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'Food that disagrees with me': An exploration from a psychological perspective.

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‘Food that disagrees with me’: An exploration from a psychological perspective.

By

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A thesis submitted to Plymouth University
In partial fulfilment for the degree of

DOCTOR OF PHILOSOPHY

School of Psychology
Faculty of Health and Human Sciences

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Abstract

Food intolerance is a growing concern in the UK given its frequency and cultural popularity. Current medical understanding is at odds with the use of this term by laypeople and in addition health professionals use the term in several ways.

The present thesis focused on two main questions:

1. *What are people like who report food intolerance?* Study 1 showed that food intolerance is a condition that varies, its development, symptoms and the way people interact with and treat the condition is very individualistic. Study 2, showed that inflammatory symptoms were more frequent in the food intolerant population compared to non-inflammatory symptoms. It was also found that participants who reported being high in neuroticism and high in hypochondriasis were 20% more likely of having self reported food intolerance in the population sample. Study 3, replicated the findings found in study 2 in terms of inflammatory and gastrointestinal symptoms and greater anxiety and depression. In addition this study showed that the number of foods that disagree with you was also significantly associated with the number of GP visits in the past 12 months, major illness/chronic health, greater stressors as well as having poorer quality of life.

2. *Is it possible to demonstrate that food disagreement is associated with stress?*

Study 4 showed that people were less stressed before eating foods that disagreed with them. Finally results from study 5 were inconclusive due to methodological problems.

The current thesis used a multi method approach to explore the topic. It contributes to a better understanding about food intolerance and introduces new and previously unexplored dimensions about the condition. Most importantly the findings from this thesis provides the next steps for future research about a psychoneuroimmunological basis for food intolerance.

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“Doctors are men who prescribe medicines of which they know little, to cure diseases of which they know less, in human beings of whom they know nothing.”

Voltaire, 1760.

1. Introduction

1.1 *The current state of food intolerance*

The term ‘food intolerance’ has been classed as ‘one of medicine’s modern enigmas’ (Nelson & Ogden, 2008). Its title has been used to describe a wide range of food related symptoms with varied aetiologies (Zopf, Baenkler, Silbermann, Hahn & Raithel, 2009), a ‘dustbin diagnosis’ used by the medical profession (Nelson & Ogden, 2008). It has also been used as a ‘refugee camp category’ (Brostoff & Gamlin, 2008), where reactions to food that have no home end up when the symptoms presented do not fall into a specific category.

It was thought that increased media coverage has drawn the public’s attention to food related risks (Sparks & Shepherd, 1994) and with it a greater understanding and empowerment of their own personal health care. This may have contributed to the high prevalence of ‘perceived’ food intolerance in the United Kingdom (Knibb, Booth, Platts, Armstrong, Booth & Macdonald, 2000).

Young, Stoneham, Petruckevitch, Barton & Rona, (1994) reported that as well as self-diagnosing their food intolerances, few people seek medical advice regarding their symptoms, opting to either treat themselves or to endure their symptoms.

McGowan and Gibney (1993) found that 36% of the recruits in their study had diagnosed food allergies themselves and 57% reported that they nearly always avoided the offending foods. Similarly, up to a third of parents who believe their child is suffering from adverse symptoms to food do not seek any professional advice before omitting foods from the child’s diet (Rona & Chinn, 1987).

The public maybe acting on their beliefs as the demand for products that are free of various food constituents such as gluten, dairy products, and wheat has increased by 165% from 2000 to 2002. This sector of the food industry in the UK, worth £55.6 million in 2003 grew to, £138 million in 2006 (Mintel, 2006), increased to £355 million

in 2014 and is expected to grow even further by 2018 where it could be worth £538 million (Mintel, 2014).

There are large discrepancies about the prevalence of food intolerance in the UK. Studies using the double blind placebo control food challenge (DBPCFC) as a method of diagnosis suggests the prevalence of food intolerance has been estimated to be as low as 1–2% (Anderson, 1991; Sampson, 1988; Young et al., 1994). The European Academy of Allergy and Clinical Immunology (EAACI) regard the DBPCFC, combined with a detailed history, as the gold standard diagnosis of food reactions (Mabin, 1996). The blind trials and use of placebos are intended to provide objective evidence and to differentiate between psychological and biophysical reactions to foods. However, the usefulness of the DBPCFC is disputed in the case of food intolerance. Food intolerance is suggested to be dose dependent in many cases, requiring quantities larger than are practicable in a DBPCFC. Other scenarios suggest that symptoms occur only with specific combinations of foods, or have a reaction time too prolonged to be considered definitive in a DBPCFC test (Ortolani & Pastorello, 2006).

There are other diagnostic tests available on the market for example the Vega test, which works on the principle of electro acupuncture and biofeedback but in Lewith et al.'s study (2001) they found that the results of electrodermal (Vega) testing were no different from random as it was unsubstantiated by double blind testing and was therefore not a reliable diagnose test for environmental allergies. Applied kinesiology which involves using a series of muscle testing exercises to evaluate the body's physical state is also regarded as unproven and controversial (Jenkins & Vickers, 1998; Ortolani et al., 1999). The scientific and medical communities therefore remain sceptical about the existence of food intolerance due to its lack of standardised testing, aetiology and public presence via the media (Nelson & Ogden, 2008).

Research based on self-report measures of food intolerance identifies a much higher prevalence rate compared to medical trials. Community studies have shown reports of food intolerance to be as high as 33% (Bender & Matthews, 1981) or a lower 14.7% (Young et al., 1994). The prevalence is higher still in specific sub-groups of the population with 25–65% of patients with irritable bowel syndrome perceiving themselves to be food intolerant (Atkinson, Sheldon, Shaath & Whorwell, 2004; Monsbakken, Vandvik & Farup, 2006).

It therefore appears that if a large number of people in the UK could mistakenly believe that they are suffering from food intolerance, and then this could affect their behaviour, so that they avoid foods, unnecessarily. Or, on the other hand our understanding and diagnostic criteria could be flawed and these people could be suffering from a condition beyond our current understanding.

There are broadly three types of explanation for food intolerance, biological, psychological and a bio-psychosocial interaction of some kind. The current chapter provides a review of each of these perspectives and the mechanisms proposed.

1.2 Biological perspective

The Royal College of Physicians and the British Nutrition Foundation in 1984 defined that food intolerance and food sensitivity are used in a general sense, for all reproducible, unpleasant reactions to a specific food or food ingredient, clearly defined metabolic, pharmacologic, or immunopathologic basis, or the mechanism may be unknown (Ferguson, 1997).

Explanations for adverse reactions to food have been primarily based on the immunological and medical literature and have focused on causal mechanisms. In 1995 the European Academy of Allergy and Clinical Immunology (EAACI) established a simple and easy to apply classification of adverse reactions to food. The location and

definition of food intolerance was stated to be non-toxic and non-immune mediated, placing it with a section labelled ‘enzymatic’, ‘pharmacological and ‘undefined’ (Ortolani & Pastorello, 2006). Although ‘undefined’, the mechanism of food intolerance appears to be held as a physical process. The mechanisms of these intolerances are still yet to be defined. Psychological reactions to food have been purposely excluded in their definition; this was stated in Ortolani and Pastorello 2006 paper:

“Psychosomatic reactions to foods depend on a primitive mental disturbance in the individual affected. For this reason they have not been included in the EAACI classification. In fact, many patients believe that they are allergic or intolerant to certain foods, solely on the basis of self persuasion (p473. Ortolani & Pastorello,2006)”

1.2.1 *Direct biological explanations for adverse food reactions*

1.2.2 *IgE mediated reactions*

Allergic reactions involve the production of immunoglobulin E (IgE), IgE is stimulated from plasma cells with exposure to IgE antibodies. IgE then produces a variety of responses including triggering mast cells that produce inflammation (Kawakami & Kitaura, 2005).

Mast cells are present beneath the surface of the skin and in the membrane of the nose, eyes, respiratory tract, intestines and other mucosal sites in the body (Buttriss, 2008). Histamine and other pro-inflammatory chemicals are released from the mast cells causing inflammatory symptoms, for example: asthma, rhinitis, eczema, dilation of blood vessels, swelling and difficulty breathing.

Allergic reactions to food fluctuate significantly in severity and discomfort caused, it is important to add that the majority of IgE responses are not life threatening. Yet, anaphylactic reactions can be severe and even fatal. Anaphylaxis is a severe

reaction with rapid onset; this is often followed by a fall in blood pressure and severe shock. Peanuts are well known for this type of extreme reaction.

A food allergy does not commonly develop for the first time in adults. An exception to this rule is the reaction to shellfish, this tends to develop in older people rather than children. Genetic factors are seen to be important in the development of IgE mediated reactions (Janeway, Travers, Walport & Shlomchick, 2001). The prevalence of IgE mediated allergies is higher in young children compared to adults, and most children with sensitivities to eggs or milk spontaneously recover between 12-24 months (Turnbull, Adams & Gorard, 2015). Children with IgE mediated reactions often react to more than one food and having high levels of IgE antibodies to common food proteins, like ones present in eggs and cows milk are often predictors to later allergies to inhalants such as house hold dust mites and pollen (Kattan, Cocco & Järvinen, 2011).

1.2.3 *Non-IgE mediated reactions*

Non-IgE mediated reactions can be delayed and are complicated to identify, reactions may take several hours or even days to develop. Coeliac disease is an example of a non-IgE mediated response. It is bought on by being genetically susceptible to exposure of gluten found in wheat and other cereal grains (Dean, 2000).

1.2.4 *Enzymic reactions*

Lactose intolerance is a very common intolerance linked to the deficiency of a specific enzyme. Before lactose (a sugar found in milk) can be absorbed and utilised by the body it has to be broken down into its component sugars, this process requires the lactase enzyme. If not enough lactase is produced by the body some lactose can pass undigested into the large intestine causing symptoms such as diarrhoea and flatulence due to bacterial fermentation of lactose in the colon (Burton, 1998).

1.2.5 *Pharmacological Reactions*

There are many food components that can produce a pharmacological reaction. These reactions are usually not significant in clinical terms unless the substance is consumed in very large quantities, e.g. drinking too much coffee can lead to symptoms like palpitations, restlessness and stomach upset. Vasoamines are a group of substances which includes histamine and tyramine and are sometimes responsible for a pharmacological food reaction. Vasomines are naturally occurring components found in a variety of foods, for example Roquefort, Parmesan cheese, strawberries, tomatoes and chocolate contain histamine and mature cheeses, preserved meats, fermented foods and alcoholic beverages contain tyramine (Buttriss, 2008). Eaten in moderation it is fine yet if a person were to eat too much of a certain food, for example strawberries (which contain histamine) it would be possible to create a histamine induced response similar to a reaction found with an IgE mediated food allergy.

1.2.6 *Non-defined idiosyncratic responses*

Sometimes a case of food intolerance occurs that cannot be attributed to any of the previously described sections. These can be categorised as non-defined idiosyncratic responses in which they fulfil the classical definition of a food intolerance as stated by the EAACI (1995) (see 1.2), the effects are reproducible. Yet, they relate to the characteristics of the individual rather than the food itself. For example, some foods contain naturally occurring toxins or substances that can irritate the lining of the intestine in some individuals. Some examples of these include protease inhibitors in legumes, cyclopeptides and muscarines in mushrooms and oxalates in spinach and rhubarb (Buttriss, 2008). Also the effect of spices and chilli on a persons gut mucosa can cause something known as ‘intestinal hurry’, which is sometimes mistaken for food intolerance.

1.2.7 Food poisoning

The term 'food poisoning' is restricted to acute gastroenteritis due to bacterial pollution from food or drink (WHO, 2000). In 1992, the Department of Health's Advisory Committee on the Microbiological Safety of Food defined food poisoning as "any disease of an infectious or toxic nature caused by, or thought to be caused by the consumption of food or water" (ACMSF, 1993).

1.3 Other less direct biological explanations for food intolerance

1.3.1 Hygiene hypothesis

Changes of lifestyle in industrialised countries have led to a decrease of the infectious diseases and are associated with the rise of allergic and autoimmune diseases, according to the 'hygiene hypothesis'. The hypothesis was first proposed by Strachan, who observed an inverse correlation between hay fever and the number of older siblings when following more than 17000 British children born in 1958 (Strachan, 1989).

Strachan's original formulation of the hygiene hypothesis also centred around the idea that smaller families provided insufficient microbial exposure partly because of less person to person spread of infections, but also because of "improved household amenities and higher standards of personal cleanliness" (Strachen, 2000). Although the "hygiene revolution" of the nineteenth and twentieth centuries may have been a major factor, it now seems more likely that, although public health measures such as sanitation, potable water and rubbish collection were instrumental in reducing our exposure to diseases like cholera and typhoid, they also deprived us of our exposure to the "old friends" that occupy the same environmental habitats (Stanwell-Smith, Bloomfield & Rook, 2012). Subsequent research has confirmed that insufficient exposure to microbiological variability in the gut leads to a tendency towards atopy

(allergic tendency) and hence adverse reactions to food (Bloomfield, Stanwell-Smith & Pickup, 2006).

1.3.2 *Old friend hypothesis*

Rook, Martinelli and Brunet (2003) proposed the "old friends hypothesis" which offers an explanation for the link between microbial exposure and inflammatory disorders. They argued that the vital microbial exposures are not colds, influenza, measles and other common childhood infections which have evolved relatively recently over the last 10,000 years, but rather the microbes already present during mammalian and human evolution, that could persist in small hunter gatherer groups as microbiota, tolerated latent infections or carrier states. They proposed that we have become so dependent on these "old friends" that our immune systems neither develop properly nor function properly without them.

1.4. *Psychological perspective*

1.4.1 *Risk perception*

Restrictive diets was largely unheard of until two decades ago, any person that couldn't eat gluten, dairy or nuts found it hard to find suitable food sources on the high street (Lee & Newman, 2003). Public understanding of food intolerances is now much greater than it was in the past. Though this may not be a direct cause for the increase in food intolerance, as there must already have been a prevalence of food intolerance to call for improved labelling and warnings on food packaging/menus. Yet a problem could have been intensified when the increased labelling now prevalent on the high street becoming an environmental trigger of risk activation for those who are more risk aware, even if they don't have a food intolerance. However, over time the constant risk activation could cause a feedback loop where they become much more familiar with the

concept of allergies and intolerances but also could wrongly believe the risk was true.

Tversky and Kahneman (1973) proposed the theory of ‘Availability heuristics’. They stated that if information is frequently repeated it will be more available and therefore people will overestimate its likelihood. This availability bias suggests that information that is cognitively available is going to have a greater role in decisions than less readily available information.

There is evidence the public overestimate the frequency of death from rare events and underestimate the frequency of death from common events (Lichtenstein et al. 1978) even though people are able to rank hazards in terms of fatalities fairly well. It has been suggested that this judgmental bias of overestimation of fatalities from rare events can be attributed to the ease with which those events come to mind (Tversky & Kahneman, 1973). Moreover, it is also apparent that media coverage of fatalities from different hazards is disproportionate in much the same way (Combs & Slovic, 1979).

The increased exposure could make the public more aware of the issue, yet it also may lead them to overestimate its prevalence and the probability of having a food intolerance (Shepherd, 2006).

1.4.2 *The media*

Hypochondria is a condition in which an individual believes they have a serious illness or disease when in reality their symptoms may not exist, or are far too mild to be cause for alarm. This disorder has a counterpart called ‘cyberchondria’, which is almost identical but involves use of the Internet to search symptoms, planting the idea that an illness exists when in reality it does not (White & Horvitz, 2009). The Internet is an useful tool for information-gathering where an individual can self-diagnose, research and discuss health problems without the need of going to see a doctor or other health specialist, yet, cyberchondria reflects a growing trend which describes the excessive use

of Internet health sites to fuel health anxiety (Stone & Sharpe, 2003). It is a specific form of nosophobia that develops when the sufferer researches a disease and then believes they have the symptoms of that disease. When accessing health websites, 63% of Internet users searched for facts on a specific disease or medical problem, with a higher proportion of women (72%) compared to men (54%) searching for information about specific health related problems (Rainee & Fox, 2000).

Nosophobia is related to hypochondriasis, but there are several important differences between the two conditions. The most important difference is specificity. A person with hypochondriasis has several physical symptoms that are feared to be caused by illness. Someone with nosophobia is afraid of a specific disease and becomes convinced that they have the symptoms of that particular disease.

Nosophobia is also known as the 'medical students disease' (Hunter, Lohrenz & Schwartzman, 1964) because it develops in people who spend a great deal of time learning, reading and researching specific diseases. This may have contributed to the high prevalence of people who self-diagnose and self-treat perceived food intolerance (PFI) in the United Kingdom (Knibb et al., 2000).

There have been many cases where people believe they are ill due to self-persuasion. When drinking water fluoridation was first introduced in Grand Rapids, Michigan USA in 1945 (Freeze & Lehr, 2009). Calls began coming in to city offices from people complaining of sore gums and peeling tooth enamel. One woman even claimed that all her teeth had fallen out. These calls arrived in early January, when press reports wrongly stated that fluoridation would begin. Yet this was some weeks before the actual advent of fluoridation on January 25.

Another example was when a wave of illness among Belgian children in June 1999 appeared to be a typical food poisoning outbreak. The culprit was contaminated Coca-Cola. Carbon dioxide used to carbonate a batch of the soda's syrup had been

contaminated with some sulphur compounds. The contaminants were present at between five and seventeen parts per billion. Sulphides can cause illness, however, only at levels about a thousand times greater than these values. Gladwell (1999) stated: “At seventeen parts per billion, they simply leave a bad smell like rotten eggs which means that Belgium should have experienced nothing more than a minor epidemic of nose-wrinkling. More puzzling is the fact that, in four of the five schools where the bad Coke allegedly struck, half of the children who had become ill hadn’t drunk Coke that day.”

In 2011 Novak Djokovic started with a 41 match winning streak, reached number one in the world and won three of the four grand slam tournaments including Wimbledon. In 2015 he collected the trophy again. Djokovic’s incredible run surprised many in the tennis world, although he was a good player he had a reputation for being physically fragile. Earlier in 2014 he revealed his secret. In 2010 his nutritionist had diagnosed him as gluten intolerant, so he cut out wheat from his diet. Djokovic said he instantly felt fresher, sharper and more energetic, and now recommends that everyone give it a go! (New Scientist, 2014). Testimonials like this are harmful and help cement that there is something wrong with eating wheat, when there may not, but if you stop eating wheat you will feel great too! This could be seen as a normative social influence where the influence of others leads us to conform in order to be liked, associated with and accepted by people we admire.

1.4.3 Suggestibility

Suggestibility could be an important factor in the belief of having illness. It has been found that neuroticism is higher in people with perceived food intolerance (Knibb, et al., 1999b). An inference could be made that people with food intolerance (who are neurotic) would process and prioritise information differently from those who are not.

There has been previous studies investigating suggestibility on difficult to understand health complaints e.g., Medically Unexplained Symptoms (Brown, Schrag, Krishnamoorthy & Trimble, 2008), Conversion Disorder (Roelofs, Hoogduin, Keijsers, Näring, Moene & Sandijck, 2002), Pseudo Epileptic Seizures (Kuyk, Spinhoven, Emde Boas & Van Dyck, 1999) and Chronic Fatigue Syndrome (Di Clementi, Schmalting & Jones, 2001) with varying success, but there is nothing in the literature found to suggest there has been any previous studies looking at the relationship between suggestibility and people with food intolerance.

In an evolutionary perspective a person who is more neurotic is more likely to continuously scan their environment for potential threat. A neurotic person would detect fear-related information far earlier than someone who wasn't neurotic (Brosschot, 2002).

Berstad, Arslan, Lind and Florvaag (2005) suggested that food hypersensitivity is a sensitisation disorder, however not necessarily via immunological mechanisms. Generally, sensitisation is caused by an increased efficiency in the synapse due to repeated use, in particular following irregular and extreme stimulation. It constitutes a feed-forward mechanism, helping the individual to react more efficiently in situations with increased probability of harm. Sensitised persons are continuously scanning the environment for offending agents.

1.4.4 *Food intolerance as a medically unexplained symptom*

Despite the mechanisms given earlier in this chapter it is possible that there is no biological basis for food intolerance. People present with a range of somatic symptoms which no pathophysiology can be currently identified. These symptoms are commonly labelled medically unexplained symptoms and in certain cases functional disorders.

The list of possible mechanisms that have been proposed in the development and

maintenance of medically unexplained symptoms (MUS) is substantial (Reif & Broadbent, 2007). The concept of somatisation does not have a single meaning. Instead, it has been defined in a number of different ways: (1) as the somatic expression of a psychiatric disorder, implying a causal relationship between somatisation and psychological distress; (2) as a distinct diagnostic category, called somatisation disorder, characterised by the presence of multiple somatic symptoms, referring to different organ systems; and (3) as referring to functional somatic syndromes, characterised by the presence of specific clusters of somatic symptoms. Despite their differences, these definitions have one element in common, namely, the presence of somatic symptoms that cannot be adequately explained by organic findings (Al Busaidi, 2010).

One of the most influential models on multiple unexplained symptoms was first described for hypochondriasis by Barsky & Wyshak (1990). The somatosensory amplification model (see Fig.1.1) focuses on perception and cognition. Somatosensory amplification refers to the tendency to experience somatic sensation as intense, noxious, and disturbing. What may be a minor "twinge" or mild "soreness" to the stoic could be a severe consuming pain to the amplifier. Amplification involves three elements: 1. hypervigilance, or heightened attentional focus on bodily sensation; 2. a tendency to select out and concentrate on certain relatively weak and infrequent sensations; and 3. The disposition to react to somatic sensations with affect and cognitions that intensify them and make them more alarming, ominous, and disturbing (Barsky, Goodson, Lane & Cleary, 1988).

Barsky et al. (1988) emphasised that hypochondriacs amplify benign somatic sensations and misattribute them to serious diseases. As a consequence, patients focus their attention on bodily processes and experience a broad range of somatic sensations as more intense, more noxious, and more disturbing. This attention-focussing again

amplifies the perception of physical signals, thereby forming a vicious circle, as has been described in panic disorder and depression (e.g., Beck, Rush, Shaw, & Emery, 1979; Clark, 1986).

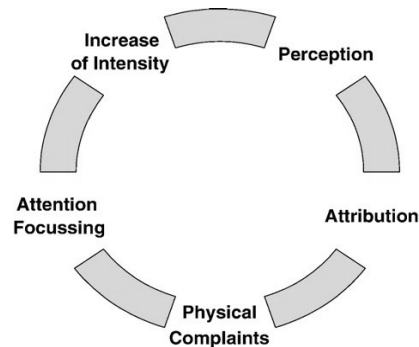


Fig.1.1 The circle of somatosensory amplification (Barsky & Wyshak, 1990).

Kirmayer and Taillefer (1997) extended the cognitive-perceptual model by integrating social and forensic aspects (see Fig.1.2). The interpretation of physical sensations as a sign of illness leads to help seeking, which can in itself be a source of maintaining factors. Inadequate reassurance or negative doctor-patient interactions can increase the distress associated with symptoms. An interesting part of Kirmayer and Taillefer's model is the integration of social responses, which includes family, health care providers and work conditions.

These social factors can reduce motivation to use self-help strategies and cope with symptoms. Kirmayer and Taillefer's model offers an integrative and multidimensional approach that adds behavioural and social aspects to the somatosensory amplification process. Other models also emphasise the role of physical deconditioning, avoidance, and physical misconceptions.

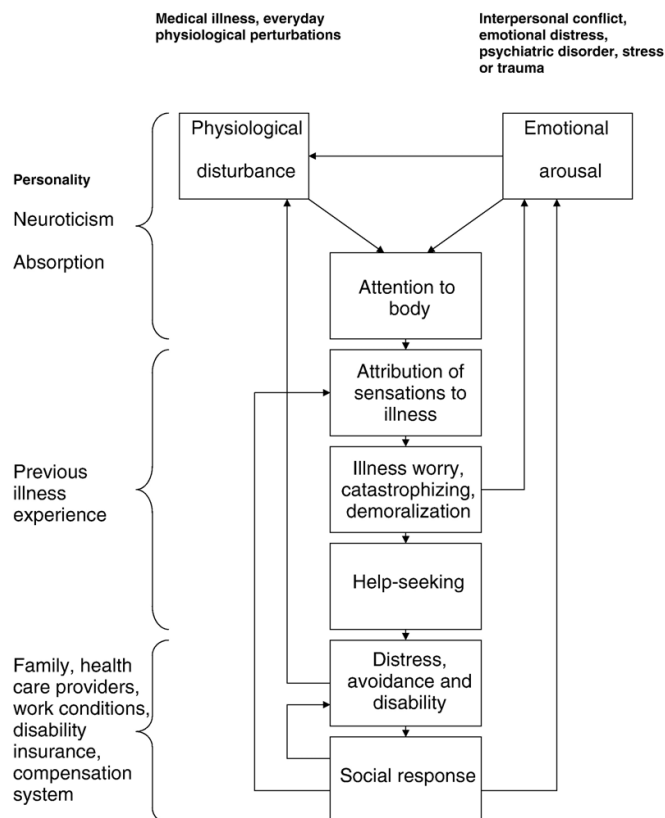


Fig.1.2. Kirmayer and Taillefer’s model of somatoform symptoms (1997).

The multicomponent models of medically unexplained symptoms acknowledge different risk factors that can contribute to the development and maintenance of complaints. However, it should be kept in mind that the central process is a perceptual one. People have to perceive sensations in order to describe physical complaints. This raises questions about how the perceptual process is constructed. Two models focus on the perception process itself, namely Pennebaker's model of the psychology of physical symptoms (Pennebaker, 1982), and the signal-filter model (Rief & Barsky, 2005). Both models assume that there is a permanent sensory stimulation, which sends neural impulses to the brain from the periphery of the body. Different organs and body parts as well as the skin continually produce sensory information that is forwarded to higher cortical structures. The healthy nervous system, however, has learned to filter this

‘sensory noise’, therefore preventing over-stimulation of the upper cortical structures with irrelevant information. This modification of the gate-control theory formulated for chronic pain (Melzack & Wall, 1965) has been adapted for medically unexplained symptoms (MUS). It is proposed that people experience physical complaints if this filtering process is distorted (see Fig. 1.3).

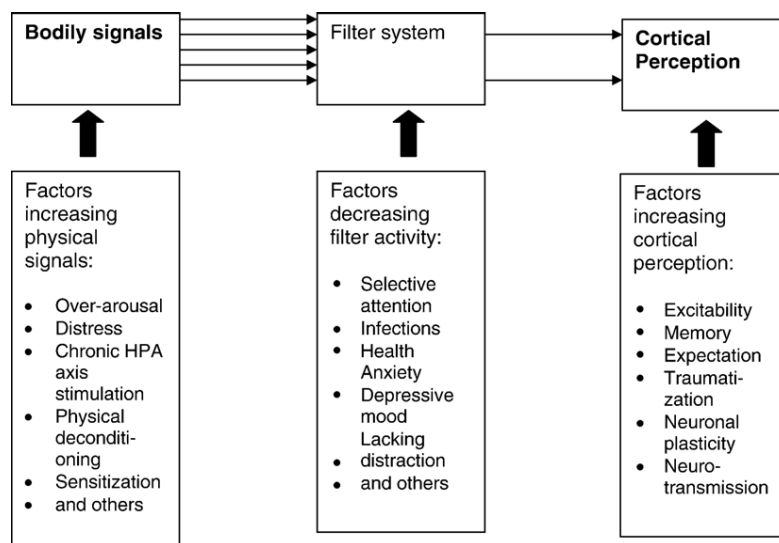


Fig. 1.3. The perception-filter model of somatoform disorders (Rief & Barsky, 2005).

1.5 *Bio-psychosocial interactionism*

1.5.1 *Stress*

The neurons of the gut (‘the second brain’) are closely connected to the limbic system (Mayer, 2011). Hence any emotional effect in the brain will have a causal influence on the gut. Stress and gut function are known to be closely related (Kaplan, Rucklidge, McLeod & Romijn, 2015).

There is considerable evidence that short term and long-term stress have different effects on the body (McEwen, 2000). Short-term stress has immunological effects that protect the body against infection, long term stressors have a number of harmful effects on the immune system.

Research indicates that psychological stress suppresses or increases various aspects of innate and adaptive immune function, and can ultimately impact upon disease onset and its development (Kemeny & Schedlowski, 2007). It is suggested that psychological stressors increase the production rate of proinflammatory cytokines, such as IL-1, IL-6, TNF- α , and IFN- γ . Evidence indicates that chronic psychological stress suppresses white blood cell activity, resulting in impaired host resistance to infectious disease, reduced responses to vaccinations, inhibited wound healing and increases in the progression of cancer (Glaser & Kiecolt-Glaser, 2005).

Long term psychological stress is thought to influence immune function through autonomic nerves innervating lymphoid tissue or hormone-mediated alteration of immune cells. Stress may also alter immune responses through the adoption of coping behaviours such as increased smoking and alcohol consumption.

Long term psychological stress occurs when an individual perceives that environmental demands tax or exceed his or her adaptive capacity on a regular basis (Cohen, Kessler & Gordon, 1995). Associations between psychological stress and disease have been established, particularly for depression, cardiovascular disease and HIV/ AIDS. Other areas in which evidence for the role of stress is beginning to emerge include upper respiratory tract infections, asthma, herpes viral infections, autoimmune diseases, and wound healing (Vedhara & Irwin, 2005).

Chronic stress is associated with decreased well being, increased sick leave rate, and the development of stress-related disorders such as burn-out and depression (Van Praag, 2004). According to the World Health Organization, stress is expected to be one of the major causes of dysfunction by the year 2020 (WHO, 2001). There is evidence that the association between stressors and functional disorders is in part mediated by stress-induced increases in hypothalamic–pituitary–adrenal axis (HPA) activation (Tafet & Bernardini, 2003; Van Praag, 2004). An increase in the biological stress response

prepares the individual to cope with the stressor (De Kloet, Joels & Holsboer, 2005), but repeated or prolonged activation can result in dysregulation of the HPA axis.

Early stress research focused mainly on the role of major life events in the aetiology of psychological disorders (Brown, 1981). Subsequent studies have demonstrated that minor stressful events or daily hassles can also have substantial cumulative effects on health and well being (Almeida, 2005; Zautra, 2003). Studies using momentary assessment techniques have shown that minor stressful daily events are associated with changes in mood, in that positive affect decreases, whereas negative affect and agitation increase in relation to stress (Marco & Suls, 1993; Van Eck, Nicolson & Berkhof, 1998).

Stress-perceived events have been found to induce increases in carbohydrate intake (Chaput & Tremblay, 2007; McCann, Warnick, & Knopp, 1990). Stressed people tended to eat high-calorie sweet and salty snacks, whereas they were less likely to prefer fruits and vegetables, meat and fish (Cartwright et al., 2003; Oliver & Wardle, 1999; Zellner et al., 2006). Women, compared to men, are more likely to increase food consumption, in particular sweet foods or fat consumption, in response to stress (Habhab, Sheldon & Loeb, 2009).

