Using Reflexology to treat Irritable Bowel Syndrome

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May 2016

Dissertation submitted in partial fulfilment of the requirements of the Cardiff Metropolitan University for the degree of Bachelor of Science
DECLARATION

I hereby declare that this dissertation is the result of my own independent investigation under the supervision of my tutor. The various sources to which I am indebted are clearly indicated. This dissertation has not been accepted in substance for any other degree and is not being submitted concurrently for any other degree.

Candidate's signature: [Signature]
Acknowledgements

My sincerest gratitude goes to all of my family and friends, especially to my parents and sister, Emily, for their support and faith in me over the whole course of my degree.

Thanks also to my partner, Tom, for all of your encouragement, belief, great support and incredible patience.

I would like to thank all of my university lecturers for their support throughout my degree. A special thanks to Tim for your encouragement, guidance and for believing in me. And finally I would like to thank all the participants who made this project possible.
Abstract

Background:
Irritable bowel syndrome is a very common functional bowel disorder. There are few known triggers for the condition including diet and stress. Previous studies suggest reflexology can have a positive effect on stress and many other symptoms including pain. The aim of this study was to examine the effects of using reflexology as a treatment for IBS symptoms and to improve general well-being.

Research Question:
Does reflexology have an effect on IBS?

Method:
Using a single-subject experimental design, 6 participants received reflexology weekly, for four weeks. They completing outcome measures on their symptoms, general well-being and quality of life specific to IBS before, throughout and after the intervention to assess any effects.

Results – The results of the MYMOPs showed positive effects generally for all participants although there were many fluctuations. The IBS-QoL and GWB increased for most participants but decreased for one.

Conclusion – The results were indicative and suggest reflexology may be beneficial in relieving IBS symptoms and well-being but further research is required due to limitations of this study.
Contents

Page

Declaration i

Acknowledgments ii

Abstract iii

Contents iv

Table of Contents v

List of tables and figures viii
Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Introduction and literature review</td>
<td>1</td>
</tr>
<tr>
<td>1.1 Irritable bowel syndrome</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Diet</td>
<td>5</td>
</tr>
<tr>
<td>1.3 Genetics</td>
<td>6</td>
</tr>
<tr>
<td>1.4 Stress</td>
<td>7</td>
</tr>
<tr>
<td>1.5 Treatment</td>
<td>8</td>
</tr>
<tr>
<td>1.6 IBS and CAM</td>
<td>10</td>
</tr>
<tr>
<td>1.7 Reflexology</td>
<td>11</td>
</tr>
<tr>
<td>1.8 Previous Research</td>
<td>12</td>
</tr>
<tr>
<td>1.8.1 Mental strain and chronic stress among university students with</td>
<td>12</td>
</tr>
<tr>
<td>symptoms of irritable bowel syndrome (Gulewitsch et al., 2013)</td>
<td></td>
</tr>
<tr>
<td>1.8.2 An experimental study on the effect of reflexology on the nervous</td>
<td>13</td>
</tr>
<tr>
<td>system in healthy adults (Hughes et al., 2011)</td>
<td></td>
</tr>
<tr>
<td>1.8.3 A single-blind trial of reflexology for irritable bowel syndrome (Tovey, 2002)</td>
<td>14</td>
</tr>
<tr>
<td>1.8.4 Pilot study of the effectiveness of reflexology in treating idiopathic constipation in women (Woodward, Norton, and Barriball, 2010)</td>
<td>15</td>
</tr>
<tr>
<td>1.8.5 Reflexology in the management of low back pain: A pilot randomised controlled trial (Quinn, Hughes, and Baxter, 2008)</td>
<td>17</td>
</tr>
<tr>
<td>1.9 Summary of literature review</td>
<td>18</td>
</tr>
<tr>
<td>2 Method</td>
<td>19</td>
</tr>
<tr>
<td>2.1 Introduction</td>
<td>19</td>
</tr>
<tr>
<td>2.2 Design</td>
<td>19</td>
</tr>
<tr>
<td>2.3 Sample</td>
<td>19</td>
</tr>
</tbody>
</table>
2.4 Data collection tools ................................................................. 20
  2.4.1 The general well-being scale .............................................. 21
  2.4.2 The IBS quality of life measurement ................................. 21
  2.4.3 Measure yourself medical outcome measure ..................... 23
2.5 Procedure ............................................................................. 23
  2.5.1 Baseline ........................................................................... 24
  2.5.2 Intervention ..................................................................... 24
  2.5.3 Follow-up ......................................................................... 25
2.6 Ethical Considerations .......................................................... 26
2.7 Risk Assessment .................................................................... 26
2.8 Data Analysis ......................................................................... 26

3. Results ..................................................................................... 27
  3.1 Participant Profiles ............................................................... 27
  3.2 Results from outcome measures .......................................... 28
    3.2.1 General well-being scale ................................................. 28
    3.2.2 IBS-QoL scale ............................................................... 29
    3.2.3 MYMOP ......................................................................... 30
  3.3 Follow up results .................................................................. 36
  3.4 Summary of findings ........................................................... 37

4. Discussion ................................................................................. 37
  4.1 Introduction .......................................................................... 37
  4.2 Reflexology, well-being and quality of life ......................... 37
  4.3 Reflexology and bowel movements ..................................... 39
  4.4 The effects of IBS on activity .............................................. 40
  4.5 Reflexology and pain .......................................................... 41
  4.6 Limitations of the study ....................................................... 41
4.7. Recommendations for further research........................................43
4.8. Conclusion..................................................................................43

5 References.....................................................................................45

6 Appendices..................................................................................51

Appendix 1 – Ethics approval letter
Appendix 2 – Participants information sheet
Appendix 3 – Consent Form
Appendix 4 – Consultation form
Appendix 5 – Rome III Criteria
Appendix 6 – GWB
Appendix 7 – IBS-QoL
Appendix 8 – MYMOP and MYMOP follow-up

7. Word count..................................................................................78
## List of Tables and Figures

<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1</td>
<td>Red flag symptoms in IBS patients</td>
<td>2</td>
</tr>
<tr>
<td>Table 2</td>
<td>Modifications to Rome II Criteria</td>
<td>3</td>
</tr>
<tr>
<td>Table 3</td>
<td>IBS Sub-types</td>
<td>4</td>
</tr>
<tr>
<td>Table 4</td>
<td>Emotional and physical stress responses</td>
<td>7</td>
</tr>
<tr>
<td>Table 5</td>
<td>Conventional medicines most commonly used to treat IBS</td>
<td>9</td>
</tr>
<tr>
<td>Table 6</td>
<td>Inclusion Criteria for study (Reflexology in management of LBP)</td>
<td>17</td>
</tr>
<tr>
<td>Table 7</td>
<td>Participant inclusion and exclusion criteria</td>
<td>21</td>
</tr>
<tr>
<td>Table 8</td>
<td>Schedule of data collection</td>
<td>24</td>
</tr>
<tr>
<td>Table 9</td>
<td>Participant Characteristics</td>
<td>27</td>
</tr>
<tr>
<td>Figure 1</td>
<td>General well-being scores at baseline and follow-up</td>
<td>28</td>
</tr>
<tr>
<td>Figure 2</td>
<td>IBS-QoL scores at baseline and follow-up</td>
<td>29</td>
</tr>
<tr>
<td>Figure 3</td>
<td>MYMOP scores for symptom 1</td>
<td>30</td>
</tr>
<tr>
<td>Figure 4</td>
<td>MYMOP scores for abdomen pain</td>
<td>31</td>
</tr>
<tr>
<td>Figure 5</td>
<td>MYMOP scores for symptom 2</td>
<td>32</td>
</tr>
<tr>
<td>Figure 6</td>
<td>MYMOP scores for frequency of bowel movements</td>
<td>33</td>
</tr>
<tr>
<td>Figure 7</td>
<td>MYMOP scores for activity affected by symptoms of IBS</td>
<td>33</td>
</tr>
<tr>
<td>Figure 8</td>
<td>Average MYMOP scores for activity affected</td>
<td>34</td>
</tr>
<tr>
<td>Figure 9</td>
<td>MYMOP scores for general well-being</td>
<td>35</td>
</tr>
<tr>
<td>Figure 10</td>
<td>MYMOP Averages for all participants</td>
<td>36</td>
</tr>
</tbody>
</table>
1. Introduction and Literature Review

A literature search was done using a range of different databases including, Elsevier, PubMed, Science Direct, Google Scholar and the Cochrane Library. Journals included in the search were Complementary and Alternative Medicine, Complementary therapies in Medicine, Complementary therapies in Clinical Practice, Best Practice & Research Clinical Gastroenterology, Neurogastroenterology & Motility, European Psychiatry, Primary Health Care Research and Development and Complementary therapies in Nursing and Midwifery. Key words used in the search included ‘Reflexology and IBS’ ‘Irritable Bowel Syndrome’ ‘Reflexology and Stress’ ‘Stress and IBS’ ‘Anxiety and Irritable bowel syndrome’ ‘Anxiety’ ‘Quality of life and IBS’ ‘CAM and IBS’. The research papers reviewed were dated from the year 2000 onwards to 2015.

1.1 Irritable bowel syndrome

Irritable bowel syndrome (IBS) is an extremely common gastrointestinal (GI) disorder, also known as a functional bowel disorder, with symptoms including: abdominal pain, diarrhoea, constipation and many more. IBS often reduces the quality of life in patients affecting relationships, body image, dysphoria, social reaction and more. The pathophysiology of IBS is still not fully known but it is thought that the symptoms are due to altered gut movements, the stress response and visceral hypersensitivity (Thoua and Murray, 2011; Grundmann and Yoon, 2014).

There is a wide range of symptoms that vary from patient to patient. The main symptoms are abdominal discomfort, diarrhoea or constipation. Others include bloating, abnormal stools, straining, urgency of bowel movements, sense of incomplete defecation, and
Symptom increase after eating and passing of mucus via rectum (Thoua and Murray, 2011). It is also thought that some patients may also suffer from symptoms such as back pain, nausea, bladder problems and lethargy. Patient's symptoms can vary with time; they may suffer for short or long periods and then be relieved for weeks, months or even years. Some patients may suffer more severe symptoms, while others are less affected (El-Salhy, 2012).

The diagnosis of IBS can be based on ruling out more serious GI conditions such as: Coeliac disease, Crohn's disease, Inflammatory bowel disease, diverticula disease and more (Vahedi et al, 2010). Physical examinations, blood tests, endoscopies, colonoscopies with biopsies, stool tests and psychological tests can be used to exclude these conditions. These tests are generally only carried out if there are red flags in the patient's symptoms (El-Salhy, 2012).

