed)	.724	.588	.493	.493
Exact Sig. [2*(1-tailed Sig.)]	.798[a]	.711[a]	.842[a]	.842[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Concentration Baseline	1	17
	2	8
	Total	25
Concentration Fu 1	1	17
	2	8
	Total	25
Concentration Fu 2	1	17
	2	8
	Total	25
Concntration Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Concentration Baseline	Concentration Fu 1
Most Extreme Differences	Absolute	.125	.110
	Positive	.125	.066
	Negative	-.103	-.110
Kolmogorov-Smirnov Z		.292	.257
Asymp. Sig. (2-tailed)		1.000	1.000

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Concentration Fu 2	Concntration Fu 3
Most Extreme Differences	Absolute	.059	.059
	Positive	.000	.000
	Negative	-.059	-.059
Kolmogorov-Smirnov Z		.137	.137
Asymp. Sig. (2-tailed)		1.000	1.000

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= BhvChng_Bl BhvChng_Fu1 BhvChng_Fu2 BhvChng_Fu3 BY Group(1 2)
  /K-S= BhvChng_Bl BhvChng_Fu1 BhvChng_Fu2 BhvChng_Fu3 BY Group(1 2)
  /STATISTICS=DESCRIPTIVES
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:22:31
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= BhvChng_Bl BhvChng_Fu1 BhvChng_Fu2 BhvChng_Fu3 BY Group(1 2) /K-S= BhvChng_Bl BhvChng_Fu1 BhvChng_Fu2 BhvChng_Fu3 BY Group(1 2) /STATISTICS=DESCRIPTIVES /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.015
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet2] E:\Stats\nondomiso\B Responses.sav
```

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Behaviour Change Baseline	25	6.12	2.261	5	13
Behaviour Change Fu 1	25	5.92	3.427	5	22
Behaviour Change Fu 2	25	5.04	.200	5	6
Behaviour Change Fu 3	25	5.00	.000	5	5
Treatment Group	25	1.32	.476	1	2

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Behaviour Change Baseline	1	17	12.24	208.00
	2	8	14.63	117.00
	Total	25		
Behaviour Change Fu 1	1	17	13.18	224.00
	2	8	12.63	101.00
	Total	25		
Behaviour Change Fu 2	1	17	13.24	225.00
	2	8	12.50	100.00
	Total	25		
Behaviour Change Fu 3	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		

Test Statistics[b]

	Behaviour Change Baseline	Behaviour Change Fu 1	Behaviour Change Fu 2	Behaviour Change Fu 3
Mann-Whitney U	55.000	65.000	64.000	68.000
Wilcoxon W	208.000	101.000	100.000	104.000
Z	-1.011	-.274	-.686	.000
Asymp. Sig. (2-tailed)	.312	.784	.493	1.000
Exact Sig. [2*(1-tailed Sig.)]	.475[a]	.887[a]	.842[a]	1.000[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Behaviour Change Baseline	1	17
	2	8
	Total	25
Behaviour Change Fu 1	1	17
	2	8
	Total	25
Behaviour Change Fu 2	1	17
	2	8
	Total	25
Behaviour Change Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Behaviour Change Baseline	Behaviour Change Fu 1
Most Extreme Differences	Absolute	.257	.066
	Positive	.257	.066
	Negative	-.059	-.059
Kolmogorov-Smirnov Z		.600	.154
Asymp. Sig. (2-tailed)		.864	1.000

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Behaviour Change Fu 2	Behaviour Change Fu 3
Most Extreme Differences	Absolute	.059	.000
	Positive	.000	.000
	Negative	-.059	.000
Kolmogorov-Smirnov Z		.137	.000
Asymp. Sig. (2-tailed)		1.000	1.000

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= AutRxn_Bl AutRxn_Fu1 AutRxn_Fu2 AutRxn_Fu3 BY Group(1 2)
  /K-S= AutRxn_Bl AutRxn_Fu1 AutRxn_Fu2 AutRxn_Fu3 BY Group(1 2)
  /STATISTICS=DESCRIPTIVES
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:22:43
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= AutRxn_Bl AutRxn_Fu1 AutRxn_Fu2 AutRxn_Fu3 BY Group (1 2) /K-S= AutRxn_Bl AutRxn_Fu1 AutRxn_Fu2 AutRxn_Fu3 BY Group (1 2) /STATISTICS=DESCRIPTIVES /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.013
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

[DataSet2] E:\Stats\nondomiso\B Responses.sav

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Autonomic Reaction Baseline	25	3.56	1.044	3	6
Autonomic Reaction Fu 1	25	3.16	.624	3	6
Autonomic Reaction Fu 2	25	3.12	.600	3	6
Autonomic Reaction Fu 3	25	3.00	.000	3	3
Treatment Group	25	1.32	.476	1	2

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Autonomic Reaction Baseline	1	17	12.68	215.50
	2	8	13.69	109.50
	Total	25		
Autonomic Reaction Fu 1	1	17	13.47	229.00
	2	8	12.00	96.00
	Total	25		
Autonomic Reaction Fu 2	1	17	13.24	225.00
	2	8	12.50	100.00
	Total	25		
Autonomic Reaction Fu 3	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		

Test Statistics[b]

	Autonomic Reaction Baseline	Autonomic Reaction Fu 1	Autonomic Reaction Fu 2	Autonomic Reaction Fu 3
Mann-Whitney U	62.500	60.000	64.000	68.000
Wilcoxon W	215.500	96.000	100.000	104.000
Z	-.406	-.990	-.686	.000
Asymp. Sig. (2-tailed)	.685	.322	.493	1.000
Exact Sig. [2*(1-tailed Sig.)]	.754[a]	.669[a]	.842[a]	1.000[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Autonomic Reaction Baseline	1	17
	2	8
	Total	25
Autonomic Reaction Fu 1	1	17
	2	8
	Total	25
Autonomic Reaction Fu 2	1	17
	2	8
	Total	25
Autonomic Reaction Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Autonomic Reaction Baseline	Autonomic Reaction Fu 1
Most Extreme Differences	Absolute	.176	.118
	Positive	.140	.000
	Negative	-.176	-.118
Kolmogorov-Smirnov Z		.412	.274
Asymp. Sig. (2-tailed)		.996	1.000

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Autonomic Reaction Fu 2	Autonomic Reaction Fu 3
Most Extreme Differences	Absolute	.059	.000
	Positive	.000	.000
	Negative	-.059	.000
Kolmogorov-Smirnov Z		.137	.000
Asymp. Sig. (2-tailed)		1.000	1.000

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= WtrRtnt_Bl WtrRtnt_Fu1 WtrRtnt_Fu2 WtrRtnt_Fu3 BY Group(1 2)
  /K-S= WtrRtnt_Bl WtrRtnt_Fu1 WtrRtnt_Fu2 WtrRtnt_Fu3 BY Group(1 2)
  /STATISTICS=DESCRIPTIVES
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:22:57
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= WtrRtnt_Bl WtrRtnt_Fu1 WtrRtnt_Fu2 WtrRtnt_Fu3 BY Group (1 2) /K-S= WtrRtnt_Bl WtrRtnt_Fu1 WtrRtnt_Fu2 WtrRtnt_Fu3 BY Group (1 2) /STATISTICS=DESCRIPTIVES /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.016
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet2] E:\Stats\nondomiso\B Responses.sav
```