Allostasis means “maintaining stability, or homeostasis, through change”. The stress response is allostatic in that the reference criteria of many homeostatic systems are changed in response to a stressor (Sterling and Eyer 1988). “Allostatic load” refers to the price the body pays for being forced to adapt to adverse psychosocial or physical situations over the long term.

McEwen (1998) described the brain as the central organ of stress. The brain perceives and decides what is threatening, producing physiologic responses that lead to adaptation and behaviour. Short-term acute stress produces a number of changes that revert to normal once the stressor has disappeared. Long term or chronic stress

produces long-term changes that do not revert to normal once the stressor is removed. It is these long-term changes that have a damaging effect on health.

Over time, chronic stress produces allostatic load, leading to changes in neural, endocrine, and immune system. These changes can have adverse effects on various organ systems, leading to disease.

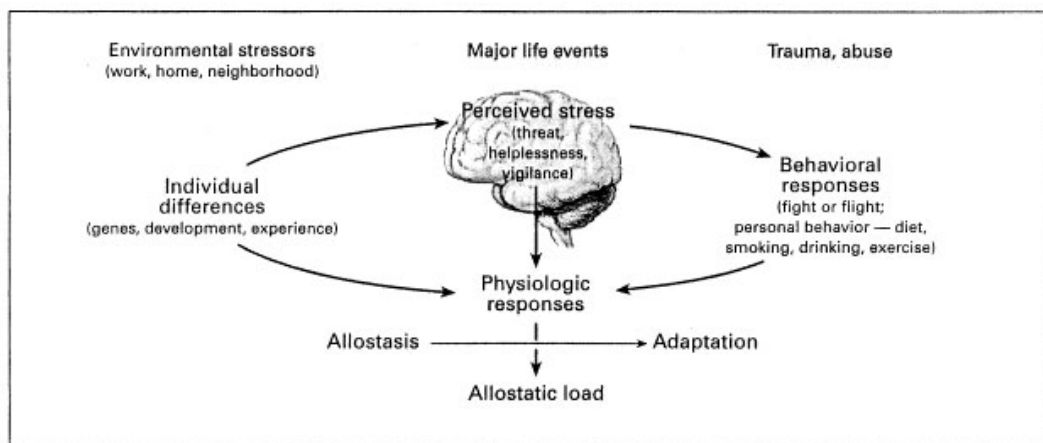


Fig 1.4. The stress response and development of allostatic load (McEwen, 1998).

1.5.2 Conditioning

The theory of classical conditioning, primarily introduced by Pavlov (1927), allows for an agent to passively learn about its environment. The principal mechanism of classical conditioning is that of an agent learning to associate two stimuli that the agent observes as repeatedly occurring in pairs. The pair of stimuli is usually one stimulus that causes a reflex action in the agent and another stimulus that, if encountered in isolation prior to any pairing, would not cause any reflex.

By considering examples of stimuli pairings that would become associated through classical conditioning in a natural environment of a biological agent, the utility of such a mechanism to the agent can be seen. The smell of a particular food pairing with its taste and the sight of fire pairing with the sensation of heat are two examples of pairs of stimuli that a biological agent could conceivably learn to associate with one another in the course of its development in a natural environment. These sorts of

examples suggest that classical conditioning can be seen as a mechanism to infer relationships between stimuli that can be treated as two aspects of the same, more complex, stimulus without the agent having any prior knowledge. According to classical conditioning, the repeated association between an unconditioned stimulus (US) and a conditional stimulus (CS) results in the CS mimicking the characteristics of the US. Any substance, treatment, procedure or treatment setting can act as conditioned stimulus as long as it is repeatedly paired with unconditioned stimuli (De Craen, Kaptchuck, Tijssen, & Kleijnen, 1999)

Hebb (1949) suggested that learning and memory are achieved by physiological changes in brain synapses. He claimed that when two cells, A and B, which communicate under normal conditions, undergo a period of repeated and concurrent activation, as may happen during classical or operate conditioning, the results will be a strengthening of the connection between the two cells. According to Hebb this strengthening is reflected in a subsequent change the way the one neuron excites the other (Hebb, 1949). “Hebbs rule” is that each associative learning event is accompanied by the brief associated activation of two neurons that comprise a synapse, which together, effectively store information in the form of a physiological change at that synapse.

Food aversion learning is a form of conditioning in which animals or humans come to avoid consumption of a food (conditioned stimulus [CS]) that has been paired previously with a treatment that produces transient illness (unconditioned stimulus [US]) (Garcia, Ervin & Koelling, 1966; Garcia, Hankins & Rusiniak, 1974). It has been argued that taste aversion conditioning contains elements of both instrumental (avoidance) learning and classical (Pavlovian) conditioning (Chambers, 1990). The degree to which the learning paradigm conforms to a classical or an instrumental model may differ depending on subtle procedural details such as how the taste CS is delivered.

People who are chronically ill, prone to motion sickness, or otherwise vulnerable to experiencing unpleasant gastrointestinal symptoms may be at a much higher risk of developing aversions. Possibly due to a higher illness baseline, the greater the ability to create associations (Bernstein & Borson, 1986). It has also been found that cancer patients receiving chemotherapy were at risk of developing aversions to foods in their diet which were eaten before their drug treatments. In those studies, and in a survey of college students, aversions seemed more likely to be directed at foods that were protein sources (eggs, cheese, meat) than carbohydrates (Midkiff & Bernstein, 1985). Possible reasons for the salience of proteins as targets for food aversions were: 1) proteins are known to spoil more readily than carbohydrates and humans may, therefore, have a cognitive predisposition to ‘blame’ their unpleasant symptoms on proteins; 2) the gastric clearance and digestion of proteins is slower than that of carbohydrates, so that proteins may be associated with more severe symptoms; and 3) some flavour attribute of proteins may make them more associable with unpleasant symptoms.

The term *nocebo* (“I shall harm”) was introduced in contraposition to the term *placebo* (“I shall please”) (Kennedy, 1961). Just like the placebo effect, the *nocebo* effect follows the administration of an inert substance, along with the suggestion that the substance should have an effect (Enck, Benedetti, Schedlowski, 2008). However, *nocebo*-related effect can also be used whenever symptom worsening follows negative expectations without the administration of any inert substance (Benedetti, Lanotte, Lopiano, Colloca, 2007).

Response expectancy is the anticipation of automatic subjective responses, such as changes in the experience of pain, anxiety, or depression (Kirsch, 1985). Research indicates that response expectancies tend to elicit the expected responses (Kirsch, 1999), and this is widely regarded as a central factor in producing the *nocebo* effect (Stewart-Williams & Podd, 2004). Many studies have reported the elicitation of self-reported

and physiological indices of physical symptoms by manipulating response expectancies (Jewett, Fein, & Greenberg, 1990; Lorber, Mazzoni, & Kirsch, 2007).

Signal detection theory, Allan and Siegel (2002) suggested that some instances of the nocebo effect are a mistake made by the patient. The patient reports that a substance makes him or her feel better, but the substance contains no therapeutic ingredient. This particular type of mistake is termed a “false positive.” The patient has mistakenly detected symptomatic distress in response to an ineffective agent. False positive responses are quite common and, in many circumstances, understandable and even desirable. In general, false positives occur when the consequences of a false rejection are perceived to be greater than the consequences of a false positive. In such circumstances, a “liberal” decision criterion (or bias) is adopted. The expectation of a treatment creates uncertainty about the sensory information of pain, and the nocebo response is a case of perceptual error (Allan & Siegel, 2002). Therefore, if you expect to feel ill following eating bread, you will.

Pearson (1985) proposed that one of the most common reasons for attributing adverse symptoms to specific foods is what he referred to as a psychosomatic reaction. He hypothesised that anxieties about the food or other matters could cause pathophysiological changes similar to genuine immunological reactions. He also suggested that people succumb to a false conviction that they suffer from a food allergy and may attribute symptoms to eaten food that are quite different from those of classical allergic disorders, which he termed “pseudo-food allergy” derived from a psychiatric disorder, not a medical condition (Rix, Pearson & Bentley, 1984).

1.5.3 The Hyland Model

The Hyland model (Hyland, 2011) applies classical conditioning within a stress framework to explain food intolerance as an association of food types and stressful experience. The model emphasises the complex network of biological and psychological systems that form the basis of human experience, and suggests that an individual's biological systems can develop patterned responses to negative or challenging experiences and can become disregulated as a consequence of lifestyle or experience (see fig 1.5).

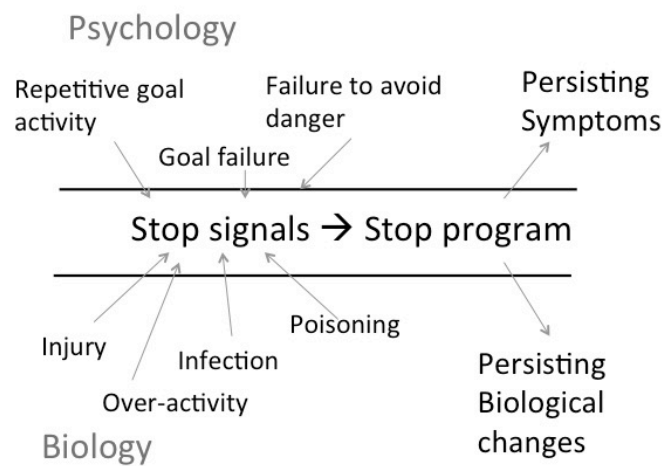


Fig 1.5. The Hyland model (2011).

The model is based on a level of explanation that is intermediary between the biological and the psychological and where information is encoded in a biological format that may or may not be accessible to consciousness. Similar to stress theories this intermediary level has an alarm system that alerts the body of the need to defend against challenges and threats. The activation of the inflammatory response and of the hypothalamic-pituitary-adrenal (HPA) axis (i.e., glucocorticoid production) is a description of this alarm system at a biological level. Activation of this alarm system, if frequent or chronic, can disrupt or cause problems in a body's biological functioning. Inflammation can be protective, but constant inflammation predisposes the body to

specific diseases (e.g., Kemeny & Schedlowski, 2007). A suppressed immune response (associated with a chronically activated HPA axis) also predisposes a body to disease.

According to the Hyland model, repeated or chronic negative experiences teach an individual's intermediary system that the world in general not only the current threatening situations poses a threat against which the body must protect itself.

The body could then be described as highly reactive and unstable. If this is the case, the individual experiences the symptoms of attempted defence chronic inflammation and HPA axis activation, both of which are known to be associated with disease. Thus, the Hyland model predicts that both psychological and physical poor health will result from adverse experiences, because these experiences alter the intermediary level as to produce the biological and psychological characteristics of poor health that are associated with stress.

The Hyland model of food intolerance is related to the mechanism for food aversion learning. That is, the body evolved one mechanism; the mechanism of food aversion learning, and food intolerance is a case where that mechanism is elicited in a different format. In the case of food aversion learning, the animal becomes sick after eating the food, and therefore avoids the food. In the case of food intolerance (according to the theory) the person is stressed by lifestyle factors after eating the food. That is, the person eats the food and then, for one reason or another, experiences stress. Why, then, should a person who experiences stress after eating not simply learn to avoid the food? There are two crucial differences between taste aversion learning and the proposed mechanism for food intolerance. In the case of food aversion, the experience after the food is one of sickness and nausea. This is a specific symptom, that is, a symptom associated with a specific body system, the stomach. Sickness is one of the signals the body uses to alter behaviour: the symptom of sickness inhibits eating.

By contrast, in the case of food intolerance, the experience after eating the food is not sickness or nausea. Instead, it is the experience associated with the alarm in the intermediary level where the alarm is not associated with a particular part of the body but rather an external stressor. Thus, the person with food intolerance has a form of dysregulation in which the body responds to food as though it were an external threat. There is no avoidance of food, just the experience that the situation is now one of threat. Because they are interconnected, the association between the food and the external stress will also elicit other intermediary beliefs, for example, those that lead to activation of the inflammatory response system. Thus, the external stressor becomes associated with not only a response specific to that stressor but also other responses that involve external and internal challenge. The particular pattern of symptomatology experienced by the food intolerance sufferer therefore reflects (a) the particular external stressor and (b) the pattern of interconnection between intermediary beliefs.

The association between intolerance and neuroticism provides evidence of a learning phenomenon. Although this association may be the consequence of reporting bias, it is also the case that people who are high in neuroticism are more sensitive to punishment and condition more quickly to negative stimuli (Corr, 2008). Thus, if intolerance were a learned phenomenon, then conditioning theory would predict an association between neuroticism and intolerance.

Many other clinical features of food intolerance are consistent with this learning interpretation. The strength of response to a conditioned association depends on the strength of the unconditioned stimulus, so the amount of the intolerant food consumed should correlate with symptom strength. Reports that food avoidance can lead to the development of new intolerances is consistent with the substitution of a new conditioned response and suggests that it is not what the person eats that is important but how the person eats the food. Most importantly, this mechanism provides a rationale

for clinical findings that are otherwise difficult to explain. A person who is intolerant of a food does not always respond badly to that food. Response seems to be affected by a combination of dietary factors (eating too much of the food or combinations of ‘bad’ foods) and psychological factors (being upset). So, whether or not the intermediary level resolves into a state of alarm on presentation of the food depends not just on the food but also on the other inputs to the intermediary level.

1.6 *Conclusions from the three main areas in the introduction.*

In summary, the main sections of the introduction suggest three different explanations for food intolerance: biological, psychological and bio-psychosocial interactionism.

Is food intolerance just a purely biological condition? For some ‘yes’ possibly due to enzymatic deficiency or an IgE response (Buttriss, 2008). Yet for others ‘no’, as it has been found that people with food intolerance score higher on measures of neuroticism (Knibb et al., 1999a), anxiety and depression (Lillestøl et al., 2010). Which suggests that there is a psychological element to the condition, even though the EAACI purposely excluded psychological reactions to food in their definition (Ortolani & Pastorello 2006) as they see it as a purely physical condition. The diagnosis of a food intolerance can be difficult, reactions to food intolerance following ingestion of the food can be slow (Boyce, 2010). The onset of symptoms is often not immediate, unlike the response to an allergen (Taylor & Hefle, 2001). Appearance of symptoms can take half an hour and sometimes up to 48 hours after the food has been eaten (Kurowski & Boxer, 2008), and symptoms are highly varied (Rona et al., 2007). Food intolerances are also reported by people with chronic specific diseases, as well as functional diseases such as irritable bowel syndrome and chronic fatigue syndrome (Hyland, 2011).

If the EAACI were to add psychological symptoms into their definition it would make diagnosis more complicated, less straight forward and they would have to deal with factors outside their area of understanding and specialism, which is primarily of an immunological basis.

Is food intolerance just a psychological condition? Well 'yes' and 'no'. Food intolerance presents itself in the form of physical symptoms, so it cannot be purely psychological because of its physical symptomology. Yet a food intolerance may develop due to a sensitisation disorder (Berstad et al., 2005), suggestibility (Brosschot, 2002) or as a medically unexplainable condition from a somatic expression of a psychiatric disorder (Reif & Broadbent, 2007). The severity of symptoms can also be affected by the current psychological state (Rozin, 1996).

The idea that food intolerance is a condition of bio-psychosocial interactionism seems to be the most well rounded view to explain the disorder. In other words it could be a combination of biological, psychological and social inputs that create and perpetuate the condition. Our minds and body are interlinked along with how we interact with the world around us. It is commonly accepted that one can have an effect on another.

There is a close connection of how the brain and gut communicate via the vagal nerve, so it is easy to understand that one will have a knock on effect to the other. Therefore if a person is in a heightened psychological state (e.g. long-term stress) it can change how and what a person eats (Habhab, Sheldon & Loeb, 2009) it can also have a physical response to the body, which can be detrimental in the long-term (Glaser & Kiecolt-Glaser, 2005).

Could food intolerance be due to a conditioned response? It has been found that people are almost never intolerant of foods that are seldom eaten (Taylor & Hefle, 2001). Intolerance develops for commonly eaten foods, and sometimes for foods that

are particularly liked by the person concerned and therefore frequently eaten (Rozin, 1996). Therefore the more a food is eaten/liked the greater the likelihood of creating a conditioned response especially if the eating of that specific food falls inline with a heightened psychological/biological state.

How does the conditioning affect the body? Stress could play as a main factor in terms of conditioning. McEwen (2000) showed that long term or chronic stress creates long-term physical changes that do not revert to normal once the stressor is removed. Over time, chronic stress produces allostatic load, leading to changes in neural, endocrine, and immune system. McEwen's (1998) theory of allostatic load is similar to Hyland's theory of systemic dysregulation in the Hyland model of food intolerance (2011). Where a the biological system can develop patterned responses to negative/challenging experiences and therefore becoming dysregulated over time in the form of chronic inflammation and HPA axis activation, both of which are known to be associated with disease (Hyland, 2011). The symptoms of food intolerance are inline with these theories in terms of the array of immune function/inflammatory symptoms presented. They include all possible gastric symptoms, but also mouth ulcers, itchy skin, muscle and joint pain, headache, fatigue, depression and a general feeling of being 'run down' (Brostoff & Gamlin, 2008). The onset of the condition can be gradual (Brodsky, 1983), as would be expected in long-term conditioning, involving a slow deterioration of health (Genuis, 2010). Or it can be rapid after a particular event, such as flu or some physical or psychological trauma (Brostoff & Gamlin, 2008) as would be expected in rapid conditioning.

Many people with adverse reactions to food report that their response reflects a combination of biological, psychological and bio psychosocial interactions to the food that is eaten. Yet it must be emphasised that because the term food intolerance is used in so many different ways, that what term refers to can be quite variable. Therefore all

people who have or think they suffer from food intolerance maybe suffering from a specific/individualistic condition that may not fall into a standardised symptomatic format. A dysregulated system can present in a variety of different ways, making the condition hard to recognise/ diagnose and treat. In this thesis there is no attempt to provide a precise definition of the term food intolerance, because while any definition would be consistent with one group of writers it would be inconsistent with another. This thesis takes the approach is that ‘food intolerance’ is defined by the participant’s use of that term, whatever it is.

1.7 Rationale for the thesis

The thesis has taken a common sense approach for the assessment/diagnostic term used to describe food intolerance. This was done for two reasons: 1. The food intolerant classification is broad so as not to segregate people who were under the impression that they had a food intolerance even if they were suffering from something else and didn't present with the classical diagnostic model. The decision was made that the belief enough was a strong enough conviction. 2. To pre assess each participant prior to each study would have been costly and time consuming and maybe not definitive as we would possibly be excluding peoples with strong self believe from the food intolerant criteria, the same people who would still go to their doctor about this problem or would have self diagnosed and self medicated anyway.

The thesis consists of two parts; the first part consists of research exploring the perception of food intolerance, and predictors of food intolerance. The aim of this part is to characterise people who report having a food intolerance and to examine to what extent the predictors of food intolerance are consistent with psychological and bio-psychosocial models.

The second part of the thesis examines if there is a possible causal association of stress in the development of the condition as predicted by the Hyland model.

Part 1.

What are people like who report food intolerance?

2. Study One. The perception of food intolerance: a focus group.

2.1 Introduction

Food intolerance is still not a fully understood condition and its prevalence has increased substantially over the past few decades (Gupta, Sheikh, Strachan & Anderson, 2007). It has been estimated that from 1% up to 25% of the population having some kind of food intolerance depending on the terms used and the method of verification employed (Woods et al., 2002). Defining and diagnosing ‘food intolerance’ is problematic due to the range of terms used by both lay and scientific communities including ‘adverse reactions to food’, ‘food allergy’ and ‘food intolerance’ (Ogden, Leftwich & Nelson, 2010). So far the research of adverse food reactions has been based primarily in immunological and medical literature and have focused on biological causal mechanisms (Ortolani & Vighi, 1995). Psychological causal factors have received comparatively little attention (Ortolani & Vighi, 1995; Nelson & Ogden, 2008). As a first step in the process in understanding the psychological mechanism underlying adverse reactions, it is useful to examine the perceptions of people who report that have food intolerance.

A focus group is a good place to begin an investigation as it reflects the condition from a sufferer’s point of view. A focus group structure in a group interview setting capitalises on communication between participants in order to generate data. Although group interviews are often used simply as a quick and convenient way to collect data from several people simultaneously, focus groups explicitly use group interaction as part of the method. This means that instead of the researcher asking each person to respond to a question in turn, people are encouraged to talk to one another: asking questions, exchanging anecdotes and commenting on each others' experiences and points of view (Kitzinger, 1994). The method is particularly useful for exploring

people's knowledge and experiences and can be used to examine not only what people think but how they think and why they think that way.

Basic questions were employed in the focus groups to aid group discussion and to gain a better understanding of people who believe they have food intolerance. The questions were aimed at specific key areas of interest: Development of the condition, possibility of it being somatosensory disorder, authenticity of the condition, symptoms and personal psychological understanding (these questions are given more detail in the method section).

A qualitative research design was applied and data was analysed using thematic analysis (Braun & Clarke, 2006). Braun and Clarke (2006) defined thematic analysis as: “A method for identifying, analysing and reporting patterns within data.” (p. 79) and is considered to be a very useful method in capturing the intricacies of meaning within a data set (Guest, MacQueen & Namey, 2012), which promises greater objectivity than a questionnaire-based research approach (Smith & Osborn, 2008).

The aim of this first study is to explore the issues, the formation, and characteristics that people report when they have food intolerances.

2.2 Method

Participants

Twenty one participants (18 female, 3 male) were recruited from the pool of psychology undergraduates at the University of Plymouth, who participate in psychological experiments as part of their course requirements. Participants were recruited if they had self-reported food intolerance. No formal assessment of food intolerance was made.

Materials

Each focus group was digitally recorded on an Apple iPod with an external microphone by the same interviewer – the author - who conducted all of the focus groups. The recordings were transcribed verbatim.

The participants were asked the following questions in order to provoke a group discussion:

- (1) Can you remember when your food intolerance began?
- (2) Can you remember what your lifestyle was like in the few months before your food intolerance started?
- (3) How does your food intolerance manifest itself?
- (4) Do you like the food you are intolerant to and if so why?
- (5) What does food intolerance mean to you?

The first question was “Can you remember when your food intolerance began?” the aim of this question was to decipher the provenance of their food intolerance i.e. true food intolerances like lactose intolerance is more likely to develop at a certain developmental point in your life e.g. infancy, early childhood, puberty and 25 years old. 25 years seems to be a milestone age in the development of deregulatory illness, e.g. Chronic Fatigue Syndrome (CFS) is characterised by sudden onset, usually in the late 20s to early 30s. The initial symptoms of a somatisation disorders may begin in adolescence but progress gradually to full-blown somatisation by the age of 30 years (American Psychiatric Association, 1994).

“Can you remember what your lifestyle was like in the few months before your food intolerance started?” This question was used to assess if something specific was happening in their lives before they developed food intolerance. A person who was experiencing a great life stress could be more likely to develop a conditioned response to a certain food that is eaten more at that stressful time. As you would find in classical

conditioning where the food eaten at a stressful time becomes a biomarker that alerts the body to that learnt stress, even if the original stressor is no longer present.

“How does your food intolerance manifest itself?” A basic physiological question added to assess if it’s real food intolerance or something else. For the large majority of cases, those not due to enzyme defect, drug interaction, pharmacological or toxic reaction, there are several characteristic features. Symptoms are not immediate; the time relationship between eating the culprit food and the start of symptoms depends on many factors. When a food is being consumed regularly and there has been no period of avoidance (e.g. for several days) then there is no obvious relationship between the time of eating and the time of symptoms.

However, when the food has been avoided for several days and is then eaten again, symptoms are typically strong and start within a few minutes or within an hour or two of reintroducing the food. They may then last for a few hours, or may continue for a day or so.

“Do you like the food you are intolerant to and if so why?” this question was added because people with food intolerance often crave the food that they are intolerant to; also they eat the culprit food regularly. By contrast, people with IgE allergic responses avoid the food and do not crave it (Brostoff & Gamlin, 2008).

“What does food intolerance mean to you?” it is interesting to get a personal perspective rather than just a medical label, as this could be overlooked and could be a important piece in the jigsaw puzzle which is food intolerance.

Procedure

Semi structured interviews were conducted in focus group settings with groups ranging from 2 to 6 participants in a group each lasting between 11 and 30 minutes in

duration. The focus groups were held in a study room in the link building at Plymouth University.

Analysis

The recordings of the focus groups were listened to and transcripts (Appendix C1.) were created by the author of this thesis.

The transcripts were analysed using thematic analysis (Braun & Clarke, 2006). This process required manually transcribing the interviews in order to become familiar with the data. Next, initial codes were generated and applied to the data set.

Initial themes were organised into clusters and checked against the data to ensure the allocation of views and themes were grounded in the participant’s own narratives. The clusters were organised into an initial thematic map showing six main themes (fig. 2.1).

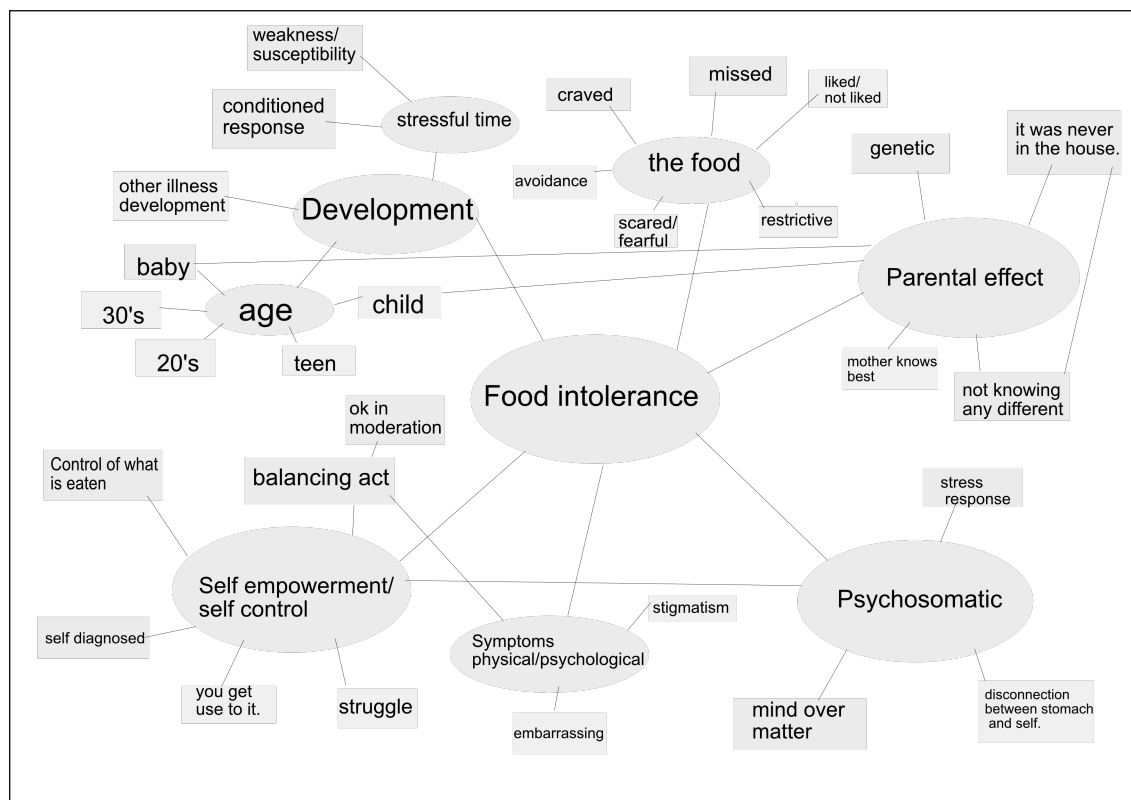


Figure 2.1 *Initial thematic map, showing six main themes.*

At this stage ‘age’, ‘food’ and ‘symptoms’ were pruned as they were themes that were matter of fact statements, containing information that could simply be presented in a table (see table 2.1).

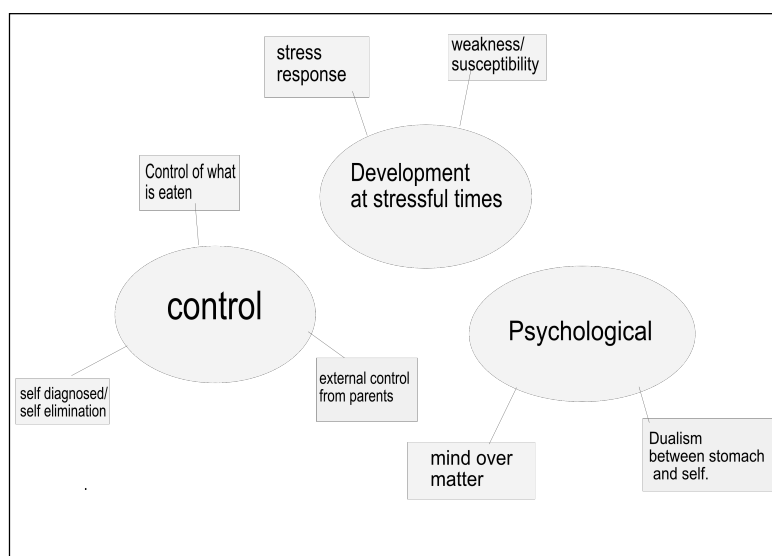


Figure 2.2 Final thematic map, showing the final three main themes.

2.3 Results

Three main themes were developed from the focus groups (fig. 2.2) these were: (1) Development at stressful times, which contained two subthemes (1a) weakness and susceptibility and (1b) stress response. (2) Control, which contained three subthemes (2a) control of what is eaten, (2b) external control from parents and (2c) self-diagnosed/self elimination. Finally (3) Psychological factors that contribute to the condition contained two subthemes (3a) mind over matter and (3b) dualism between stomach and self.

In the following section quotes will be identified by the participant number shown at the beginning of each quote. All themes and subthemes are illustrated in the following passages.

(1) Development at stressful times

There were a number of participants in the focus groups who stated that they were highly stressed or in abnormally stressful life situations prior to the development

of their food intolerances. Some stated that it was a combination of stress and psychological/physical conditions which aided in the development of their food intolerance (stated in (1a) Weakness/susceptibility). While for others it seemed to be a more straightforward, where the participants were at a stressful life point when they developed their food intolerances (stated in (1b) Stress response).

(1a) Weakness/susceptibility

An example of this was given by participant 3f, she believed that she had a ‘weakness/susceptibility’ to food intolerances due to family history and a stressful life event that caused her system to overload that brought on her food intolerance:

3f: The two or three months leading up to when my food intolerance started I was highly stressed. I think I probably had a weakness, a susceptibility, because my mum and dad have got food tolerances. My mum's, hers has given her arthritis. My dad's is more similar to mine. I think that I was just highly stressed, and I had other issues (Laughter) at the time. I had a couple of panic attacks and things like that and it was almost like a combination of the thing. It's like that- I forget what they call it in clinical psychology, but where you've got that weakness. I think my system just got overloaded and then the intolerances came.