### Red flag symptoms

<table>
<thead>
<tr>
<th>Red flag symptoms</th>
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<tbody>
<tr>
<td>Rectal bleeding</td>
</tr>
<tr>
<td>Anaemia</td>
</tr>
<tr>
<td>Family history of gastrointestinal diseases or colon cancer.</td>
</tr>
<tr>
<td>Fever</td>
</tr>
<tr>
<td>Change in symptoms (new pain)</td>
</tr>
<tr>
<td>Increasing pain causing patient to wake up in night</td>
</tr>
<tr>
<td>Swelling or lumps in stomach</td>
</tr>
<tr>
<td>Onset over 50 years of age</td>
</tr>
<tr>
<td>Unintentional Weight Loss</td>
</tr>
</tbody>
</table>

**Table 1 – Red flag symptoms in IBS patients**

In the late 1970's, Manning et al created a questionnaire to establish a definition of IBS and a way to diagnose the condition without costly interventions (Vahedi et al, 2010). The questionnaire were given to 109 random patients who had been referred to gastroenterology clinics complaining of the main IBS symptoms. After reviewing the case studies there was a definite diagnosis of IBS in 32 patients with four predominant symptoms: distension, looser
and more frequent bowel movements with onset of pain and pain relief after defecation (Thoua and Murray, 2011). It was then thought that a thorough case history can increase diagnostic confidence and reduce costs and testing for more serious gastrointestinal conditions. In 1980, the Rome team proposed new diagnostic guidelines based upon Manning’s criteria, called the Rome I criteria (Vahedi et al, 2010; Foundation, 2016). This criteria proved more valuable that previous methods because it removed Manning’s lack of sensitivity, the criteria was redeveloped twice. The Rome II criteria which removed specific questions relating to diarrhoea and constipation and the Rome III criteria which now uses more specific criteria to diagnose IBS and its sub-types. The Rome III criteria was created in 2006 and is used widely to this day to diagnose IBS.

<table>
<thead>
<tr>
<th><strong>Modifications to the Rome II Criteria to create Rome III Criteria</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurrent abdominal pain or discomfort for at least three days a month in the last three months</td>
</tr>
<tr>
<td>Improvement following defecation</td>
</tr>
<tr>
<td>Onset associated with change in frequency of stools</td>
</tr>
<tr>
<td>symptom onset at least 6 months prior to diagnosis</td>
</tr>
</tbody>
</table>

**Table 2 – Modifications to Rome II Criteria** (Vahedi et al, 2010; Foundation, 2016)

The Rome Criteria also places patients with IBS into different sub-types. Patients tend to switch between sub-types; it is thought that more than 75% of patients will change between at least 2 sub-types each year, but they are very useful for treatment of the symptoms (Laskaratos et al, 2015).
<table>
<thead>
<tr>
<th>IBS-C</th>
<th>IBS-D</th>
</tr>
</thead>
<tbody>
<tr>
<td>constipation predominant IBS</td>
<td>diarrhoea predominant IBS</td>
</tr>
<tr>
<td>Hard/infrequent stools for more than 25% of the time or loose/frequent stools less than 25% of the time,</td>
<td>Loose/frequent stools for more than 25% of the time or hard/infrequent stools less than 25% of the time</td>
</tr>
<tr>
<td>IBS-M</td>
<td>IBS-U</td>
</tr>
<tr>
<td>mixed bowel pattern IBS</td>
<td>unclassified IBS</td>
</tr>
<tr>
<td>Rapid alternation between infrequent or frequent bowel movements more than 25% of the time</td>
<td>Neither loose or hard stools over 25% of the time</td>
</tr>
</tbody>
</table>

Table 3 - IBS Sub-types (Drossman, 1999; Laskaratos et al, 2015).

IBS is thought to affect between 5% and 20% of individuals worldwide, with 196-260 out of 100,000 people suffering annually. It is also thought to be the most common gastrointestinal disorder in America with 15% of the population suffering IBS symptoms (El-salhy, 2012; Vahedi et al, 2010). There does not seem to be any correlation with socio-economic status or differences in lifestyles. More women than men are diagnosed with IBS, studies suggest it is up to 3 times more prevalent in women, with most of the patients being younger than 50 when first diagnosed although it is now thought there is a higher prevalence in the elderly as well (Canavan et al, 2014).

IBS pathogenesis is thought to be due to several factors including genetics and heritability, environment, diet, intestinal micro-biota, low-grade inflammation in the neuroendocrine system (NES) of the gut, stress response and visceral hypersensitivity (El-salhy 2012). Triggers for flare ups of symptoms can include drinking fizzy drinks or alcohol, eating fatty/processed foods, lack of exercise and stress. Visceral hypersensitivity plays a large role in the development of discomfort and pain in IBS patients; this is when there is increased
sensitivity of the gut stimulation via food, stress, physical stimulation and more (Laskaratos et al, 2015; Vahedi et al, 2010). When the tissues are injured or inflamed in the gut there is and increased release of inflammatory mediators, causing sensitisation of the nociceptor terminals which can lead to heightened pain at that site of inflammation. The amplified sensory inputs in the peripheral tissues then lead to a secondary hypersensitivity causing pain in other areas (Laskaratos et al, 2015). IBS sufferers have also been found to have increased intestinal motility.

1.2. Diet

Diet is thought to play a large role in the pathogenesis of IBS. Food sensitivities, eating times, meal regularity and types of food are all thought to have a significant influence on symptoms of IBS. It is thought that more than half of IBS sufferers have worse symptoms after eating and there are a range of food triggers that most commonly effect patients including dairy and wheat products (El-salhy 2012).

There have been studies recently suggesting that IBS patients are having reactions after eating short-chain carbohydrates known as FODMAPs (fermentable oligosaccharides, disaccharides monosaccharides and polyols), (El-salhy, 2012; Laskaratos et al, 2015). These carbohydrates can be found in many foods. Before FODMAPs were discovered as a trigger, it was thought that a deficiency in fibre was one of the main factors contributing to IBS symptoms, but it is now known that increased insoluble fibre (foods like whole-wheat breads) can increase symptoms such as abdominal pain and bloating, so it is important to eat the soluble fibre (foods like oatmeal, lentils, nuts and seeds) which may improve symptoms (El-salhy, 2012; Hatlebakk and Hatlebakk, 2004).
Heizer et al (2009) along with many other researchers suggest that peppermint oil may be effective in relieving symptoms in IBS patients as well as the use of natural probiotics such as buttermilk and live-culture yoghurt. Eating smaller meals more regularly along with avoiding milk products, fatty foods, caffeine, alcohol and FODMAPs is thought to improve IBS symptoms (Adamopoulous, 2007; Heizer et al, 2009). A limitation with this evidence is that it is hard for individuals to follow the diet effectively due to the lack of FODMAP labelling on food products; this reduces the effect of the diet. There are also relatively low sample numbers in the studies, suggesting the results may not be valid for all IBS patients (Magge and Lembo, 2012).

1.3. Genetics

Many studies have been carried out to see the relevance of genetic factors on IBS patients. They have indicated that the risk of IBS is heritable. A nationwide survey carried out in Sweden showed more than 50,000 cases had increased risk of IBS among the first, second and third degree relatives, suggesting there is a genetic link with IBS (Henstrom et al 2016). It is thought that in most cases of IBS patients genetic background is made up of common genetic variants which have only a small risk effect. Canavan et al (2014) suggests that the risk of developing IBS is twice as high in those who have a biologically close relative with the condition.

Twin studies have shown mono-zygotic twins have a higher rate of IBS than dizygotic twins (El-salhy, 2012). A link between functional polymorphism in the serotonin transporter (SERT) gene and IBS-D was reported in some studies, and the SERT gene with a long allele genotype has been linked more with IBS-C where in some studies there has been no link between them shown (El-salhy, 2012). It is thought that the SERT gene has links to sensory-
motor dysfunction of the gut (Vahedi et al, 2010).

1.4. Stress

As stress has been linked to IBS it is important to understand its effects on the body in order to treat the condition (Harari and Legge, 2001). Stress is defined as when a person's life pressures are too much for them to cope with and there is a physiological reaction to both short and long term stress (Everly and Lating, 2002). The stress response, also known as Fight or Flight, is the physiological and emotional reaction that stress has on patients.

<table>
<thead>
<tr>
<th>Physical effects</th>
<th>Emotional effects</th>
</tr>
</thead>
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<tr>
<td>• Increased blood pressure, heart rate and breathing rate</td>
<td>• Irritable</td>
</tr>
<tr>
<td>• Depressed immune system</td>
<td>• Lack of motivation</td>
</tr>
<tr>
<td>• Decreased digestion leading to digestive problems</td>
<td>• Habit changes (increased smoking and alcohol consumption, decreased appetite)</td>
</tr>
<tr>
<td>• Muscular tension</td>
<td>• Depression</td>
</tr>
<tr>
<td>• Hairs stand on end</td>
<td>• Anxiety</td>
</tr>
<tr>
<td>• Sympathetic Nervous System is stimulated</td>
<td>• Heightened emotions</td>
</tr>
<tr>
<td>• Adrenaline is released</td>
<td>• Difficulty concentrating</td>
</tr>
<tr>
<td>• Pupil dilation</td>
<td>• Obsessive and compulsive behaviours</td>
</tr>
<tr>
<td>• Increased perspiration</td>
<td></td>
</tr>
<tr>
<td>• Insomnia</td>
<td></td>
</tr>
<tr>
<td>• Skin conditions (Eczema) Endocrine system releases Corticotroping releasing factor (CRF)</td>
<td></td>
</tr>
<tr>
<td>• Pituitary gland releases Adrenocorticotropic hormone (ACTH)</td>
<td></td>
</tr>
<tr>
<td>• Adrenal gland releases Cortisol - leads to increased glucose production which can lead to renal hypertension</td>
<td></td>
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Table 4 – Emotional and physical stress responses (Everly, S, and Lating, 2002).
Thoua and Murray (2011) suggests that CRF has been shown as a key mediator in the brain to gut axis with investigations taking place using CRF-1 antagonists as treatment for IBS. Activation of CRF can result in stimulation of motility of the gut, defecation/diarrhoea, visceral hypersensitivity which in turn can increase pain in the bowels along with increased bloating or gas production. By blocking the CRF this can be effective in treating symptoms as it will stop the stimulation to the gut, this can be done using drugs (Thoua and Murray, 2011).