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Water Retention Baseline	25	6.08	2.783	4	12
Water Retention Fu 1	25	5.08	2.431	4	13
Water Retention Fu 2	25	4.52	1.806	4	11
Water Retention Fu 3	25	4.32	.988	4	8
Treatment Group	25	1.32	.476	1	2

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Water Retention Baseline	1	17	13.41	228.00
	2	8	12.13	97.00
	Total	25		
Water Retention Fu 1	1	17	12.76	217.00
	2	8	13.50	108.00
	Total	25		
Water Retention Fu 2	1	17	13.47	229.00
	2	8	12.00	96.00
	Total	25		
Water Retention Fu 3	1	17	13.71	233.00
	2	8	11.50	92.00
	Total	25		

Test Statistics[b]

	Water Retention Baseline	Water Retention Fu 1	Water Retention Fu 2	Water Retention Fu 3
Mann-Whitney U	61.000	64.000	60.000	56.000
Wilcoxon W	97.000	217.000	96.000	92.000
Z	-.441	-.334	-.990	-1.238
Asymp. Sig. (2-tailed)	.660	.739	.322	.216
Exact Sig. [2*(1-tailed Sig.)]	.711[a]	.842[a]	.669[a]	.511[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Water Retention Baseline	1	17
	2	8
	Total	25
Water Retention Fu 1	1	17
	2	8
	Total	25
Water Retention Fu 2	1	17
	2	8
	Total	25
Water Retention Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Water Retention Baseline	Water Retention Fu 1
Most Extreme Differences	Absolute	.221	.074
	Positive	.191	.074
	Negative	-.221	-.059
Kolmogorov-Smirnov Z		.514	.171
Asymp. Sig. (2-tailed)		.954	1.000

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Water Retention Fu 2	Water Retention Fu 3
Most Extreme Differences	Absolute	.118	.176
	Positive	.000	.000
	Negative	-.118	-.176
Kolmogorov-Smirnov Z		.274	.412
Asymp. Sig. (2-tailed)		1.000	.996

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= NegAffect_Bl Neg_affect_Fu1 Neg_Affect_Fu2 NegAffect_Fu3 BY Group(
1 2)
  /K-S= NegAffect_Bl Neg_affect_Fu1 Neg_Affect_Fu2 NegAffect_Fu3 BY Group(
1 2)
  /STATISTICS=DESCRIPTIVES
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:23:11
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= NegAffect_Bl Neg_affect_Fu1 Neg_Affect_Fu2 NegAffect_Fu3 BY Group(1 2) /K-S= NegAffect_Bl Neg_affect_Fu1 Neg_Affect_Fu2 NegAffect_Fu3 BY Group(1 2) /STATISTICS=DESCRIPTIVES /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.017
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet2] E:\Stats\nondomiso\B Responses.sav
```

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Negative Affect Baseline	25	10.20	4.453	8	29
Negative Affect Fu 1	25	8.80	2.814	8	22
Negative Affect Fu 2	25	8.48	2.400	8	20
Negative Affect Fu 3	25	7.88	.600	5	8
Treatment Group	25	1.32	.476	1	2

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Negative Affect Baseline	1	17	13.12	223.00
	2	8	12.75	102.00
	Total	25		
Negative Affect Fu 1	1	17	13.41	228.00
	2	8	12.13	97.00
	Total	25		
Negative Affect Fu 2	1	17	13.24	225.00
	2	8	12.50	100.00
	Total	25		
Negative Affect Fu 3	1	17	12.76	217.00
	2	8	13.50	108.00
	Total	25		

Test Statistics[b]

	Negative Affect Baseline	Negative Affect Fu 1	Negative Affect Fu 2	Negative Affect Fu 3
Mann-Whitney U	66.000	61.000	64.000	64.000
Wilcoxon W	102.000	97.000	100.000	217.000
Z	-.132	-.584	-.686	-.686
Asymp. Sig. (2-tailed)	.895	.559	.493	.493
Exact Sig. [2*(1-tailed Sig.)]	.932[a]	.711[a]	.842[a]	.842[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Negative Affect Baseline	1	17
	2	8
	Total	25
Negative Affect Fu 1	1	17
	2	8
	Total	25
Negative Affect Fu 2	1	17
	2	8
	Total	25
Negative Affect Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Negative Affect Baseline	Negative Affect Fu 1
Most Extreme Differences	Absolute	.140	.110
	Positive	.140	.007
	Negative	-.118	-.110
Kolmogorov-Smirnov Z		.326	.257
Asymp. Sig. (2-tailed)		1.000	1.000

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Negative Affect Fu 2	Negative Affect Fu 3
Most Extreme Differences	Absolute	.059	.059
	Positive	.000	.059
	Negative	-.059	.000
Kolmogorov-Smirnov Z		.137	.137
Asymp. Sig. (2-tailed)		1.000	1.000

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= Arousl_bl Aroul_Fu1 Arousl_Fu2 Arousl_Fu3 BY Group(1 2)
  /K-S= Arousl_bl Aroul_Fu1 Arousl_Fu2 Arousl_Fu3 BY Group(1 2)
  /STATISTICS=DESCRIPTIVES
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:23:24
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Arousl_bl Aroul_Fu1 Arousl_Fu2 Arousl_Fu3 BY Group(1 2) /K-S= Arousl_bl Aroul_Fu1 Arousl_Fu2 Arousl_Fu3 BY Group(1 2) /STATISTICS=DESCRIPTIVES /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.016
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet2] E:\Stats\nondomiso\B Responses.sav
```