Participant 16f believed her food intolerance was brought on with a bout of depression and other stressful life events that were happening at that time combined with a restrictive diet due to an eating disorder:

16f: Okay. Well, it was 1998. I had a spell of depression and various other things as well going on at that time. Yes, I kept having a really bad stomach, so that's where it started really.

This was elaborated upon by 16f further into the focus group:

16f: Yes. I think it's important to add as well that when I was about 14/15 I had an eating disorder. I think that added to my intelligen- intolerance (sic)? Did it. (Laughter) I'm not sure.

Facilitator: Well, that's what we're here to find out.

16f: Yes, it added to my troubles with eating later because if I did eat it was just wheat-based stuff, like cereal. I just lived on cereal when I did eat, so I've had an issue with that. Before I went to the doctor, my lifestyle, I was in a new job, about six months into a new job. My personal life wasn't great. This is all very personal, but I'm going to say.

Facilitator: You don't have to.

16f: No, I would like to actually, if that's okay. (Laughter) I'm on a roll. I had a breakdown at work, and that's all at the same time as my stomach started again, if you like.

Both 3f and 16f give very detailed explanations of what was happening in their lives when their food intolerances began.

(1b) Stress response

For others the interaction of stress and the development of their food intolerance seemed to be more straightforward than the examples given above. 15f's food intolerance began around exam time:

15f: I think it was just around my exam time, so it was stressful exams and things. I was trying to make myself feel better so I could concentrate more, so I put it down to food.

While 10f's food intolerance developed from being stressed, this seemed to also be combined with a change in diet and environment when she came to university:

10f: Mine came through when I was really stressed out with work. I'm wheat intolerant, so I never used to have much bread or anything, just because of weight issues and stuff. I never used to have much, so it just came on all of a sudden when I started to eat more, when I came to uni especially, basic diet. (Laughter)

7f doesn't actually say the word 'stress' yet her development is interesting as she describes a time in her life where she was finishing her time in the army, drinking a lot and was doing lots of physical exercise:

7f: I can't remember exactly, I think it was a point where I was just at the end of my gap year and I'd done a commission in the army for a year and so I was just coming out of that. Apart from that, that's all I can remember. It was fairly relatively, probably quite similar, there was a lot of drinking but there was also a lot of fitness inputs. Very active I suppose, under pressure at the time but no more than I wanted to be, that's probably... (sic).

7f stated that she was under pressure, but no more than she wanted to be! This may not have been seen as too stressful psychologically, however it could have been a time where her 'body' may have perceived it as a stressful time. Where the food intolerance was created as a form of dysregulation in which the body responds to food as though it were an external threat due to its heightened state, which is in line with Hyland's model of food intolerance (2011).

(2) Control

Control was an interesting factor found in different sections of the focus groups, these findings have been covered in three subthemes: (2a) control of what is eaten, (2b) external control from parents and (2c) self-diagnosed/self elimination.

(2a) Control of what is eaten

Unlike an allergy, people with food intolerances can eat a varying amount of food that they are intolerant to without developing a reaction (Boyce, 2010). However this seems to be a strict balancing act between the amount eaten and the symptoms it causes, as stated by 2f:

2f: I like to think I can have a little bit, but I have to be really careful.

Participant 1m sees this balancing act as a rule that if broken he is punished for what he's done:

1m: You just do it, get used to it. Then you break the rules and you suffer for it.

Participants 10f and 15f both make statements where having a food intolerance can rule/control your life. 10f try's not to let it control her life, yet she limits what she eats:

10f: I just try not to make it rule my life. I still eat it, but limit myself and just try and control it from there.

While 15f believed it is controlling due to having to make momentary decisions that can result in future consequences, more than those who don't have food intolerances:

15f: I think in a way it can control your life because you have to make the decision whether to have it and enjoy it for that moment and deal with the consequences or think in the long term. In a way, you have to think about it more than maybe someone who doesn't have an intolerance.

Finally 17f said she likes having a food intolerance because it puts her in greater control of what she eats, even to the point where she has convinced herself of being intolerant to dairy to gain greater control:

17f: Yes. I quite like having a food intolerance actually because it means I can control very much what I eat. Because I'm a very fussy person anyway and I've always been, food has always been a love/hate relationship with me. I quite like the fact that I control it. I like the fact that with my gluten intolerance it was diagnosed by a doctor, so it's not just me imagining it. I suppose dairy, I just convinced myself that I was intolerant to it

because it made me feel a bit sick, but I think that's probably me just controlling what I'm eating more than anything else.

Facilitator: Okay, so by you saying that it gives you more control, so do you think it's a part of your personality, it's a part of you?

17f: I suppose if I hadn't been diagnosed with having a gluten intolerance I think I would still be very controlling over what I eat because I'm very particular, but I think it's probably more me than anything else.

(2b) External control from parents

Parents also seemed to have an effect over their child's exposure and understanding to foods from their own experience and intolerances. For example not having certain foods in the house as their parents react to that food as stated by 19f:

Facilitator: can you remember what your lifestyle was like a few months before your food intolerance started?

19f: I can't really particularly remember because my mum is intolerant to peppers and things as well. So we never had them in the house.

To another quite extreme example where a mother had instilled fear into participant 18f to not eat specific foods when she was alone, just in case anything bad were to happen:

18f: And no-one would be there to save me. It was like, “You're not allowed to eat them by yourself.” And plums, as well, are a bit annoying. So I can't eat stuff by myself, in case anything happens. Strict orders from Mummy.

There were also reports from the focus groups of parents actually diagnosing their children's condition. This was illustrated by 8f :

8f: My parents technically diagnosed it, the health visitor was a bit of an idiot... so (laughing) he didn't really do anything. Do you know what I mean, it sounds really silly but as it was so extreme it got diagnosed by itself really!”

(2c) Self diagnosed/self elimination

There seems to be a factor of ‘self empowerment’ with the condition for some. There was a consensus in the focus groups where many of the participants had not sought out any medical help, advice or formal diagnosis for their conditions. An example of this was given by participant 7f when asked about her food intolerance:

7f: I think you'd probably know more from your own experience than you ever would from taking a test, that's the point, and develop it on that basis not on what they tell you! I don't know, it was funny actually because looking at the studies I had to look again and realise I had a food intolerance.

Self-elimination was also the case in the following example given by 14f:

Facilitator: Can you remember what your life was like when your intolerance flared up?”

14f: I don't think my intolerance flared up, I just noticed parts of my physical kind of way I am physically and thought maybe. I'm not very happy with the everything being ok so I tried eliminating this or tried eliminating that so I can't really remember, but part of me thinks it could all be psychological, its all in my mind! Cos its not such a extreme reaction, so I don't really know?"

(3) Psychological

Finally (3) Psychological factors that contributed to the condition contained two subthemes (3a) mind over matter and (3b) dualism between stomach and self.

(3a) Mind over matter

A number of participants mentioned things like 'mind over matter' where some thought they had mentally created the condition or were able to control it using it by using psychological techniques. This was illustrated by 14f who thought it was mostly in her head:

Facilitator: What does your intolerance mean to you?

14f: To me its slightly psychosomatic I've decided it's mostly in my head. So hmm when I do eat dairy I think oh god I'm going to get all phlegmy, oh sugar! I've made myself phlegmy by thinking about it, not through eating the product. So I kind of believe in a way it's my thinking that's making me physically react not the actual product. So that's why I've decided I'm not allergic to wheat. So I can eat wheat but not pushing it at the same time (laugh) but I'm not really sure my thinking is strong enough to overcome any kind of physical reactions.

Participant 6f tried to relax with the aid of relaxation techniques in the aim to relax her stomach before she ate. Because she believed that reducing her stress levels would reduce the symptoms of the food she was eating:

6f: I don't know. I mean it's whether it is stress or not. I mean I know I am very, very stressed at the moment with what's going on, but I mean I do do an awful lot of relaxation and exciting things like that and try and do that before I relax, before I eat, I do quite a lot of exercise to help everything in that as well but it's still quite bad.

(3b) Dualism between body and self.

There was an interesting point made by some when describing the interaction between themselves and their stomachs. It was as if (for some) the stomach or body was in charge as if it was disconnected from the person/self. 3f talked about her 'body' as if it was another person who still wanted the food that she was intolerant to:

3f: Yes, that's part of the problem because, yes, you're intolerant to it and your body wants you to have it.

Participant 6f was constantly focused on her stomach and how it was going to behave with the food she was eating:

6f: I was constantly focusing on my stomach, so when I was eating something I was thinking how's my stomach going to behave with this.

Furthermore 16f listened to her stomach because it told her if she was going to develop symptoms to the food she was eating:

16f: It has improved over time as well just by watching what I eat and listening to my stomach because my stomach tells me when I'm about to have a spell of bad cramps or whatever.

Table 2.1. Is a break down of key information taken from the participants in the focus groups. It encapsulates question (1) Can you remember when your food intolerance began? Shown in the development of the condition column. (3) How does your food intolerance manifest itself? Shown in the symptom column. (4) Do you like the food you are intolerant to and if so why? In the 'Do you like/miss the foods' column, and 'what the food was' in the what are their intolerances column.

Food intolerance symptoms, beliefs and ages of development varied widely across the population represented in the six focus groups. It was interesting that the majority of participants stated that they 'loved' the food that they were intolerant to and that the development of the food intolerances occurred at particular age points in the sampled population. It seemed that food intolerance developed at the following time points: birth, around 5 years old, around the beginning of puberty (9-12 years) or in or around there 20's. It was notable that the development of the condition seemed to coincide within or around physical developmental stages. However, as the population used in this study was very small these results should be taken with caution, as it may not be representative of the general food intolerant population.

Table 2.1. *Key Information from the focus groups.*

Focus group	Participant number Male/Female (M/F)	Development of condition	What are their intolerances	Stress related	Symptoms	Do you like/miss the foods
060209	1 m	14 years old	Celiac disease/ peanut allergy from young	no	Avoid	yes
	2 f	baby	Allergic to milk	no	avoid	yes
	3 f	3 years ago	Varied	yes	Bloating, fogginess	yes
	4 m	The last year	Crohn's- chocolate and pastries	yes	Eyes go yellow, trapped gas.	yes
040309	5m	13 year old (milk) A few years ago (tomatoes)	Milk/ tomatoes	No (milk) Yes (Tomatoes)	Milk-cramps, wind, diarrhoea. Tomatoes- migraines especially with pizza.	Yes, I love milkshakes! I like pizza.
	6f	The last 10 years (in her late 30's)	Wheat-pasta, rice, lactose.	yes	Gas, wind, stomach pains.	Yes. Crave cheese.
	7f	Couple of years ago	fish	yes	Violently ill.	I love fish!
090209	8f	(Orange) since I was born. Wheat developed while growing up	Wheat / orange	unknown	Hallucinate/sickness (orange) Really bad stomach ache (bread)	I love bread. I love orange.. if I could eat it I would.
	9f	4/5 years old /(chocolate) 12 years old but went away.	Seafood/ chocolate	no	Dizzy head rush. Sickness to chocolate.	
110209	10f	A few weeks/ months ago.	wheat	Yes/ stress at work	Really bloated	Love bread
	11f	baby	Nuts/eggs/ dairy strawberries	no	Sick on nuts. Swell up on raw egg to touch really ill if eaten. dairy (eczema) strawberries (asthma)	No, hates the smell of nuts.
	12f	Since she was 6 but really only took notice of it in her late 20's.	Dairy/milk/wheat	Stress, thought it was ibs but not diagnosed.	Pain/ bloating in tummy	Love bread, don't really like milk/yoghurt/ Cheese/
	13f	baby	Spices and citrus	no	Bad eczema flair ups/ bad asthma.	avoid
	14f		Milk/dairy/ bananas and oranges. wheat	Unknown	Flemmy. (Wheat) loose stools.	I love dairy but I try to avoid them.
130209	15f	Don't know when It began	Cheese/dairy	Stress (exam time)	bloated	I love cheese.
	16f	22 years old	Wheat and a whole big list of things. Orange juice/ale.	Spell of depression and other things going on	Bad cramps/ bloated. Diarrhoea or constipation.	I love the smell of bread.
	17f	10 years old	Dairy/ gluten	no	Sick / rash.	I still eat it in moderation.
180209	18f	5 years old	Honey/ nuts and apples later developed the same feeling to peaches	no	Itchy throat/ hot ears.	I love them but have to avoid them.
	19f	9 years old	Peppers	no	Vomiting/ nausea / dizzy.	I love peppers
	20f	2 years ago	Milk/ lactose	Unknown	Itchy throat / hot ears. (clucking)	I like them so much, I cant stop.
	21f	Ever since my mum was pregnant with me.	nuts	no	Allergic reactions: tongue starts to swell, rash to the touch.	Some are nice, some are not.

2.4 Discussion

The findings of the focus groups suggests that food intolerance is a condition that is not straightforward. Its development appears at a variety of different life points and life situations. The symptoms are wide-ranging. The foods are highly varied. Also the way people interact with and treat the condition is very individualistic in the current population.

Certain people perceived that they developed food intolerance from a stressful life situation. One participant (3f) described it as:

“Where you have got that weakness and I think my system just got overloaded and then the intolerances came”.

If the participant’s interpretation is consistent with underlying causality, then certain people may have a predisposition to food intolerance that is only activated if the person is psychologically and physically under too much stress to handle. Which is in line with McEwen’s (1998) theory of allostatic load and Hyland’s (2011) theory of systemic dysregulation. Where a persons biological system can develop a patterned response to negative or challenging experiences and can become dysregulated as a consequence of lifestyle or experience (see section 1.5).

Or maybe and unknowingly when certain people are under a great deal of stress they are more likely to eat certain things, like comfort food being highly calorific may have the ability to reduce stress levels in the short term (Teegarden & Bale, 2007). Foods that are eaten a lot of in stressful times could become biological markers of stress creating a conditioned response, where a food that is eaten at a stressful time would be associated with that stressful time causing a stress response by eating then food even when the person is no longer stressed.

Control was a consistent finding shown in the current population in many guises. Control was described in terms of a constant balancing act of how much food could eat before they developed symptoms.

If the food intolerance was developed in childhood the parents took control of what their child could eat, denying them exposure to certain foods due to the parent(s) having a sensitivity to a specific food even if the child hasn't got the same sensitivity, yet may believe they have due to the parents actions and own beliefs. It was also reported that parents (of participants in the current study) even went as far as to diagnose and treat their child's own food intolerance without consulting a medical professional. An example of this was reported by 8f:

“My parents technically diagnosed it, the health visitor was a bit of an idiot... so (laughing) he didn't really do anything.”

Self-diagnosis/self elimination was also found in participants who developed food intolerance in adulthood. Where they had taken control of their food intolerance by not only self-diagnosing their own condition, but also eliminating the suspect food from their diets without consulting a nutritionist or dietician beforehand. Yet, this can be dangerous as eliminating foods from your diet without replacing the eliminated nutrients in another form could lead to nutritional deficiency, osteoporosis and immune problems (Atkinson, et al., 2004).

It was interesting how some talked about their stomachs in the focus groups, it was as if their stomach was separate to themselves, where it was listened too, or even warns the person, as shown by 16f:

“Watching what I eat and listening to my stomach because my stomach tells me when I'm about to have a spell of bad cramps”

It is unclear why they do this, but this phenomenon conforms to Descartes idea of dualism or duality, which suggests that the mind controls the body, but that the body can also influence the mind (Duncan, 2000).

Psychological factors that contribute to the condition were also found. As stated by one participant (14f):

“To me its slightly psychosomatic, I’ve decided its mostly in my head”.

This statement suggests she has a psychosomatic disorder, which by definition is a physical disorder that is caused by or notably influenced by emotional factors (Pearson, 1985). Some physical diseases are thought to be particularly prone to be made worse by mental factors such as stress and anxiety. Where the current mental state can affect how bad a physical disease is at any given time (Zautra, 2003). It could be the case for some in the current population that their condition could be psychosomatic, therefore not conforming to a classical definition of food intolerance. Yet it is also possible that these people could be suffering from a form of systemic dysregulation (Hyland, 2011), which can present in a number of different ways, making it hard to recognise/ diagnose and treat.

Limitations

The results of the six focus groups only looked at a very small population of undergraduates so the findings of the study may not be characteristic of everyone who has food intolerance.

The people who attended the focus groups were a mix of people who had other illnesses (e.g. Crohn’s disease, irritable bowel syndrome (IBS), which are often associated with food disagreed symptoms, yet may not be classified as a food intolerance. Because participants conditions were not pre-screened prior to undertaking the focus group many had unknown aetiologies so it was unclear whether people really

had food intolerance or they just thought they were. Yet, the participants were aware that having a food intolerance was a specific criterion of taking part in the focus group. So by taking part in the focus group we must make the assumption that the participants believed they had a food intolerance. Belief enough was a strong enough conviction as a diagnostic definition in this thesis (see 1.7).

Conclusions

The main outcome from the focus groups was that food intolerance is a condition that is not straightforward, its development, symptoms and the way people interact with and treat the condition is very individualistic from the current findings. Stress was an underlying theme is the discourse that emerged over time.

Implications for the next study

It has already been noted that people with a food intolerance are higher in neuroticism (Knibb et al., 1999a) but it would be interesting to see if people who state they have food intolerance are more aware or more in touch with their own bodies. Possibly being more aware of things like rumbling in their tummy, hunger pains or trapped wind compared to people without a food intolerance?

Another possibility to be explored later in this thesis is whether people with food intolerance are more prone to hypochondria, in other words do a percentage of people who think they are food intolerant are just hypochondriacs, ‘worry wells’ that think they are ill but they are actually not.

Another aspect to look at is that due to the drastic increase in reported food intolerance in the past three decades is that this could be a side effect or a marker of a modern society driven stress related illness. Therefore it would be useful to examine if people with food intolerance suffer more from other minor health complaints compared

to people who don't have a food intolerance. These various questions are explored in later chapters.

3. Study Two. Food intolerance: Somatosensory amplification, personality and minor health complaints in a community sample.

3.1 Introduction

As previously stated in section 1.6.2, Pearson (1985) suggested that psychosomatic reactions were one of the most common reasons for attributing adverse symptoms to specific foods. He put forward the idea that certain people have false belief that they suffer from a food allergy and may attribute symptoms to foods eaten that are quite different from those of a classical allergic disorder. Pearson (1985) stated anxieties about food or other psychological troubles could cause pathophysiological changes similar to genuine immunological reactions.

In line with Pearson's (1985) hypothesis Hypochondriasis could be a possible explanation for perceived or self reported food intolerance. The essential features of hypochondriasis are a preoccupation with a belief in or fear of having a serious illness. This preoccupation occurs without adequate organic pathology to account for the reaction, and a lack of medical reassurance. Such fears are associated with the perception of bodily signs and sensations that are misinterpreted as evidence of serious illness (Warwick & Salkovskis, 1990).

Somatosensory amplification refers to the tendency to experience somatic sensation as intense, noxious, and disturbing. What may be a minor "twinge" or mild "soreness" to the stoic could be a severe consuming pain to the amplifier. Amplification involves three elements: 1. hypervigilance, or heightened attentional focus on bodily sensation; 2. a tendency to select out and concentrate on certain relatively weak and infrequent sensations; and 3. The disposition to react to somatic sensations with affect and cognitions that intensify them and make them more alarming, ominous, and disturbing (Barsky et al., 1988).

The main aim of the current study is to test for Hypochondriasis by exploring somatosensory amplification in a self reported food intolerant population within the Plymouth city electorate.

The most recent population study done in the UK was done by Knibb et al. (1999a) in Birmingham. It concluded that perceived food intolerance was associated with psychological distress in women, and neurotic symptoms in both men and women with a perceived food intolerance. However, they found no greater prevalence of psychiatric disorder among women or men with a perceived food intolerance than from their sample derived from the NHS and University staff. In Knibb et al.'s (1999a) study they used the 28-item version of the General Health Questionnaire (GHQ-28) and the short version of the Eysenck Personality Scales (EPQ-R). In the study reported here, the aim is to explore the same theoretical issues but using more recent scales, namely the Minor Health Complaints Questionnaire (MHCQ) and the 10-item Big Five Inventory (BFI-10).

The final aim is to examine the prediction of Whalley, Jacobs & Hyland (2007). They hypothesised that, in a normal population without medically diagnosed diseases, psychological symptoms (depression and tiredness) associated with pro-inflammatory cytokines correlate with physical symptoms associated with inflammatory disease. They found that immune dysregulation could explain the existence and interconnection of psychological and physical symptoms in the normal population including people with medically unexplained symptoms (MUS). Therefore, it is possible to test their hypothesis by investigating whether people who report themselves as having a food intolerance present with greater inflammatory symptoms, compared to people who don't report food intolerance. The theory will be tested by using the MHCQ, the same questionnaire used by Whalley et al. (2007) by comparing their findings with the people who report food intolerance in our population. This could lead to a possible

development in the understanding of people who report having food intolerance and greater inflammatory conditions could be suffering from immune dysregulation that may not fit the classical model of food intolerance.

3.2 Method

Participants

A random sample of 3000 people was selected from the edited Plymouth electoral register. The copy of the register used was compiled on the 1st of December 2009 and contained 86388 names and addresses of the Plymouth electorate. The 3000 names selected from the edited electoral register were obtained with the use of a random generator in Microsoft Excel.

Materials

The questionnaire pack included a cover letter with a brief description and instructions on how to fill in and return the questionnaire, the questionnaire and a stamped addressed envelope. This was used on completing the questionnaire to return it to the school of psychology. The randomly selected participants were sent a questionnaire pack (appendix A2.) consisting of three questions about food intolerance, the Minor Health Complaints Questionnaire (MHCQ) (Appendix B1.) (Hyland & Sodergren, 1998), the 10-item Big Five Inventory (BFI-10) (Appendix B2.) (Rammstedt & John, 2007) and the Somatosensory Amplification Scale (SSAS) (Appendix B3.) (Barsky, Wyshak, & Klerman, 1990).

The Minor Health Complaints Questionnaire (Hyland & Sodergren, 1998) is a 38-item measure that assesses the frequency of common physical symptoms and the occurrence of minor health problems, in addition to psychological symptoms. The extent to which the individual engages in behaviours that might harm one's health, and

the results of poor health practices. The items concerning minor health complaints are clustered to create a set of factors: (1) allergic inflammatory symptoms (wheeze, sneeze, blocked nose, itchy eyes, and itchy skin), (2) gastrointestinal symptoms (constipation, watery diarrhoea, explosive diarrhoea, and heartburn) and (3) other physical health complaints or symptoms that are not associated with chronic inflammatory disease (thrush, cystitis, colds or flu, sore throat, mouth ulcers, cold sores, and fungal infections of the scalp or groin) as stated in Whalley et al. (2007). For purpose of analysis, three subscales were calculated, following the method suggested in Whalley et al.: (a) inflammatory symptoms, (b) non-inflammatory symptoms, and (c) gastro-intestinal symptoms. In all cases, higher scores indicate more symptoms. In addition, four further subscales were constructed (d) the single depression item (e) the single anxiety item (f) the single difficulty sleeping item and (g) the single tired for no reason item was added.

For each item, participants replied on a 5-point frequency scale of occurrences (0 = *none*, 1 = *one*, 2 = *two or three*, 3 = *four to six*, 4 = *seven or more*) except for the items on itchy skin, sneeze, blocked nose, back pain, painful joints and depression, which were responded to on 3-point severity scales (0 = *no*, 1 = *a little*, 2 = *yes*).

The 10-Item Big Five Inventory (Rammstedt & John, 2007) is a short scale version of the well-established BFI. It measures the Big Five dimensions of personality, Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to experience. The questionnaire uses a five-point Likert response scale with response options of “strongly disagree”, “disagree”, “neither disagree or agree”, “agree” and “strongly agree”, and respondents are instructed to select the option that best characterises how well the description presented in each item suits them. It was developed to provide a personality inventory for research settings with extreme time

constraints. It allows assessing the Big Five by only two items per dimension. It has been shown that the BFI-10 possesses psychometric properties that are comparable in size and structure to those of the full-scale BFI.

The Somatosensory Amplification Scale (Barsky et al., 1990) is a 10-item scale used to assess the respondent's sensitivity to mild bodily discomforts but which are not typical symptoms of disease. In the SSAS, respondents are asked to rank the degree to which they identify with 10 statements in general (e.g., "I am often aware of various things happening within my body"; "I can sometimes hear my pulse or my heartbeat throbbing in my ear"), on an ordinal scale of 1 to 5. A higher total score indicates greater symptom amplification. Previous work by Barsky et al. (1988) provided evidence of the predictive validity of the Somatosensory amplification scale (SASS) correlated highly with DSM-III hypochondriasis ($r = .58, p < .001$), and has been found that amplification was closely associated with the symptoms of depression, anxiety, and negative affectivity.

Three questions to measure food intolerance. The three questions about food intolerance at the beginning of the questionnaire were derived from a combination of Altman & Chiaramonte's (1997) public perception of food allergy questionnaire (appendix B4.) and of a focus group that was undertaken prior to the questionnaires being compiled. The first question was just a simple tick box 'yes/no' answer asking if the person had food intolerance. This question was used to classify participants into two groups, intolerant and not intolerant. The second and third questions were introduced to characterise the population. The second question asked was a freeform question where participants were asked to write what their food intolerance was, with the aim of assessing the plausibility of the participant's condition. The third question asked how long the participant had the food intolerance for. This was made up of a six-

point scale ranging from: less than a year, less than 5 years, less than 10 years, less than 20 years, more than 20 years to all your life.

Procedure

The randomly selected participants were sent the questionnaire pack via the royal mail postal delivery service. Participants returned the questionnaire pack via a first class stamped envelope addressed to the school of psychology.

3.3 Results

Of the 3000 questionnaires sent out there were a total of 775 replies (450 female, 315 male, with the majority (386) of respondents being over 60 years old), 103 respondents (13.5% of the total population) reported they had food intolerances to a wide variety of foods ranging from Bran to Yams, with the majority (26.9%) reporting that they have had the condition for more than 20 years. There was an overall response rate of 26% from the 3000 questionnaires sent out.

Table 3.1

Spearman's rho correlation coefficient table of Plymouth population investigation of self reported food intolerance.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Food Intolerance	--														
2. SSAS	.11**	--													
3. Neuroticism	.11**	.32**	--												
4. Openness	.03	.06	.01	--											
5. Conscientiousness	-.01	-.04	-.18**	-.02	--										
6. Agreeableness	-.04	-.12**	-.14**	-.07	.12**	--									
7. Extraversion	.01	-.17**	-.36**	-.14**	-.17**	.09*	--								
8. Inflammatory	.15**	.30**	.22**	.01	-.15**	.001	-.08*	--							
9. Non Inflammatory	.07	.23**	.23**	.11*	-.14**	-.02	.03	.31**	--						
10. Anxious	.17**	.33**	.63**	.07	-.05	-.08*	-.27**	.25**	.14**	--					
11. Depressed	.08*	.28**	.48**	.02	-.17**	-.08*	-.21**	.27**	.15**	.52**	--				
12. Difficulty Sleeping	.13**	.26**	.27**	-.01	-.003	.01	-.10**	.35**	.21**	.34**	.35**	--			
13. Tired for no reason	.15**	.31**	.26**	.02	-.07	-.04	-.11**	.44**	.32**	.30**	.37**	.51**	--		
14. Gastric symptoms	.13**	.20**	.19**	.02	-.05	-.02	-.03	.29**	.21**	.28**	.23**	.34**	.36**	--	
15. Sex of participants	-.13**	-.16**	-.20**	.06	-.07	-.06	-.03	-.04	-.15**	-.20**	-.12**	-.15**	-.12**	-.10**	--

(* $p < .05$, ** $p < .01$.)

The results of the Spearman's r_s nonparametric correlation coefficients (table 3.1) show that people who had reported themselves as being food intolerant in the selected Plymouth population were significantly higher in SSAS $r_s(734) = .11, p < .003$

and higher in neuroticism $r_s (752) = .11, p < .002$. No other personality dimension was significantly associated: Openness $r_s (748) = .03, p > .46$, Conscientiousness $r_s (750) = -.01, p > .87$ Agreeableness $r_s (748) = -.04, p > .27$ or Extraversion $r_s (745) = .01, p > .98$.

Food intolerance was significantly associated with inflammatory symptoms $r_s (686) = .15, p < .001$, but not with non-inflammatory symptoms $r_s (480) = -.07, p > .10$.

Food intolerance was also associated with higher anxiety $r_s (758) = .17, p < .001$, depression $r_s (756) = .08, p < .02$, difficulty sleeping $r_s (746) = .13, p < .001$, and feeling tired for no reason $r_s (740) = .15, p < .001$. They suffered significantly more with gastrointestinal symptoms (constipation, watery diarrhoea, explosive diarrhoea, and heartburn) $r_s (704) = .13, p < .001$, than people who didn't report having food intolerance. There was a significantly greater proportion of women who reported having food intolerance than men $r_s (751) = .13, p < .001$.

After the initial examination two factors were chosen to be explored in greater detail, SSAS was chosen after initial examination revealed that people with self reported food intolerance had significantly higher scores on the somatosensory amplification scale (SSAS) ($p = .003$), and it was the tool used to explore the hypochondriasis hypothesis in the selected population. Neuroticism was also explored as it too was highly significant in the self reported food intolerant population ($p = .002$) and it was a pre-existing factor of food intolerance that had been reported in previous research (Knibb et al., 1999a). Sleep disturbance, depression and anxiety, and fatigue are all positively correlated with this general dimension of negative affectivity.

A logistic regression analysis was performed with food intolerance as the dependent variable and SSAS and Neuroticism as the predictor variables. A total of 731 cases were analysed and the full model significantly predicted perceived food intolerance status $\chi^2 (3, N = 731) = 17.89, p = .001$. The model accounted for .03% of the variance in perceived food intolerance status. Results shown in Table 3.2.

Table 3.2

Summary of logistic Regression analysis using the enter method for predicting food intolerance.