Decreased digestion in both short and long term stress, occurs due to lack of blood flow to the digestive system as it the body deems it as unimportant when in 'fight or flight' mode (Baum and Contrada, 2010). Blood flow is reduced by the central nervous system which slows down peristalsis and secretions of digestive enzymes which are required for healthy digestion. Long-term this can cause inflammation of the digestive organs and therefore cause symptoms similar to IBS. Solati et al (2010) studied the relationship between stress and IBS on 76 patients with IBS, using questionnaires and the Rome criteria for assessment. The results were significant showing stress to be a very important component of IBS. In many cases of IBS, patients had onset of symptoms after a stressful life event and it is thought that if children have suffered from life stressors they have an increased risk of developing IBS when they are older (Thoua and Murray, 2011; Pellissier et al., 2010).

### 1.5. Treatment –

Treatments can include conventional medicine- antispasmodics, pain relief, antidepressants, laxatives, anti-diarrhoeal, receptor drugs), diet control, hypnotherapy, probiotics, complementary healthcare (Thoua and Murray, 2011).
### Conventional Drug

#### What it does?

**Antispasmodics**
- Treat abdominal pain and cramping
- Blocks muscarinic receptors
- Relaxes muscles
- No effect on diarrhoea or constipation
- Trials show significant effects on IBS symptoms but have many limitations – low sample number, dosing, duration of interventions (Chang, 2014)

**Anti-Depressants**
- Tricylic anti-depressants (TCA)
- Low dosage – 10mg per day
- Alters pain perception
- Anti-anxiety effected
- Shown to decrease symptoms including diarrhoea and abdominal pain

<table>
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<th>What it does?</th>
</tr>
</thead>
</table>
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|                   | • Blocks muscarinic receptors  
|                   | • Relaxes muscles  
|                   | • No effect on diarrhoea or constipation  
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| Anti-Depressants  | • Tricylic anti-depressants (TCA)  
|                   | • Low dosage – 10mg per day  
|                   | • Alters pain perception  
|                   | • Anti-anxiety effected  
|                   | • Shown to decrease symptoms including diarrhoea and abdominal pain  

**Table 5** – Conventional medicines most commonly used to treat IBS

Meta-analysis show that TCAs were more effective at reducing IBS symptoms than the placebo control group, whereas another meta-analysis showed no significant difference between the experimental and control groups. TCAs have also shown to have some side effects including fatigue, constipation and dry mouth, along with being poorly tolerated (Vahedi et al, 2010). There are many other drugs to treat IBS symptoms such as laxatives for constipation control, anti-diarrhoeals for treating diarrhoea, and serotonin drugs effecting gastrointestinal motility, secretion and pain levels (Thoua and Murray, 2011).

Controlling diet and using elimination diets can improve symptoms as patients can exclude foods that may increase symptoms of IBS, the FODMAP diet has been shown to have effects on many IBS patients (Heizer et al, 2009). Probiotics are also common foods used to protect
gut mucosa, alter mucosal reactions to stress, improve the immune system, they act as a barrier to more harmful medications/foods in the gut, and to reduce the visceral hypersensitivity (Vahedi et al, 2010). There have been studies that show probiotics are beneficial on IBS symptoms, although it is not determined which strains are best or how beneficial they actually are (Chang, 2014).

1.6. IBS and CAM -

Different complementary and alternative medicines (CAM) are used widely for treatment of different IBS symptoms including hypnotherapy, acupuncture, homoeopathy, massage, aromatherapy and reflexology. Although many patient's use acupuncture for IBS treatment there is little evidence of this working; in fact there are many studies, including one conducted in the United States that used a control group using sham acupuncture, which showed no effect on general well-being or symptoms in IBS patients (Chang, 2014).

The effect of hypnotherapy on IBS symptoms has been much researched. It is thought to normalise visceral sensation, reduce contractions in the gut muscles and balance patients' thoughts on their condition, thus also improving the IBS patients' quality of life, It is thought that 12 sessions lasting one hour each is the required time for the hypnotherapy to take effect; this can be a limitation to the treatment as it is time consuming (Thoua and Murray, 2011). Shen and Nahas (2009) suggest that not only are there limitations in research into hypnotherapy and its effects on IBS but to most CAMs and their effects on CAM. This is mainly due to the difficulty of finding an appropriate placebo to show any significant differences. As hypnotherapy has a therapeutic effect on the client and has studies suggesting reduced stress levels, it follows that a reflexology treatment, with the same therapeutic effect, may be appropriate for those with IBS due to the relation between stress
Reflexology

Reflexology is a complementary therapy which uses different points and areas on the feet, ears, hands face and lower leg, known as 'reflex points' which correspond with the different organs of the body (Pitman and Mackenzie, 2002). It originated thousands of years ago and forms of the therapy were used by both ancient Egyptians and Chinese. In 1915 Dr. William Fitzgerald's work on Zone Therapy was released to the public, this was the beginning of modern reflexology. Dr. Fitzgerald was known as one of the fathers of modern reflexology. His research showed that applying pressure to certain areas of the body could have an anaesthetic effect on another part. Dr. Shelby Riley, who worked alongside Dr. Fitzgerald, also worked with a physiotherapist named Eunice Ingham, who spent time developing Dr. Riley and Dr. Fitzgerald's work on Zone Therapy to the point where she had mapped all of the organs and glands of the body onto the feet. She developed ways to use reflexology as treatment for many conditions and as a diagnostic tool. She worked with doctors to prove these findings and is known as the pioneer of modern reflexology (Pitman and Mackenzie, 2002).

Reflexology is thought to have several benefits to the receiver. These can include reducing stress, inducing relaxation, homoeostasis, revitalizing energy, improving circulation, balancing the body, cleansing the body from toxins and many more. Increasingly, research is being carried out on different conditions and problems to see the different effects reflexology can have on a patient (Pitman and Mackenzie, 2002). There are studies suggesting reflexology may be effective in relieving stress, although there are limitations to the studies, such as low sample number. This indicates it may be useful to treat IBS symptoms, where there is a clear link with stress.
1.7. Previous Research

1.7.1. Mental strain and chronic stress among university students with symptoms of irritable bowel syndrome (Gulewitsch et al., 2013)

Gulewitsch et al (2013) studied 176 German university students with IBS symptoms and 181 without symptoms, investigating the correlation with mental strain or chronic stress. Strengths include sample number, having almost equal number of males and females and good use of differential diagnosis but as they were all German students the sample also has limitations, the results may be biased towards that ethnicity and age.

A good range of outcome measures were used, the symptom check lists (SCL-90-R), the Trier Inventory for the Assessment of Chronic Stress (TICS and the Global Severity Index (GSI). The questionnaires have a range of measurements from the last seven days in the SCL-90-R to the last three months in the TICS.

The results of the study were analysed and showed a significant difference between the two groups in all of the outcome measures. Almost 40% of IBS sufferers met a clinically significant value on the SCL-90-R, suggesting IBS patient's symptoms are very much affected by stress, this statement is strengthened by the control group only showing 20% who met a relevant value on the same scale.

Due to limitations, further research using a wider sample would be useful to confirm the results shown. As stress may have an impact on IBS, it is important to treat both mental and
physical symptoms to reduce IBS symptoms.

1.7.2. An experimental study on the effect of reflexology on the nervous system in healthy adults (Hughes et al., 2011)

Hughes et al (2011) set out to see if reflexology could reduce anxiety and stress in individuals. Measuring the heart rate (HR) and blood pressure (BP) of the 26 participants before, during and after the intervention ensured validity of the results due to being a biological test. Although the sample was small (26 participants), they were split into two groups, the reflexology and control groups. The reflexology group received a 20 minute reflexology treatment and the control group had their feet held for 20 minutes, which is a stronger control than using a general foot massage, as the reflex points are less likely to be effected by being held still, although there may be some effects (Cross, 2012).

The participant's mental stress was triggered using mental stress tests before and after the interventions. The results showed significantly decreased BP's in the reflexology group after the intervention; a smaller reduction in BP's in the control group was observed. There was no significant difference between the control and reflexology group. The results may have differed if the interventions had been longer, as it is thought 45 minutes is a suitable treatment time to get the full effects from reflexology (Norman and Cowan, 1989).

The findings suggest reflexology may have an effect on stress levels but it is likely therapeutic effect occurred in both groups, reducing the blood pressures of participants, many other external factors were not measured either. Further research is required to support the findings.
1.7.3. A single-blind trial of reflexology for irritable bowel syndrome (Tovey, 2002)

Tovey (2002) conducted a single-blind trial in one area of a city in the north of England, it began in 1999. The participants were found through the general practice (GP), 90% who were originally contacted took part. The inclusion criteria consisted of being employed, had been referred to a gastroenterologist, could be diagnosed with IBS using the Rome Criteria and they were not to have received reflexology prior to the study. The use of the Rome Criteria was important to this study as it ensured the participants were not suffering any red flag symptoms suggesting other diseases/conditions.

The 34 participants were all from the same ethnic group, the sample number was low, there was a large difference between the number of male and female participants and the participants were all suffering from chronic IBS. The limitations suggest the results cannot be representative of the wider population. Conducting similar studies, making changes to the sample, could be necessary to establish statistically significant differences in results between the two groups.

The participants in the study were randomised into two groups. The reflexology group received six 30 minute standard reflexology treatments, four of them weekly and two fortnightly, while the control group received the same number of treatments but received general foot massages instead. Receiving therapeutic touch in the control group may have affected the validity of the results. Using a control with no physical contact may have given a different outcome, more research is required to suggest reflexology as a treatment for IBS.

Diarrhoea or constipation, abdominal pain and abdominal distension were measured through-out the study. A five-point scale was used daily, along with the Hospital Anxiety and
Depression scale being used as a baseline. Unfortunately, the results did not show any significant difference between the reflexology group and the control group for any of the symptoms.

In conclusion, this study suggests there may be slight improvements on IBS symptoms through the use of reflexology, although there was no significant results. Future studies using the randomised controlled trial design would be recommended to provide more efficacy.

1.7.4. Pilot study of the effectiveness of reflexology in treating idiopathic constipation in women (Woodward, Norton, and Barnball, 2010)

Idiopathic constipation is a bowel disorder with symptoms which include infrequent stools, difficulty passing stools and dissatisfaction after defecation. The condition is a very common problem in the UK and has many symptoms similar to those of IBS.

The study is a single group test-retest experiment, 19 participants were diagnosed using Rome II Criteria. Sampling being of convenience suggests there may have been some bias in the trial as women who are interested in CAM replied to the study invitation. They were suffering from more severe symptoms than others suffering from idiopathic constipation so results may not be valid for all sufferers. Inclusion criteria included being female and 18 or over, the exclusion criteria comprised of not receiving any other complementary healthcare treatments, not being pregnant and not present any red flags.