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Arousal Baseline	25	5.04	.200	5	6
Arousal Fu 1	25	5.00	.000	5	5
Arousal Fu 2	25	5.00	.000	5	5
Arousal Fu 3	25	5.00	.000	5	5
Treatment Group	25	1.32	.476	1	2

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Arousal Baseline	1	17	13.24	225.00
	2	8	12.50	100.00
	Total	25		
Arousal Fu 1	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Arousal Fu 2	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Arousal Fu 3	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		

Test Statistics[b]

	Arousal Baseline	Arousal Fu 1	Arousal Fu 2	Arousal Fu 3
Mann-Whitney U	64.000	68.000	68.000	68.000
Wilcoxon W	100.000	104.000	104.000	104.000
Z	-.686	.000	.000	.000
Asymp. Sig. (2-tailed)	.493	1.000	1.000	1.000
Exact Sig. [2*(1-tailed Sig.)]	.842[a]	1.000[a]	1.000[a]	1.000[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Arousal Baseline	1	17
	2	8
	Total	25
Arousal Fu 1	1	17
	2	8
	Total	25
Arousal Fu 2	1	17
	2	8
	Total	25
Arousal Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Arousal Baseline	Arousal Fu 1
Most Extreme Differences	Absolute	.059	.000
	Positive	.000	.000
	Negative	-.059	.000
Kolmogorov-Smirnov Z		.137	.000
Asymp. Sig. (2-tailed)		1.000	1.000

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Arousal Fu 2	Arousal Fu 3
Most Extreme Differences	Absolute	.000	.000
	Positive	.000	.000
	Negative	.000	.000
Kolmogorov-Smirnov Z		.000	.000
Asymp. Sig. (2-tailed)		1.000	1.000

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= Contl_Bl Contl_Fu1 Contl_Fu2 Contl_Fu3 BY Group(1 2)
  /K-S= Contl_Bl Contl_Fu1 Contl_Fu2 Contl_Fu3 BY Group(1 2)
  /STATISTICS=DESCRIPTIVES
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:23:36
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Contl_Bl Contl_Fu1 Contl_Fu2 Contl_Fu3 BY Group(1 2) /K-S= Contl_Bl Contl_Fu1 Contl_Fu2 Contl_Fu3 BY Group(1 2) /STATISTICS=DESCRIPTIVES /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.017
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet2] E:\Stats\nondomiso\B Responses.sav
```

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Control Baseline	25	5.40	1.155	5	10
Control Fu 1	25	5.16	.800	5	9
Control Fu 2	25	5.04	.200	5	6
Control Fu 3	25	4.92	.862	1	6
Treatment Group	25	1.32	.476	1	2

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Control Baseline	1	17	13.26	225.50
	2	8	12.44	99.50
	Total	25		
Control Fu 1	1	17	13.24	225.00
	2	8	12.50	100.00
	Total	25		
Control Fu 2	1	17	13.24	225.00
	2	8	12.50	100.00
	Total	25		
Control Fu 3	1	17	13.24	225.00
	2	8	12.50	100.00
	Total	25		

Test Statistics[b]

	Control Baseline	Control Fu 1	Control Fu 2	Control Fu 3
Mann-Whitney U	63.500	64.000	64.000	64.000
Wilcoxon W	99.500	100.000	100.000	100.000
Z	-.411	-.686	-.686	-.413
Asymp. Sig. (2-tailed)	.681	.493	.493	.680
Exact Sig. [2*(1-tailed Sig.)]	.798[a]	.842[a]	.842[a]	.842[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Control Baseline	1	17
	2	8
	Total	25
Control Fu 1	1	17
	2	8
	Total	25
Control Fu 2	1	17
	2	8
	Total	25
Control Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Control Baseline	Control Fu 1
Most Extreme Differences	Absolute	.118	.059
	Positive	.000	.000
	Negative	-.118	-.059
Kolmogorov-Smirnov Z		.274	.137
Asymp. Sig. (2-tailed)		1.000	1.000

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Control Fu 2	Control Fu 3
Most Extreme Differences	Absolute	.059	.118
	Positive	.000	.059
	Negative	-.059	-.118
Kolmogorov-Smirnov Z		.137	.274
Asymp. Sig. (2-tailed)		1.000	1.000

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= ApptChng_Bl ApptChng_Fu1 ApptChng_Fu2 ApptChng_Fu3 BY Group(1 2)
  /K-S= ApptChng_Bl ApptChng_Fu1 ApptChng_Fu2 ApptChng_Fu3 BY Group(1 2)
  /STATISTICS=DESCRIPTIVES
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:23:55
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= ApptChng_Bl ApptChng_Fu1 ApptChng_Fu2 ApptChng_Fu3 BY Group(1 2) /K-S= ApptChng_Bl ApptChng_Fu1 ApptChng_Fu2 ApptChng_Fu3 BY Group(1 2) /STATISTICS=DESCRIPTIVES /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.016
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet2] E:\Stats\nondomiso\B Responses.sav
```

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Appetite Change Baseline	25	1.28	.891	1	5
Appetite Change Fu 1	25	1.08	.277	1	2
Appetite Change Fu 2	25	1.04	.200	1	2
Appetite Change Fu 3	25	1.00	.000	1	1
Treatment Group	25	1.32	.476	1	2

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Appetite Change Baseline	1	17	13.03	221.50
	2	8	12.94	103.50
	Total	25		
Appetite Change Fu 1	1	17	13.47	229.00
	2	8	12.00	96.00
	Total	25		
Appetite Change Fu 2	1	17	13.24	225.00
	2	8	12.50	100.00
	Total	25		
Appetite Change Fu 3	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		

Test Statistics[b]