	Ratio		Wald χ^2	95% CI for Odds		
	B	(P value)		Lower	Odds Ratio	Upper
SSAS	-0.83	(<i>p</i> = .157)	2.00	0.82	0.92	1.03
Neuroticism	-0.49	(<i>p</i> = .089)	2.88	0.34	0.61	1.07
Neuroticism X SSAS	0.02*	(<i>p</i> = .026)	4.98	1.00	1.02	1.04

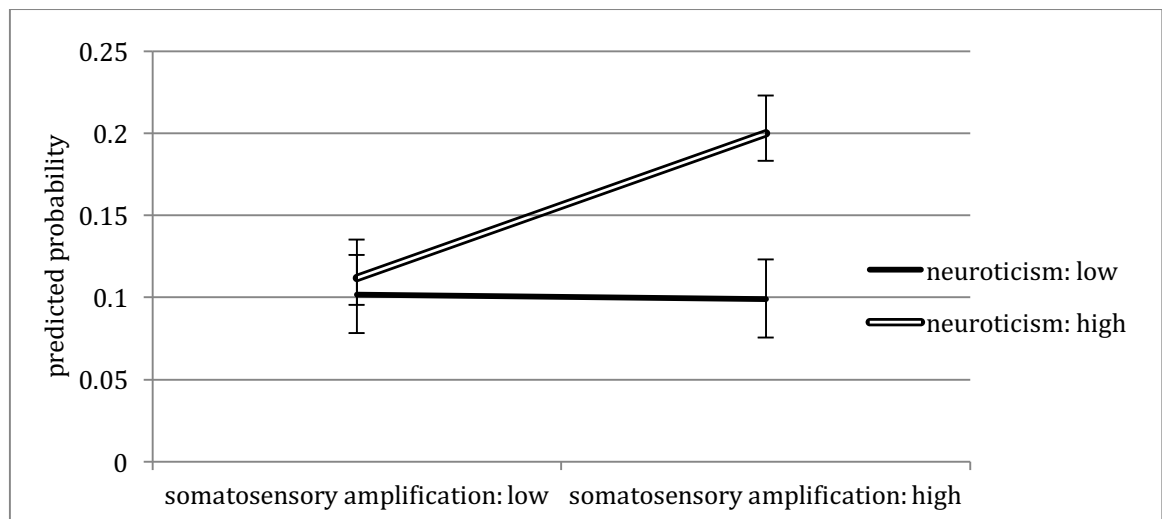
*Note: R² = .26 (Hosmer and Lemeshow), .02 (Cox & Snell), .04 (Nagelkerke). **p* < .05.*

The results of a logistic regression showed that neuroticism and SSAS did not have independent significant effects as predictors of reported food intolerance, but there was a significant interaction between both neuroticism and SSAS.

The nature of the interaction between neuroticism and SSAS was explored by computing the estimates at 1 SD above or below the mean to plot the interaction (see Figure 3.1). These results show that food intolerance occurs when there is both high neuroticism and high SSAS.

Fig. 3.1.

Further exploration of results using logistic regression to assess predicted probability of neuroticism and somatosensory amplification as predictors of perceived food intolerance.



Note: scores obtained by 1 standard deviation above and below the mean score.

3.4 Discussion

The current study aimed to replicate and build upon the significant psychological elements found in Knibb et al.'s (1999a) study of neuroticism, somatic symptoms, extroversion, anxiety, insomnia and depression found in the perceived food intolerant population in their study.

The findings of the current study exploring self reported food intolerance showed very similar outcomes. The low level yet significant correlations presented in the results are expected when exploring a multi factorial causal system, where all correlations with many predictors will be low. As any one predictor can only explain a small variance due to the large number of predictors.

Participants who stated they had food intolerance showed significantly greater neuroticism ($p = .002$), anxiety ($p = .001$), nervousness ($p = .001$), depression ($p = .05$), difficulty sleeping ($p = .001$), feeling tired for no reason ($p = .001$), had a higher prevalence in women ($p = .002$) they also suffered with more gastrointestinal symptoms ($p = .001$) compared to those who didn't report having perceived food intolerance. The result for extraversion ($p = .980$) was different to Knibb et al.'s (1999a) findings as there was no significant difference between participants who reported having food intolerance and those who did not in the current study.

The results of the current study showed the population who perceive themselves as food intolerant in Plymouth are similar to the population used in the Birmingham study by Knibb et al. (1999a). Even though different scales were used in both studies, the 28-item version of the General Health Questionnaire (GHQ-28) and the short version of the Eysenck Personality Scale (EPQ-R) in Knibb et al.'s (1999a) study and the Minor Health Complaints Questionnaire (MHCQ) and The 10-item Big Five

Inventory (BFI-10) in the current study. They both indicated conformity of conditions for people who reported having food intolerance compared to those who did not.

The results of the minor health complaints questionnaire revealed that people who reported having food intolerance suffered significantly ($p = .001$) more from allergic inflammatory symptoms (wheeze, sneeze, blocked nose, itchy eyes, and itchy skin) compared to other physical health complaints or symptoms that are not associated with chronic inflammatory disease (thrush, cystitis, colds or flu, sore throat, mouth ulcers and fungal infections of the scalp or groin) were not significant ($p = .10$). The non-significant result could help confirm that people with self-reported food intolerance do not just report high scores to everything by simply just ticking all the boxes. It is hoped the significant result for allergic inflammatory symptoms was not just due to a reporting bias.

These findings are consistent with the findings of Whalley et al. (2007) who's data suggested that there may be physiological reasons why MUS patients often report both tiredness and physical symptoms associated with inflammatory disease. The cause of MUS may not be 'all in the mind' (Rief & Isaac, 2007) but due to a physiological dysregulation of pro-inflammatory cytokines. Rather than suggesting that psychological states cause physical disease (Friedman & Booth-Kewley, 1987) it may be that both are the result of the same immune dysregulation. This is in line with Pearson's (1985) hypothesis that anxieties about food or other matters could cause pathophysiological changes similar to genuine immunological reactions. Therefore this could be a possible explanation why people with reported food intolerance reported more allergic immunological inflammatory symptoms.

The result of the logistic regression showed neither neuroticism ($p = .09$) nor SSAS ($p = .16$) had an independent significant effect as a predictor of perceived food intolerance, but interestingly there was a significant interaction between both

neuroticism and SSAS ($p = .026$). Therefore both neuroticism and SSAS are needed to be a significant predictor of food intolerance in the current population. The results of the predicted probability plot showed that people who are high in neuroticism and high in SSAS were 0.20 more likely to have food intolerance in the current sample (see figure 3.1). Compared to those who report low in neuroticism and low in SSAS who were 0.10 less likely to have food intolerance in the current sample.

Limitations

The response rate for the current study was average for this kind of study with a 26% return from the 3000 questionnaires sent out. Yet, more efforts could have been made to ensure a higher rate of response by telephoning all Addresses from the electoral register prior to mailing the questionnaires. Or maybe using the Internet to get a larger sample size would have been more effective, yet it would have been harder to focus on a specific geographic location. Also, despite the initial randomised process of subject selection, the electoral wards in this study consisted mainly of respondents being over 60 years old. A possible problem with respondents of an older nature is that their use of language can be at times different to modern standards, e.g. the word ‘intolerance’ could be seen as having a possible ‘dislike’ or ‘not being tolerant’ of certain foods rather than having a medical food intolerance. The study is therefore limited to the extent to which it can extrapolate the findings of the population of Plymouth to the general population of England.

Conclusions

In summary, the current findings show that there are important psychological and physical aspects to perceived food intolerance. We found that neuroticism and hypochondriasis alone were not predictors of perceived food intolerance but it was a

combination of the two. Therefore, you had to be high in neuroticism and high in hypochondriasis to be 20% more likely of having self reported food intolerance in the Plymouth population sample, compared to those who had low scores. Our findings also replicated previous research in the food intolerance field. It also showed that people who reported having food intolerance suffered more form allergic inflammatory symptoms, therefore suggesting that there could be a physical element to the condition involving the immune system. Yet we are currently unsure how this relationship functions.

4. Study Three. Food that disagrees with you: an indicator of systemic dysregulation.

4.1 Introduction

A biomarker is defined as a biological indicator that reflects underlying physiological processes, including both normative processes and pathogenic states (Baum & Grunberg, 1997). For example, elevated blood pressure is a biomarker of cardiovascular disease, elevated pro-inflammatory cytokines are biomarkers of inflammation, and elevated body temperature is a biomarker of infection. Biomarker assessments have become increasingly popular among medical and psychological researchers as a way to connect behavioural, environmental, and social factors to an individual's health and well being (Piazza, Almeida, Dmitrieva & Klein, 2010).

Hyland, Jeffery & Wilkin (2014) proposed that there is not just 'one' biomarker that represents biological health. Instead health is a latent variable that is responsible for the inter-correlations between biomarkers. The body can be described as a widely distributed system with multiple and strong causal connections forming a complex network of interconnections. It can also be described as a series of separate, local systems (e.g., gastric, respiratory, cardiac, immune), each with numerous within system causal connections. However, when this system becomes unbalanced due to stress and other adverse conditions it can lead to systemic immune and neurological disturbance, frequent somatic and psychological symptoms, and poor coping, which creates dysregulation in the system (Hyland, 2011).

Biomarkers of dysregulation within a distributed system provides a possible theoretical rationale for medically unexplained symptoms and functional disorders (Whalley et al., 2007). Patients with functional disorders (e.g., irritable bowel syndrome, chronic fatigue syndrome, fibromyalgia) exhibit life-altering symptoms

without evidence of specific pathophysiology i.e., without a disease diagnosis but have abnormalities across a range of different biomarkers, including a raised pro-inflammatory profile and hypothalamic–pituitary-adrenal abnormalities (Henningsen, Zipfel & Herzog, 2007).

The previous chapter showed the relationship between self reported food intolerance and dispositional characteristics. The aim of this chapter is to replicate earlier results of inflammatory symptoms, non-inflammatory symptoms, anxiety and depression in a different sample, and to explore further variables that may also be associated with food that disagrees with people. The new variables considered are: the number of foods that people avoid because it disagrees with them, perceived stress, frequency of seeking health advice, major illness/ chronic health and quality of life. The rationale here is that there is an underlying state of ‘poor health’ associated with food intolerance and disagreed food could be an indicator of systemic dysregulation, as stated in the Hyland model of food intolerance (Hyland 2011) (see section 1.5.3).

4.2 Methods

Participants

A random sample of 3000 women aged between 45 and 65 years from (500 each from six Health Authority patient lists in England and Wales) were sent anonymous postal questionnaires with freepost envelopes for return. The six health authorities were chosen so that women from rural and urban populations, and from a variety of socio-economic and ethnic backgrounds would be represented in the sample.

Materials

The questionnaire pack (appendix A3.) was designed to measure health of women during the menopausal transition. The pack contained a questionnaire to

measure minor health complaints (MHCQ) (appendix B1.) (Hyland & Sodergren, 1998; Boden, Hyland & Dale 2005). This questionnaire, in addition to psychological symptoms, covers 19 physical symptoms or health complaints. The physical symptoms were divided into four categories (a) allergic symptoms (*wheeze, sneeze, blocked nose, itchy eyes, and itchy skin*), (b) gastrointestinal symptoms (*constipation, watery diarrhoea, explosive diarrhoea, and heartburn*), (c) pain symptoms (*back pain, painful joints*), and (d) other physical health complaints/symptoms that are not associated with chronic inflammatory disease (*thrush, cystitis, colds/flu, sore throat, mouth ulcers, cold sores, and fungal infections of the scalp or groin*).

For each item, participants replied on a 5-point frequency scale of occurrences (0 = none, 1 = one, 2 = two or three, 3 = four to six, 4 = seven or more) except for the items on itchy skin, sneeze, blocked nose, back pain, painful joints and depression, which were responded to on 3-point severity scales (0 = no, 1 = a little, 2 = yes). Finally, the pack contained a 48-item disease specific menopausal quality of life scale (appendix B6) (Jacobs, Hyland & Ley, 2005) which includes items relating to diet, sleep, energy, feelings, love life, home life and everyday activities, social life and work activities. Respondents reply to each item on a 5-point scale, and the total scale has an alpha coefficient of .82.

Procedure

The historical data was obtained from a previous study which been analysed for a different purpose. The data used had no identifiable information about the participants; therefore it did not require any further ethical review.

Coding for this study

New items were created from the original data set for the current study. Respondents were originally asked to write (freeform) whether they had any Major

illness/ chronic health and food that disagreed with them. For the purpose of this study the freeform answers were recoded into new numerical categories. The Major illness/chronic health conditions that were reported were added together to give a total numbers of conditions per respondent.

The numerical total of number of foods that disagreed with respondents who had reported avoiding foods because it disagreed with them was recoded by adding together all (freeform) foods that had been included in the questionnaire. It was necessary to code the foods into categories as it was noted that some participants would express their answer as a category rather than a specific food. (e.g. dairy, while others would write milk, butter...) Which if left un-coded dairy would receive the score of =1, the same as milk or butter. Therefore new categories were created if participants were to use a categorical term (now scored as =1) or if they disagreed with a number of foods in the same category (e.g. pork, bacon, ham would be also scored as =1) the coded categories were: Dairy, Meat, Fish, Crustacean, Fruit, Vegetable, Alliums, Pulses, Wheat/Cereal, Yeast, Spicy food, Nuts, Alcohol, Caffeine, Fatty/fried food, Chocolate, baked goods and idiosyncratic (a category created for answers that were outside the other definitions that only appeared once in the data set, e.g. crisps, saccharin or packet soup).

A total stressor score was also obtained. In the original data participants were asked to write down (freeform) their top five stresses and these were rated accordingly (1= minimum stress through to 10= maximum stress). For the purpose of this study the total of these five rated stressors were added together to acquire a total stressor score for each respondent.

4.3 Results

A total of 1143 (38%) people returned questionnaires of whom 621 (20.7%) included a completed menopausal quality of life questionnaire (many patients returned

the health checklist without completing the longer quality of life scale). The mean age was 50 years 10 months, $SD = 6$ years 8 months. On the basis of the freeform responses, a total of 132 (11.5%) women reported one or more diagnosed illnesses, of whom 37 (3.2%) had asthma; 14 (1.2%) had an allergic disease; 17 (1.4%) had IBS; and 31 (2.7%) had arthritis.

In order to examine the correlation between predictors similar to those used in the previous study and the number of foods that disagree with the current population who reported having food that disagreed with them, a correlation table was constructed.

Table 4.1.

Pearson correlation coefficient table of number of foods that disagree with you

	1	2	3	4	5	6	7	8	9	10
1. Number of foods that disagree with you	--									
2. Stressors	.13*	--								
3. Inflammation	.20**	.26**	--							
4. Non-inflammation	.06	.20**	.30**	--						
5. Gastrointestinal symptoms	.18**	.21**	.32**	.26**	--					
6 GP visits in the last 12 months	.09*	.19**	.15**	.21**	.18**	--				
7. Major illness/ chronic health	.18**	.14**	.17**	.11*	.13**	.26**	--			
8. Do you get anxious easily	.11**	.26**	.21**	.20**	.24**	.22**	.13**	--		
9. Do you get depressed easily	.10**	.31**	.22**	.21**	.26**	.19**	.08*	.58**	--	
10. Overall quality of life	-.15**	-.36**	-.28**	-.23*	-.26**	-.27**	-.16**	-.32**	-.43**	--

($N = 334 - 1133$) (* $p < .05$, ** $p < .01$.)

The results of the Pearson correlation coefficients (table 4.1) showed that the number of foods that disagree with you in the current population were significantly associated with stressors and inflammatory symptoms. Yet, there was no significant association with non-inflammatory symptoms.

The number of foods that disagree with you was also significantly associated with gastrointestinal symptoms, the number of GP visits in the past 12 months, major illness/ chronic health, becoming anxious easily and becoming depressed easily. Finally, overall quality of life had a significantly negative association with the number of foods that disagree with you.

To examine the independent contribution of the predictors of ‘number of foods that disagree’, only those independent variables with significant correlations were entered into the multiple regression. This was done in two steps, first, to examine the effect of dispositional variables and those strongly influenced by disposition, namely anxiety, depression, stressors and overall quality of life, and in the second step the number of GP visits in the last 12 months, Inflammation and Major illness/ chronic health were added.

Table 4.2.

Summary of multiple regression analysis for variables predicting the number of foods that disagree with you.

	<i>B</i>	<i>B SE</i>	β
Step 1			
Do you get anxious easily	0.38	0.92	0.29
Do you get depressed easily	-0.42	0.10	-0.33
Stressors	0.11	0.08	0.09
Overall quality of life	-0.01	0.00	-1.27
Step 2			
Do you get anxious easily	0.00	0.09	0.00
Do you get depressed easily	0.26	0.10	-0.20
Stressors	0.01	0.01	0.05
Overall quality of life	0.00	0.00	0.05
GP visits in the last 12 months	0.42*	0.02	0.12
Inflammation	0.05**	0.02	0.16
Major illness/ chronic health	0.19	0.13	0.09

Note. $N = 271$. ** $p < .01$ * $p < .05$. R^2 square change for Step 1 = .028, $p = .102$, and for Step 2 = .058, $p = .003$.

Step one, did not explain any significant variance in the model .102. Overall quality of life, anxiety, depression and stressors did not contribute independently (shown in Table 4.2). At step 2 of the model, dependent variables explained additional variance, with a significance of .003.

At step two the number of GP visits in the last 12 months, Inflammation and Major illness/ chronic health were introduced to the variables added in step one. When all seven independent variables were included in step two of the regression model

Inflammation ($p = .014$) and GP visits in the last 12 months ($p = .050$) did contribute independently to the regression model. Together, the seven independent variables accounted for a total of 8.7% of the variance of the dependent variable, the number of foods that disagree with you.

4.4 Discussion

The current findings are consistent with the results from the self-reported food intolerance population in the previous chapter. It was shown that people who reported having a food intolerance in the previous study and the people who reported having a food that disagreed with them in the current study both reported a higher amount of inflammatory symptoms but not non-inflammatory symptoms. Also greater levels of anxiety and depression were also found in both populations, compared to those who did not report any food problems. In the current study people who reported having a food that disagreed with them also reported greater stressors, more visits to the GP, more major illness as well as having poorer quality of life compared to participants who did not report having foods that disagreed with them.

As stated in the last chapter and reiterated in the current chapter for the present findings of the correlations, the low level yet significant correlations presented in the results are expected when exploring a multi factorial causal system. Where there are many predictors, the amount of variance that can be explained must necessarily be low. This is because any one predictor can only explain a small variance due to the large number of predictors.

When all 7 variables were added into the regression model the number of GP visits and inflammatory symptoms were significant independent predictors of number of foods that disagreed.

The results from the current study, and also the previous study provides evidence that participants who reported having food that disagreed with them could be suffering from systemic dysregulation due to the consistent reporting of inflammatory symptoms. Food that disagree with you were significantly associated with stressors, major illness/ chronic health, anxiety, depression and were negatively correlated with overall quality of life. Hyland et al. (2014) also argued that high attendance to see a general practitioner (GP) was also an indicator of dysregulation. In this population it was shown that the number of foods that disagree with you was significantly associated with the number of GP visits in the past 12 months therefore the current population could also be presenting with a dysregulated state in line with what Hyland et al. (2014) proposed.

Limitations

The limitations of this study are that we used a very specific population of women who were pre and post menopausal who are currently going through or have gone through great life changes. These changes may affect the way they: 1. Report and feel about themselves and the world due to such a huge life changing experience. 2. Have an affect on their physiology therefore making them more likely to report or react to physical symptoms that has never presented in the past. 3. Are at the time of life when it is more probable of developing a major illness, they possibly feel sick more often and therefore there is greater probability of associating food with negative events.

Another limitation of the study was that inflammatory and other physical symptoms were only assessed by a questionnaire (the MHCQ) no physical or biological assessments were made to support these claims. Also single item measures were used to assess conditions (e.g. anxiety and depression). Single items tend to be less reliable than

multi-item questionnaires therefore it may be advisable to use more detailed multi-item questionnaires for specific constructs in the future.

Conclusions

The current study in support of the previous study adds to the growing evidence that food intolerance can be predicted by dispositional variables and also health-related variables. It could be possible that there may be a biological underpinning to food intolerance which is of a distributed nature and therefore not amenable to biological testing. This hypothesis suggests that people are not simply imagining food intolerance, but it might reflect some more general systemic dysregulation.

Part 2.

**Is it possible to demonstrate that food disagreement is
associated with stress?**

5. Study 4. A daily diary study to investigate the relationship between food, mood and physical symptoms.

5.1 Introduction

The majority of current research on food and stress primarily explores the conditions of comfort eating and obesity. So far there has been nothing found in the existing literature to differentiate between the potential explanations for the association of stress/daily hassles and happiness on the effects of a food disagreed event.

There is an association between psychological stress and food consumption (Greeno & Wing, 1994). For example, prolonged work stress is associated with consuming foods that have a high-energy content, e.g. foods that are high in saturated fat and high in sugar content. Therefore, Leading to possible weight gain, especially in restrained eaters (Wardle, Steptoe, Oliver, & Lipsey, 2000). When individuals are asked to reflect upon and report their stressful experiences, perceived stress is associated with greater food consumption (Pendleton et al., 2001). Macht's (2008) five-way model of how emotions relates to eating included the ideas that eating may be a way for an individual to regulate their negative emotions, and may be caused by the stress-induced disruption of individuals' cognitive self-regulation (Habhab et al., 2009).

Stress was found to be a component in the development of food intolerance in some participants in study one, it was also a significant correlational factor found in the population who had food that disagreed with them in study three. Stress is also a key component of the Hyland model of food intolerance (2011). Hyland (2011) stated if a food was eaten at a stressful time it could become an associated learning marker of that stress.

The previous two chapters have explored correlations between psychological and physical health and food intolerance/food that disagrees with you. Yet, what is not

currently understood is the causation of the condition. Could there be a connection between a person's psychological state and the occurrence of eating food that disagrees with them? There has been nothing found in the existing literature about how people feel or what emotions they are experiencing around a disagreed food event. A decision was made to focus on daily hassles/happiness in this pilot study in the aim to test the stress framework of Hyland's (2011) theoretical food intolerance model and to also explore the other stress findings reported in the previous studies. Hassles/happiness were also seen as more pure/simplistic emotions to evaluate at multiple time points for the participant as a more in-depth battery of psychological questions could have been too taxing or even laborious over the seven days of data collection.

By exploring fluctuations of daily hassles/happiness and the relationship of food disagreed events and symptoms it is important to be able to tie together psychological and biological symptoms in a real time context. With the use of experience sampling method (ESM) (Csikszentmihalyi & Larson, 1987) it is possible to capture a well rounded view of daily life as it is directly perceived, with the ability to examine direct links between emotions, physiology and food which wouldn't be possible in a one off questionnaire.

The aim of the current study is to explore the relationships between daily hassles/happiness, physical symptoms and food that cause disagreement over a longitudinal time frame in a naturalistic setting.

5.2 Method

Participants

Twenty three participants were used in the study. Participants were required to have a food that disagreed with them as a main criterion for taking part in the study. The participants were acquired from the pool of Psychology undergraduates at the

University of Plymouth, who participate in psychology studies as part of their course requirement.

Materials

There were four questionnaires

1. Baseline questionnaire – this measured the food that disagrees with them and their primary physical symptom (appendix B6).
2. The neuroticism questions from the BFI-10
3. The SSAS (appendix B3) that measures somatosensory amplification
4. The daily questionnaire (appendix B7.) measured hassles, current feelings and foods that disagreed with them.

The daily questions (appendix B7.) were deployed to assess the participants' current mood, hassles and if they had eaten any food that had disagreed with them and if so what was that food and what was their physical symptoms. This was done to try to attempt the moment-to-moment evaluations to help us build up a framework for analysis. The first question used a 7-point frequency scale which asked how do you feel right now?

-3 very sad -2 1 0 1 2 3 Very Happy

The next question was a 7-point frequency scale that asked the participants if they had experienced any hassles or difficulties since the last message was sent.

Not at all 2 3 4 5 6 A great deal

The last 3 questions were food and symptom specific, the first was a 7-point frequency scale that asked if the person had eaten any foods which normally disagree with them since the last message was sent?

Not at all a little bit somewhat moderately quite a bit quite a lot very much so

Participants were then asked to write (freeform) what was the food that normally disagreed with them.

Finally participants were asked to rate the physical symptoms of having eaten the food that disagrees with them (these might include, but are not limited to, bloating, stomach pain, constipation, diarrhoea, etc.) on a 7-point frequency scale.

Not at all a little bit somewhat moderately quite a bit quite a lot very much so

Procedure

Participants signed up for the study online using the Plymouth psychology participation pool. They were given a link to: voice.psy.plymouth.ac.uk an experimental web site setup by Dr Ben Whalley. Participants were asked to fill in the baseline questionnaires (list them) at the first meeting.

Once the participants had signed up and completed the baseline questionnaire they were sent a automated text via a telephone text reminder system (SignalBox) with a personalised link to the voice website to fill in the current questionnaire for the next seven days, four reminder links were sent out each day at set points in the day, these times were 9.00am, 1.00 pm, 5.00pm and 9.00pm.

Categorisation of observations

Our research question relates to the temporal sequencing of food symptoms and stress/happiness, and we made observations on 4 occasions per day across the 7-day study period. To facilitate an analysis in which we compared hassles/happy at periods before during and after instances of food-symptoms, we categorised each observation according to the following scheme:

1. No food related symptoms reported at this time point (control observations).
2. Current food disagreement (disagreed). That is, where the participant reported they had experienced food symptoms of >2 in the period since the last observation.
3. Observations before food symptoms (precursor). That is, an observation immediately preceding a 'disagreed' observation.
4. Observations following a food disagreement event (aftermath); that is, where the participant is not currently experiencing food symptoms, but did report symptoms on the previous occasion.
5. Observations where the participant is not experiencing food symptoms, but did report symptoms on both the preceding and subsequent observations (Aftermath and Precursor or A+P)

By creating these categories it was possible to test whether perceived hassles/happiness increased before, during or after food-symptom events. The current analysis is very similar to others in the experience sampling literature, in which predictions are made from time series data based on activities which occurred over a preceding period (e.g. Kross et al. 2013, who found that Facebook usage over the period preceding a momentary measure predicted affective wellbeing).

5.3 Results

A multilevel model was run which included observations at different times and were clustered by participant. Fixed effects were included to estimate the differences between categories of time (control, disagreed, precursor, aftermath, A+P).

We computed contrasts for the main effect of time category, and simple contrasts between each of the time categories.. Data from 21 participants were included, with an average of 25.2 observations per participant.

There was a main effect of time category on hassles, $\chi^2(4, N = 21) = 10.96, p = 0.02$. This results shows that hassles did differ before during and after food disagreed events. Hassles were significantly lower at control times than disagreed times ($z = 2.14, p = 0.03$). Hassles were significantly lower at control times than at aftermath times ($z = 2.61, p = 0.009$). Hassles were significantly higher at aftermath times than precursor times ($z = -2.26, p = 0.02$). Hassles were also very close to being significantly higher at disagreed times than precursor times ($z = -1.90, p = 0.058$) (see Fig.5.1 for model results).

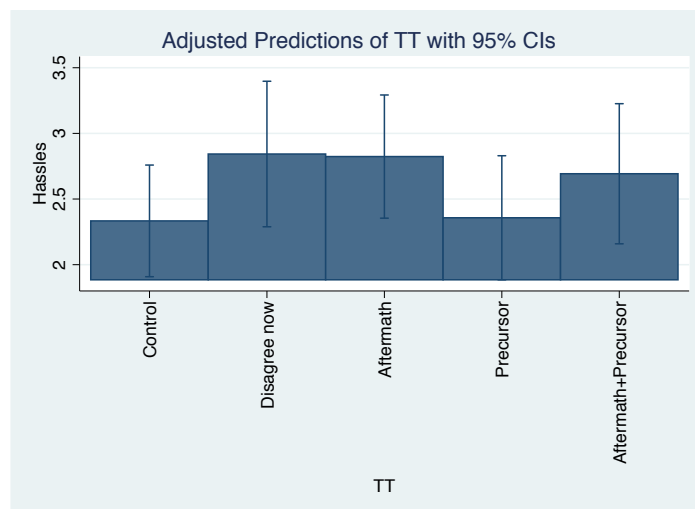


Fig. 5.1. Summary of hassles z-scores over the course of a food disagreed event.

There was no main effect of time category on happiness, $\chi^2(4, N = 21) = 1.24, p = 0.87$. This shows that happiness didn't differ significantly before during and after food disagreed events (see Fig. 5.2 for model results).

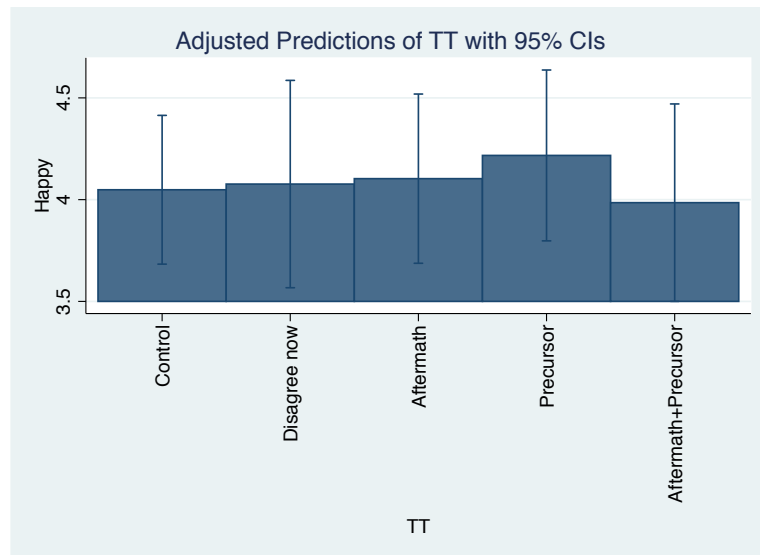


Fig. 5.2. Summary of happy z-scores over the course of a food disagreed event.

5.4 Discussion

The current findings suggest that the level of daily hassles changed significantly over a disagreed food event. The findings shown in Fig. 5.1 show that at the control and precursor times of a disagreed food event participants had less daily hassles compared to all other occasions. Happiness was also scored higher at precursor time (see Fig. 5.2), but it wasn't significantly different from any other time in the model.

The results of the current study are unexpected as it was expected that the participants would have been more stressed before a disagreed food event, yet what we found was the opposite. The current results do not rule out the suggestion that stress has a causative role historically. It is possible that stress played a causal role historically but now, once the association between the stressor and food is formed, current stress is not having a casual effect.

The important question to now ask is why people are less stressed and maybe more happy before a disagreed food event, and does this have an impact on what they are eating and therefore causing a disagreed food event? That is, the present results suggest a more complex interpretation of the relationship between stress and food than that in the original hypothesis.

De Witt Huberts, Evers and Ridder (2012) proposed that people over-indulge when they feel they have a “license to sin” which is the tendency to overindulge because it feels good. Self-licensing comes into play when you’re looking for a rationale to justify your overeating, over drinking, overspending, or any impulsive or out-of-control behaviour that you shouldn’t engage in. However, you are almost programmed to come up with justification for what you might otherwise recognise as clearly detrimental to your long-term well being. This idea is in line with a statement given by a participant in the focus group in study 1:

“I think in a way it can control your life because you have to make the decision whether to have it and enjoy it for that moment and deal with the consequences or think in the long term (p.42)”.