The participants each received six reflexology treatments that lasted 35-45 minutes. The treatments were based on modern reflexology pioneered by Eunice Ingham, the study took place in an NHS hospital clinic with music played to improve relaxation. There was no control...
group to measure different factors like therapeutic touch. Although the outcome measures showed positive results, it would be useful to focus on specific symptoms using MYMOP as a measurement.

Outcome measures were used at baseline and follow-up. The participants completed bowel diaries for one week and had to take place in gut transit studies. A 5 point rating scale, an 11 point numerical rating scale, The Hospital Anxiety and Depression scale, the Short form 36, the Holistic Complementary and Alternative Medicine Questionnaire (HCAMQ) were all used, general reflexology consultations were taken at the beginning of the study. It may have been more useful to have an outcome measure to study the effects throughout the intervention, to examine any natural fluctuations.

Results of the 5-point rating scale on the participants’ main symptoms showed 83% of them had improved to some degree. It was reported that only 3 of the participants rated their constipation as the same after the intervention. Most participants' findings showed improvement in their constipation and bloating. Incomplete bowel diaries after the intervention meant the results could not be analysed. The remaining findings show some aspects of the participants’ quality of life were improved, including both anxiety and depression. More than half of the participants reported having a better attitude towards complementary healthcare. The study suggests that modern reflexology may be beneficial in treating idiopathic constipation in females.

As IBS and constipation are related, the findings may be indicative for treating IBS with reflexology. Further research using controls and more outcome measures, are required to determine if this is the case.
1.7.5. Reflexology in the management of low back pain: A pilot randomised controlled trial (Quinn, Hughes, and Baxter, 2008)

Quinn et al (2008) investigated the effects reflexology had on the management of low back pain (LBP).

The low sample number lacked diversity as the 15 participants were all university staff, consequently the results cannot represent the wider population.

**Inclusion criteria**

- Must not be receiving or received any other treatment for the condition in the last 3 months including, medication or physiotherapy
- No involvement with other research projects within the last 3 months
- Must not be pregnant
- No detailed knowledge of reflexology

**Table 6 – Inclusion criteria for study (Quinn, Hughes and Baxter, 2008)**

The participants and outcome assessors were randomised into 2 groups, the reflexology group and the sham group. The groups would each receive 40 minutes of reflexology or sham treatment once per week for 6 weeks consecutively. As the sham treatment group still received a foot massage, although lighter, the therapist was still stimulating the reflex points.

It is extremely hard to find an adequate control and to randomise when researching reflexology, as it is known widely as a foot massage and therefore placebo effect may occur.

Outcome measures included a visual analogue scale (VAS), the McGill pain questionnaire, Roland-Morris disability questionnaire and SF-36 Health survey, the measurements were
taken at the baseline and follow ups. The main outcome measure was the VAS for pain. The data was analysed using the Statistical Package for Social Sciences (SPSS). Although outcome measures were taken at baseline and follow-ups it may have been useful to take measurements throughout the intervention to observe any fluctuations.

The results of the VAS for pain showed a reduction in the reflexology treatment group with a median of 2.5cm, where the sham treatment only showed a 0.2cm reduction. In the secondary outcome measures, there was an improvement in both groups. In conclusion, it appears reflexology may be an effective treatment for the management of LBP and possibly increasing quality of life in patients suffering from LBP.

Although the focus of this study is LBP, the suggestion that reflexology can improve quality of life and pain suggests it may also be useful for treatment of IBS symptoms and quality of life in IBS patients as abdominal pain is one of the main symptoms and quality of life is known to affect all IBS symptoms.

1.8. Summary of Literature Review

IBS is a functional bowel disorder with no known cure or cause, there are many known triggers, including stress, alcohol consumption, lack of exercise, diet and more.

There is some research based on CAM as a treatment for IBS, although very little of these use reflexology as the treatment. The studies previously executed have had limitations so there is no way to extrapolate the results to the wider population. Other studies using reflexology as a treatment have shown improvements in pain, quality of life, sleep patterns and stress, thus giving reason for more research into the effects of reflexology on IBS, as
all of the symptoms listed about have previously been linked to the condition.

As there are many known links between stress and IBS, it is important to continue research into the effects reflexology has on IBS symptoms by reducing the participant’s psychological symptoms as well as physical. The aim of the study is to use reflexology to potentially help reduce IBS symptoms and improve quality of life and general well-being.

2. Method

2.1. Introduction

The research project was carried out to evaluate the effects of reflexology on IBS symptoms. A single-subject experimental design (SSED) was used to investigate the 6 participants. It was the best suited design to assess the effects as it allowed measurements at baseline, intervention and follow-up, with an element of control.

2.2. Design

The SSED allowed the participants to be their own control to explore the effects of an intervention. The design meant there was a comparison between two phases, the baseline and follow-up which reinforced the results (Smith, 2012).

2.3. Sample

The sample was recruited using opportunistic sampling via personal contact of the researcher. 6 participants took part in the study with ages ranging from 24 to 51,
unfortunately due to personal reasons one of the participants had to drop out of the study.

The participants who were recruited had to meet inclusion and exclusion criteria:

<table>
<thead>
<tr>
<th>Inclusion Criteria</th>
<th>Exclusion Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Fulfil diagnostic Rome III criteria for IBS</td>
<td>• Receiving any other forms of complementary therapies</td>
</tr>
<tr>
<td>• 18 years old or over</td>
<td>• Contra-indications to reflexology – Epilepsy, Deep Vein Thrombosis, unstable heart conditions, Contagious disease etc.</td>
</tr>
<tr>
<td>• Suffering from IBS symptoms for at least 12 weeks</td>
<td></td>
</tr>
<tr>
<td>• Healthy feet</td>
<td></td>
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</tbody>
</table>

Table 7 – participant inclusion and exclusion criteria

If the participants were on any medication, this did not have any effects on the study and if they began taking medication for any old or new symptoms this was recorded on the Measure Yourself Medical Outcome Profile.

2.4. Data collection tools

Materials used in the study included:

• Reclining chair
• Arm chair
• Foot stool
• Towels
• Pillow
Different outcome measures were used to explore the effects of the treatment on the participants.

2.4.1. The General Well-being Scale (GWB) (Appendix 6)

The GWB was created by Dupuy (1978) to evaluate perceived well-being of an individual's 'inner personal state'. The scaled includes questions on both negative and positive feelings. It covers self-control, vitality, depression, anxiety, general well-being and health. The measure consists of 18 questions that have a six-point rating scale, most of them 0-6 and the last four have a scale of: 0, 2, 4, 6, 8, and 10. The scores are summed up to get a total result, the lower the scores suggest severely low well-being and the highest show very positive well-being. The scale has evidence suggesting it is reliable and valid in measuring well-being in individuals (McDowell, 2010).

2.4.2. The IBS quality of life measurement (IBS-QoL) (Appendix 7)

The IBS-QoL was developed by Dr. Donald Patrick and Dr. Douglas Drossman in 1998 to assess the quality of life in IBS patients. There are 34 items with a five-point rating scale (1 - not at all, 2 – slightly, 3 – moderately, 4 – quite a bit, 5 – a great deal). The items on the scale were based on Rome Criteria and include separate aspects of life: relationships, social
reaction, food avoidance, health worry, sexual, dysphoria, body image and interference with activity. The individual’s scores are added up and averaged to get a total, this total will be on a scale from 1 to 100. The higher scores indicate a better quality of life so lower scores represent low quality of life. These scores can be sub-totalled into the different aspects of life measured (Patrick et al, 1998).

The formula used to get the average scores is:

\[
\text{Score} = \frac{\text{Sum of the items} - \text{lowest possible score}}{\text{Possible raw score range}} \times 100
\]

(Patrick et al, 1988).

Andrae et al (2013) investigated the IBS-QoL measure’s validity in a similar way to the original study done by Patrick et al (1998). Using a large sample of patient’s ranging in ages from 18 to 65 years old and focussing on patients with sub-type IBS-D, the results showed the test is valid and reliable in examining any changes during studies. Patrick et al (1998) backs the validity and reliability for all patients suffering from IBS in assessing their perceived quality of life.

The IBS-QoL was filled out by participants before the intervention as a baseline measurement and at the follow up appointment to measure any effects on their quality of life from the reflexology treatments.
2.4.3. Measure Yourself Medical Outcome Profile (MYMOP and MYMOP follow up) (Appendix 8)

The MYMOP was created by Charlotte Paterson in 1996 and is patient generated. It allows individuals to observe any changes in symptoms specific to them. As IBS patients suffer from a range of symptoms and every individual is unique, this outcome measure allows them to choose symptoms they deem as most important or that bother them the most.

The questionnaire measures two main symptoms chosen by the participants. A numeral scale from 0 to 6 is used (0 being 'as bad as it could be' and 6 being 'as good as it could be'). If new symptoms occur during the study, the MYMOP follow-up has the option to measure this.

Paterson et al (1996) suggests the MYMOP is an appropriate and reliable outcome measure to use in complementary healthcare studies and more recently in 2014, Hourigan et al investigated this again which only confirmed the validity of the questionnaire. The MYMOP was used at baseline and throughout the intervention and follow-up.

2.5. Procedure

The study was carried out over a 5 week period and the results were recorded over three different phases, the baseline, intervention and follow-up. Outcome measures were completed at all three stages whilst in the room with the researcher.
### 2.5.1. Baseline

When the participants verbally agreed to take part, an information sheet about the study was sent to them. If they were still interested in taking part a date for the first meeting was set. Upon the arrival of the first meeting the researcher relayed all the information on the participants information sheet (Appendix 2) and about any side effects and healing crisis. The participants then signed the consent form and then the data collection started. An initial consultation was taken in this session to record all medical history and lifestyle information (Appendix 4) this was to ensure there were no contra-indications and to build a rapport with the participant. The Rome III Criteria (Appendix 5) questionnaire was completed to ensure they qualified to take part in the study. The initial meeting lasted one and a half hours and the subsequent treatments lasted one hour.

### 2.5.2. Intervention

After all of the forms, including GWB, MYMOP and IBS-QoL, were completed in the first session the intervention began. Participants each received forty-five minute reflexology treatment.

### Table 8 - Schedule of data collection

<table>
<thead>
<tr>
<th>Week</th>
<th>GWB</th>
<th>IBS-QoL</th>
<th>MYMOP</th>
<th>Reflexology Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
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<td>4</td>
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<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
treatments in each session. Treatments took place at two different locations, the university buildings and the researchers home, it was intended to use the university or the participants home but this was not possible due to different circumstances so it the researchers home was used instead. The lighting was dimmed for relaxation and the same calming music was played during each session to create the most similar atmosphere across each session. The atmosphere was very relaxing for the participants. There were four reflexology treatments, once a week for four weeks.