	Appetite Change Baseline	Appetite Change Fu 1	Appetite Change Fu 2	Appetite Change Fu 3
Mann-Whitney U	67.500	60.000	64.000	68.000
Wilcoxon W	103.500	96.000	100.000	104.000
Z	-.052	-.991	-.686	.000
Asymp. Sig. (2-tailed)	.959	.322	.493	1.000
Exact Sig. [2*(1-tailed Sig.)]	.977[a]	.669[a]	.842[a]	1.000[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Appetite Change Baseline	1	17
	2	8
	Total	25
Appetite Change Fu 1	1	17
	2	8
	Total	25
Appetite Change Fu 2	1	17
	2	8
	Total	25
Appetite Change Fu 3	1	17
	2	8
	Total	25

Test Statistics[a]

		Appetite Change Baseline	Appetite Change Fu 1
Most Extreme Differences	Absolute	.118	.118
	Positive	.007	.000
	Negative	-.118	-.118
Kolmogorov-Smirnov Z		.274	.274
Asymp. Sig. (2-tailed)		1.000	1.000

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Appetite Change Fu 2	Appetite Change Fu 3
Most Extreme Differences	Absolute	.059	.000
	Positive	.000	.000
	Negative	-.059	.000
Kolmogorov-Smirnov Z		.137	.000
Asymp. Sig. (2-tailed)		1.000	1.000

a. Grouping Variable: Treatment Group

```
SAVE OUTFILE='E:\Stats\nondomiso\B Responses.sav'
 /COMPRESSED.
DATASET ACTIVATE DataSet3.
DATASET CLOSE DataSet2.
SPLIT FILE OFF.
SAVE OUTFILE='E:\Stats\nondomiso\C Responses.sav'
 /COMPRESSED.
NPAR TESTS
  /M-W= Pain_Bl Pain_Fu1 Pain_Fu2 Pain_Fu3 BY Group(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:25:06
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Pain_Bl Pain_Fu1 Pain_Fu2 Pain_Fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.010
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Pain Baseline	1	17	12.29	209.00
	2	8	14.50	116.00
	Total	25		
Pain Fu 1	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Pain Fu 2	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Pain Fu 3	1	17	13.24	225.00
	2	8	12.50	100.00
	Total	25		

Test Statistics[b]

	Pain Baseline	Pain Fu 1	Pain Fu 2	Pain Fu 3
Mann-Whitney U	56.000	68.000	68.000	64.000
Wilcoxon W	209.000	104.000	104.000	100.000
Z	-1.239	.000	.000	-.686
Asymp. Sig. (2-tailed)	.215	1.000	1.000	.493
Exact Sig. [2*(1-tailed Sig.)]	.511[a]	1.000[a]	1.000[a]	.842[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= Conc_Bl Conc_Fu1 Conc_Fu2 Conc_Fu3 BY Group(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:25:15
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Conc_Bl Conc_Fu1 Conc_Fu2 Conc_Fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.010
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Concentration Baseline	1	17	12.71	216.00
	2	8	13.63	109.00
	Total	25		
Concentration Fu 1	1	17	13.24	225.00
	2	8	12.50	100.00
	Total	25		
Concentration Fu 2	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Concntration Fu 3	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		

Test Statistics[b]

	Concentration Baseline	Concentration Fu 1	Concentration Fu 2	Concntration Fu 3
Mann-Whitney U	63.000	64.000	68.000	68.000
Wilcoxon W	216.000	100.000	104.000	104.000
Z	-.619	-.686	.000	.000
Asymp. Sig. (2-tailed)	.536	.493	1.000	1.000
Exact Sig. [2*(1-tailed Sig.)]	.798[a]	.842[a]	1.000[a]	1.000[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= BhvChng_Bl BhvChng_Fu1 BhvChng_Fu2 BhvChng_Fu3 BY Group(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:25:33
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= BhvChng_Bl BhvChng_Fu1 BhvChng_Fu2 BhvChng_Fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.000
	Elapsed Time	0:00:00.011
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Behaviour Change Baseline	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Behaviour Change Fu 1	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Behaviour Change Fu 2	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Behaviour Change Fu 3	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		

Test Statistics[b]

	Behaviour Change Baseline	Behaviour Change Fu 1	Behaviour Change Fu 2	Behaviour Change Fu 3
Mann-Whitney U	68.000	68.000	68.000	68.000
Wilcoxon W	104.000	104.000	104.000	104.000
Z	.000	.000	.000	.000
Asymp. Sig. (2-tailed)	1.000	1.000	1.000	1.000
Exact Sig. [2*(1-tailed Sig.)]	1.000[a]	1.000[a]	1.000[a]	1.000[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= AutRxn_Bl AutRxn_Fu1 AutRxn_Fu2 AutRxn_Fu3 BY Group(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:25:44
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= AutRxn_Bl AutRxn_Fu1 AutRxn_Fu2 AutRxn_Fu3 BY Group (1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.010
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Autonomic Reaction Baseline	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Autonomic Reaction Fu 1	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Autonomic Reaction Fu 2	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Autonomic Reaction Fu 3	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		

Test Statistics[b]

	Autonomic Reaction Baseline	Autonomic Reaction Fu 1	Autonomic Reaction Fu 2	Autonomic Reaction Fu 3
Mann-Whitney U	68.000	68.000	68.000	68.000
Wilcoxon W	104.000	104.000	104.000	104.000
Z	.000	.000	.000	.000
Asymp. Sig. (2-tailed)	1.000	1.000	1.000	1.000
Exact Sig. [2*(1-tailed Sig.)]	1.000[a]	1.000[a]	1.000[a]	1.000[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= WtrRtnt_Bl WtrRtnt_Fu1 WtrRtnt_Fu2 WtrRtnt_Fu3 BY Group(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:25:59
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= WtrRtnt_Bl WtrRtnt_Fu1 WtrRtnt_Fu2 WtrRtnt_Fu3 BY Group (1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.011
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Water Retention Baseline	1	17	13.24	225.00
	2	8	12.50	100.00
	Total	25		
Water Retention Fu 1	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Water Retention Fu 2	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Water Retention Fu 3	1	17	13.24	225.00
	2	8	12.50	100.00
	Total	25		

Test Statistics[b]

	Water Retention Baseline	Water Retention Fu 1	Water Retention Fu 2	Water Retention Fu 3
Mann-Whitney U	64.000	68.000	68.000	64.000
Wilcoxon W	100.000	104.000	104.000	100.000
Z	-.686	.000	.000	-.686
Asymp. Sig. (2-tailed)	.493	1.000	1.000	.493
Exact Sig. [2*(1-tailed Sig.)]	.842[a]	1.000[a]	1.000[a]	.842[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= NegAffect_Bl Neg_affect_Fu1 Neg_Affect_Fu2 NegAffect_Fu3 BY Group(
1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:26:09
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= NegAffect_Bl Neg_affect_Fu1 Neg_Affect_Fu2 NegAffect_Fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.012
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Negative Affect Baseline	1	17	13.50	229.50
	2	8	11.94	95.50
	Total	25		
Negative Affect Fu 1	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Negative Affect Fu 2	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Negative Affect Fu 3	1	17	12.76	217.00
	2	8	13.50	108.00
	Total	25		

Test Statistics[b]

	Negative Affect Baseline	Negative Affect Fu 1	Negative Affect Fu 2	Negative Affect Fu 3
Mann-Whitney U	59.500	68.000	68.000	64.000
Wilcoxon W	95.500	104.000	104.000	217.000
Z	-1.458	.000	.000	-.686
Asymp. Sig. (2-tailed)	.145	1.000	1.000	.493
Exact Sig. [2*(1-tailed Sig.)]	.628[a]	1.000[a]	1.000[a]	.842[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= Arousl_bl Aroul_Fu1 Arousl_Fu2 Arousl_Fu3 BY Group(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:26:19
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Arousl_bl Aroul_Fu1 Arousl_Fu2 Arousl_Fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.010
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Arousal Baseline	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Arousal Fu 1	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Arousal Fu 2	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Arousal Fu 3	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		

Test Statistics[b]

	Arousal Baseline	Arousal Fu 1	Arousal Fu 2	Arousal Fu 3
Mann-Whitney U	68.000	68.000	68.000	68.000
Wilcoxon W	104.000	104.000	104.000	104.000
Z	.000	.000	.000	.000
Asymp. Sig. (2-tailed)	1.000	1.000	1.000	1.000
Exact Sig. [2*(1-tailed Sig.)]	1.000[a]	1.000[a]	1.000[a]	1.000[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= Contl_Bl Contl_Fu1 Contl_Fu2 Contl_Fu3 BY Group(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:26:30
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Contl_Bl Contl_Fu1 Contl_Fu2 Contl_Fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.012
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Control Baseline	1	17	13.47	229.00
	2	8	12.00	96.00
	Total	25		
Control Fu 1	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Control Fu 2	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Control Fu 3	1	17	12.76	217.00
	2	8	13.50	108.00
	Total	25		

Test Statistics[b]

	Control Baseline	Control Fu 1	Control Fu 2	Control Fu 3
Mann-Whitney U	60.000	68.000	68.000	64.000
Wilcoxon W	96.000	104.000	104.000	217.000
Z	-.991	.000	.000	-.686
Asymp. Sig. (2-tailed)	.322	1.000	1.000	.493
Exact Sig. [2*(1-tailed Sig.)]	.669[a]	1.000[a]	1.000[a]	.842[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= ApptChng_Bl ApptChng_Fu1 ApptChng_Fu2 ApptChng_Fu3 BY Group(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:26:42
Comments		
Input	Data	E:\Stats ondomiso\C Responses.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= ApptChng_Bl ApptChng_Fu1 ApptChng_Fu2 ApptChng_Fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.000
	Elapsed Time	0:00:00.011
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet3] E:\Stats\nondomiso\C Responses.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Appetite Change Baseline	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Appetite Change Fu 1	1	17	14.06	239.00
	2	8	10.75	86.00
	Total	25		
Appetite Change Fu 2	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		
Appetite Change Fu 3	1	17	13.00	221.00
	2	8	13.00	104.00
	Total	25		

Test Statistics[b]

	Appetite Change Baseline	Appetite Change Fu 1	Appetite Change Fu 2	Appetite Change Fu 3
Mann-Whitney U	68.000	50.000	68.000	68.000
Wilcoxon W	104.000	86.000	104.000	104.000
Z	.000	-1.095	.000	.000
Asymp. Sig. (2-tailed)	1.000	.274	1.000	1.000
Exact Sig. [2*(1-tailed Sig.)]	1.000[a]	.315[a]	1.000[a]	1.000[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