These findings lead to the inference that people in this study were less hassled and happier before a disagreed food event. Therefore they were more likely to justify doing something ‘naughty’ by living in the moment and not thinking about the future consequences by eat something that disagreed with them, which is in line De Witt Huberts, et al. (2012) theory.

Limitations

The population used was very small (n = 23) and seemed to have a high happiness baseline (see Fig. 5.2). It would be useful to run this study again with more

participants in a highly stressful time frame for the participants. Because this study was originally done on university students it would be better to reattempt the study at a more stressful point in the academic year (e.g. at exam time), where their baseline stress levels would be heightened and happiness would be lower. This would be done with the aim of exploring if the eating habits remained the same as the current study when happiness was high and stresses were low.

Conclusions

The results of the study were unexpected. It had been assumed that stressful events would be associated with the consumption of disagreed food. In contrast this study shows that people were less stressed before eating food that disagreed with them. The current study showed that stress may not be an important factor in the course of a disagreed food event, yet what we still don't understand is the response to stress in the development of the condition, as identified in certain participants in study one.

The current findings give greater understanding to current eating patterns but still do not explain the development of why foods become disagreed in the first place. This will be explored in the next chapter.

6. Study 5. The development of a disagreed food as a consequence of conditioned taste aversion

6.1 Introduction

For many years psychologists have been successful when training animals to learn aversions to foods that have been paired with illness, yet the role that learning plays in everyday food selection in humans is still relatively unclear (Bernstein, 1999). In humans it is suggested that taste aversion can be acquired with up to 24 hours between the food and the illness, can last for years, often require only a single trial in order to form, and frequently result in complete avoidance of the food (Logue, Ophir & Strauss 1981).

Acquisition of a taste aversion represents a form of classical conditioning with the stress/illness inducing substance being the unconditioned stimulus (US) and the nausea the unconditioned reaction (UR). The taste stimulus becomes the conditioned stimulus (CS) eliciting a not directly observable conditioned reaction (CR); avoiding the CS is usually taken as a sign of a successfully established conditioned reaction, and the animal is said to have developed a conditioned taste aversion (CTA) (Welzl, D'Adamo & Lipp, 2001).

Hyland, (2011) stated if a food was eaten at a stressful time it could become an associated learning marker of that stress. The psychobiological stress response with the association of a specific food (the biological marker) could possibly create a marked point in the psychobiological long-term memory. This involves adjustments at the affective, cognitive and behavioural level and therefore over time it could become associated with changes in neuroendocrine, autonomic and immune system of the individual.

People could easily misunderstand the cause of their symptoms. Hyland (2011) stated that several clinical features of food intolerance suggest that the atypical response to food is due to some process of learning: the gradual acquisition and extinction of the response point to a learning phenomenon. Also the relationship between neuroticism is significant in that people high in neuroticism (i.e., high in punishment sensitivity) condition faster (i.e., faster associative learning) than those low in neuroticism.

The previous chapter explored what happens in a food disagreed event, this chapter looks at how a food may become disagreed in the first place by exploring the idea that in some cases it could possibly be a CTA, which may not fit the classical model of a food intolerance. Where a reaction to food is developed at a stressful time, found in certain participants in study one.

It was shown in study two that people who reported being high in neuroticism and high in somatosensory amplification were 20% more likely to report having perceived food intolerance. The aim of this study is to create a CTA in a general student population and to assess if participants who score greater in neuroticism and somatosensory amplification are more likely to develop a CTA to an experimental negative event, in an attempt to understand the mechanisms underlying the development of food intolerance in certain people.

The paradigm of this study is to associate a one time physically stressful event (i.e., cold pressor task) (US) with a novel sweet (CS) (session 1). In session 2, the sweet (CS) is sucked again eliciting a conditioned reaction (CR), in this case a nocebo dizziness score (from a sham nitrous oxide machine) will hopefully be increased for those in the sweet condition in the priming phase who present with a high SSAS and neuroticism score. We expect an increase in nocebo dizziness (Borg CR10 score) due to the negative affect of the conditioned response creating a short-term dysregulated

state in the participant, therefore making them more reactionary to negative impulses which is inline with Hyland's (2011) theory.

6.2 Method

Participants

There were one hundred and twenty participants (38 men, 82 women), ranging from 18 to 43 years of age (mean age= 20.3). The participants were recruited from the pool of Psychology undergraduates at the University of Plymouth, who participate in psychology studies as part of their course requirement. Due to the physical risk implications involved in the study participants were not allowed to take part in the study if they had any condition stopping them from eating vegetarian gluten free sweets, or if they had a reaction or problem with the ingredient's listed: Sugar, Glucose Syrup, Citric Acid, Colours - E102, E142 and may also contain nuts. Participant were also not allowed to take part in the study if they had any condition that would have been exacerbated by or stops you from putting their hand in very cold water (e.g. poor circulation, Arthritis or Raynaud's disease). Or had the inability to breathe in a controlled amount of nitrous oxide as part of the experimental condition (even if they were just breathing in oxygen they were led to believe it was actually nitrous oxide as part of the experimental outcome).

Materials

There were five questionnaires used:

1. The BFI-10 (appendix B2.) (Rammstedt & John, 2007),
2. The SSAS (appendix B3.) (Barsky et al., 1990)
3. The Positive and Negative Affect Schedule (PANAS-X) (appendix B8.)
(Watson, Clark, & Tellegen, 1988b).
4. The McGill pain questionnaire (appendix B9.) (Melzack, 1987).

5. The Borg CR10 (appendix B10.) (Borg, 1998).

Procedure

At the beginning of the study participants were randomly assigned to one of four conditions (sweet/no sweet, 15 seconds/30 seconds cold pressor time). The groupings were pre-randomised using Excel and the allocated grouping was assigned to the participant number. The participants were given the brief for the experiment. They were asked to sign and they were informed of their right to withdraw at any time (consent form, questionnaires and debrief for Study 5, appendix A5.). The participants were then checked for any cuts or rashes on their hands or anything else that could be a possible contaminant of the water in the cold pressor task. The participants were then asked to fill in the first form stating their age, gender and three other questions asking if they have any food that disagrees with them, any food intolerances or food allergies. The participants were then asked to fill in the BFI-10 (appendix B2.) (Rammstedt & John, 2007), the SSAS (appendix B3.) (Barsky et al., 1990) and the Positive and Negative Affect Schedule (PANAS-X) (appendix B8.) (Watson, Clark, & Tellegen, 1988b).

Participants were then given a sweet /or not given a sweet (a 'Soor Ploom' made by Buchanan's) depending on condition group and were left to suck it for one minute while the procedure of the cold pressor task was explained. The cold pressor task (see figure 6.1) consisted of a 19 litre water bath cooled to 6°C with the use of ice cubes. The temperature guidelines for the cold pressor task were based on von Baeyer, Piira, Chambers, Trapanotto, and Zeltzer (2005) experimental pain stimulus for use with Children as a safety guide for the experimental procedure. The ice was stored in a Colman Xtreme 50 litre cool box for ease of access when the water temperature needed to be regulated. A digital thermometer regulated the water temperature with an external probe placed in the water. A Atom 650 (8 watt) pond fountain pump was used to keep a constant flow of water in the tank set at 650 litres of water per hour, this was used to

regulate the temperature and reduce warm spots of water that would have occurred around the participants hands due to heat transference if the pump was not active.

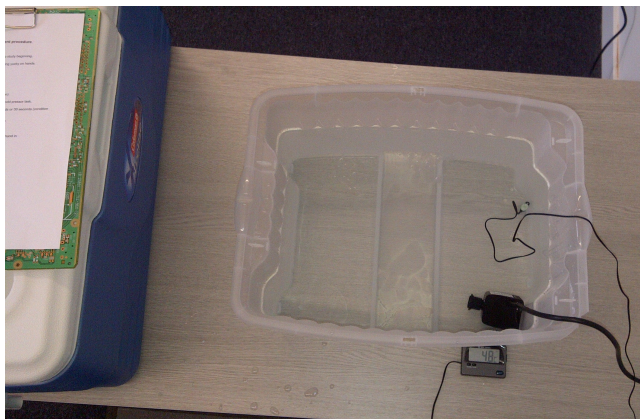


Fig. 6.1. *The cold Pressor task setup.*

Participants were invited to place their dominant hand (being the stronger more used hand therefore would hopefully warm up quicker and be more able to fill in the next questionnaire after the procedure) on the bottom of the tank for either 15 or 30 seconds (dependant on condition). Once their hand was out of the water they were given a paper towel to dry and rub the circulation back into their hand. The participant was allowed to do this at their own speed until they threw the paper towel in the bin and at that point the tester would ask “is your hand ok, and are you ready to continue?” Their non-dominant hand would then be placed on the bottom of the tank repeating the same process as before. Once the paper towel was thrown in the bin and were asked again if they were ok they were asked to complete the short form McGill pain questionnaire (appendix B9.) (Melzack, 1987). On completion of the questionnaire the participant was asked to repeat the cold pressor task again (the same routine was used as previously described). Once their final hand was dried off they were asked to complete a second short form McGill pain questionnaire. Once completed they were asked to spit the sweet out (as this was the end of the conditioning phase) before leaving the experiment the participant was offered alcohol hand wash and was asked if they were ok and if they were in need of any further assistance from first aid by the tester.

In Session 2 (the next day) The participants condition was then rechecked they were then given a sweet /or not given a sweet (depending on prior condition the day before), the same brand of Soor Ploom sweet as was given in session one. The positive and negative affect scale was then given to the participant to complete.

The participant was then informed that prior to doing the cold pressor task again they were first going to inhale Nitrous oxide in an attempt to reduce the intensity of the cold pressor task. The participant was introduced to the nitrous oxide machine as the tester assembled it. A set introductory text was given to each participant: “ this is a medical NO² machine, in a minute you will take a deep breath in and hold it for 5 seconds. The machine has been set at a relatively low amount of NO², the machine is self actuated, so you don’t have to press any buttons to relieve the gas it will be released automatically when you breath in. It is primarily used to relieve pain, yet it will still make you feel a bit dizzy.”

However, the participants were not inhaling real nitrous oxide. The participant actually inhaled air through an Aerocrine NIOX MINO, a portable breath analysis device, which allows for point-of-care nitric oxide (NO) measurements in the management of asthma. The Aerocrine NIOX MINO is a testing tool used that was used in a previous asthma study. The machine provided a legitimate sham for delivering NO² with the added bonus of having sterile one-time use disposable mouthpieces for the participant’s health and safety. The participant then reports the feeling of dizziness on the Borg CR10 scale (Borg, 1998). The Borg CR10 (appendix B10.) scale is a category-ratio scale anchored at the number 10, which represents extreme intensities. The scale is best suited when there is an overriding sensation arising either from a specific area of the body or from pulmonary responses.

Participants were then told they don't have to do the cold pressor task again. They were then fully debriefed and told the truth about the sham nitrous oxide machine and finally asked if they still felt dizzy to see if they have fully understood the debrief.

6.3 Results

Due to a error made in the design phase of this study 'all' participants should have received a sweet at time two, instead of this only the participants in the sweet condition at time one were given the sweet at time two. The sweet given to all at time two was the way to assess the conditioning phase of those who were in the sweet condition in the priming phase. Without the sweet given to all at time two it is unclear whether the sweet was a true priming aid in this study.

Another error made in the study was the group allocation was randomised rather than stratified, so there were unequal numbers in high/low SSAS and high/low neuroticism in the four experimental groups.

Table 5.1 shows the mean and standard deviations of total pain score and the Borg CR10 dizziness score given by the participants in each of the four experimental conditions.

Table 6.1

Summery of means and standard deviations of conditions and experimental outcomes.

Condition	Cold pressor task time	Total pain score	Borg CR10 dizziness score
No sweet	15 seconds	M= 9.90 SD= 5.86	M= 0.91 SD= 0.90
	30 seconds	M= 13.30 SD= 6.54	M= 1.15 SD= 1.73
Sweet	15 seconds	M= 10.90 SD= 5.93	M= 0.82 SD= 0.91
	30 seconds	M= 13.63 SD= 8.80	M= 0.80 SD= 1.38

n= 130. Note. M= Mean, SD = Standard deviation.

The table suggests that people in the sweet condition presented with lower dizziness scores compared to those in the sweet condition. The table also suggests that participant in the longer (30 second) cold pressor task experienced more pain.

Is there a main effect of conditioning procedure? I.e. does presenting a sweet decrease dizziness in phase two of the experiment as table 5.1. suggests. In order to test whether the participants who were in the sweet condition experienced less dizziness a factorial two-way (sweet condition X cold pressor time) between-subjects analysis of variance was carried out. There was no significant main effect of sweet on Borg CR10 mean score ($F(1,116) = .865, p = .354, \text{partial } \eta^2 = .007$), showing that dizziness was unaffected by the sweet condition.

There was no significant main effect of the cold pressor task time on the Borg CR10 mean score ($F(1,116) = .237, p = .627, \text{partial } \eta^2 = .002$), showing that dizziness was unaffected by the cold pressor task.

There was an increased dizziness on the Borg CR10 scale in the group which had no sweet and that were in the 30 second cold pressor condition compared to the other three experimental conditions (see fig 6.2). Yet, there was no significant interaction between sweet condition or the length of time spent doing the cold pressor task on Borg Cr10 mean score ($F(1,116) = .328, p = .568, \text{partial } \eta^2 = .003$).

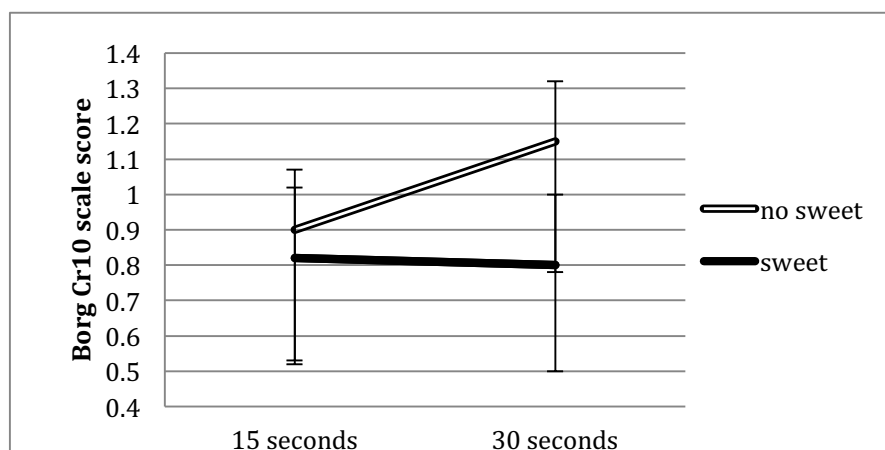


Fig. 6.2. Mean plot showing the effects of the intervention on condition group mean dizziness scores.

It was important to explore if the pain caused by the cold pressor task had been of an appropriate level to aid in the priming stage of the study. A factorial two-way (sweet condition X cold pressor time) between-subjects analysis of variance tested the effects of mean total pain score. There was no significant main effect of the sweet condition on mean pain score ($F(1,115) = .273, p = .602, \text{partial } \eta^2 = .002$).

There was a significant main effect of cold pressor time and mean total pain score ($F(1,115) = 5.99, p = .016, \text{partial } \eta^2 = .05$). This indicates that the participants who were subjected to more time on the cold pressor task reported a higher mean pain score (see fig. 6.3).

There was no significant interaction between having a sweet or the length of time spent doing the cold pressor task on mean total pain score ($F(1,115) = .067, p = .796, \text{partial } \eta^2 = .001$).

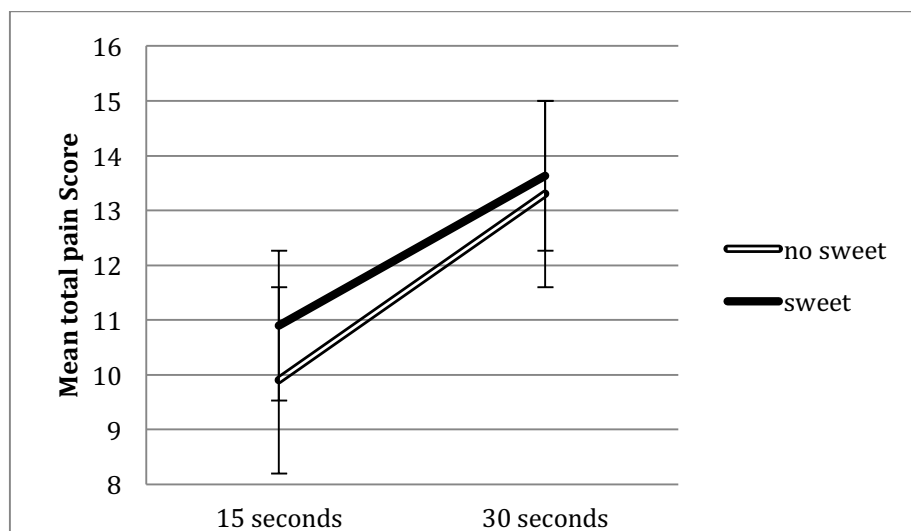


Fig. 6.3. Mean plot showing the effects of the intervention on condition group mean total pain scores.

Because of the random condition allocations in the experimental phase there were not enough participants assigned to each group (high/low Somatisation and high/low neuroticism) to analyse the results and obtain valid outcomes. It was possible

however to perform a median split on the whole populations SSAS (minimum =21, Median = 31, maximum =39) and neuroticism (minimum =2, Median = 6, maximum =10) scores to gain a better understanding on the perception of pain and dizziness brought on by a placebo response.

A factorial two-way (SSAS (high/low scores) X Neuroticism (high/low scores)) between-subjects analysis of variance tested the effects of placebo dizziness reported by the mean score on the Borg Cr10 scale given after inhaling sham nitrous oxide at the end of the experiment phase. The main effect of SSAS score on Borg Cr10 score was not significant ($F(1,116) = .252, p = .617, \text{partial } \eta^2 = .002$). There was no significant main effect of neuroticism score on Borg Cr10 score ($F(1,116) = .263, p = .609, \text{partial } \eta^2 = .002$). There was no significant interaction between SSAS score and neuroticism score on Borg Cr10 score ($F(1,116) = 2.108, p = .149, \text{partial } \eta^2 = .018$) (see fig 6.4).

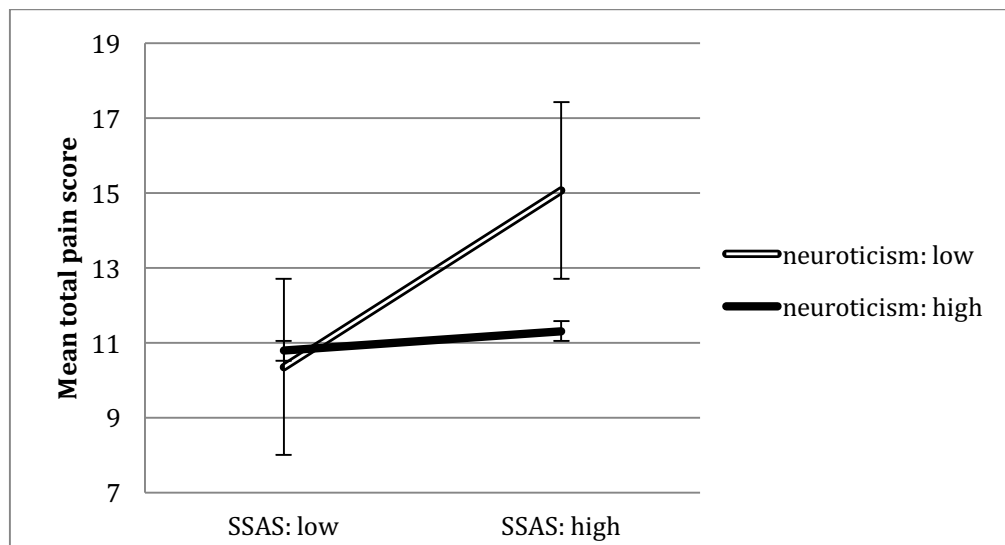


Fig. 6.4. Mean plot showing median split SSAS and Neuroticism categories against mean total pain scores.

A two-way (SSAS (high/low scores) X Neuroticism (high/low scores)) between-subjects analysis of variance tested the effects on mean total pain scores. The main effect of SSAS score on mean total pain scores was significant ($F(1,115) = 4.213, p$

=.042, partial $\eta^2 = .035$). (As shown in figure 6.4) Participants with a high SSAS significantly higher mean total pain scores than participants with low SSAS.

There was a no significant main effect of neuroticism score on mean total pain score ($F(1,115) = 1.695, p = .196$, partial $\eta^2 = .015$). There was no significant interaction between a SSAS score and a neuroticism score on mean total pain score ($F(1,115) = 2.679, p = .104$, partial $\eta^2 = .023$).

6.4 Discussion

The aim of this study was to demonstrate conditioning between a stressor and novel flavoured sweet. It did seem that participants in the sweet condition generally had a lower dizziness score, compared to those in the no sweet condition (see table 6.1 & fig 6.2). These findings were interesting, yet not significantly different. It was expected that the sweet should have increased dizziness, as it was intended to be the priming aid in the study, not decrease it? However, due to the mistake made in the design phase of this study (where all participants should have received a sweet at time 2) we cannot be sure if the lower dizziness score is due to the sweet or something else unknown about the sweet group dynamic.

It could have been that sweet was too pleasurable, or even the wrong type of food. Food aversions seem more likely to develop from a protein source (e.g. eggs, cheese, meat) than carbohydrates (Midkiff & Bernstein, 1985). It has also been found that comfort foods being highly calorific may have the ability to reduce stress levels in the short term (Teegarden & Bale, 2007). The highly sugary sweet could have created a calming effect on the participant reducing the stress response or merely taking their minds off the task at hand?

In previous human CTA studies chemotherapy drugs (Stockhorst, Steingrueber, Enck & Klosterhalfen, 2006) and rotation as a nausea stimulus (Fessler &

Arguello, 2004) have been used to provoke an immune system response with more success, maybe the Soor Ploom just wasn't effective enough to create an aversion and produce a difference between the control and experimental groups.

Unfortunately there was no evidence that conditioning took place. There was evidence that the longer a hand was held in cold water, the greater the pain, and people high in SSAS, who are more aware of their body and environment were more likely to have higher pain score. This finding suggests that the cold pressor task had a sufficient effect on the participants in the aim of creating a conditioned response. Thus, there was some evidence for results consistent with existing pain theory, but not with the theory of conditioning.

Limitations

There could be several reasons why this study failed to show a conditioning effect. The distribution of SSAS and Neuroticism scores were skewed across the four conditions, and a larger sample size might have rectified this.

The error made in the design phase of this study making it not possible to adequately assess the conditioning phase. It was unclear whether the sweet was a true priming aid in this study.

The sweet, though being convenient to use may not have been the right kind of food to create a CTA.

Finally, the aversive stimulus may not have been sufficiently aversive, and it may require multiple pairings for conditioning to take place, not just in one session, as was done here. Whatever the reason, this study failed to demonstrate the conditioning effect that was predicted from theory.

Conclusions

The question asked at the beginning of this study is still left unanswered as we are still unsure that people who score greater in neuroticism and somatosensory amplification are more likely to develop a CTA to an experimental conditioned negative event, which could possibly be misunderstood as a food intolerance.

7. General discussion

The current thesis has used multi method approach to explore both psychological and physical constructs that contribute to the reporting of food intolerance. Study one provided evidence that food intolerance is a condition that is not straightforward and but some people report the development of food intolerances at stressful life points. In studies two and three people who reported having food intolerances/food that disagreed with them suffered significantly more from anxiety and depression. Study three also showed they had greater stressors and a reduced quality of life. Furthermore, participants in study two who reported being high in neuroticism and high in hypochondriasis were 20% more likely to have a self reported food intolerance. Additionally in study four the participants were less hassled before a disagreed food event.

However underlying physical symptoms were also found to be associated with food intolerance. People with food intolerance/food that disagreed with them presented with greater gastrointestinal symptoms (constipation, watery diarrhoea, explosive diarrhoea, and heartburn) and allergic inflammatory symptoms (wheeze, sneeze, blocked nose, itchy eyes, and itchy skin) in studies two and three. Also in study three people who reported a greater number of foods that disagreed with them suffered more from major illness/chronic health.

The findings of the thesis suggest that people are not simply imagining having food intolerance. Food intolerance could be (in some cases) a condition made up of psychological, physical and social elements that are not currently understood by current approaches. The current findings add new components to the field of food intolerance research in ways of newly found inflammatory symptoms, dispositional characteristics and the interaction of stress/hassle in the development of the condition and the sequence of a disagreed food event.

7.1 Summary of findings

Part 1. What are people like who report food intolerance?

Study 1. The perception of food intolerance: a focus group.

The main outcome from the focus groups was that food intolerance is a condition that is highly variable, its development, symptoms and the way people interact with and treat the condition is very individualistic.. Certain people perceived that they developed food intolerance from a stressful life situation. Certain people may have a predisposition to food intolerance that is only activated if the person is psychologically and physically under too much stress to handle.

Study 2. Food intolerance: Somatosensory amplification, personality and minor health complaints in a community sample.

The main findings of the second study were that neuroticism and hypochondriasis alone were not predictors of perceived food intolerance. However a combination of neuroticism and hypochondriasis did predict perceived food intolerance. Those high in neuroticism and high in hypochondriasis were 20% more likely to report food intolerance in the Plymouth population sample, compared to those who had low scores.

Participants who stated they had food intolerance showed significantly greater neuroticism, anxiety, nervousness, depression, difficulty sleeping, feeling tired for no reason, had a higher prevalence in women they also suffered with more gastrointestinal symptoms compared to those who didn't report having perceived food intolerance. The findings from this study also showed that people who reported having food intolerance suffered more from inflammatory symptoms (but not more non-inflammatory

symptoms), therefore suggesting that there could be a physical element to the condition involving the immune system.

Study 3. Food that disagrees with you: an indicator of systemic dysregulation.

The findings from this study were consistent with the results from the previous study, in that people with greater number of foods that disagreed with them had higher levels of allergic inflammatory symptoms, gastrointestinal symptoms, anxiety and depression. Also, consistent with study two non-inflammatory symptoms were not significantly related to the number of foods that disagrees with you.

The additional findings of this study were that people who reported the greater number of food that disagreed also reported more stressors, more visits to the GP in a 12-month period and more chronic health/major illness as well as having poorer quality of life.

When all 7 variables were added into the regression model the number of GP visits and inflammatory symptoms were significant independent predictors of number of foods that disagreed.

Study three added to the growing evidence that food intolerance is predicted by dispositional variables and also health-related variables. It is possible that there may be a psychological underpinning to food intolerance. In addition the data support an additional hypothesis that people are not simply imagining food intolerance, but it might reflect some more general systemic dysregulation.

Part 2. Is it possible to demonstrate that food disagreement is associated with stress?

Study 4. A daily diary study to investigate the relationship between food, mood and physical symptoms.

The findings from study four suggest that the level of daily hassles changed significantly over a disagreed food event. The findings show that at the control and precursor times of a disagreed food event participants had less daily hassles compared to all other occasions. It had been assumed that stressful events would be associated with the consumption of disagreed food. In contrast this study shows that people were less stressed before eating food that disagreed with them.

The findings of study four may explain current eating patterns but still do not explain the development of why foods become disagreed in the first place.

Study 5. The development of a disagreed food as a consequence of conditioned taste aversion.

The aim of this study was to demonstrate conditioning between a stressor and a novel flavoured sweet. Unfortunately there was no evidence that this conditioning took place due to errors made at the design phase. There was evidence that the longer a hand was held in cold water, the greater the pain, and that people high in SSAS were more likely to have higher pain score. Thus, there was some evidence for results consistent with existing pain theory, but not with the theory of conditioning.

The question asked at the beginning of this study is still left unanswered as we are still unsure that people who score greater in neuroticism and somatosensory amplification are more likely to develop a CTA to an experimental conditioned negative event, which could possibly be misunderstood as a food intolerance.

Findings

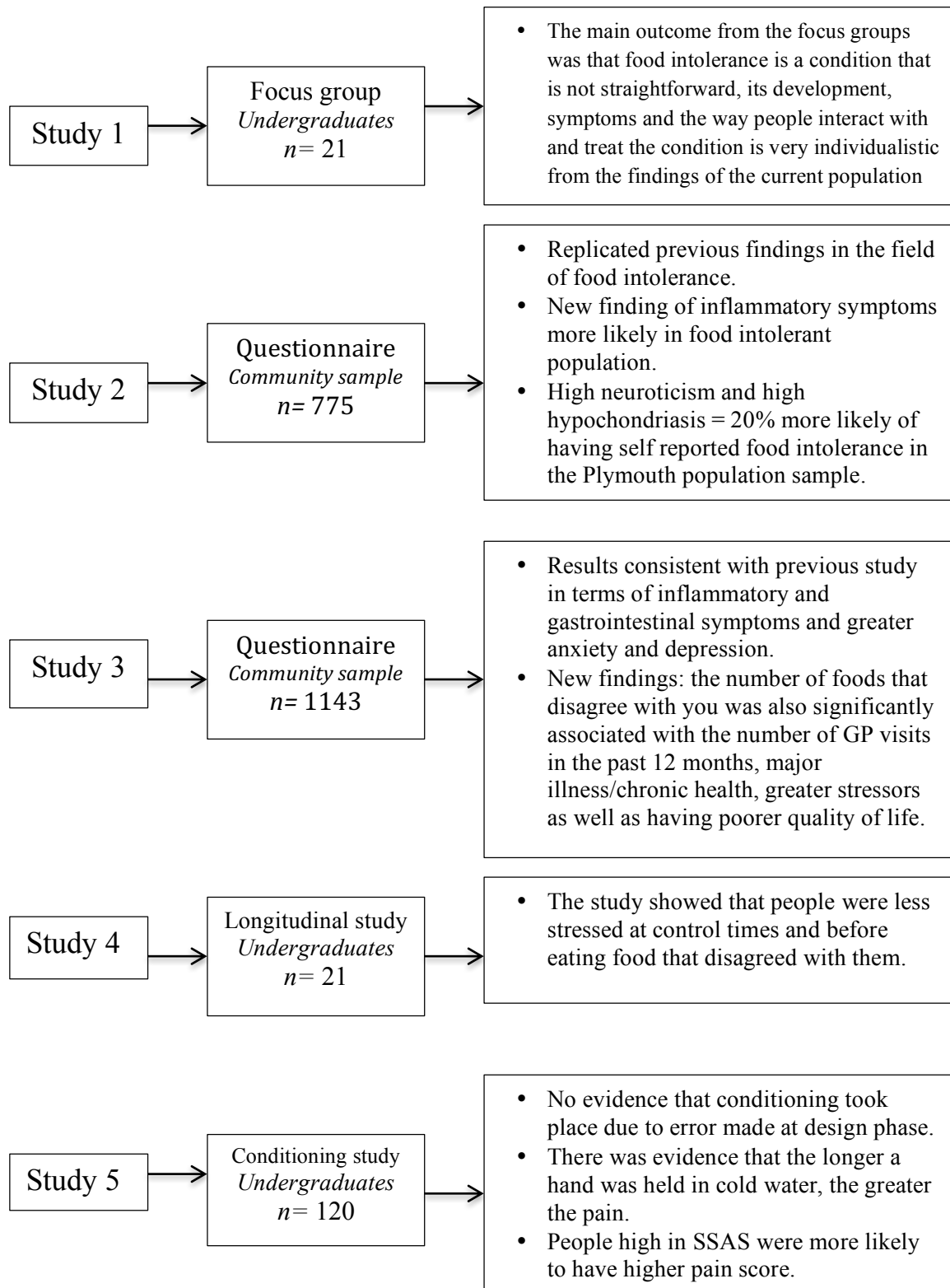


Fig.7.1. Diagram of the findings of each study.