Participants removed their shoes and socks and their feet were cleaned using wipes before cream was rubbed into them. The qualified reflexologist began and ended the treatment with relaxor techniques, such as ankle rocking and thumb rotations based on clinical reflexology methods, to get the participant into a deeply relaxed state (Pitman and MacKenzie, 2002). The main section of the treatment was carried out using thumb-walking, hook and back-up and finger rotation techniques covering all of the different reflex points relating to the body and focusing on the bowel reflexes (Norman and Cowan, 1989). Although a basic treatment was used with main focus on the bowel reflexes, each treatment was specifically tailored to each participant to provide the most effective treatment for individuals. Light touch reflexology techniques were also combined into the end of each treatment focusing on the participant’s most imbalanced reflex points (mainly bowel reflexes), linking and holds were the main light touch techniques used to balance the reflexes (Cross, 2012). The participants were given a glass of water after the treatment along with verbal aftercare advice.

2.5.3. Follow-up

After the four weeks of reflexology treatments there was a follow-up meeting. The participants completed the last of the outcome measures, consisting of GWB, IBS-QoL and the MYMOP follow-up at this meeting with the researcher in the room. The results of these
outcome measures were then compared to the baseline and intervention results to see if the reflexology had any effects on their IBS symptoms.

2.6. Ethical considerations

It was essential for the study to gain ethical approval from the universities ethics board. Some small amendments had to be made to gain ethical approval. The approval was then given via an ethics approval letter (Appendix 1). Paperwork from the study was all coded/anonymised to avoid the participants to be identified. The documents with the participant’s personal information (consent forms – appendix 3) were kept in a locked cabinet at the university. Consent was obtained from the participants verbally and hand written.

2.7. Risk assessment

The safety of the participants and the researcher was taken into account and a risk assessment was conducted. If a participant got any contra-indications throughout the study then they would be dismissed from the study straight away for their own good / health.

2.8. Data analysis

Due to the single subject experimental design it would have been difficult to analyse the data statistically so instead the data was observed in a more descriptive way. Quantitative data was measured to allow visual analysis. The MYMOP, IBS-QoL and general well-being scale will all be produced into either charts or graphs using Microsoft Excel. This made the results easier to analyse, averages were also summed and produced in graphs. The qualitative data from the initial consultation was also analysed and recorded.
3. Results

3.1. Participant Profiles

Participant 6 unfortunately had to drop out of the study and so there is some data missing, therefore in the results, this participant has been left out. Data is displayed in bar charts and line graphs for examining easily. Statistical tests were not carried out for this test due to the limited sample number.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age</th>
<th>Sex</th>
<th>Occupation</th>
<th>IBS sub-type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>29</td>
<td>Female</td>
<td>Student</td>
<td>IBS-M</td>
</tr>
<tr>
<td>2</td>
<td>24</td>
<td>Female</td>
<td>Student</td>
<td>IBS-M</td>
</tr>
<tr>
<td>3</td>
<td>26</td>
<td>Male</td>
<td>Customer Services advisor</td>
<td>IBS-M</td>
</tr>
<tr>
<td>4</td>
<td>45</td>
<td>Male</td>
<td>Manager</td>
<td>IBS-M</td>
</tr>
<tr>
<td>5</td>
<td>25</td>
<td>Male</td>
<td>Tutor</td>
<td>IBS-D</td>
</tr>
<tr>
<td>6</td>
<td>51</td>
<td>Female</td>
<td>Manager</td>
<td>IBS-D</td>
</tr>
</tbody>
</table>

Participants were put into IBS sub-types using the Rome III criteria, the sub-types and characteristics of participants including, age, sex and occupation are shown below in table 7. None of the participants showed red flags during the initial consultation so all who originally who was contacted for the study, took part. The initial consultation also showed that P2 and P4 both suffered from Asthma so the researcher ensured they had their medication with them during each session. P1 stated she suffered from bi-polar and depression and anxiety. P2 had also suffered from depression over 5 years before the study.
3.2. Results of outcome measures

3.2.1. General well-being scale

The GWB scores represent positive and negative well-being, higher scores show a more positive well-being and lower scores a negative well-being. If a participant's well-being is more positive, they are able to cope with stressors better and therefore they may show less severe IBS symptoms.

Figure 1 – General well-being scores at baseline and follow-up (GWB)

All but one of the participants had an increased general well-being, P3's GWB decreased slightly. P1 suffers from a generally lower well-being than other participants, her follow-up result did increase although only slightly by 5 points. A general increase in well-being was measured at follow-up although not by a great deal.
3.2.2. IBS-QoL

In Figure 2 the lower scores show better quality of life according to the IBS-QoL scale.

![IBS-QoL scores](image)

**Figure 2 – IBS Quality of Life scores at baseline and follow-up (IBS-QoL)**

The bar chart in figure 2 suggests there was an increased quality of life for most of the participants. P2 had a slight reduction and P4 stayed the same. Although P4 stayed the same his general quality of life is very positive. P1 had a particularly negative quality of life at baseline and follow-up but there was a slight improvement of 15 points. P2’s quality of life reduced but only by 3 points, her quality of life was generally high though.

3.2.3. MYMOP

The results from the MYMOP questionnaires are shown in graphs with the lower scores suggesting reduction in symptoms according to each participant.
Figure 3 shows all of the participants MYMOP scores for the symptom they deemed to be most important.

The graph shows fluctuations but all the participants follow-up measurements are lower than the baseline measurement showing their main symptom improved from baseline to follow-up. Symptom 1 for P3 (Abdominal pain) and P4 (Heartburn) both show a larger difference between baseline and follow-up, they have improved the most. P5's symptom 1 (Abdominal pain) score increased higher than the baseline measurement in week 4 (score = 3) but dropped lower at follow-up (score = 1) showing overall improvement. The rest of the participant's scores fluctuated but all remained lower than their baseline measure. P4's symptom one was heartburn, this was the only participant who did not put abdominal pain as symptom 1 and his results showed a big improvement.
Figure 4 – MYMOP scores for Abdominal Pain

The chart in figure 4 shows decreased abdominal pain at follow-up for each participant that chose that as one of their main symptoms (P1, P2, P3 and P5). P3 had the most overall reduction in abdominal pain throughout the study although, figure 3 shows P3's scores fluctuate a lot more than the other participants. P1, P2 and P5 abdominal pain all reduced by a score of 1.
Figure 5 – MYMOP scores for symptom 2

Figure 5 shows many fluctuations of scores but all demonstrated a decrease in symptom 2 from baseline to follow-up. P4’s symptom 2 (Frequency of bowel movements) had decreased the most from 5 to 0, his symptom was as good as it could have been at follow-up. P2 and P3 also rated their symptom 2 to be ‘as good as it can be’ at follow-up although P3 results did increase by a score of 3 during week 3. P1’s highest score of 3 was also measured during treatment 3.
Figure 6 – MYMOP scores for frequency of bowel movements

Three of the participant's rated frequency of bowel movements as one of their main symptoms. Figure 6 shows all of the participants had a reduced frequency of movements, P2 and P4 both scoring 0 at follow up, stating it was 'as good as it can be'.

Figure 7 – MYMOP scores for activity effected by symptoms of IBS
Participants showed a reduced or stable score on how much their chosen activity was effected by their IBS symptoms throughout the study. The graph in figure 7 does show fluctuations throughout the intervention with all but P2 showing higher scores than at baseline. P2's chosen effected activity was Netball, throughout the study her symptoms did not effect this. P1 and P3's activities (walking and exercise) were scored highest in treatment 3, both scoring a 3, where P5's activity (swimming) was at its highest score of 4 when measured on the fourth treatment and P4's (general functioning) was highest was noted on the second treatment at a score of 2. P5 activity was effected more than any of the other participant's during the study.

Figure 8 – Average MYMOP scores for activity affected

The chart in Figure 8 shows the average effects on activity for each participant throughout the study. P5 shows the highest average score suggesting his swimming was effected by his IBS symptoms quite a bit. P2 showed no effect throughout.
MYMOP was also used to assess general well-being, figure 9 shows fluctuations throughout the intervention and all of the participants showed an improved or stable general well-being at follow-up. P3 and P4 both measured a 0, 'as good as it can be', at baseline and at follow-up but throughout both reached a score of 3 on one of their treatments, P3 at treatment 3 and P4 at treatment 2. P2’s results gradually reduced from a score of 5 during treatment 1 to a score of 0 at treatment 3 and remained at a 0 through to follow-up.
The graph in figure 10 shows the average MYMOP scores for each participant. All of the participant's show a reduction in symptoms together as an average from baseline to the follow-up. P4 showed the biggest reduction in symptoms throughout the study with a difference of 2.25 on the MYMOP scale and P3 showed the least decreased symptoms with a difference of 1 between baseline and follow-up. Each participant had an average score lower than 2.5 on the MYMOP scale at the follow up session. P4 had an average MYMOP score of 0 at follow-up, everything was scored 'as good as it can be'.

3.3. Follow-up results

At the end of the follow-up session, the participants were all verbally asked by the researcher their opinion on reflexology in treating their IBS. Most of the participants were positive and thought that the reflexology treatments helped very much and felt as though it
reduced their IBS symptoms and stress levels, as they all felt very relaxed after each treatment.

3.4. Summary of findings

Based on the GWB scores, all but one of the participants demonstrated an increased general well-being after the reflexology intervention. The IBS-QoL outcome measure findings suggest the reflexology treatments were beneficial to the participants quality of life as the scores generally decreased or were stable, one participant showed a decreased quality of life although her general well-being did increase. The MYMOP scores reduced on average for all participants, including their two main symptoms and their general well-being.

The results although all with fluctuations suggest improvements for most of the participants in all aspects measured.

4. Discussion

4.1. Introduction

IBS affects a large number of the global population and although there are some treatments with evidence suggesting they are effective, there is still little research into using CAM and more specifically reflexology as treatment for different conditions and symptoms. This single subject experiment study was used to assess the efficacy of reflexology as a treatment for IBS symptoms. A secondary aim of the study was to see if reflexology would have an effect on quality of life or general well-being. There was an equal number of males and females to provide diversity but unfortunately due to personal reasons P6 had to be excluded from the study after the second treatment so the end results may be biased towards males. Their
results have been removed from the findings as this was not an appropriate intervention due to the short treatment, to validate any findings. The findings show an overall positive effect for the participants.