```
DATASET ACTIVATE DataSet4.
DATASET CLOSE DataSet3.
DATASET COPY  DataSet5 WINDOW=FRONT.
SPLIT FILE OFF.
NPAR TESTS
  /M-W= Intns_prv_Bl Intns_prv_Fu1 Intns_prv_Fu2 Intns_prv_Fu3 BY Group(1
2)
  /K-S= Intns_prv_Bl Intns_prv_Fu1 Intns_prv_Fu2 Intns_prv_Fu3 BY Group(1
2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:27:35
Comments		
Input	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Intns_prv_Bl Intns_prv_Fu1 Intns_prv_Fu2 Intns_prv_Fu3 BY Group(1 2) /K-S= Intns_prv_Bl Intns_prv_Fu1 Intns_prv_Fu2 Intns_prv_Fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.014
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

[DataSet4] E:\Stats\nondomiso\PRS Final.sav

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Intensity of pain during previous Menses- Baseline	1	17	12.79	217.50
	2	8	13.44	107.50
	Total	25		
Intensity of pain during previous Menses- Fu 1	1	17	13.24	225.00
	2	8	12.50	100.00
	Total	25		
Intensity of pain during previous Menses- Fu 2	1	17	13.12	223.00
	2	8	12.75	102.00
	Total	25		
Intensity of pain during previous Menses- Fu 3	1	17	12.03	204.50
	2	7	13.64	95.50
	Total	24		

Test Statistics[b]

	Intensity of pain during previous Menses- Baseline	Intensity of pain during previous Menses- Fu 1	Intensity of pain during previous Menses- Fu 2	Intensity of pain during previous Menses- Fu 3
Mann-Whitney U	64.500	64.000	66.000	51.500
Wilcoxon W	217.500	100.000	102.000	204.500
Z	-.211	-.240	-.119	-.527
Asymp. Sig. (2-tailed)	.833	.811	.906	.598
Exact Sig. [2*(1-tailed Sig.)]	.842[a]	.842[a]	.932[a]	.619[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Intensity of pain during previous Menses- Baseline	1	17
	2	8
	Total	25
Intensity of pain during previous Menses- Fu 1	1	17
	2	8
	Total	25
Intensity of pain during previous Menses- Fu 2	1	17
	2	8
	Total	25
Intensity of pain during previous Menses- Fu 3	1	17
	2	7
	Total	24