7.2 Theoretical implications

The diagnosis and treatment of Food intolerance can be problematic because of delayed, non-fatal, and often invisible symptoms, contrasting with food allergies' acute, sudden reactions. Nettleton, Woods, Burrows and Kerr (2010) stated that medical professionals understand food allergies as "pathologically and clinically legitimate," while intolerances are not (p.291). They are also contested socially. "Avoidance of foods because of food intolerance is associated with alternative and unconventional lifestyles, fashion, and trends... Being considered a 'fussy eater' is socially problematic" (p.297).

Comparable to chronic fatigue syndrome (Horton-Salway, 2004) and fibromyalgia (Barker, 2008), food intolerances have a controversial status as a legitimate illness (Moore, 2014), an ambiguous aetiology (Nelson & Ogden, 2008), and disputed status in medical and cultural classification (Knibb et al., 2000). Nelson and Ogden (2008, p.1039) note, "While the scientific community debate the aetiology, mechanism, definition, and diagnosis of food intolerance and claim a low prevalence rate, a large number of the general public not only believe they have a food intolerance but are changing their eating behaviour accordingly".

In the introductory chapter of this thesis three types of explanation for food intolerance were presented, biological, psychological and biopsychosocial interactionism. In the next section the three types of explanation are discussed in relation to the findings of this thesis.

Biological

The finding, with two separate data sets that inflammatory but not non-inflammatory symptoms are related to perceived food intolerance is consistent with an underlying biological mechanism. If symptom reporting was purely psychological there

should be no difference between the inflammatory and non-inflammatory symptoms. Thus, there seems to be something that is biologically distinct in those who report food intolerance. Although inflammatory mediators were not measured, the results suggest the possibility that people who have food intolerance have higher levels of inflammatory mediators, such IL-1, IL-6, and TNF-alpha.

Psychological

There is considerable evidence that symptom reporting is influenced by psychological state (Pennebaker, 1982). The present data is consistent with an underlying mechanism where dysphoric psychological states lead to a greater propensity to report symptoms. There are several possible mechanisms, including a greater awareness of symptoms and a greater readiness to report symptoms in those experiencing anxiety or depression.

Bio-psychosocial interactionism

A major theoretical rationale of this thesis was to examine the Hyland model that food intolerance results from a conditioned association between stress and certain types of food. The results in relation to stress were mixed. Study 1 provided evidence that some people were aware of being under greater stress when food intolerance first appeared. Thus, people's narratives of food intolerance were consistent with the Hyland model. In a longitudinal study, people were more likely to eat food that disagreed with them when they were less stressed. The finding from the longitudinal study do not provide evidence of the onset of food intolerance but suggest that people eat more foods that disagree with them when they are less stressed, and therefore, possibly, their guard is down. The final study was designed to provide an experimental investigation of the Hyland model. Unfortunately, this study failed to produce any form

of conditioned aversion due to an error made in the design phase. In retrospect it may not have been possible to achieve an experimental manipulation where a stressor was associated with food was because this association occurs only after repeated associations over a period of time. It may be that a 'one time' association in the experimental manipulation was insufficient to achieve the association. Thus, one episode of stress may not create the association with the food but repeated associations over a period of months may do so. The theoretical implication would be that it is not possible to create food intolerance in the lab, as this requires the conditions found only under everyday experiences of repeated stress. It may be that the model is incorrect, or it may be that there were methodological flaws in the study so that the manipulations were insufficiently strong to have an effect. Thus, whereas the final study was designed to provide conclusive evidence for the Hyland model, what happened was that the results were inconclusive.

7.3 Limitations

Flaws in current understanding

There are multiple and often conflicting views about food intolerance. This thesis has examined three different perspectives. Not everyone will accept each or all of these different perspectives. Food intolerance is both a quasi-medical and a term used in common language. This thesis does not resolve the debate about how the term should be used.

Stricter methods of assessment for food intolerance.

There are many potential reasons for the differences between perceived and measured food intolerances. The first is that lay people tend to use the words food intolerance more broadly than scientists therefore, even when questions are worded in

terms of food intolerance, it is likely that people will include all adverse reactions and not distinguish those involving immune function from other forms of intolerances or adverse reactions.

The shift in food intolerance description in the experimental chapters

Is food intolerance a food that disagrees with you? ‘Food that disagrees with you’ was a term used in the archived data used for study 3. It was a term used again in studies 4 and 5 because it was a more direct and succinct statement compared to the umbrella term of food intolerance, which can mean different things to different people. In study 4 it was necessary to have a more specific statement to help track a disagreed food event. Have you eaten anything that has disagreed with you? Led to a more direct yes/no answer than “have you eaten anything that you are intolerant too?” because the participant would have to think about multiple things when answering the question E.g. have I eaten a food I’m intolerant too? It is possible that they ate something they were intolerant too, yet didn’t present with any symptoms, or they ate something they were unaware they were intolerant to and presented with symptoms yet didn’t report it.

Inflammatory symptoms

The ability to assume that the populations used in the current thesis presented inflammatory symptoms was only assessed by using *The Minor Health Complaints Questionnaire (MHCQ)* (Hyland & Sodergren, 1998) a 38-item measure that assesses the frequency of common symptoms and the occurrence of minor health problems, the extent to which the individual engages in behaviours that might harm one’s health, and the results of poor health practices. The items concerning minor health complaints are clustered to create a set of factors: 1) allergic inflammatory symptoms (wheeze, sneeze, blocked nose, itchy eyes, and itchy skin), (2) gastrointestinal symptoms (constipation,

watery diarrhoea, explosive diarrhoea, and heartburn) and (3) other physical health complaints or symptoms that are not associated with chronic inflammatory disease (thrush, cystitis, colds or flu, sore throat, mouth ulcers, cold sores, and fungal infections of the scalp or groin) as stated in Whalley et al. (2007).

The labelling of the two sets of symptoms as inflammatory or non-inflammatory is based on an understanding of the underlying aetiology of the symptoms, but has not been validated in terms of underlying biological markers.

Better ways of extending this research in future could involve a combination of measuring inflammatory markers (e.g., IL-1, IL-6, and TNF-alpha) cortisol levels for stress via saliva, blood and hair samples, and IgE, which is associated mainly with allergic reactions, IgA antibodies that play a major role in protecting us from infections in mucosal surfaces, including tears, saliva, colostrum, genital, respiratory and gastrointestinal secretions areas. IgG, protects against bacterial and viral infections and IgM, which is the first antibody to be made by the body to fight a new infections. By measuring these factors they could hopefully give important information about immune system functioning, especially relating to infection, autoimmune disease or consistent biological markers that are present in people with food intolerance.

7.4 Practical implications

Food choice and eating habits have changed dramatically in the UK over the last fifty years (Foster & Lunn, 2007). Diets have been influenced by many factors: by the technologies in kitchens, by the modes of transport supplying shops, by the media, the government and by trade and migration (World Health Organization, 2003). The eating habits of our grandparents and great grandparents would be completely unrecognisable to many of us today. Modern day experiences of shopping, cooking and

eating ‘on the go’ have been transformed, as have attitudes towards health and food choice.

The increase in food intolerance over the past three decades could be a biological backlash of living in a time that our bodies weren’t designed for. Current procedure for reducing symptoms of food intolerance is by avoiding the food that disagrees with you, therefore reducing the exposure to that food.

Practical advice based on data in this thesis

- If a food intolerance has already been acquired, don’t let your guard down when not stressed and eat food that disagrees with you (Study 4).

7.5 Future directions

- Biological markers are needed to explore the hypothesis that people who reported food intolerance have an underlying systemic inflammatory state. It would be useful to replicate current findings with biological markers
- When patients report to the doctor with food intolerance, it could be useful to have a scale that identifies that they have a broader range of symptoms due to some form of systemic dysregulation. A scale measuring SSAS, neuroticism and inflammatory symptoms might be a useful guide for the need for stress-reduction therapy.

7.6 Conclusions

The existence of food intolerance is not new, it has been recognised for many years, and has been known about for thousands of years, Hippocrates noted the negative effect of cheese by writing: “Cheese does not harm all men alike; some can eat their fill of it without the slightest hurt... Others come off badly. So the constitutions of these

men differ, and the difference lies in the constituent of the body which is hostile to cheese, and is roused and stirred to action under its influence... But if cheese were bad for the human constitution without exception, it would have hurt all.” (Dean, 2000, p.1).

There are multiple meanings of food intolerance, both within the medical community and between the lay and medical community. There are also multiple explanations for the cause of food intolerance, making it hard for the medical/professional community to diagnose, understand and treat.

Medically unexplained symptoms are a common problem across general medicine, they can be presentations of recognised psychiatric disorders such as anxiety or depression; a part of operationally defined unexplained syndromes such as chronic fatigue syndrome, irritable bowel syndrome, or fibromyalgia, or simply exist as symptoms in the absence of a defined organic diagnosis (Nimnuan, Hotopf & Wessely, 2001). Medically unexplained symptoms are an important problem in general medicine not only because of their prevalence but also on account of the high associated consumption of health service resources, as stated in study three people with a greater number of foods that disagreed with them were more likely to go to the G.P. over a 12 month period.

When the biomedical model is incapable of explaining a disease or symptoms, one possible response is to suggest that the philosophy of specific pathophysiology is correct but that scientists just need longer to get it right (Hyland, 2014). Once the elements of conditions like food intolerance are properly understood and specific treatments have been developed, then these diseases will no longer pose the challenge they do today, and that medically unexplained symptoms will be explained by some pathology as yet unnoticed.

The present findings contribute to a better understanding about food intolerance and introduces new and previously unexplored dimensions about the condition. Most

importantly the findings from this thesis provides the next steps for future research about a psychoneuroimmunological basis for food intolerance and a possible psychological intervention to reduce the symptoms of self reported food intolerance.

Appendices

A. Experimental materials

A.1 Participants information sheet and questions for Study 1.

UNIVERSITY OF PLYMOUTH

FACULTY OF SCIENCE

Human Ethics Committee Consent Form

CONSENT TO PARTICIPATE IN RESEARCH PROJECT / PRACTICAL STUDY

Principal Investigator: Alexander Wheatley (Alexander.wheatley@plymouth.ac.uk)

Title of Research: The perception of food intolerance

Brief statement of purpose of work:

The aim of the focus group is to gain a better understanding of the 'perception' of food intolerance, to further the areas of investigation for an ongoing study into the phenomena of food intolerance.

The objectives of this research have been explained to me.

I understand that I am free to withdraw from the research at any stage, and ask for my data to be destroyed if I wish.

I understand that my anonymity is guaranteed, unless I expressly state otherwise.

I understand that the Principal Investigator of this work will have attempted, as far as possible, to avoid any risks, and that safety and health risks will have been separately assessed by appropriate authorities (e.g. under COSHH regulations)

Under these circumstances, I agree to participate in the research.

Name:

Age :

Sex: Male / Female

Signature:

Date:

Questions for focus group

- 1. Can you remember when your food intolerance began?**
- 2. Can you remember what your lifestyle was like in the few months before your food intolerance started?**
- 3. How does your food intolerance manifest itself?**
- 4. Do you like the food you are intolerant to and if so why?**
- 5. What does food intolerance mean to you?**
(e.g. how did you get it? Why do you have it ?)

A.2 Participants letter, consent form, questionnaire and debrief for Study 2.



**Faculty of
Science**

University of
Plymouth
Drake Circus
Plymouth
PL4 8AA
United Kingdom

Dear Plymouth Resident,

Your name has been randomly selected from the Plymouth population from the electoral register. I am asking for help in a research project about Food Intolerance in the UK. Enclosed is a short questionnaire that asks questions about your health, food intolerances and feelings.

Please:

1. Look at the questionnaire and, if you choose to do so, complete it.
2. Send it back to me using the FREEPOST envelope provided with this letter. It should take you about 10 minutes to complete.

The aim of this project is to gain better understanding about Food Intolerance in the UK. I guarantee that your answers will be anonymous, your name will not be used and the information you put in the questionnaire will be confidential.

If you have any questions about the questionnaire or about being part of this study, or if you are interested in the results of the study, you can contact me via the School of Psychology office on 01752 584 800 or email me at alexander.wheatley@plymouth.ac.uk

Thank you for your time,

Alexander Wheatley
Researcher

UNIVERSITY OF PLYMOUTH

FACULTY OF SCIENCE

Human Ethics Committee Consent Form

CONSENT TO PARTICIPATE IN RESEARCH PROJECT / PRACTICAL STUDY

Principal Investigator: Alexander Wheatley (Alexander.wheatley@plymouth.ac.uk)

Title of Research: A Population study of Food Intolerance

Brief statement of purpose of work:

The aim of the questionnaire is to gain a better understanding of people with food intolerance, to further the areas of investigation for an ongoing study into the phenomena of food intolerance.

The objectives of this research have been explained to me.

I understand that I am free to withdraw from the research at any stage, and ask for my data to be destroyed if I wish.

I understand that my anonymity is guaranteed, unless I expressly state otherwise.

I understand that the Principal Investigator of this work will have attempted, as far as possible, to avoid any risks, and that safety and health risks will have been separately assessed by appropriate authorities (e.g. under COSHH regulations)

Under these circumstances, I agree to participate in the research.

Name:

Signature:

Date:

YOUR HEALTH (continued)

On how many days in **the last month** have you had each of the following problems ?

	<i>Please tick a box for each problem</i>				
	Never	Once	2 or 3	4 - 6	7 +
9. Headaches or migraines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Constipation (hard pelley stools)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Watery diarrhoea (loose stools running like water)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Explosive diarrhoea (loose stools mixed with wind)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Heartburn (indigestion pain)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Itchy eyes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Difficulty sleeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Feeling very tired for no reason	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Thirsty for no reason	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How well do the following statements describe you ?

Please tick a box for each question

	No	A little	Yes
18. Would you consider yourself a clumsy person ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Do you get anxious easily ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Do you get depressed easily ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Do you often feel hungry shortly after you have eaten a large meal ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Do you have patches of dry itchy skin (eczema) ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Do you sneeze a lot even when you do not have a cold ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Do you have a blocked nose even when you do not have a cold ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Do you have vivid daydreams that seem almost real ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do You see yourself as someone who...					
<i>Please tick one box for each question</i>	Disagree strongly	Disagree	Neither agree or disagree	Agree	Agree strongly
1. ... Is reserved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. ... Is generally trusting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. ... Tends to be lazy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. ... Is relaxed, handles stress well	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. ... Has few artistic interests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. ... Is outgoing, sociable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. ... Tends to find fault with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. ... Does a thorough job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. ... Gets nervous easily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. ...Has an active imagination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How well do the following statements describe you ?					
<i>Please tick one box for each question</i>	Disagree strongly	Disagree	Neither agree or disagree	Agree	Agree strongly
1. When someone else coughs, it makes me cough too	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I can't stand smoke, smog, or pollutants in the air	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I am often aware of various things happening within my body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. When I bruise myself, it stays noticeable for a long time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Sudden noises really bother me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I can sometimes hear my pulse or my heart beat throbbing in my ear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I hate to be too hot or too cold	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I am quick to sense the hunger contractions in my stomach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Even something minor like an insect bite or a splinter really bothers me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I have a low tolerance to pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

UNIVERSITY OF PLYMOUTH
FACULTY OF SCIENCE

RESEARCH INFORMATION SHEET

Name of Principal Investigator: Alexander Wheatley
(Alexander.wheatley@plymouth.ac.uk)

Title of Research: A Population study of Food Intolerance

Aim of research:

Food intolerance is a condition which affects a self reported 20–33% of the UK population. Its aetiology and mechanisms are still unclear and constantly under debate. Yet not much has been studied into the personality and general health of people with food intolerance.

The aim of the study is to gain a better understanding about food intolerance, to further the areas of investigation for an ongoing study into the phenomena of food intolerance.

Thank you for taking part in the study if you have any further questions please don't hesitate to ask or you can contact me at Alexander.wheatley@plymouth.ac.uk.

Your name will only be used when signing the consent form, this is not shown in the final report. The questionnaire data will be identified by using the participant's number assigned to you at the beginning of the experiment, never by name.

If you wish to withdraw at any time after the study please email me on the address above with your participant reference number.

If you are dissatisfied with the way the research is conducted, please contact the principal investigator in the first instance email: Alexander.wheatley@plymouth.ac.uk .
If you feel the problem has not been resolved please contact the secretary to the Faculty of Science Human Ethics Committee: Mrs Paula Simson, email: paula.simson@plymouth.ac.uk telephone: 01752 232984.

A.3 *Example of archived questionnaire pack used for Study 3.*

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LIFESTYLE, HEALTH, DIET AND THE MENOPAUSE

Department of Psychology
University of Plymouth
Drake Circus
Plymouth
PL4 8AA

Pamela A. Jacobs
Michael E. Hyland
Julie Grffin
Tel: 01752 233216
Fax: 01752 233176

This questionnaire asks you about your health, lifestyle, diet, friends and feelings. Please answer all the questions as accurately as possible.

Age 48 Occupation special Needs ASST. Marital Status WIDOW

Number of Children 1 How old were you when you had your first child? 34

How old were you when you had your last child? —

How old you were when you left full time education? 16

Please give the name of the last school, college or university examinations you took CITY + GUILDS
(e.g. School leaving certificate, G.C.E.'s, C.S.E.'s, degree, BTEC, etc.) (special Needs)

How old were you when you had your first menstrual cycle? 11

Were you older, the same age, or younger than your friends? SAME

1. Your Menstrual Cycle Now

- I have had regular periods during the last 12 months Please
I have had periods during the last 12 months but with tick
changes in regularity or flow the closest
I have not had a period during the last 12 months to you

Do you have a history of menstrual cycle problems? YES/NO
If yes, how old were you when you first noticed these problems? —

Please describe the type of problems experienced and treatments —
—
—

2. The Menopause

- I have not reached the menopause Please
I have just reached the menopause tick
I am in the middle of the menopause the
I have reached the end of the menopause closest
I reached the menopause long ago to you

If you have reached the menopause please describe the change(s) that first alerted you to this. HOT LEGS, NIGHT SWEATS, SORE BREASTS
SWOLLEN STOMACH BUT NO PERIOD

Have you had a hysterectomy? YES NO Please tick as appropriate

If YES, how old were you when you had your hysterectomy? —

Have you had either or both of your ovaries removed? One Both Neither

3. HRT Use

I am currently using HRT
 I have used HRT in the past but am not using it now
 I have never used HRT
 I have used more than one brand/type of HRT

- Please
- tick
- as
- appropriate

If you are using HRT at the moment, what is it called (e.g. Premarin 0.625, Prempak-C 1.25, or other name and dosage level on the packet)?

How often have you visited your doctor in the last 12 months?

_____ TWICE _____

Please list any other medication you take regularly (e.g., in the last 2 months).

Please list any alternative medication or vitamin supplement you take regularly (e.g., in the last 2 months) for menopausal symptoms or for other health problems.

_____ ALOE VERA JUICE _____

Please list any major illnesses/chronic health problems you have experienced.

Have you ever taken the Pill, if yes, for about how many years, and which one?

_____ FROM 20 - 25 (small yellow pill can't remember name.) _____

4. HEALTH QUESTIONS

How many times have you had each of the following health complaints in the last year?

Please tick one box for each health complaint

	None	1	2 or 3	4 or 5	6 or 7	How long did it last
Colds or flu	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2/3 day
Athletes foot	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Wheeze	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	few hour
Mouth ulcers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sore throats	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2/3 day
Fungal infections of groin or scalp	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Thrush	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cystitis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cold Sores	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

5. On how many days in the last month have you had each of the following problems?

Please tick one box for each problem

	Never	Once	2 or 3	4 - 6	7 or more
Headaches or migraines	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Constipation (hard pelley stools)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Watery diarrhoea (loose stools running out like water)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Explosive diarrhoea (loose stools mixed with wind)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heartburn (indigestion pain)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Itchy eyes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Difficulty sleeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Feeling very tired for no reason	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thirsty for no reason	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Please tick one box for each question

	No	A little	Yes
Are you prone to accidents?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Would you consider yourself a clumsy person?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you get anxious easily?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Do you get depressed easily?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you often feel hungry shortly after you have eaten a large meal?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Do you have a lot of dental fillings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Do you have patches of dry itchy skin (eczema)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you sneeze a lot even when you do not have a cold?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Do you have a blocked nose even when you do not have a cold?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Do you get back pain?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Do you have painful joints?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

7. Please tick,

Would you describe yourself as someone who,

Typically feels the cold (ie. cold feet, wears lots of clothes).

Typically feels too warm (ie. feels uncomfortable in shops when wearing a coat).

Alternates between being too hot and too cold.

Neither a cold, nor a hot person.

LIFESTYLE QUESTIONS

8. Activities and fitness

On a scale of 1 to 10, how physically fit are you. (10 = extremely fit, could run a marathon. 1 = extremely unfit, struggle to climb stairs). 3

How many days a week do you take part in physical sport or exercise? 0

On average, how many hours per day do you watch television.

On weekdays 2/3

On weekends 5/8

Please list your most common forms of exercise, (e.g. walking, swimming, aroebics etc.)

walking

9. Please complete the box(es)

Which best describes your body build?

Thin

Medium

Well padded

Do you smoke?

Never

Occasionally

Everyday

When you go to bed, do you take a drink with you?

Yes

No

On average how many times do you urinate at night?

~~Never~~/almost never

Once

Twice

Three or more

10. FRIENDS AND FEELINGS

I am in physical pain,

- Often
- Sometimes
- Rarely
- Never

I tend to believe everything will turn out all right,

- Often
- Sometimes
- Rarely
- Never

I believe I have control over my life,

- Often
- Sometimes
- Rarely
- Never

I feel younger than my age,

- Often
- Sometimes
- Rarely
- Never

I have friends whom I can turn to for support,

- Often
- Sometimes
- Rarely
- Never

Tick the one that best applies

- I have one or two close friends
- I have a small group of close friends
- I have a large group of friends

I feel I must hold in feelings of anger,

- Often
- Sometimes
- Rarely
- Never

I end up doing things because other people want me to,

- Often
- Sometimes
- Rarely
- Never

I am in emotional pain,

- Often
- Sometimes
- Rarely
- Never

I believe that my behaviour will affect my health,

- Often
- Sometimes
- Rarely
- Never

I belong to social/voluntary groups, eg. WI, church.

- None
- One or two
- Three or more

I am satisfied with my sex life,

- Yes
- No

Don't have one.

Please list your current sources of stress and hassles, e.g. work, relationships, finances, family worries etc.

1. work
2. children
3. money
4. _____
5. _____

On a scale of 1 to 10, how stressful are each of these problems, (1 = minimum stress, 10 = maximum stress)

1. = 7
2. = 5
3. = 10
4. = _____
5. = _____

11. DIET

Do you follow a special diet? NO

If yes, please describe the type of diet you follow: e.g. low fat, vegetarian, diabetic etc.

Write any foods you avoid because they disagree with you. garlic / too much butter / cream

On average, how often do you have the following foods and drinks (put a tick on every line)

If you have more than one per day, please state in the brackets how many times per day you eat these foods.

	more than once per day	most days	every other day	about twice per week	once per week	once per month	never or almost never
Chips or roast potatoes	<input checked="" type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mashed or boiled potatoes	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pasta	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rice	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Green vegetables (broccoli, cabbage, courgettes, green beans, etc.)	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Root vegetables (carrots, parsnips, turnips)	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Salads (cucumber, tomato, lettuce)	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yoghurt	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Marmite (or other yeast extract)	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mayonnaise	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Beefburgers/hot-dogs	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sausage rolls/sausages	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fresh/Oily fish	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chicken or Turkey	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Beef, lamb, pork or bacon	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Peanut butter	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cake	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ice cream	<input type="checkbox"/> ()	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blue Cheese	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other Cheeses	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Baked potatoes	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fruit	<input type="checkbox"/> ()	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Beans/peas/lentils	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chocolate	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sweet puddings/desserts	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biscuits	<input type="checkbox"/> ()	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Crackers	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Butter	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Margarine	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Olive oil	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vegetable oil	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lard	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
White bread	<input type="checkbox"/>	()	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wholemeal bread	<input type="checkbox"/>	()	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Crispbreads	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Potato crisps	<input type="checkbox"/>	()	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Savoury snacks	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Packets of sweets	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

12. On average, how often do you have the following drinks (put a tick on every line)

If you have more than one per day, please state in the brackets how many times per day you drink these.

	more than once per day	most days	every other day	about twice per week	once per week	once per month	never or almost never
DRINKS :							
If you have any of the following more than once per day, please write how many cups/glasses you take;							
Tap water/bottled water	<input type="checkbox"/>	(1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fruit juice	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Low calorie /dietdrinks	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alcoholic drinks	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Coffee	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tea	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Do you take sugar in your drinks?							
Yes	<input checked="" type="checkbox"/>						
No	<input type="checkbox"/>						
If so, how many in each drink?							
	2						

Please list the foods you feel you eat too much of:

COKE, BISCOITS, CRISPS

Please list the foods you feel you should be eating more of:

FRUIT / VEG.

13. This questionnaire asks about Quality of Life and the Menopause.

Please read each of the following statements and circle one of the numbers from 1 to 6 to show how often you are like the statement.

	<i>I am never like this</i>						<i>I am always like this</i>
<i>SLEEP</i>							
1	1	2	3	4	5	6	
2	1	2	3	4	5	6	
3	1	2	3	4	5	6	
4	1	2	3	4	5	6	
5	1	2	3	4	5	6	
6	1	2	3	4	5	6	
<i>ENERGY</i>							
7	1	2	3	4	5	6	
8	1	2	3	4	5	6	
9	1	2	3	4	5	6	
10	1	2	3	4	5	6	
<i>MEMORY</i>							
11	1	2	3	4	5	6	
12	1	2	3	4	5	6	
13	1	2	3	4	5	6	
14	1	2	3	4	5	6	
<i>FEELINGS</i>							
15	1	2	3	4	5	6	
16	1	2	3	4	5	6	
17	1	2	3	4	5	6	
18	1	2	3	4	5	6	
19	1	2	3	4	5	6	
20	1	2	3	4	5	6	
21	1	2	3	4	5	6	
22	1	2	3	4	5	6	
23	1	2	3	4	5	6	
24	1	2	3	4	5	6	
25	1	2	3	4	5	6	

	<i>I am never like this</i>					<i>I am always like thi</i>
<i>LOVELIFE Do you have a sex partner at present?</i>						
YES <input type="checkbox"/> NO <input type="checkbox"/>						
26 I am too tired for sex	1	2	3	4	5	6
27 I am more interested in sex	1	2	3	4	5	6
28 I find intercourse uncomfortable because of dryness	1	2	3	4	5	6
29 I enjoy sex as much as ever	1	2	3	4	5	6
<i>HOME LIFE/EVERYDAY ACTIVITIES</i>						
30 I get very irritable with people at home	1	2	3	4	5	6
31 I lose my temper over small things	1	2	3	4	5	6
32 I scream and shout at people at home	1	2	3	4	5	6
33 I find housework easy	1	2	3	4	5	6
34 Because of my symptoms, I sometimes have to get out of places, e.g. supermarket, bus	1	2	3	4	5	6
35 I have a good appetite	1	2	3	4	5	6
<i>WORK ACTIVITIES (this includes working at home, voluntary, paid and unpaid work)</i>						
36 I am finding it increasingly difficult to do my work	1	2	3	4	5	6
37 I'm afraid to tell anyone at work how I feel	1	2	3	4	5	6
38 My symptoms do not interfere with my work	1	2	3	4	5	6
39 At times I want to lock myself away at work	1	2	3	4	5	6
40 I can work hard if I want to	1	2	3	4	5	6
41 I worry about missing work because of my symptoms	1	2	3	4	5	6
42 I worry that I might snap at friends or at people at work	1	2	3	4	5	6
<i>SOCIAL LIFE & LEISURE ACTIVITIES</i>						
43 I enjoy chatting as much as I ever did	1	2	3	4	5	6
44 I am more reclusive than I would like	1	2	3	4	5	6
45 Because of my symptoms, I miss out on leisure activities	1	2	3	4	5	6
46 Things I used to enjoy have become a bit of a chore	1	2	3	4	5	6
47 I can concentrate on hobbies for as long as I used to	1	2	3	4	5	6
48 I feel enthusiastic about things	1	2	3	4	5	6

14. Please use this space for any comments you may wish to make about your menopause or experiences with HRT

I have to say since I started taking HRT I have not actually had any periods. They were irregular, heavy and lengthy before.

I have never tried HRT and because I haven't consulted the doctor with any problems, it has never come up.

Please complete the overall quality of life question on the next page

15. OVERALL QUALITY OF LIFE

PLEASE CIRCLE THE NUMBER WHICH BEST DESCRIBES YOUR QUALITY OF LIFE OVERALL

100	Perfect quality of life
95	Nearly perfect quality of life
90	
85	Very good quality of life
80	
75	
70	Good quality of life
65	
60	Moderately good quality of life
55	
50	
45	
40	Somewhat bad quality of life
35	
30	Bad quality of life
25	
20	
15	Very bad quality of life
10	
5	Extremely bad quality of life
0	NO quality of life

THANK YOU FOR HELPING US.

COMPLEMENTARY ALTERNATIVE APPROACHES, TREATMENTS & THERAPIES

1. Do you take any vitamin and/or mineral supplementations? Yes No

If yes, which ones? fish oil, B12, Vit D, Vit C ✓

2. a. Have you ever consulted an alternative/complementary therapist for treatment, homeopathy, reflexology, hypnotism, acupuncture, etc? Yes No

b. If yes would you give brief details, which type and for what reason, ✓

c. If no, would you consider using one of these approaches for a specific health complaint? Yes No

d. Do you believe these approaches can be an effective alternative or complement to conventional medicine? ✓
Yes No

e. Would you use them for the relief of menopausal symptoms? ✓
Yes No

3. Please use this space to give any further information you believe is important about your views on complementary/alternative approaches, treatments and therapies.

A.4 Baseline questionnaire and daily questionnaire for Study 4.

Baseline questionnaire

Foods that disagree with you.