4.2. Reflexology, well-being and quality of life

The use of GWB, IBS-QoL and MYMOP all revealed a benefit to the participant’s well-being and quality of life after the reflexology intervention, these results are supported by Hughes et al (2011) who found a significantly decreased BP after an intervention with therapeutic touch which suggests reduced stress levels. Although in that study there was no significant difference between the control and treatment group the fact both groups received therapeutic touch suggests the stress levels were affected by this if not reflexology. The positive results of this study may be due to therapeutic touch rather than reflexology, using a control to compare results to would have been useful (Hughes, 2010). All of the participants apart from P2 and P3 showed an increased quality of life and general well-being according to the GWB and IBS-QoL scales.

Interestingly, P2 presented with a positive general well-being according to the MYMOP results, although the GWB scale suggests she may have had an overall decreased well-being and quality of life, the IBS-QoL supports the MYMOP results showing a slight increase. P2’s GWB scale results may have been effected by her current studies as during the follow-up this was a busy exam time for her, she told the researcher she felt stressed during the session. Although P2’s MYMOP results show a decreased well-being during week three, her results at follow up showed an increase. This suggests P2’s GWB may still have been positively affected by the reflexology treatment.

During the intervention phase most of the participant’s well-being decreased before it
increased, this could be due to many outside factors or a healing crisis. Other factors that could be affecting the results are diet, exercise and IBS symptoms (Canavan et al, 2014). MYMOP results for P3 show a decreased well-being along with increased bowel movements and increased effect on his exercise during week three. P1’s symptoms were all increased during week three other than her abdominal pain which remained high but stable, these results suggest if general well-being is lower, IBS symptoms may become worse and vice versa, Gulewitsch et al, (2013) study showed a significant link between IBS and stress. As general well-being is an overview of a person’s mental state regarding stress, anxiety and health, stress seems to play a big part in effecting IBS symptoms (Lackner et al, 2010).

The participants symptom worsening may be resulting from factors not relating to reflexology such as work or home commitments but there is also a change the results may be due to the healing crisis. Gunnarsdottir and Jonsdottir, (2010) supports this finding stating reflexology may cause healing crisis’ and suggests women’s symptoms tend to increase gradually before a more sudden decrease., although the study these results are based on was only focused on women and used a small sample. P1 and P3 may have suffered from a healing crisis after the reflexology treatments as after the increase in symptoms they reduced the week after.

P1 shows a low quality of life and well-being, her symptoms observed for the MYMOP are also shown to be more severe than other participants, this backs Gulewitsch et al (2013) study showing a big link between the two factors, stress and IBS. The results of this study identify an association between the participant’s wellbeing and their IBS symptoms. Although there may be outside factors effecting the participant’s overall results, reflexology could have played a part in increasing their quality of life. Quinn et al, (2008) studied the effects of reflexology on LBP and the results suggest the treatment had a positive effect on
well-being, supporting this study’s findings. The findings of P1 also suggest the reflexology may have been beneficial for all her symptoms, psychological and physiological.

4.3. Reflexology and bowel movements

The results of this study indicate reflexology may have improved frequency of bowel movements and constipation. P3, P4 and P5 reported their frequency of bowel movements improved after the intervention, this could be due to other factors such as diet but also a result of the treatment. During the initial consultation P5 suggested that he did not have the best diet, Adamopoulos (2007) proposes that diet plays a large role in IBS symptoms so advice was given through-out the intervention on how to change his diet and he said implemented it, the results may have been effected by his dietary changes or the intervention but his MYMOP results, showed improvement.

P2 reported her symptom 2 (constipation) as good as it could be during the follow up, although a good result, her baseline was measured the same. This suggests P2’s symptoms may fluctuate without any intervention, El-salhy (2012) supports this finding stating many IBS sufferers have what are known as ‘flare ups’, where they will not suffer any symptoms for sometimes days or months. Although the results could be due to common fluctuations in symptoms, the reflexology treatments may have also had an effect on the participant. Although the study Woodward et al (2010) conducted did not have a control group to validate the results further, they showed reflexology may have improved quality of life and reduced constipation, and this supports the findings found in this study. Norton and Gordon (2009) also back these findings.

4.4. The effects of IBS on activity
The MYMOP scores for each participant suggest that certain activities may be effected by IBS symptoms, all but P2 showed some effect on their chosen activities. All of the activities chosen involved exercise, Vahedi et al (2010) suggested lack of exercise may be a trigger for IBS symptoms. This suggests that there may be a link between exercise and IBS symptoms. P5’s activity (swimming) was effected the most, with a higher average than anyone else’s and his other symptoms were averaged the second highest. The results support the idea that IBS symptoms effects exercise.

P1’s average scores for the MYMOPs suggested her symptoms were more severe than others, but this could be due to her personality and lifestyle. She suffers from bi-polar and depression which could be causing her symptoms to be worse, links suggesting increased stress or depression has a negative effect on IBS have been researched (Hughes et al, 2011; Gulewitsch et al, 2013). During the initial consultation information, P1 admitted she did not carry out much exercise, again this could be a reason her symptoms were more severe. Although P1’s average results were quite high her symptoms did reduce by the follow-up and findings showed an increased well-being and quality of life, along with decreased nausea and abdominal pain.

4.5. Reflexology and Pain

Four out of the five participants who completed the study confirmed abdominal pain as their main symptom of IBS, P4 was the only one who did not have this symptom. The findings suggest the intervention was quite effective on reducing abdominal pain. P1, P2, P3 and P5 all had fluctuations through-out the intervention but they all reported a decreased pain at follow-up. The fluctuations make it very difficult to clarify if the reflexology was effective or if outside factors were the cause. Therapeutic touch or placebo effect could also have
occurred. Quinn et al (2008) supports the idea that pain may be reduced by using reflexology as a treatment, the study also suggests improved quality of life after intervention. It is challenging to confirm whether the treatment affected the participant’s IBS symptoms directly or indirectly by effecting their stress and well-being levels or even at all.

Baum and Contrada (2010) suggests stress can cause decreased blood flow to the central nervous system and long term, this can increase inflammation of the digestive system, which can in turn cause abdominal pain. The findings of this study suggest stress and well-being was linked to the participant’s abdominal pain. Solati et al (2013) supports this further with significant findings from his study suggesting stress to be a main component of IBS.

4.6. Limitations of the study

There are weaknesses of this study due to it being a university study, unfortunately many external factors were not able to be controlled because of this. It is not possible to generalise the findings of this study to the wider public due to a number of limitations and the difficulty of measuring external variables through-out the study.

Lewith et al (2001) identifies the possibility of placebo effect on the results of a study using a complementary therapy, using a SSED limits the results as the participants are all receiving therapist touch and specific attention to them, there are many other studies (Atkins and Harris, 2008; Tovey, 2002; Hughes et al, 2011; Woodward et al, 2010) that have recognised the importance of this factor. The participants for the study were recruited fully knowing they were receiving reflexology treatments, therefore they may be psychologically willing for the treatment to work. A positive attitude and expectation of the treatment working could improve chances of getting positive results, using randomisation and controls will decrease the
chance of the placebo effect to occur. Randomised controlled trials are thought to be a more
valid design for research into complementary healthcare, as participants will be randomised
into two groups, a control group and a treatment group. This will decrease the possibility of
the results being based on the placebo effect and consequently provide more valid results
that can be generalised to the wider population (Lewith et al, 2001).

As the sample number was small it meant there was not much diversity of participants, this
effects the generalisability of the results negatively. Jones and Platts-Mills, (2012)
and Lewith et al, (2001) point out that a wider range of participants would be useful to ensure
valid results, unfortunately due to the circumstances this could not be fully controlled,
although the sample did include a wide range of ages and both male and females. The
opportunity sampling also meant participants chosen would be best at answering the
research question and may already have knowledge about the treatment and therefore the
placebo effect has more chance of occurring.

The use of Rome III Criteria for diagnostic and inclusion criteria improves the studies validity
due to ensuring the participants do not suffer from any serious conditions other and to
confirm they are all suffering from IBS (Foundation, 2016; Hatlebakk and Hatlebakk, 2014).
The criteria also sub-typed the samples IBS, the majority of the participants suffered from
IBS-M and one from IBS-D, the fact none of the participant’s suffer from IBS-C and only one
from IBS-D suggests these results cannot be generalised to all IBS patients and is more
focused on IBS-M.

The IBS-QoL scores were unable to be transformed to the 100 point scale due to the original
scoring information being unavailable to the researcher, with this scoring information the
findings may have been analysed further into different sub-groups including dysphoria, body
image, sexual, relationships, health worry, interference with activity, food avoidance and social reaction. This may reveal more detailed results specific to these different aspects of quality of life.

4.7. Recommendations for Further Research

The results of this study are subjective but to provide more insight into the effects of reflexology on IBS requires further research. A larger sample number with a wider range of ethnicity and age, an equal number of males and females would also be useful to ensure more valid results. Using a randomised controlled trial in further research would be more methodologically sound.

4.8. Conclusion

When reviewing literature on complementary healthcare, there are a very limited number of studies based on functional bowel disorders and more specifically on IBS. There are also very little studies researching reflexology as a sound treatment for different disorders. The aim of this study was to examine the effects of reflexology on IBS symptoms.

The results showed a strong trend towards reflexology having positive effects on IBS symptoms but due to sample number and methodological limitations the results are not conclusive, they are instead indicative. The results also suggest the treatment may have a positive effect on quality of life and general well-being. Due to the indicative results, further research is recommended using randomised controlled trial as a method with a larger sample number and ability to measure external factors. These results may be conclusive and give an insight to the effects of reflexology on IBS symptoms.
5. References


Cross, J.R. (2012), LIGHT TOUCH REFLEXTHERAPY: A new way forward for 45


Harari, P. and Legge, K. (2001), *Psychology and health*, Heinemann, available at: https://books.google.co.uk/books?id=a3eFkzrMprgC&pg=PA75&q=stress+fight+or+flight&hl=en&sa=X&ved=0ahUKEwj8iebCuJrMAhVEWxQKHR9eDsoQ6AEIJzAC#v=onepage&q=stress%20fight%20or%20flight&f=false (accessed 19 April 2016).


6. Appendices

Appendix 1 – Ethics approval letter
Monday, 07 March 2016

Calvert, Sophie
BSc (Hons) Complementary Therapies
Cardiff School of Health Sciences

Dear Applicant

Re: Application for Ethical Approval: Using Reflexology to treat Irritable Bowel Syndrome.