Test Statistics[a]

		Intensity of pain during previous Menses- Baseline	Intensity of pain during previous Menses- Fu 1
Most Extreme Differences	Absolute	.066	.206
	Positive	.066	.191
	Negative	-.044	-.206
Kolmogorov-Smirnov Z		.154	.480
Asymp. Sig. (2-tailed)		1.000	.975

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Intensity of pain during previous Menses- Fu 2	Intensity of pain during previous Menses- Fu 3
Most Extreme Differences	Absolute	.074	.227
	Positive	.074	.227
	Negative	-.074	-.101
Kolmogorov-Smirnov Z		.171	.505
Asymp. Sig. (2-tailed)		1.000	.961

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= Intns_prv_wk_b4_Bl Intns_prv_wk_b4_Fu1 Intns_prv_wk_b4_Fu2 Intns_p
rv_wk_b4_Fu3 BY Group(1 2)
  /K-S= Intns_prv_wk_b4_Bl Intns_prv_wk_b4_Fu1 Intns_prv_wk_b4_Fu2 Intns_p
rv_wk_b4_Fu3 BY Group(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:27:48
Comments		
Input	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Intns_prv_wk_b4_Bl Intns_prv_wk_b4_Fu1 Intns_prv_wk_b4_Fu2 Intns_prv_wk_b4_Fu3 BY Group(1 2) /K-S= Intns_prv_wk_b4_Bl Intns_prv_wk_b4_Fu1 Intns_prv_wk_b4_Fu2 Intns_prv_wk_b4_Fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.014
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

[DataSet4] E:\Stats\nondomiso\PRS Final.sav

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Intensity of pain the week before previouse Menses- Baseline	1	17	13.50	229.50
	2	8	11.94	95.50
	Total	25		
Intensity of pain the week before previouse Menses- Fu 1	1	17	12.74	216.50
	2	8	13.56	108.50
	Total	25		
Intensity of pain the week before previouse Menses- Fu 2	1	17	13.53	230.00
	2	8	11.88	95.00
	Total	25		
Intensity of pain the week before previouse Menses- Fu 3	1	17	13.53	230.00
	2	7	10.00	70.00
	Total	24		

Test Statistics[b]

	Intensity of pain the week before previouse Menses- Baseline	Intensity of pain the week before previouse Menses- Fu 1	Intensity of pain the week before previouse Menses- Fu 2	Intensity of pain the week before previouse Menses- Fu 3
Mann-Whitney U	59.500	63.500	59.000	42.000
Wilcoxon W	95.500	216.500	95.000	70.000
Z	-.513	-.306	-.752	-1.566
Asymp. Sig. (2-tailed)	.608	.760	.452	.117
Exact Sig. [2*(1-tailed Sig.)]	.628[a]	.798[a]	.628[a]	.288[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Intensity of pain the week before previouse Menses- Baseline	1	17
	2	8
	Total	25
Intensity of pain the week before previouse Menses- Fu 1	1	17
	2	8
	Total	25
Intensity of pain the week before previouse Menses- Fu 2	1	17
	2	8
	Total	25
Intensity of pain the week before previouse Menses- Fu 3	1	17
	2	7
	Total	24

Test Statistics[a]

		Intensity of pain the week before previouse Menses- Baseline	Intensity of pain the week before previouse Menses- Fu 1
Most Extreme Differences	Absolute	.154	.132
	Positive	.125	.132
	Negative	-.154	.000
Kolmogorov-Smirnov Z		.360	.309
Asymp. Sig. (2-tailed)		.999	1.000

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Intensity of pain the week before previouse Menses- Fu 2	Intensity of pain the week before previouse Menses- Fu 3
Most Extreme Differences	Absolute	.176	.294
	Positive	.000	.000
	Negative	-.176	-.294
Kolmogorov-Smirnov Z		.412	.655
Asymp. Sig. (2-tailed)		.996	.784

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= Distrss_prv_bl Distrss_prv_Fu1 Distrss_prv_Fu2 Distrss_prv_fu3 BY
Group(1 2)
  /K-S= Distrss_prv_bl Distrss_prv_Fu1 Distrss_prv_Fu2 Distrss_prv_fu3 BY
Group(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:28:01
Comments		
Input	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Distrss_prv_bl Distrss_prv_Fu1 Distrss_prv_Fu2 Distrss_prv_fu3 BY Group(1 2) /K-S= Distrss_prv_bl Distrss_prv_Fu1 Distrss_prv_Fu2 Distrss_prv_fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.015
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

```
[DataSet4] E:\Stats\nondomiso\PRS Final.sav
```

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Distress during the previous Menses-Baseline	1	17	12.47	212.00
	2	8	14.13	113.00
	Total	25		
Distress during the previous Menses- Fu 1	1	17	13.74	233.50
	2	8	11.44	91.50
	Total	25		
Distress during the previous Menses- Fu 2	1	17	13.88	236.00
	2	8	11.13	89.00
	Total	25		
Distress during the previous Menses- Fu 3	1	17	13.82	235.00
	2	7	9.29	65.00
	Total	24		

Test Statistics[b]

	Distress during the previous Menses- Baseline	Distress during the previous Menses- Fu 1	Distress during the previous Menses- Fu 2	Distress during the previous Menses- Fu 3
Mann-Whitney U	59.000	55.500	53.000	37.000
Wilcoxon W	212.000	91.500	89.000	65.000
Z	-.538	-.746	-.887	-1.470
Asymp. Sig. (2-tailed)	.591	.456	.375	.141
Exact Sig. [2*(1-tailed Sig.)]	.628[a]	.475[a]	.406[a]	.166[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Distress during the previous Menses- Baseline	1	17
	2	8
	Total	25
Distress during the previous Menses- Fu 1	1	17
	2	8
	Total	25
Distress during the previous Menses- Fu 2	1	17
	2	8
	Total	25
Distress during the previous Menses- Fu 3	1	17
	2	7
	Total	24