As you know, we're interested in how food makes people feel, and whether some foods disagree with people.

Are there any foods which disagree with you, and make you feel bad?

Not at all A little bit Somewhat Moderately Quite a bit Quite a lot Very much so

If there are foods which disagree with you, please indicate which is the PRIMARY symptom you experience after eating this food

- Stomach pain
- Bloating
- Nausea
- Diarrhoea
- Constipation
- Heartburn
- Feeling tired

Ok - before we finish we just need to ask a few more questions about you.

Please indicate whether you think the following statements apply to you:

How well do the following statements describe you?

Is depressed, blue

Not at all A little bit Somewhat Moderately Quite a bit Quite a lot Very much so

Is relaxed, handles stress well.

Not at all A little bit Somewhat Moderately Quite a bit Quite a lot Very much so

Can be tense

Not at all A little bit Somewhat Moderately Quite a bit Quite a lot Very much so

Worries a lot

Not at all A little bit Somewhat Moderately Quite a bit Quite a lot Very much so

Is emotionally stable, not easily upset

- Not at all A little bit Somewhat Moderately Quite a bit Quite a lot Very much so

Can be moody

- Not at all A little bit Somewhat Moderately Quite a bit Quite a lot Very much so

Remains calm in tense situations

- Not at all A little bit Somewhat Moderately Quite a bit Quite a lot Very much so

Gets nervous easily

- Not at all A little bit Somewhat Moderately Quite a bit Quite a lot Very much so

When someone else coughs, it makes me cough too.

- Disagree strongly
 Disagree
 Neither agree nor disagree
 Agree
 Agree strongly

I have a low tolerance to pain.

- Disagree strongly
 Disagree
 Neither agree nor disagree
 Agree
 Agree strongly

I can't stand smoke, smog or pollutants in the air.

- Disagree strongly
 Disagree
 Neither agree nor disagree
 Agree
 Agree strongly

I am often aware of various things happening with my body.

- Disagree strongly
 Disagree
 Neither agree nor disagree
 Agree
 Agree strongly

When I bruise myself, it stays noticeable for a long time.

- Disagree strongly
 Disagree
 Neither agree nor disagree
 Agree
 Agree strongly

Sudden noises really bother me.

- Disagree strongly
 Disagree
 Neither agree nor disagree
 Agree
 Agree strongly

I can sometimes hear my pulse or my heart beat throbbing in my ear.

- Disagree strongly
 Disagree
 Neither agree nor disagree
 Agree
 Agree strongly

I hate to be too hot or too cold.

- Disagree strongly
- Disagree
- Neither agree nor disagree
- Agree
- Agree strongly

I am quick to sense the hunger contractions in my stomach.

- Disagree strongly
- Disagree
- Neither agree nor disagree
- Agree
- Agree strongly

Even something minor like an insect bite or a splinter really bothers me.

- Disagree strongly
- Disagree
- Neither agree nor disagree
- Agree
- Agree strongly

Save Answers →

Ben Whalley, 2012

Daily Questionnaire sent 4 times a day to participant for 1 week

HEALTH PSYCHOLOGY
WITH
PLYMOUTH
UNIVERSITY

[Home](#) [Take Part](#)
Awheatley101, see your [\[list of tasks to do\]](#) (Not Awheatley101? [\[Click here\]](#))

How is do you feel, right now?

- 3 Very Sad -2 -1 0 1 2 3 Very Happy

Have you experienced any hassles or difficulties today? (if hassles are things that other people do that make your life harder)

- Not at all 2 3 4 5 6 A great deal

In the past 24 hours, would you say you have you eaten foods which normally disagree with you?

- Not at all A little bit Somewhat Moderately Quite a bit Quite a lot Very much so

If so, what was it that you ate which normally disagrees with you?

Are you experiencing any physical symptoms of having eaten food which disagrees with you?
(these might include, but are not limited to, bloating, stomach pain, constipation, diarrhoea etc.)

- Not at all
- A little bit
- Somewhat
- Moderately
- Quite a bit
- Quite a lot
- Very much so

Save Answers →

Ben Whalley, 2012

A.5 consent form, questionnaires and debrief for Study 5.

**UNIVERSITY OF PLYMOUTH
FACULTY OF SCIENCE AND TECHNOLOGY
Human Ethics Committee Consent Form**

CONSENT TO PARTICIPATE IN RESEARCH PROJECT / PRACTICAL STUDY

Name of Principal Investigator: Alexander Wheatley (Alexander.wheatley@plymouth.ac.uk)

Title of Research: An experiment to explore the effects of sugar with nitrous oxide on pain.

Brief statement of purpose of work:

The aim of the study is to gain a better understanding about the effect of sugar with nitrous oxide on pain. This is a 2-part study, in a minute you will be asked to eat a sweet /or not (due to the condition you are in) before doing a cold pressor task where you will put your hands in cold water for a limited amount of time. In the second part of the study (the day after the first test) you will be asked to do the same again but this time you will also be asked to inhale a small amount of nitrous oxide (laughing gas) before the cold pressor task to see if there are any differences in pain response.

Due to the physical risk implications you can't do this study if you have:

-Any condition stopping you from eating vegetarian gluten free sweets, or if you have a reaction or problem with the ingredient's listed: Sugar, Glucose Syrup, Citric Acid, Colours - E102, E142 and may also contain nuts.

-Any condition that will be exacerbated by or stops you from putting your hand in very cold water (e.g. poor circulation, Arthritis or Raynauds disease).

- The inability to breathe in a controlled amount of nitrous oxide as part of the experimental condition.

The objectives of this research have been explained to me.

I understand that I am free to withdraw from the research at any stage, and ask for my data to be destroyed if I wish.

I understand that my anonymity is guaranteed, unless I expressly state otherwise.

I understand that the Principal Investigator of this work will have attempted, as far as possible, to avoid any risks, and that safety and health risks will have been separately assessed by appropriate authorities (e.g. under COSHH regulations)

Under these circumstances, I agree to participate in the research.

Name:

Signature:

Date:

Please tick or fill in the appropriate answers below:

Age:

Gender :

Male

Female

	Yes	No	(If yes) What Food(s) is it?
Do you have any food that disagrees with you?	<input type="checkbox"/>	<input type="checkbox"/>	
Do you have any food intolerance?	<input type="checkbox"/>	<input type="checkbox"/>	
Do you have any food allergies?	<input type="checkbox"/>	<input type="checkbox"/>	

How well do the following statements describe you ?					
<i>Please tick one box for each question</i>	Disagree strongly	Disagree	Neither agree or disagree	Agree	Agree strongly
1. When someone else coughs, it makes me cough too	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I can't stand smoke, smog, or pollutants in the air	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I am often aware of various things happening within my body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. When I bruise myself, it stays noticeable for a long time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Sudden noises really bother me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I can sometimes hear my pulse or my heart beat throbbing in my ear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I hate to be too hot or too cold	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I am quick to sense the hunger contractions in my stomach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Even something minor like an insect bite or a splinter really bothers me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I have a low tolerance to pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do You see yourself as someone who...					
<i>Please tick one box for each question</i>	Disagree strongly	Disagree	Neither agree or disagree	Agree	Agree strongly
1. ... Is reserved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. ... Is generally trusting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. ... Tends to be lazy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. ... Is relaxed, handles stress well	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. ... Has few artistic interests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. ... Is outgoing, sociable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. ... Tends to find fault with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. ... Does a thorough job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. ... Gets nervous easily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. ...Has an active imagination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word. **Indicate to what extent you have felt this way over the past week.**

1	2	3	4	5
Very Slightly or Not at All	A Little	Moderately	Quite a Bit	Extremely

_____ 1. Interested	_____ 11. Irritable
_____ 2. Distressed	_____ 12. Alert
_____ 3. Excited	_____ 13. Ashamed
_____ 4. Upset	_____ 14. Inspired
_____ 5. Strong	_____ 15. Nervous
_____ 6. Guilty	_____ 16. Determined
_____ 7. Scared	_____ 17. Attentive
_____ 8. Hostile	_____ 18. Jittery
_____ 9. Enthusiastic	_____ 19. Active
_____ 10. Proud	_____ 20. Afraid

This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word. **Indicate to what extent you feel this way right now, that is, at the present moment.**

1	2	3	4	5
Very Slightly or Not at All	A Little	Moderately	Quite a Bit	Extremely

<p>_____ 1. Interested</p> <p>_____ 2. Distressed</p> <p>_____ 3. Excited</p> <p>_____ 4. Upset</p> <p>_____ 5. Strong</p> <p>_____ 6. Guilty</p> <p>_____ 7. Scared</p> <p>_____ 8. Hostile</p> <p>_____ 9. Enthusiastic</p> <p>_____ 10. Proud</p>	<p>_____ 11. Irritable</p> <p>_____ 12. Alert</p> <p>_____ 13. Ashamed</p> <p>_____ 14. Inspired</p> <p>_____ 15. Nervous</p> <p>_____ 16. Determined</p> <p>_____ 17. Attentive</p> <p>_____ 18. Jittery</p> <p>_____ 19. Active</p> <p>_____ 20. Afraid</p>
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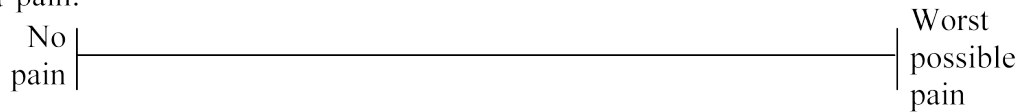
Short-Form McGill Pain Questionnaire:

I. Pain Rating Index (PRI):

The words below describe average pain. Place a check mark (✓) in the column that represents the degree to which you feel that type of pain. Please limit yourself to a description of the pain in your hand area only:

		None	Mild	Moderate	Severe	
a	Throbbing	0	1	2	3	
	Shooting	0	1	2	3	
	Stabbing	0	1	2	3	
	Sharp	0	1	2	3	
	Cramping	0	1	2	3	
	Gnawing	0	1	2	3	
	Hot-Burning	0	1	2	3	
	Aching	0	1	2	3	
	Heavy	0	1	2	3	
	Tender	0	1	2	3	
	Splitting	0	1	2	3	
	b	Tiring-Exhausting	0	1	2	3
		Sickening	0	1	2	3
Fearful		0	1	2	3	
Punishing-Cruel		0	1	2	3	

II. Present Pain Intensity (PPI)–Visual Analog Scale (VAS). Tick along scale below for hand pain:



III. Evaluative overall intensity of total pain experience. Please limit yourself to a description of the pain in your hand area only. Place a check mark (✓) in the appropriate column:

Evaluative		
0	No pain	
1	Mild	
2	Discomforting	
3	Distressing	
4	Horrible	
5	Excruciating	

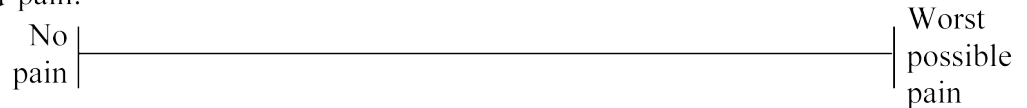
Short-Form McGill Pain Questionnaire:

I. Pain Rating Index (PRI):

The words below describe average pain. Place a check mark (✓) in the column that represents the degree to which you feel that type of pain. Please limit yourself to a description of the pain in your hand area only:

		None	Mild	Moderate	Severe	
a	Throbbing	0	1	2	3	
	Shooting	0	1	2	3	
	Stabbing	0	1	2	3	
	Sharp	0	1	2	3	
	Cramping	0	1	2	3	
	Gnawing	0	1	2	3	
	Hot-Burning	0	1	2	3	
	Aching	0	1	2	3	
	Heavy	0	1	2	3	
	Tender	0	1	2	3	
	Splitting	0	1	2	3	
	b	Tiring-Exhausting	0	1	2	3
		Sickening	0	1	2	3
Fearful		0	1	2	3	
Punishing-Cruel		0	1	2	3	

II. Present Pain Intensity (PPI)–Visual Analog Scale (VAS). Tick along scale below for hand pain:



III. Evaluative overall intensity of total pain experience. Please limit yourself to a description of the pain in your hand area only. Place a check mark (✓) in the appropriate column:

Evaluative		
0	No pain	
1	Mild	
2	Discomforting	
3	Distressing	
4	Horrible	
5	Excruciating	

How Dizzy do you feel, Please circle the appropriate number:

0	Nothing At All
0.3	
0.5	Extremely Weak
0.7	
1	Very Weak
1.5	
2	Weak
2.5	
3	Moderate
4	
5	Strong
6	
7	Very Strong
8	
9	
10	Extremely Strong
11	
4	
	Absolute Maximum

**UNIVERSITY OF PLYMOUTH
FACULTY OF SCIENCE AND TECHNOLOGY**

RESEARCH INFORMATION SHEET

Name of Principal Investigator: Alexander Wheatley
(Alexander.wheatley@plymouth.ac.uk)

Title of Research:
An experiment to explore the effects of sugar with nitrous oxide on pain.

Aim of research:

The Real aim of the study is to gain a better understanding about developing perceived food intolerance due to being high in somatosensory amplification and high in neuroticism. It was shown in my previous population study that people who reported being high in neuroticism and high in somatosensory amplification were 20% more likely to report having perceived food intolerance.

In this study we intended to create a conditioned taste aversion (CTA) in a general student population to assess if participants who score greater in neuroticism and somatosensory amplification are more likely to develop a CTA to an experimental conditioned negative event which could be misunderstood as a food intolerance.

You should have already been made aware that the nitrous oxide part of the experiment was fake and you were just breathing in air. Deception was used with the use of a sham nitrous oxide machine in the aid of measuring placebo dizziness of the participant. This was needed to measure the possibility of developing a conditioned taste aversion from the prior session, which was the pivotal outcome measure for the success of the experiment.

Thank you for taking part in the study if you have any further questions or concerns please don't hesitate to ask or you can contact me at
Alexander.wheatley@plymouth.ac.uk.

Your name will only be used when signing the consent form, this is not shown in the final report. The questionnaire data will be identified by using the participant's number assigned to you at the beginning of the experiment, never by name.

If you wish to withdraw at any time after the study please email me on the address above.

If you are dissatisfied with the way the research is conducted, please contact the principal investigator in the first instance email: Alexander.wheatley@plymouth.ac.uk . If you feel the problem has not been resolved please contact the secretary to the Faculty of Science Human Ethics Committee: Mrs Paula Simson, email: paula.simson@plymouth.ac.uk telephone: 01752 584503.

B. Scales used

B.1. The Minor health complaint questionnaire (MHCQ.)

YOUR HEALTH					
How many times have you had each of the following health complaints in the last year ?					
<i>Please tick a box for each complaint</i>					
	Never	1	2 or 3	4 or 5	6 or 7
1. Colds or Flu	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Athletes foot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Wheeze	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Mouth ulcers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Sore throat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Fungal infection of groin or scalp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Cystitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Thrush (answer only if female)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

YOUR HEALTH (continued)					
On how many days in the last month have you had each of the following problems ?					
<i>Please tick a box for each problem</i>					
	Never	Once	2 or 3	4 - 6	7 +
9. Headaches or migraines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Constipation (hard pellety stools)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Watery diarrhoea (loose stools running like water)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Explosive diarrhoea (loose stools mixed with wind)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Heartburn (indigestion pain)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Itchy eyes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Difficulty sleeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Feeling very tired for no reason	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Thirsty for no reason	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How well do the following statements describe you ?			
<i>Please tick a box for each question</i>			
	No	A little	Yes
18. Would you consider yourself a clumsy person ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Do you get anxious easily ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Do you get depressed easily ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Do you often feel hungry shortly after you have eaten a large meal ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Do you have patches of dry itchy skin (eczema) ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Do you sneeze a lot even when you do not have a cold ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Do you have a blocked nose even when you do not have a cold ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Do you have vivid daydreams that seem almost real ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B.2. Short version of the Big five inventory (BFI-10).

Do You see yourself as someone who...					
<i>Please tick one box for each question</i>	Disagree strongly	Disagree	Neither agree or disagree	Agree	Agree strongly
1. ... Is reserved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. ... Is generally trusting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. ... Tends to be lazy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. ... Is relaxed, handles stress well	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. ... Has few artistic interests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. ... Is outgoing, sociable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. ... Tends to find fault with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. ... Does a thorough job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. ... Gets nervous easily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. ...Has an active imagination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B.3. Somatosensory amplification scale (SSAS).

How well do the following statements describe you ?					
<i>Please tick one box for each question</i>	Disagree strongly	Disagree	Neither agree or disagree	Agree	Agree strongly
1. When someone else coughs, it makes me cough too	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I can't stand smoke, smog, or pollutants in the air	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I am often aware of various things happening within my body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. When I bruise myself, it stays noticeable for a long time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Sudden noises really bother me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I can sometimes hear my pulse or my heart beat throbbing in my ear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I hate to be too hot or too cold	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I am quick to sense the hunger contractions in my stomach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Even something minor like an insect bite or a splinter really bothers me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I have a low tolerance to pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B.4. Food allergy question incorporated into a broad consumer questionnaire used in study 2 (Altman & Chiraramonte, 1997)

ABOUT FOOD ALLERGIES

1. Does anyone in your household have a food allergy

Yes 8-1 No 2 → (Go to the next section)

If "Yes", let me know their age and sex, as well as their allergy:

<u>Age</u>	<u>Sex</u>	<u>Describe allergy(s) such as milk, shellfish, peanuts, etc.</u>
_____	1 2 M <input type="checkbox"/> F <input type="checkbox"/>	_____ 9-13
_____	1 2 M <input type="checkbox"/> F <input type="checkbox"/>	_____ 14-18
_____	1 2 M <input type="checkbox"/> F <input type="checkbox"/>	_____ 19-23

B.5. Menopausal quality of life questionnaire.

This questionnaire asks you about your health, lifestyle, diet, friends and feelings. Please answer all the questions as accurately as possible.

Age 48 ^{special Needs} Occupation ASST. Marital Status WIDOW

Number of Children 1 How old were you when you had your first child? 34

How old were you when you had your last child? —

How old you were when you left full time education? 16

Please give the name of the last school, college or university examinations you took CITY + GUILDS
(e.g. School leaving certificate, G.C.E.'s, C.S.E.'s, degree, BTEC, etc.) (special Needs)

How old were you when you had your first menstrual cycle? 11

Were you older, the same age, or younger than your friends? SAME

1. Your Menstrual Cycle Now

- I have had regular periods during the last 12 months Please
I have had periods during the last 12 months but with tick
changes in regularity or flow the closest
I have not had a period during the last 12 months to you

Do you have a history of menstrual cycle problems? YES/NO NO
If yes, how old were you when you first noticed these problems? —

Please describe the type of problems experienced and treatments —
—
—

2. The Menopause

- I have not reached the menopause Please
I have just reached the menopause tick
I am in the middle of the menopause the
I have reached the end of the menopause closest
I reached the menopause long ago to you

If you have reached the menopause please describe the change(s) that first alerted you to this. HOT LEGS, NIGHT SWEATS, SORE BREASTS
SWOLLEN STOMACH BUT NO PERIOD

Have you had a hysterectomy? YES NO Please tick as appropriate

If YES, how old were you when you had your hysterectomy? —

Have you had either or both of your ovaries removed? One Both Neither

3. HRT Use

I am currently using HRT
I have used HRT in the past but am not using it now
I have never used HRT
I have used more than one brand/type of HRT

- Please
- tick
- as
- appropriate

If you are using HRT at the moment, what is it called (e.g. Premarin 0.625, Prempak-C 1.25, or other name and dosage level on the packet)?

How often have you visited your doctor in the last 12 months?

_____ TWICE _____

Please list any other medication you take regularly (e.g., in the last 2 months).

Please list any alternative medication or vitamin supplement you take regularly (e.g., in the last 2 months) for menopausal symptoms or for other health problems.

_____ ALOE VERA JUICE _____

Please list any major illnesses/chronic health problems you have experienced.

Have you ever taken the Pill, if yes, for about how many years, and which one?

_____ FROM 20 - 25 (small yellow pill can't remember name.) _____

LIFESTYLE QUESTIONS

8. Activities and fitness

On a scale of 1 to 10, how physically fit are you.
(10 = extremely fit, could run a marathon.
1 = extremely unfit, struggle to climb stairs). 3

How many days a week do you take part in
physical sport or exercise? 0

On average, how many hours per day do you
watch television.

On weekdays

On weekends

2/3

5/8

Please list your most common forms of exercise,
(e.g. walking, swimming, aroebics etc.)

walking

9. Please complete the box(es)

Which best describes
your body build?

Thin

Medium

Well padded

Do you smoke?

Never

Occasionally

Everyday

When you go to bed, do
you take a drink with
you?

Yes

No

On average how many
times do you urinate at
night?

~~Never~~/almost never

Once

Twice

Three or more

10. FRIENDS AND FEELINGS

I am in physical pain,

- Often
- Sometimes
- Rarely
- Never

I feel I must hold in feelings of anger,

- Often
- Sometimes
- Rarely
- Never

I tend to believe everything will turn out all right,

- Often
- Sometimes
- Rarely
- Never

I end up doing things because other people want me to,

- Often
- Sometimes
- Rarely
- Never

I believe I have control over my life,

- Often
- Sometimes
- Rarely
- Never

I am in emotional pain,

- Often
- Sometimes
- Rarely
- Never

I feel younger than my age,

- Often
- Sometimes
- Rarely
- Never

I believe that my behaviour will affect my health,

- Often
- Sometimes
- Rarely
- Never

I have friends whom I can turn to for support,

- Often
- Sometimes
- Rarely
- Never

I belong to social/voluntary groups, eg. WI, church.

- None
- One or two
- Three or more

Tick the one that best applies

- I have one or two close friends
- I have a small group of close friends
- I have a large group of friends

I am satisfied with my sex life,

- Yes
- No

Don't have one.

Please list your current sources of stress and hassles, e.g. work, relationships, finances, family worries etc.

1. work 4. _____
 2. children 5. _____
 3. money

On a scale of 1 to 10, how stressful are each of these problems, (1 = minimum stress, 10 = maximum stress)

1. = 7 4. = _____
 2. = 5 5. = _____
 3. = 10

11. DIET

Do you follow a special diet? NO

If yes, please describe the type of diet you follow: e.g. low fat, vegetarian, diabetic etc.

Write any foods you avoid because they disagree with you. garlic / too much butter / cream

On average, how often do you have the following foods and drinks (put a tick on every line)

If you have more than one per day, please state in the brackets how many times per day you eat these foods.

	more than once per day	most days	every other day	about twice per week	once per week	once per month	never or almost never
Chips or roast potatoes	<input checked="" type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mashed or boiled potatoes	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pasta	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rice	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Green vegetables (broccoli, cabbage, courgettes, green beans, etc.)	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Root vegetables (carrots, parsnips, turnips)	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Salads (cucumber, tomato, lettuce)	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yoghurt	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Marmite (or other yeast extract)	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mayonnaise	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Beefburgers/hot-dogs	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sausage rolls/sausages	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fresh/Oily fish	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chicken or Turkey	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Beef, lamb, pork or bacon	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Peanut butter	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cake	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ice cream	<input type="checkbox"/> ()	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blue Cheese	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other Cheeses	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Baked potatoes	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fruit	<input type="checkbox"/> ()	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Beans/peas/lentils	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chocolate	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sweet puddings/desserts	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biscuits	<input type="checkbox"/> ()	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Crackers	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Butter	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Margarine	<input type="checkbox"/> ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Olive oil	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vegetable oil	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lard	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
White bread	<input type="checkbox"/>	()	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wholemeal bread	<input type="checkbox"/>	()	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Crispbreads	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Potato crisps	<input type="checkbox"/>	()	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Savoury snacks	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Packets of sweets	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

12. On average, how often do you have the following drinks (put a tick on every line)

If you have more than one per day, please state in the brackets how many times per day you drink these.

	more than once per day	most days	every other day	about twice per week	once per week	once per month	never or almost never
DRINKS :							
If you have any of the following more than once per day, please write how many cups/glasses you take;							
Tap water/bottled water	<input type="checkbox"/>	(1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fruit juice	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Low calorie /dietdrinks	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alcoholic drinks	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Coffee	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tea	<input type="checkbox"/>	()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Do you take sugar in your drinks?							
Yes	<input checked="" type="checkbox"/>						
No	<input type="checkbox"/>						
If so,how many in each drink?	2						

Please list the foods you feel you eat too much of:

COKE, BISCOITS, CRISPS.

Please list the foods you feel you should be eating more of:

FRUIT / VEG.

13. This questionnaire asks about Quality of Life and the Menopause.

Please read each of the following statements and circle one of the numbers from 1 to 6 to show how often you are like the statement.

	<i>I am never like this</i>						<i>I am always like this</i>
<i>SLEEP</i>							
1	1	2	3	4	5	6	
2	1	2	3	4	5	6	
3	1	2	3	4	5	6	
4	1	2	3	4	5	6	
5	1	2	3	4	5	6	
6	1	2	3	4	5	6	
<i>ENERGY</i>							
7	1	2	3	4	5	6	
8	1	2	3	4	5	6	
9	1	2	3	4	5	6	
10	1	2	3	4	5	6	
<i>MEMORY</i>							
11	1	2	3	4	5	6	
12	1	2	3	4	5	6	
13	1	2	3	4	5	6	
14	1	2	3	4	5	6	
<i>FEELINGS</i>							
15	1	2	3	4	5	6	
16	1	2	3	4	5	6	
17	1	2	3	4	5	6	
18	1	2	3	4	5	6	
19	1	2	3	4	5	6	
20	1	2	3	4	5	6	
21	1	2	3	4	5	6	
22	1	2	3	4	5	6	
23	1	2	3	4	5	6	
24	1	2	3	4	5	6	
25	1	2	3	4	5	6	

	<i>I am never like this</i>					<i>I am always like thi</i>
<i>LOVELIFE Do you have a sex partner at present?</i>						
YES <input type="checkbox"/> NO <input type="checkbox"/>						
26 I am too tired for sex	1	2	3	4	5	6
27 I am more interested in sex	1	2	3	4	5	6
28 I find intercourse uncomfortable because of dryness	1	2	3	4	5	6
29 I enjoy sex as much as ever	1	2	3	4	5	6
<i>HOME LIFE/EVERYDAY ACTIVITIES</i>						
30 I get very irritable with people at home	1	2	3	4	5	6
31 I lose my temper over small things	1	2	3	4	5	6
32 I scream and shout at people at home	1	2	3	4	5	6
33 I find housework easy	1	2	3	4	5	6
34 Because of my symptoms, I sometimes have to get out of places, e.g. supermarket, bus	1	2	3	4	5	6
35 I have a good appetite	1	2	3	4	5	6
<i>WORK ACTIVITIES (this includes working at home, voluntary, paid and unpaid work)</i>						
36 I am finding it increasingly difficult to do my work	1	2	3	4	5	6
37 I'm afraid to tell anyone at work how I feel	1	2	3	4	5	6
38 My symptoms do not interfere with my work	1	2	3	4	5	6
39 At times I want to lock myself away at work	1	2	3	4	5	6
40 I can work hard if I want to	1	2	3	4	5	6
41 I worry about missing work because of my symptoms	1	2	3	4	5	6
42 I worry that I might snap at friends or at people at work	1	2	3	4	5	6
<i>SOCIAL LIFE & LEISURE ACTIVITIES</i>						
43 I enjoy chatting as much as I ever did	1	2	3	4	5	6
44 I am more reclusive than I would like	1	2	3	4	5	6
45 Because of my symptoms, I miss out on leisure activities	1	2	3	4	5	6
46 Things I used to enjoy have become a bit of a chore	1	2	3	4	5	6
47 I can concentrate on hobbies for as long as I used to	1	2	3	4	5	6
48 I feel enthusiastic about things	1	2	3	4	5	6

14. Please use this space for any comments you may wish to make about your menopause or experiences with HRT

I have to say since I started taking HRT I have not actually had any periods. They were irregular, heavy and lengthy before.

I have never tried HRT and because I haven't consulted the doctor with any problems, it has never come up.

Please complete the overall quality of life question on the next page

15. OVERALL QUALITY OF LIFE

**PLEASE CIRCLE THE NUMBER WHICH BEST DESCRIBES YOUR QUALITY OF LIFE
OVERALL**

- | | |
|-----|---------------------------------|
| 100 | Perfect quality of life |
| 95 | Nearly perfect quality of life |
| 90 | |
| 85 | Very good quality of life |
| 80 | |
| 75 | |
| 70 | Good quality of life |
| 65 | |
| 60 | Moderately good quality of life |
| 55 | |
| 50 | |
| 45 | |
| 40 | Somewhat bad quality of life |
| 35 | |
| 30 | Bad quality of life |
| 25 | |
| 20 | |
| 15 | Very bad quality of life |
| 10 | |
| 5 | Extremely bad quality of life |
| 0 | NO quality of life |

THANK YOU FOR HELPING US.

COMPLEMENTARY ALTERNATIVE APPROACHES, TREATMENTS & THERAPIES

1. Do you take any vitamin and/or mineral supplementations? Yes No

If yes, which ones? fish oil, B12, Vit D, Vit C ✓

2. a. Have you ever consulted an alternative/complementary therapist for treatment, homeopathy, reflexology, hypnotism, acupuncture, etc? Yes No

b. If yes would you give brief details, which type and for what reason, ✓

c. If no, would you consider using one of these approaches for a specific health complaint? Yes No

d. Do you believe these approaches can be an effective alternative or complement to conventional medicine? ✓
Yes No

e. Would you use them for the relief of menopausal symptoms? ✓
Yes No

3. Please use this space to give any further information you believe is important about your views on complementary/alternative approaches, treatments and therapies.

B.6. Baseline questionnaire and daily questionnaire for Study 4.

Foods that disagree with you.

As you know, we're interested in how food makes people feel, and whether some foods disagree with people.

Are there any foods which disagree with you, and make you feel bad?

Not at all A little bit Somewhat Moderately Quite a bit Quite a lot Very much so

If there are foods which disagree with you, please indicate which is the PRIMARY symptom you experience after eating this food

- Stomach pain
- Bloating
- Nausea
- Diarrhoea
- Constipation
- Heartburn
- Feeling tired

B.7. Daily Questionnaire sent 4 times a day to participant for 1 week

How is do you feel, right now?

-3 Very Sad -2 -1 0 1 2 3 Very Happy

Have you experienced any hassles or difficulties today? (if hassles are things that other people do that make your life harder)

Not at all 2 3 4 5 6 A great deal

In the past 24 hours, would you say you have you eaten foods which normally disagree with you?

Not at all A little bit Somewhat Moderately Quite a bit Quite a lot Very much so

If so, what was it that you ate which normally disagrees with you?

Are you experiencing any physical symptoms of having eaten food which disagrees with you?
(these might include, but are not limited to, bloating, stomach pain, constipation, diarrhoea etc.)