Ethics Reference Number: 7874

Your ethics application, as shown above, was considered by the Health Care and Food Ethics Panel on 09/03/2016

I am pleased to inform you that your application for ethical approval was APPROVED, subject to the conditions listed below – please read carefully.

Standard Conditions of Approval

- Your Ethics Application has been given a Project Reference number as above. This MUST be quoted on all documentation relating to the project (e.g. consent forms, information sheets), together with the full project title.
- All documents must also have the approved University Logo and the Version number in addition to the reference and project title as above.
- A full Risk Assessment must be undertaken for this proposal, as appropriate, and be made available to the Committee if requested.
- Any changes in connection to the proposal as approved must be referred to the Panel/Committee for consideration without delay quoting your Project Reference Number. Changes to the proposed project may have ethical implications and so must be approved.
- Any untoward incident which occurs in connection with this proposal must be reported back to the Panel/Committee without delay.
- If your project involves the use of samples of human origin, your approval is given on the condition that you or your supervisor notify the School of your intention to work with such material by completing Part One of the form entitled “Notification of Intention to Work with Human Relevant Material or Human Bodily Material” which must be obtained from the PO (Sean Duggan). BEFORE any activity on this project is undertaken.

This approval expires on 09/03/2017. Please set a reminder on your Outlook calendar or equivalent if you need to continue beyond this approval date. It is your responsibility to resupply / request extension if necessary.
Yours sincerely

[Signature]

Prof. Arthur Tatham
Chair of Department of Healthcare and Food Ethics Panel
Cardiff School of Health Sciences
University of Cardiff
Western Avenue, Cardiff CF2 2YB
Tel: 02920417135
E-mail: artatham@cardiff.ac.uk

Cc: Bartlett, Tim

PLEASE RETAIN THIS LETTER FOR REFERENCE
Title of study – Using reflexology to treat irritable bowel syndrome

Background?
The aim of this study is to observe the effects of reflexology on IBS symptoms and see if there is any benefit to IBS sufferers. This study will be undertaken as part of my final dissertation for the BSc Hons Complementary Healthcare at Cardiff metropolitan university. You are invited to take part in this study by volunteering and receiving reflexology treatments at no cost for you.

Reflexology is one of many complementary therapies, using fingers and hands to stimulate ‘reflex’ points. These ‘Reflex’ points are related to the organs in the body, the treatment will encourage healing and balancing of these organs and will improve circulation around the body. The therapeutic touch during the treatment is very relaxing and uplifting. Along with the treatment, practitioners will investigate the patient’s medical history, psychological and social factors to create the optimum treatment.

Exclusion criteria will include:

- Epilepsy
- Unstable heart conditions
- Deep vein thrombosis
- Pregnancy

What would happen if you were to take part?
There will be 4 1 hour sessions once a week for 4 weeks, in these sessions you will
receive reflexology treatments and you will be asked to complete a short rating scale. The initial treatment will be slightly longer, around 1 hour and 20 minutes, as you will be required to sign a consent form, complete 2 questionnaires and a thorough consultation sheet with me as well. When you consent to the study, this will be the only document with personal details such as your name, the other documents will use a client code only. One week after the final reflexology session there will be a 30 minute follow up session, where you will be asked to complete the same questionnaires as in the initial treatment, to observe any changes in their symptoms.

In each reflexology session you will be asked to remove shoes and socks for the treatment and the researcher will observe the feet before the treatment begins.

**How we keep your information private?** All of your personal details and information you give me will be used only for academic purposes. Your name, address, date of birth and other personal details will be kept anonymous to others and separated from other documents. You will be given a code at the first meeting, to ensure data protection, this will be used on all of the documents from then. The consent forms with your name, contact details and code will be kept in a locked filing cabinet. The rest of the data will all be stored on a password protected computer. When the research study is complete these documents will then be destroyed.

**Are there any risks?**

There is a low chance of any risks to you during the study as a full consultation will be carried out to exclude anyone with any who may be at risk from the treatments. You have the right to withdraw from the study at any time before the 18/03/16. If this is the case, it would be very useful if you could email me to inform me. There will be no problem if you want/have to withdraw.

**Are there any benefits?**

We are hoping there will be benefits to your IBS symptoms and your general well-being but this is not a guarantee.
Appendix 3 – Consent Form
Consent to Treatment

To ensure there are no misunderstandings between complementary therapists and clients, the therapist will give a full explanation of the treatment procedures.

For the Client:

Please initial each box as appropriate and sign at the bottom:

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any queries I have related to the treatment or consultation have been answered.</td>
<td></td>
</tr>
<tr>
<td>I have answered all questions relating to my medical history and lifestyle correctly and to the best of my ability.</td>
<td></td>
</tr>
<tr>
<td>I have had a clear explanation of the treatment and the possible side-effects.</td>
<td></td>
</tr>
<tr>
<td>I have discussed treatment options with the therapist and consent to a ………………………………………………………………………………………………………………………………………………… treatment.</td>
<td></td>
</tr>
<tr>
<td>I will allow my notes to be used for academic purposes provided full confidentiality and anonymity is implemented at all times for the purpose of any written reports. As a client, I am allowed to withdraw this consent at any time.</td>
<td></td>
</tr>
<tr>
<td>This information is in accord with the Data Protection Act (1988)</td>
<td></td>
</tr>
</tbody>
</table>

Client’s name (capitals) ……………………… Client’s signature………………………
Address ……………………………………………………………………………………………..
Tel Number: ……………………………………… Date……………………………………
Advocates signature (if appropriate)……………………

For the Therapist:

I have explained the above information to the best of my ability and knowledge to client. (includes clients with or without disabilities, and clients for whom English is not their first language).

Therapist’s name (capitals) ………………………
Therapist’s signature………………………… Date…………………………
**REFLEXOLOGY CONSULTATION**

CLIENT CODE: __________________________

OCCUPATION: __________________________

CONSENT FORM COMPLETED AND SIGNED □

### LIFE STYLE

<table>
<thead>
<tr>
<th>Diet</th>
<th>Good / Average / Poor (according to client)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Balanced</td>
</tr>
<tr>
<td></td>
<td>Fruit and vegetables</td>
</tr>
<tr>
<td></td>
<td>Fluid intake (water, caffeine, alcohol, other)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Smoking</th>
<th>present/past</th>
<th>No. per day</th>
<th>High / Low tar / other</th>
</tr>
</thead>
</table>

Hobbies

**Exercise** (type, frequency, duration)

**Sleep:** Refreshed on waking Y / N Uninterrupted / Interrupted

Ease of getting to sleep / Duration

**Stress Levels** (0-10) Home Work Other

**Skin Conditions** / **Eczema** / **Psoriasis** / **Sensitivities** (location/treatment)

### DETAILS OF OTHER PRACTITIONERS

### MEDICAL HISTORY

**Medication** (reason/name/length of course/side effects)
Operations (dates/problems/scarring)

Allergies

Blood pressure problems

Asthma

Sinus / Chest Problems (type/severity/frequency)

Epilepsy (severity/frequency)

Diabetes (severity/insulin/diet controlled)

Broken Bones (dates/weakness/pain)

Spine/Back Problems (dates/weakness/pain)

Circulation and Circulatory Problems (thrombosis/angina/heart attacks/Raynauds disease)

Varicose Veins (R / L leg / severity / treatments)

Fluid Retention (hormonal /injury / diet / location)

Digestion (bowels / IBS / frequency)

Headaches (frequency/severity)

Nervous Tension (nail biting/IBS/headaches)

Depression (hormonal/life/illness/frequency/treatment)

Do you care for someone who is ill/disabled?  

Yes / No
<table>
<thead>
<tr>
<th>No. of Children</th>
<th>Ages</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnant at present?</td>
<td>Yes / No</td>
<td></td>
</tr>
<tr>
<td>Menstrual cycle</td>
<td>regular</td>
<td>current</td>
</tr>
<tr>
<td>P.M.S</td>
<td>Yes / No</td>
<td>Symptoms / Treatments</td>
</tr>
</tbody>
</table>

**Cancer** (dates/current progress)

**Other serious illness** (dates/lasting problems)

**ADDITIONAL INFORMATION**
Appendix 5 – Rome III Criteria
<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Options</th>
<th>Skip remaining questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>In the last 3 months, how often did you have discomfort or pain anywhere in your abdomen?</td>
<td>Never, Less than one day a month, One day a month, Two to three days a month, One day a week, More than one day a week, Every day</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>For women: Did this discomfort or pain occur only during your menstrual bleeding and not at other times?</td>
<td>No, Yes</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Have you had this discomfort or pain 6 months or longer?</td>
<td>No, Yes</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>How often did this discomfort or pain get better or stop after you had a bowel movement?</td>
<td>Never or rarely, Sometimes, Often, Most of the time, Always</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>When this discomfort or pain started, did you have more frequent bowel movements?</td>
<td>Never or rarely, Sometimes, Often, Most of the time, Always</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>When the discomfort or pain started, did you have less frequent bowel movements?</td>
<td>Never or rarely, Sometimes, Often, Most of the time, Always</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>When the discomfort or pain started, were your stools (bowel movements) looser?</td>
<td>Never or rarely, Sometimes, Often, Most of the time, Always</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>When this discomfort or pain started, how often did you have harder stools?</td>
<td>Never or rarely, Sometimes, Often, Most of the time, Always</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>In the last 3 months, how often did you have hard or lumpy stools?</td>
<td>Never or rarely, Sometimes, Often, Most of the time, Always</td>
<td>Alternative scale:</td>
</tr>
<tr>
<td>10.</td>
<td>In the last 3 months, how often did you have loose, mushy or watery stools?</td>
<td>Never or rarely, Sometimes, Often, Most of the time, Always</td>
<td></td>
</tr>
</tbody>
</table>

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C1. Irritable Bowel Syndrome

Diagnostic Criteria*

Recurrent abdominal pain or discomfort** at least 3 days/month in last 3 months associated with two or more of criteria #1 - #3 below:

1. Improvement with defecation
   Pain or discomfort gets better after BM at least sometimes (question 4=0)
2. Onset associated with a change in frequency of stool
   Onset of pain or discomfort associated with more stools at least sometimes (question 5=0), OR
   Onset of pain or discomfort associated with fewer stools at least sometimes (question 6=0)
3. Onset associated with a change in form (appearance) of stool
   Onset of pain or discomfort associated with looser stools at least sometimes (question 7=0), OR
   Onset of pain or discomfort associated with harder stools at least sometimes (question 8=0)

* Criteria fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis

** "Discomfort" means an uncomfortable sensation not described as pain.

In pathophysiology research and clinical trials, a pain/discomfort frequency of at least two days a week is recommended for subject eligibility.