Test Statistics[a]

		Distress during the previous Menses- Baseline	Distress during the previous Menses- Fu 1
Most Extreme Differences	Absolute	.169	.257
	Positive	.169	.118
	Negative	.000	-.257
Kolmogorov-Smirnov Z		.394	.600
Asymp. Sig. (2-tailed)		.998	.864

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Distress during the previous Menses- Fu 2	Distress during the previous Menses- Fu 3
Most Extreme Differences	Absolute	.279	.387
	Positive	.176	.000
	Negative	-.279	-.387
Kolmogorov-Smirnov Z		.652	.861
Asymp. Sig. (2-tailed)		.789	.449

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= Distrss_prv_wk_b4_bl Distrss_prv_wk_b4_fu1 Distrss_prv_wk_b4_Fu2 D
istrss_prv_wk_b4_Fu3 BY Group(1 2)
  /K-S= Distrss_prv_wk_b4_bl Distrss_prv_wk_b4_fu1 Distrss_prv_wk_b4_Fu2 D
istrss_prv_wk_b4_Fu3 BY Group(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:28:13
Comments		
Input	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Distrss_prv_wk_b4_bl Distrss_prv_wk_b4_fu1 Distrss_prv_wk_b4_Fu2 Distrss_prv_wk_b4_Fu3 BY Group (1 2) /K-S= Distrss_prv_wk_b4_bl Distrss_prv_wk_b4_fu1 Distrss_prv_wk_b4_Fu2 Distrss_prv_wk_b4_Fu3 BY Group (1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.015
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

[DataSet4] E:\Stats\nondomiso\PRS Final.sav

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
Distress the week before previous Menses- Baseline	1	17	13.47	229.00
	2	8	12.00	96.00
	Total	25		
Distress the week before previous Menses- Fu 1	1	17	12.53	213.00
	2	8	14.00	112.00
	Total	25		
Distress the week before previous Menses- Fu 2	1	17	13.47	229.00
	2	8	12.00	96.00
	Total	25		
Distress the week before previous Menses- Fu 3	1	17	12.71	216.00
	2	7	12.00	84.00
	Total	24		

Test Statistics[b]

	Distress the week before previous Menses- Baseline	Distress the week before previous Menses- Fu 1	Distress the week before previous Menses- Fu 2	Distress the week before previous Menses- Fu 3
Mann-Whitney U	60.000	60.000	60.000	56.000
Wilcoxon W	96.000	213.000	96.000	84.000
Z	-.543	-.667	-.990	-.342
Asymp. Sig. (2-tailed)	.587	.505	.322	.732
Exact Sig. [2*(1-tailed Sig.)]	.669[a]	.669[a]	.669[a]	.852[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
Distress the week before previous Menses-Baseline	1	17
	2	8
	Total	25
Distress the week before previous Menses- Fu 1	1	17
	2	8
	Total	25
Distress the week before previous Menses- Fu 2	1	17
	2	8
	Total	25
Distress the week before previous Menses- Fu 3	1	17
	2	7
	Total	24

Test Statistics[a]

		Distress the week before previous Menses-Baseline	Distress the week before previous Menses- Fu 1
Most Extreme Differences	Absolute	.162	.250
	Positive	.125	.250
	Negative	-.162	.000
Kolmogorov-Smirnov Z		.377	.583
Asymp. Sig. (2-tailed)		.999	.886

a. Grouping Variable: Treatment Group

Test Statistics[a]

		Distress the week before previous Menses- Fu 2	Distress the week before previous Menses- Fu 3
Most Extreme Differences	Absolute	.118	.176
	Positive	.000	.000
	Negative	-.118	-.176
Kolmogorov-Smirnov Z		.274	.393
Asymp. Sig. (2-tailed)		1.000	.998