Pain or discomfort more than one day per week (question 1-4)

Criteria for IBS-C

(question 9=0) and (question 10=0)

Criteria for IBS-D

(question 9=0) and (question 10=0)

Criteria for IBS-M

(question 9=0) and (question 10=0)

Criteria for IBS-U

(question 9=0) and (question 10=0)
**IBS-QOL**

**Today's Date:** __ __/__ __/__ __

**SID:** __ __ __ __ __

Please think about your life over the **past month (30 days)**, and look at the statements below. Each statement has five possible responses. For each statement, please fill in one oval in each row that best describes your feelings.

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Quite a bit</th>
<th>A great deal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I feel helpless because of my bowel problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>I am embarrassed by the smell caused by my bowel problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I am bothered by how much time I spend on the toilet.</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>4</td>
<td>I feel vulnerable to other illnesses because of my bowel problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>I feel fat because of my bowel problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>I feel like I’m losing control of my life because of my bowel problems.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7</td>
<td>I feel my life is less enjoyable because of my bowel problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>I feel uncomfortable when I talk about my bowel problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>I feel depressed about my bowel problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>I feel isolated from others because of my bowel problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>I have to watch the amount of food I eat because of my bowel problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Because of my bowel problems, sexual activity is difficult for me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>I feel angry that I have bowel problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>I feel like I irritate others because of my bowel problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>I worry that my bowel problems will get worse.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>I feel irritable because of my bowel problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLEASE CONTINUE ON THE NEXT PAGE**
<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Quite a bit</th>
<th>A great deal</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>I worry that people think I exaggerate my bowel problems.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>18</td>
<td>I feel I get less done because of my bowel problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>I have to avoid stressful situations because of my bowel problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>My bowel problems reduce my sexual desire.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>My bowel problems limit what I can wear.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>I have to avoid strenuous activity because of my bowel problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>I have to watch the kind of food I eat because of my bowel problems.</td>
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<td>24</td>
<td>Because of my bowel problems I have difficulty being around people I do not know well.</td>
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<tr>
<td>25</td>
<td>I feel sluggish because of my bowel problems.</td>
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<tr>
<td>26</td>
<td>I feel unclean because of my bowel problems.</td>
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<tr>
<td>27</td>
<td>Long trips are difficult for me because of my bowel problems.</td>
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<tr>
<td>28</td>
<td>I feel frustrated that I cannot eat when I want because of my bowel problems.</td>
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<tr>
<td>29</td>
<td>It is important to be near a toilet because of my bowel problems.</td>
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<tr>
<td>30</td>
<td>My life revolves around my bowel problems.</td>
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<tr>
<td>31</td>
<td>I worry about losing control of my bowels.</td>
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<tr>
<td>32</td>
<td>I fear I won't be able to have a bowel movement.</td>
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<tr>
<td>33</td>
<td>My bowel problems are affecting my closest relationships.</td>
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</tbody>
</table>
I feel that no one understands my bowel problems.

I feel responsible for bringing on my bowel problems.

Thank you for completing this survey.
Lab 1-1  The General Well-Being Scale

For each question, choose the answer that best describes how you have felt and how things have been going for you during the past month.

1. How have you been feeling in general?
   5 _____ In excellent spirits
   4 _____ In very good spirits
   3 _____ In good spirits mostly
   2 _____ I’ve been up and down in spirits a lot
   1 _____ In low spirits mostly
   0 _____ In very low spirits

2. Have you been bothered by nervousness or your “nerves”?
   0 _____ Extremely so—to the point where I could not work or take care of things
   1 _____ Very much so
   2 _____ Quite a bit
   3 _____ Some—enough to bother me
   4 _____ A little
   5 _____ Not at all

3. Have you been in firm control of your behavior, thoughts, emotions, or feelings?
   5 _____ Yes, definitely so
   4 _____ Yes, for the most part
   3 _____ Generally
   2 _____ Not too well
   1 _____ No, and I am somewhat disturbed
   0 _____ No, and I am very disturbed

4. Have you felt so sad, discouraged, hopeless, or had so many problems that you wondered if anything was worthwhile?
   0 _____ Extremely so—to the point I have just about given up
   1 _____ Very much so
   2 _____ Quite a bit
5. Have you been under or felt you were under any strain, stress, or pressure?
   0   ____ Yes—almost more than I could bear
   1   ____ Yes—quite a bit of pressure
   2   ____ Yes—some, more than usual
   3   ____ Yes—some, but about usual
   4   ____ Yes—a little
   5   ____ Not at all

6. How happy, satisfied, or pleased have you been with your personal life?
   5   _____ Extremely happy—couldn’t have been more satisfied or pleased
   4   _____ Very happy
   3   _____ Fairly happy
   2   _____ Satisfied—pleased
   1   _____ Somewhat dissatisfied
   0   _____ Very dissatisfied

7. Have you had reason to wonder if you were losing your mind, or losing control over the way you act, talk, think, feel, or of your memory?
   5   _____ Not at all
   4   _____ Only a little
   3   _____ Some, but not enough to be concerned
   2   _____ Some, and I’ve been a little concerned
   1   _____ Some, and I am quite concerned
   0   _____ Much, and I’m very concerned

8. Have you been anxious, worried, or upset?
   0   _____ Extremely so—to the point of being sick, or almost sick
   1   _____ Very much so
   2   _____ Quite a bit
   3   _____ Some—enough to bother me
   4   _____ A little bit
   5   _____ Not at all

9. Have you been waking up fresh and rested?
   5   _____ Every day
   4   _____ Most every day
   3   _____ Fairly often
2 _____ Less than half the time
1 _____ Rarely
0 _____ None of the time

LAB A1-I (continued)

10. Have you been bothered by any illness, bodily disorder, pain, or fears about your health?
   0 _____ All the time
   1 _____ Most of the time
   2 _____ A good bit of the time
   3 _____ Some of the time
   4 _____ A little of the time
   5 _____ None of the time

11. Has your daily life been full of things that are interesting to you?
    5 _____ All the time
    4 _____ Most of the time
    3 _____ A good bit of the time
    2 _____ Some of the time
    1 _____ A little of the time
    0 _____ None of the time

12. Have you felt downhearted and blue?
    0 _____ All of the time
    1 _____ Most of the time
    2 _____ A good bit of the time
    3 _____ Some of the time
    4 _____ A little of the time
    5 _____ None of the time

13. Have you been feeling emotionally stable and sure of yourself?
    5 _____ All of the time
    4 _____ Most of the time
    3 _____ A good bit of the time
    2 _____ Some of the time
    1 _____ A little of the time
    0 _____ None of the time

14. Have you felt tired, worn out, used up, or exhausted?
    0 _____ All of the time
    1 _____ Most of the time
    2 _____ A good bit of the time
3 ___ Some of the time
4 ___ A little of the time
5 ___ None of the time

LAB A1-1 (continued)

Circle the number that seems closest to how you have felt generally during the past month.

15. How concerned or worried about your health have you been?
   Not 10 8 6 4 2 0 Very concerned concerned at all

16. How relaxed or tense have you been?
   Very 10 8 6 4 2 0 Very relaxed tense

17. How much energy, pep, and vitality have you felt?
   No energy 0 2 4 6 8 10 Very at all, energetic, listless dynamic

18. How depressed or cheerful have you been?
   Very 0 2 4 6 8 10 Very depressed cheerful

Scoring
Add up all the points for the answers you have chosen, and find your score in the table below.

81–110 Positive well-being
76–80 Low positive
71–75 Marginal
56–70 Stress problem
41–55 Distress
26–40 Serious
0–25 Severe

Source: National Center for Health Statistics. General Well-Being Scale (GWBS).
Full name ............................................................................... Date of birth ..........................................
Address and postcode..................................................................................................................................
............................................................................................................................................................
Today’s date ................................................... Practitioner seen ..............................................

Choose one or two symptoms (physical or mental) which bother you the most. Write them on the lines.
Now consider how bad each symptom is, over the last week, and score it by circling your chosen number.

SYMPTOM 1: ........................
..............................
..............................................
As good as it could be
As bad as it could be

SYMPTOM 2: ........................
..............................
..............................................
As good as it could be
As bad as it could be

Now choose one activity (physical, social or mental) that is important to you, and that your problem makes difficult or prevents you doing. Score how bad it has been in the last week.
ACTIVITY: ........................
..............................
..............................................
As good as it could be
As bad as it could be

Lastly how would you rate your general feeling of wellbeing during the last week?
0 1 2 3 4 5 6
As good as it could be
As bad as it could be

How long have you had Symptom 1, either all the time or on and off? Please circle:
0 - 4 weeks 4 - 12 weeks 3 months - 1 year 1 - 5 years over 5 years

Are you taking any medication FOR THIS PROBLEM ? Please circle:
YES/NO  IF YES:
1. Please write in name of medication, and how much a day/week
............................................................................................................................................................

2. Is cutting down this medication: Please circle:
Not important a bit important very important not applicable

IF NO:
Is avoiding medication for this problem:
Not important a bit important very important not applicable
** MYMOP2 Follow up **

Full name ...............................................................................  Today’s date .........................................

Please circle the number to show how severe your problem has been IN THE LAST WEEK. This should be YOUR opinion, no-one else’s!

SYMPTOM 1: .......... 0 1 2 3 4 5 6
............................. As good as it could be As bad as
it could be

SYMPTOM 2: .......... 0 1 2 3 4 5 6
............................. As good as it could be As bad as
it could be

ACTIVITY: .......... 0 1 2 3 4 5 6
............................. As good as it could be As bad as
it could be

WELLBEING: 0 1 2 3 4 5 6
How would you rate your general feeling As good as it could be As bad as it
could be of wellbeing?

If an important new symptom has appeared please describe it and mark how bad it is below. Otherwise do not use this line.

SYMPTOM 3: .......... 0 1 2 3 4 5 6
............................. As good as it could be As bad as it
could be

The treatment you are receiving may not be the only thing affecting your problem. If there is anything else that you think is important, such as changes you have made yourself, or other things happening in your life, please write it here (write overleaf if you need more space):

* Are you taking medication FOR THIS PROBLEM ? Please circle: YES/NO  IF YES:
Please write in name of medication, and how much a day / week 

.................................................................................................................................

MYMOP, Measure Yourself Medical Outcome Profile
Word count

Abstract - 171
Introduction and literature review – 4416
Method – 1594
Results – 1376
Discussion – 2187

Total = 9744