a. Grouping Variable: Treatment Group

```
NPAR TESTS
  /M-W= Intfre_ADL_Bl Intfre_ADL_Fu1 Intfre_ADL_Fu2 Intfre_ADL_Fu3 BY Grou
p(1 2)
  /K-S= Intfre_ADL_Bl Intfre_ADL_Fu1 Intfre_ADL_Fu2 Intfre_ADL_Fu3 BY Grou
p(1 2)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		14-Apr-2014 23:28:25
Comments		
Input	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Intfre_ADL_Bl Intfre_ADL_Fu1 Intfre_ADL_Fu2 Intfre_ADL_Fu3 BY Group(1 2) /K-S= Intfre_ADL_Bl Intfre_ADL_Fu1 Intfre_ADL_Fu2 Intfre_ADL_Fu3 BY Group(1 2) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.014
	Number of Cases Allowed[a]	78643

a. Based on availability of workspace memory.

[DataSet4] E:\Stats\nondomiso\PRS Final.sav

Mann-Whitney Test

Ranks

	Treatment Group	N	Mean Rank	Sum of Ranks
How did it interfere with your daily life- Baseline	1	17	12.62	214.50
	2	8	13.81	110.50
	Total	25		
How did it interfere with your daily life- Fu 1	1	17	13.65	232.00
	2	8	11.63	93.00
	Total	25		
How did it interfere with your daily life- Fu 2	1	17	13.88	236.00
	2	8	11.13	89.00
	Total	25		
How did it interfere with your daily life- Fu 3	1	17	12.62	214.50
	2	7	12.21	85.50
	Total	24		

Test Statistics[b]

	How did it interfere with your daily life- Baseline	How did it interfere with your daily life- Fu 1	How did it interfere with your daily life- Fu 2	How did it interfere with your daily life- Fu 3
Mann-Whitney U	61.500	57.000	53.000	57.500
Wilcoxon W	214.500	93.000	89.000	85.500
Z	-.402	-.648	-.889	-.135
Asymp. Sig. (2-tailed)	.688	.517	.374	.893
Exact Sig. [2*(1-tailed Sig.)]	.711[a]	.549[a]	.406[a]	.901[a]

a. Not corrected for ties.

b. Grouping Variable: Treatment Group

Two-Sample Kolmogorov-Smirnov Test

Frequencies

	Treatment Group	N
How did it interfere with your daily life- Baseline	1	17
	2	8
	Total	25
How did it interfere with your daily life- Fu 1	1	17
	2	8
	Total	25
How did it interfere with your daily life- Fu 2	1	17
	2	8
	Total	25
How did it interfere with your daily life- Fu 3	1	17
	2	7
	Total	24

Test Statistics[a]

		How did it interfere with your daily life- Baseline	How did it interfere with your daily life- Fu 1
Most Extreme Differences	Absolute	.125	.199
	Positive	.125	.007
	Negative	-.037	-.199
Kolmogorov-Smirnov Z		.292	.463
Asymp. Sig. (2-tailed)		1.000	.983

a. Grouping Variable: Treatment Group

Test Statistics[a]

		How did it interfere with your daily life-Fu 2	How did it interfere with your daily life-Fu 3
Most Extreme Differences	Absolute	.228	.176
	Positive	.059	.092
	Negative	-.228	-.176
Kolmogorov-Smirnov Z		.532	.393
Asymp. Sig. (2-tailed)		.940	.998

a. Grouping Variable: Treatment Group

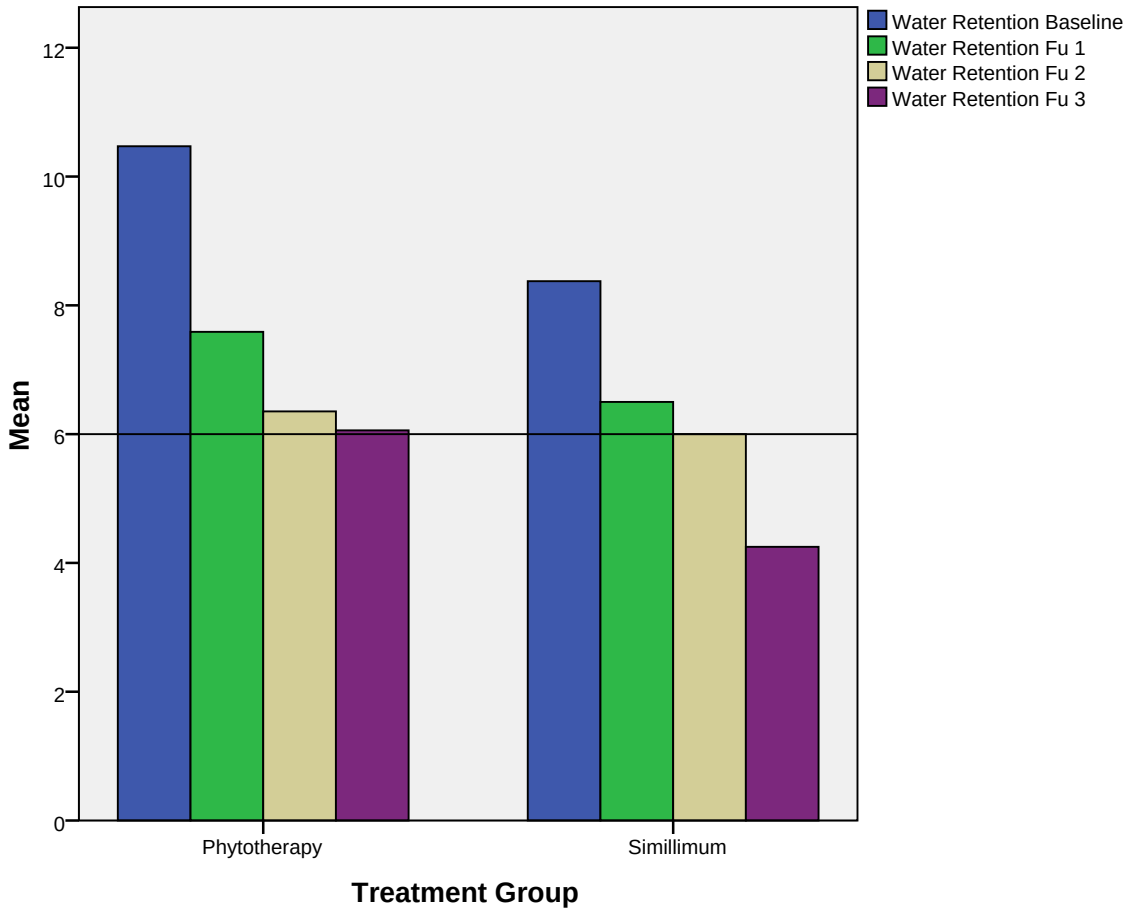
```
GET
  FILE='E:\Stats\nondomiso\A Responses data.sav'.
GRAPH
  /BAR(GROUPED)=MEAN(WtrRtntn_Bl) MEAN(WtrRtntn_Fu1) MEAN(WtrRtntn_Fu2) ME
AN(WtrRtntn_Fu3) BY Group
  /MISSING=LISTWISE.
```

Graph

Notes

Output Created		15-Apr-2014 10:45:19
Comments		
Input	Data	E:\Stats ondomiso\A Responses data.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Syntax		GRAPH /BAR(GROUPED)=MEAN (WtrRtntn_Bl) MEAN(WtrRtntn_Fu1) MEAN(WtrRtntn_Fu2) MEAN (WtrRtntn_Fu3) BY Group /MISSING=LISTWISE.
Resources	Processor Time	0:00:02.028
	Elapsed Time	0:00:02.327

[DataSet2] E:\Stats\nondomiso\A Responses data.sav




```
DATASET ACTIVATE DataSet1.
GRAPH
  /BAR(GROUPED)=MEAN(Pain_Bl) MEAN(Pain_Fu1) MEAN(Pain_Fu2) MEAN(Pain_Fu3)
 BY Group
  /MISSING=LISTWISE.
```

Graph

Notes

Output Created		15-Apr-2014 10:50:26
Comments		
Input	Data	E:\Stats ondomiso\B Responses.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	25
Syntax		GRAPH /BAR(GROUPED)=MEAN(Pain_Bl) MEAN(Pain_Fu1) MEAN(Pain_Fu2) MEAN(Pain_Fu3) BY Group /MISSING=LISTWISE.
Resources	Processor Time	0:00:00.734
	Elapsed Time	0:00:00.732

[DataSet1] E:\Stats\nondomiso\B Responses.sav