Not at all
 A little bit
 Somewhat
 Moderately
 Quite a bit
 Quite a lot
 Very much so

Save Answers →

B.8. PANAS-X

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you have felt this way during the past week.

	very slightly or not at all	a little	moderately	quite a bit	extremely
cheerful					
sad					
active					
angry at self					
disgusted					
calm					
guilty					
enthusiastic					
attentive					
afraid					
joyful					
downhearted					
bashful					
tired					
nervous					
sheepish					
sluggish					
amazed					
lonely					
distressed					
daring					
shaky					
sleepy					
blameworthy					
surprised					
happy					
excited					
determined					
strong					
timid					
hostile					
frightened					
scornful					
alone					
proud					
astonished					
relaxed					
alert					
jittery					
interested					
irritable					
upset					
lively					
loathing					
delighted					
angry					
ashamed					
confident					

inspired					
bold					
at ease					
energetic					
fearless					
blue					
scared					
concentrating					
disgusted					
shy					
drowsy					
dissatisfied with self					

Item Composition of the PANAS-X Scales

General Dimension Scales

Negative Affect (10) afraid, scared, nervous, jittery, irritable, hostile, guilty, ashamed, upset, distressed

Positive Affect (10) active, alert, attentive, determined, enthusiastic, excited, inspired, interested, proud, strong

Basic Negative Emotion Scales

Fear (6) afraid, scared, frightened, nervous, jittery, shaky

Hostility (6) angry, hostile, irritable, scornful, disgusted, loathing

Guilt (6) guilty, ashamed, blameworthy, angry at self, disgusted with self, dissatisfied with self

Sadness (5) sad, blue, downhearted, alone, lonely

Basic Positive Emotion Scales

Joviality (8) happy, joyful, delighted, cheerful, excited, enthusiastic, lively, energetic

Self-Assurance (6) proud, strong, confident, bold, daring, fearless

Attentiveness (4) alert, attentive, concentrating, determined

Other Affective States

Shyness (4) shy, bashful, sheepish, timid

Fatigue (4) sleepy, tired, sluggish, drowsy

Serenity (3) calm, relaxed, at ease

Surprise (3) amazed, surprised, astonished

B 9. *Short-form McGill pain questionnaire*

Study #:	
	Date:

Short-Form McGill Pain Questionnaire:

I. Pain Rating Index (PRI):

The words below describe average pain. Place a check mark (✓) in the column that represents the degree to which you feel that type of pain. Please limit yourself to a description of the pain in your hand area only:

		None	Mild	Moderate	Severe
↑ a ↓	Throbbing	0	1	2	3
	Shooting	0	1	2	3
	Stabbing	0	1	2	3
	Sharp	0	1	2	3
	Cramping	0	1	2	3
	Gnawing	0	1	2	3
	Hot-Burning	0	1	2	3
	Aching	0	1	2	3
	Heavy	0	1	2	3
	Tender	0	1	2	3
	Splitting	0	1	2	3
	↓ b ↓	Tiring-Exhausting	0	1	2
Sickening		0	1	2	3
Fearful		0	1	2	3
Punishing-Cruel		0	1	2	3

II. Present Pain Intensity (PPI)–Visual Analog Scale (VAS). Tick along scale below for hand pain:

No	<div style="position: absolute; top: -10px; left: 0; right: 0; border: 1px solid black; height: 10px; margin: 0 auto;"></div>	Worst possible pain
----	---	---------------------

III. Evaluative overall intensity of total pain experience. Please limit yourself to a description of the pain in your hand area only. Place a check mark (✓) in the appropriate column:

Evaluative		
0	No pain	
1	Mild	
2	Discomforting	
3	Distressing	
4	Horrible	
5	Excruciating	

IV. Scoring:

		Score
I-a	S-PRI (Sensory Pain Rating Index)	
I-b	A-PRI (Affective Pain Rating Index)	
I-a+b	T-PRI (Total Pain Rating Index)	
II	PPI-VAS (Present Pain Intensity-Visual Analog Scale)	
III	Evaluative overall intensity of total pain experience	

B.10. *The Borg CR10*

How Dizzy do you feel, Please circle the appropriate number:

0	Nothing At All
0.3	
0.5	Extremely Weak
0.7	
1	Very Weak
1.5	
2	Weak
2.5	
3	Moderate
4	
5	Strong
6	
7	Very Strong
8	
9	
10	Extremely Strong
11	
↳	
☒	Absolute Maximum

C.1. Coded transcripts from study 1.

Coding colours:

Development
Food
Self empowerment/ self control
Parental effect
Symptoms
Psychosomatic

File: focusgroup060209.mp3

Duration: 0:12:27

Participants : 1m, 2f, 3f, 4m.

START AUDIO

Facilitator: Hi, I'm Alex. I'd like to start by asking this first question. Have I explained everything enough so far? I know I talk fast. I'm a little bit nervous, but hopefully I've explained myself. I'm looking into food intolerance and I'm just really asking for your views on your food intolerance. What I'm going to do is I'm going to start with the first question, and please, if you can all speak at different times and not overlap yourselves that would be a lot easier for me for writing up.
My first question is can you remember when your food intolerance began? I'd like to start with you, if that's alright.

Male 1: Yes Well, I was 14 and I was diagnosed with Celiac disease. I've got a peanut allergy as well, which I just remember from being really young and being really ill (Laughter) all the time with peanut butter.

alexander.wheatley 28/1/2016 11:30
Comment [1]: development

Female 2: I was a baby. I was allergic to any kind of milk, so they obviously found that out at an early age. I can't remember it though.

alexander wheatley 28/1/2016 13:04
Comment [2]: baby

Facilitator: Oh, that's cool.

Female 3: Just over three years ago. I noticed that I was getting really tired, after food especially, and I was putting on lots of weight. I had a blood test done and it was food intolerance.

alexander wheatley 28/1/2016 13:05
Comment [3]: food was having an effect on her.

Male 4: About in the last year I was diagnosed with Crohn's disease. I can't eat chocolate or pastries because it sets it off and I have to go back in hospital straightaway, so I can no longer eat them.

alexander wheatley 28/1/2016 11:30
Comment [4]: food

alexander wheatley 28/1/2016 13:06
Comment [5]: food intolerance doesn't usually involve hospitalisation, it could be something else?

Facilitator: Okey dokes. Well, for going on, my next question is going to be quite difficult for people who were diagnosed when they were children. My second question is can you remember what your lifestyle was like a few months before your intolerance started? It's probably easier for you guys, but for fourteen and a baby, a bit tricky. (Laughter) Fourteen, can you remember back?

Female 2: No, I was a baby.

Facilitator: Oh, you were a baby. You were fourteen?

Male 1: Yes.

Facilitator: I do apologise.

Male 1:	I remember things that I miss, like crusty bread and things like that, and cake. Yes, it was different than what it is now, but you just get used to it, don't you?	<p>alexander wheatley 28/1/2016 13:06 Comment [6]: missed</p> <p>alexander wheatley 28/1/2016 13:07 Comment [7]: life was different to know.</p> <p>alexander wheatley 28/1/2016 11:30 Comment [8]: self empowerment/self control</p>
Facilitator:	Cool. Well, you were fourteen, so what was happening around the time when you developed food intolerance?	
Male 1:	I've got diabetes as well and they noticed that I hadn't grown for eighteen months. I was always really bloated even though I wasn't putting on any weight. They just said, "Right, we'll do this biopsy," (Laughter) and they did.	<p>alexander wheatley 28/1/2016 13:08 Comment [9]: other illness</p>
Facilitator:	Good call. (Laughter) Okay. You were a baby, so it's a bit tricky.	
Female 2:	Yes, sorry. (Laughter)	
Facilitator:	I'll regress you later, give you a hand. (Laughter)	
Female 3:	The two or three months leading up to when my food intolerance started I was highly stressed. I think I probably had a weakness, a susceptibility, because my mum and dad have got food tolerances. My mum's, hers has given her arthritis. My dad's is more similar to mine. I think that I was just highly stressed, and I had other issues (Laughter) at the time. I had a couple of panic attacks and things like that and it was almost like a combination of the thing. It's like that- I forget what they call it in clinical psychology, but where you've got that weakness. I think my system just got overloaded and then the intolerances came.	<p>alexander wheatley 28/1/2016 11:30 Comment [10]: Stressful time</p> <p>alexander wheatley 28/1/2016 13:09 Comment [11]: A weakness or susceptibility because her parents have food intolerances.</p> <p>alexander wheatley 28/1/2016 11:30 Comment [12]: Parental effect</p> <p>alexander wheatley 28/1/2016 13:10 Comment [13]: Just highly stressed, panic attacks with other things.</p> <p>alexander wheatley 28/1/2016 13:10 Comment [14]: Very Interesting comment.</p>
Facilitator:	Thanks.	

Male 4: [At the risk of saying it's similar 0:03:21], mine was quite similar. I was having a few stressful events beforehand and to relieve it my mates invited me out, so I was out a couple of nights a week, if not more. I wasn't really sleeping. I was just crashing at my mates' houses, wasn't really eating properly. Then the Saturday night after having [a joke] I woke up in the morning and just pretty much died and got sent to hospital. (Laughter) Probably a bad diet did lead into it.

alexander wheatley 28/1/2016 11:30
Comment [15]: Stressful time

Facilitator: Yes. Okay. Well, thanks for your comments there. My next question is how does your food intolerance manifest itself? What symptoms do you get from it?

Male 1: I don't really get any symptoms. That's the thing, because I never would have known. They just found out through the diabetes, but obviously I understand the risks, so I have to be careful of what I eat now. It never really affects me. Sometimes I get loose stools, I think they call it at the hospital. [Crosstalk 0:04:19]. (Laughter)

alexander wheatley 28/1/2016 11:30
Comment [16]: Avoidance/ symptoms

Facilitator: That's fine, yes. Unfortunately I've had to spend about three days of my life so far looking into stools (Laughter) and what kind of way they are and the way they're shaped. Oh, it's wonderful, but hey ho. Yes.

Female 2: Well, now that I'm older I don't really experience it because I'm sensible and I don't eat the food. When I was a little girl, when I was about five or six, I ate a load of chocolate at Eastertime because my sister had loads and I just wanted to eat it all. I got rushed to hospital and I was really sick. I don't know. I got knocked out, so I don't know what they did to me, but (Laughter) I wasn't well. I shouldn't have done that. (Laughter)

alexander wheatley 28/1/2016 13:12
Comment [17]: Self control

alexander wheatley 28/1/2016 13:12
Comment [18]: Lack of control

Female 3:

It's hard to be 100% sure because of course you can't always attribute the cause to food intolerances.

(Laughter) It's not always the fault of them, but quite often I think they do bloat me out sometimes. Because my food intolerances are varied, because I avoided the things that the blood test came up, and then I suddenly think I developed intolerances to other things. Sometimes I wake up and my eyes are really dark and heavy and puffy. I think the fogginess is one of the worst. Sometimes your head feels a bit foggy if you've eaten something, like you can't concentrate properly. (Laughter) That's the main things.

alexander wheatley 28/1/2016 13:39

Comment [19]: Can't always be sure it's the food intolerance or something else.

alexander wheatley 28/1/2016 13:40

Comment [20]: development of other things.

Male 4:

Mine is a bit weird because it affects a few other things.

When I start to feel ill my eyes go yellow because it's to do with my liver as well. Then that's obviously the first sign, but if I carry on eating certain things, there's always trapped gas, but really bad. It cripples you. You can't move, you can't bend over. You can feel everything moving around, not in a gross way, but in a weird, painful way. Then that's it then, you've got to have something done.

alexander wheatley 28/1/2016 13:40

Comment [21]: Symptoms

Facilitator:

Cool. I'll move onto my next question, which is probably a little bit easier. Thank you very much for being honest with your responses. Do you like the foods you're intolerant to? If so, why? [Unfortunately for you, you don't have that 0:06:14].

Male 1:

I do like the foods, like bread and things like that, cakes, biscuits, but then you can get good alternatives. I don't know. I just miss crusty bread with butter. That's what I

alexander wheatley 28/1/2016 11:30

Comment [22]: still crave

(Laughter) really miss. Yes, I do like the foods that I'm not supposed to have. Yes.

Female 2: Yes, I do as well. I miss eating chocolate because when I was a kid I used to eat bits of it. It made me ill and I realised I shouldn't do it. (Laughter) I miss that.

Facilitator: Does that still tempt you into wanting to?

Female 2: I like to think I can have a little bit, but I have to be really careful.

Male 4: I agree. I can have a little bit [crosstalk 0:06:53], "Yay."

Female 2: Yes, and I get quite excited because I get to have a bit, but then all my friends can eat as much as they want and I'm just like, "Oh." (Laughter)

Female 3: Yes, that's part of the problem because, yes, you're intolerant to it and your body wants you to have it. I was strict for maybe two years, really, really strict. I'd eat fish and chips and only eat the fish and not eat any of the batter or anything. Now I've got to the stage where it doesn't upset me the way it used to, so you can have a little bit occasionally if you go out for dinner or something. That's quite nice.

Facilitator: Cool.

Male 4: I can't eat chocolate or pastries, which is sad. It's sad really because I'm making myself fat now. [My mate makes 0:07:34] really good chocolate cakes. He used to eat some of the chocolate cake and there'd be a piece left over in the morning. I'd have it for breakfast. If you're

alexander wheatley 28/1/2016 13:41
Comment [23]: really miss and likes the things he shouldn't

alexander wheatley 28/1/2016 13:41
Comment [24]: missed

alexander wheatley 28/1/2016 13:42
Comment [25]: moderation

alexander wheatley 28/1/2016 13:42
Comment [26]: moderation

alexander wheatley 28/1/2016 11:30
Comment [27]: interesting information here.

alexander wheatley 28/1/2016 13:43
Comment [28]: Talking about 'body' as a other person, not her?

feeling hungover, amazing. Can't do that anymore. The only thing I can really eat now is Jaffa Cakes because that's about the level of chocolate I can handle. I do really miss pasties and meat pies, anything like that, because they're a good snack. Now when I go into Co-op or something for a snack I can't eat anything that's necessarily quite filling. I need to get a sandwich or something that's not as nice as what it could be.

alexander wheatley 28/1/2016 13:43
Comment [29]: Tolerance level

Facilitator: Yes, it sucks. Yes, I'm like that myself. I'm limited so much. Being a vegetarian with food intolerance in Plymouth or Cornwall, you go, "Well, I can't have cheese." Veggie option is always with cheese and it's just an absolute nightmare really. You have to go to London if you want something nice. (Laughter) Oh, well, this has only taken 15 minutes, so that's a good 2 points for you guys.
Finally, what I'm really looking into is what does your food intolerance mean to you, things you think about or if you can self-medicate? Like you said, you can only have Jaffa Cakes, but you can't have a chocolate cake or something like that. Really I just want your own opinions on the overall of food intolerance and your own perception really. If you'd like to begin with you.

Male 1: I don't like it, obviously, but you have to do it, don't you? You just do it, get used to it. Then you break the rules and you suffer for it. (Laughter) It's alright. I don't know. It's not a nice thing to have, but food is food. Eat to live, don't live to eat. That's what I've (Laughter) always been told. Yes.

alexander wheatley 28/1/2016 11:30
Comment [30]: Dislike of food intolerance and having to stick to rules otherwise you get punished.

Facilitator: Great.

Female 2: Well, I obviously don't like it. It's a pain because I've always had to have tinned milk. I always think it's one of those things when I first meet people, like when I first came to university, moving in, it's one of those little weird things. I thought people might characterise me, like "Oh, she's the girl with the weird milk," because I had powder and stuff. That bothers me a bit, only a tiny bit, not too much.

alexander wheatley 28/1/2016 11:30
Comment [31]: stigmatism

Other than that, I'm not really too fussed about it because I've grown up a bit. It would have been different if I'd started it at the age of whatever, but because I've had it my entire life I've never known anything else. It's just me.
(Laughter)

alexander wheatley 28/1/2016 11:30
Comment [32]: the condition is part of her!

Facilitator: It's a part of you then?

Female 2: Yes. It always has been. I've never known anything else.

alexander wheatley 28/1/2016 13:45
Comment [33]: Never known anything else.

Female 3: Well, I find it okay. I try and look on the bright side because for me it's not so bad. You just think of all the healthy fruit and veg and brown rice that I eat because, (Laughter) like you, I'm a vegetarian. I just think that makes my diet healthy, not eating cakes and pastries and stuff. It's okay really.

alexander wheatley 28/1/2016 11:30
Comment [34]: positive justification of the condition.

Facilitator: Do you ever get cravings for meat and stuff? Sometimes when I've been really strict or haven't had any dairy, sometimes I really need steak or something like that. A weird craving comes in, or I need a milkshake or something like that. Does it occasionally just pop in your mind or is that just me?

: I crave milkshakes.

Facilitator: You crave milkshakes.

Female 2: If someone is sat next to me drinking a milkshake I'm like, "Oh." (Laughter)

Female 3: I just think there's so many other products. I've never been interested in meat, probably because of my mum's cooking as a kid. (Laughter) You can get soya milkshakes, soya chocolate ones and things like that. (Laughter) You could chuck a banana in and make a smoothie out of it. It's okay. I've never liked milk, but dairy is not a problem. (Laughter)

Male 4: Because mine is quite recent I'm still quite fearful of it. Not as in a bad way, but because I know the pain that it can cause it's quite scary. I was quite scared for a while to try anything because it was like, "If I get that pain again, I can't deal with that." Twice it happened. It just totally freaked me out. I'm starting now to just accept it and deal with it.

I don't like the term 'disease' either. That annoys me, because you can't see it, it doesn't affect me, but when you're telling someone and you say, "Oh, I've got Crohn's disease" it's like ___[0:11:52] or something. It's not like that. Nothing affects me, but I wish they wouldn't call it a disease. Call it something else because that's quite freaky. If you're trying to get with someone (Laughter) or something and you tell them you've got a disease, it doesn't exactly go down well.

Facilitator: Thank you very much. This is incredibly quick compared to what I was expecting, but what you did was brilliant and that was perfect to the questions I've actually been

alexander wheatley 28/1/2016 13:46
Comment [35]: Mum put her off meat.

alexander wheatley 28/1/2016 13:46
Comment [36]: fearful

asking. That's great. I think that's it, so for two point,
hurrah. For me, alright. (Laughter)

END AUDIO

File: focusgroup040309.mp3

Duration: 0:25:45

Participants : 5m, 6f, 7f.

START AUDIO

Facilitator: That's better. If I can get your names and where you're from please.

Male 5: ---- ----, I'm from Torpoint.

Female 6: I'm ---- ----, I'm from Aylesbury.

Female 7: I'm ---- ----, I'm from near Bath.

Facilitator: I'm Alex Wheatley and I'm from Cornwall. So hi, that's great. That sounds alright. It's recording, it's just biggest fear that it's not recording and I'm like what are we going to do. I can't remember anything.
Hello and welcome and thanks for turning up. This is a focus group about food intolerance. So what I'm going to do is I've got about five or six questions that I want to ask you, and they are very broad. When I sort of give a question if someone can just answer it and if you want to discuss anything that's brilliant as well or if you got a question that you want ask someone else about what they've just said, perfect.
I'm very sort of out of the situation, so if I start suggesting things just look at me and say, "No, that's wrong." That's the last thing I want to do. Let's start first of all with can you remember when your food intolerance began, and I'd like to start with you.

11

Male 5: **Milk**, I'm pretty sure I'm pretty intolerant to milk. That was when I was quite young. I had banana milkshakes and if I drank the whole bottle of banana milkshake that would give me terrible, terrible stomach. The other ones would be tomatoes. I'm pretty sure I can't eat tomatoes and that was a couple of years ago, maybe three or four years ago. I was based in the navy and everyone was having Dominoes nights in with the Xbox and I'd not eaten pizza because I didn't particularly like tomatoes. So I had not eaten tomatoes before then. Then every time since I had pizza and my mate gave me tomato bread and I tried that, just awful headaches, migraines.

Facilitator: Shocking. So the tomatoes are recent, but the milk and especially banana milk, but is it bananas as well or just...

Male 5: No, not bananas, just I think the quantity of having...

Facilitator: That was at childhood?

Male 5: Yes, that was childhood.

Facilitator: Can you remember what kind of point in your childhood, years wise?

Male 5: When I was wondering around on my, maybe about 13.

Facilitator: Thirteen, okay. That's great, thanks.

Female 6: First one I think with me was wheat, gluten type stuff was mainly pasta but I was getting problems with rice as well. I mean I'm 47 now and that sort of started kicking in

- alexander wheatley 28/1/2016 13:47
Comment [37]: food
- alexander wheatley 28/1/2016 13:47
Comment [38]: young
- alexander wheatley 28/1/2016 13:47
Comment [39]: symptoms
- alexander wheatley 28/1/2016 13:48
Comment [40]: development a couple of years ago.

- alexander wheatley 28/1/2016 13:48
Comment [41]: teenager

about 10 years ago, in my late 30s. Then I gradually in the last 5 years have had problems, so problems with milk or dairy products as well. I think it's finding it a little bit easier on the lactose free stuff, so it could be purely lactose rather than that as well.

alexander wheatley 28/1/2016 13:49
Comment [42]: late development

Facilitator: Cool. So that's sort of 10 years ago.

Female 6: Yes, that's kind of ___[0:03:17] as well.

Facilitator: That's great, cheers.

Female 7: Very recently for me, so about a couple of years ago and it was fish, devastatingly. Ironically when I was visiting Plymouth, a fish platter and something made me very, very ill. Since then I've been able to identify a few types of fish that could have been. When I was 19 and I never ever had a problem before that in my holiday.

alexander wheatley 28/1/2016 11:31
Comment [43]: Sounds more like food poisoning

Facilitator: That's interesting. I'm going to move on now to my second question. Can you remember what your lifestyle was like a few months before your food intolerance started? I know probably being a kid and stuff. You got two points, you got being a kid and sort of...

Male 5: When I was in the navy, drinking, lots and lots of drinking, that's about it. I was a chef actually. I was a chef, so eating late and drinking late but not tomatoes until I tried pizza.

Facilitator: So when you're being a chef and not running in with tomatoes a lot.

Male 5: I did run into tomatoes but I hated tomatoes. I've always tomatoes. That's why I didn't tomatoes until like I've got this memory of tomatoes as like when I was in playschool or something. Some day nursery type thing where I'd be in for lunch, like be in for the morning, then lunch and then go home. They tried to basically force feed me tomatoes or wouldn't leave the table until I tried tomatoes which I knew I didn't like, and then just project out. So I stayed away from tomatoes until I tried pizza.

alexander wheatley 28/1/2016 11:31
Comment [44]: Force fed the food he had a problem with?

Facilitator: Did they try to make you eat pizza?

Male 5: No, it looked really good, it smelt really good, let's try it, there's tomatoes in it but the tomatoes were like the base. So I was a chef and lots of drinking.

Facilitator: The milk stuff when you were 13, did you say?

Male 5: Yes, I ___[0:05:43], I don't know, I was as a child really fussy and I wouldn't eat loads anyway. I guess it was kind of when I was trying stuff for myself, because as before when I was at home I was just getting what I was given or not eating. It was usually the case because I was so fussy.

alexander wheatley 28/1/2016 13:50
Comment [45]: Fussy eater

Facilitator: Fussy kid. To mix it up I'll go to you next.

Female 7: I can't remember exactly, I think it was a point where I was just at the end of my gap year and I'd done a commission in the army for a year and so I was just coming out of that. Apart from that, that's all I can remember. It was fairly relatively, probably quite similar, there was a lot of drinking but there was also a lot of fitness inputs. Very active I suppose, under pressure at

the time but no more than I wanted to be, that's probably...

alexander wheatley 28/1/2016 13:51
Comment [46]: Under pressure at that time.

Facilitator: That's cool.

Female 6: I think with the original ones, with the whole kind of wheat gluten thing, I just sat there and thought well is it to do with stress because I know I'm quite stressed at the moment so I know like I'm getting quite a lot of problems with that. When it first crept in everything sort of calmed down. I've got a daughter she's 21 now but I mean at that age things were relatively settled. We had a relatively good routine and everything that I was eating before that I was fine. Then as soon as I had like pasta or rice my stomach it's like you didn't even want to try and digest it. It was just ridiculous and the problems I was getting with that.

alexander wheatley 28/1/2016 11:31
Comment [47]: stress

alexander wheatley 28/1/2016 13:52
Comment [48]: stomach didn't want to digest it?

With the milk one, lactose I think it probably is, I don't know. I mean it's whether it is stress or not. I mean I know I am very, very stressed at the moment with what's going on, but I mean I do do an awful lot of relaxation and exciting things like that and try and do that before I relax, before I eat, I do quite a lot of exercise to help everything in that as well but it's still quite bad.

alexander wheatley 28/1/2016 13:53
Comment [49]: Very stressed, but using relaxation to try counteract it.

Female 7: Do you do that on a regular basis, before you eat you have to relax?

Female 6: Yes, I do. I mean it's not something like the doctors have said to do. I know that a friend of my daughter, she's had very, very bad problems in the stomach and I know that she actually has to take pills before to actually relax her stomach muscles before she actually eats really.

So I've started to do relaxation exercises to try and just, because I think it's something to do with - it's like adrenaline kind of encourages your stomach to release more acid and more digestive juices. Obviously if your stomach doesn't really want to tackle it anyway, it makes it worse. I mean that was working ____ [0:08:43].

alexander wheatley 28/1/2016 13:54

Comment [50]: Self curing through exercise.

Facilitator: That's great, thank you very much. My next question is how does your food intolerance manifest itself? If I can begin with you.

Female 7: **Not very pleasant really.** The first time I was completely oblivious to the fact that anything might have happened. About four or five hours later I was violently ill for about an hour, an hour and half. It was a case of just waiting until you could fall asleep and then you know it's over. Since then the second time was, second and third was fairly similar. I didn't know anything had happened, and it happened again recently in the summer. I ate something else and then as soon as I'd eaten it I felt, I'm not sure about this, and I know there's quite a lot of debate with fish food whether it's whatever, but in this case it was lobster and someone had had the other half so it wasn't like it was a bad lobster. As soon as I had some I felt, "Oh I'm not sure about this," but it repeated pattern about four or five hours later I was ill until it seemed all to be out of my system. I didn't have any headaches or anything like that associated with it. It just comes back up in a rather unpleasant way. That's pretty much it.

alexander wheatley 28/1/2016 13:55

Comment [51]: Symptoms

Female 6: With me it's just basically just an awful lot of like gas and wind and pains, stomach pains. I mean some of them particularly around ____ [0:10:23] doubled up sort of pain,

you can't actually move for a minute until it goes. Whereas with the lactose it's more like the opposite kind of problem. Basically, if I want to have anything like that I'm like okay, even remotely dairy I'll have it in the morning so I've had a chance to go to the toilet before I come in here because I don't know what my stomach is going to be like, cramps and things like that.

Male 5: With milk depending how much I have, if I have so much I just get cramps in my stomach, really bad wind and then if I have a fair bit. Like the three times I've had whole bottles of milkshake that would be like really bad cramps, really bad diarrhoea, like painful and ___[0:11:21] seemingly disproportionate amount of time. It's like a bottle of milkshake and it will just be like a whole day of just, certainly the few times I've done it, obviously having done it a few times, couldn't do it again. Tomatoes, a few times I've had tomatoes and I've had pretty bad migraines afterwards. I suffer from migraines anyway but not so much recently in my experience. Yes, pretty much every time I come near tomatoes, especially pizza. Just really bad migraines.

alexander wheatley 28/1/2016 13:55
Comment [52]: Dose dependant

Facilitator: It must be their special sauce or something.

Male 5: Pretty rubbish because you can't do anything other than go to bed once you feel like, I can't do anything. Tablets and stuff don't really touch it, just go to bed, dark room, that's it.

Facilitator: Thanks very much. My next question is do you like the food that you're intolerant to and if so, why?

Female 6: Yes, I do. Cheese, crave cheese, dream about cheese.
I'm sitting here I could probably eat a big chunk of
cheese, particularly melted on toast with...

alexander wheatley 28/1/2016 13:56

Comment [53]: craved

Female 7: Don't torture yourself [Cross talking 0:12:38].

Female 6: I mean milk I don't know, I think it's just the thing with milk
that it's trying to find an alternative that doesn't curdle in
your coffee and your tea really and it doesn't taste
disgusting. Probably like if you're having muesli or
something like that, I mean the sort of porridge isn't quite
so bad because you can use other stuff in that, can't you,
put sugar on it it's fine.

Male 5: Soya milk.

Female 6: Yes, I have soya milk in porridge but if you try and put
soya milk in tea or coffee...

Female 7: Oat milk tastes like milk that's been in porridge, I know
that sounds really silly.

Female 6: Oh really? I've tried rice milk and I really don't like rice
milk.

Female 7: I can't do soya milk and I can't do rice milk but oat milk
tastes very similar to milk that you've left in the porridge
that's on the edge.

Female 6: That's alright thought.

Female 7: It's nice.

Female 6: It's kind of ____ [0:13:37], because I've even tried warming the milk and then putting it in and seeing if it's slightly contrast the temperature and it's not. So yes, definitely. I like pasta, I love pasta I have to admit.

Female 7: Nasty. I love fish, absolutely adore it and that's what's so frustrating. In a way it's helped me because although it's very unpleasant when I get the reaction I've learnt at least three things now that I've got to be careful of eating and lobster is one of them, very sad. John Dory is another which is fantastic and I haven't yet found the link, but I'm not going to give up eating fish. I just gradually find the ones that I'm intolerant to I suppose or that I don't like.

Facilitator: So it'll be like a roulette of fish.

Female 7: Yes, pretty much, what I try and do is I don't have a fish platter again. So I will only have one piece of fish in a meal, so if something happens at least I know that's what it is. I love fish. Never mind.

Male 5: I like milk, I really like banana milkshake, it's my favourite and lime milkshake.

Female 7: Lime?

Male 5: Lime milkshake, you know that Crusher milkshake.

Female 7: There's a lime one.

Male 5: Yes, lime milkshake.

Facilitator: That's citric fruits... [Cross talking 0:15:02].

Male 5: It is really good. I'm not pretty sure they still do it. I remember they used to do it in the café in the indoor market upstairs. That's where I remember.

Female 7: I've never been there.

Facilitator: I remember they probably started doing like an orange milkshake, that's just so wrong.

Female 7: It's wrong, yes.

Facilitator: It's like mixing the...

Female 7: It's like those creamy sweets with orange in, it was almost like it was part cream and part orange. I'm not sure about that.

Male 5: So milk, I wouldn't drink loads of milk but I quite like milk. When I have a bowl of cereal and stuff like that as long as I don't have loads of milk in it. I think as long as it's more cereal. Pizza, I quite like pizza. I quite like pizza now. I discovered pizza and I also discovered at the same time I can't eat it. However I have barbecue pizza so it's okay, you can replace the tomato paste with barbecue sauce.

Female 6: Or pesto, try pesto.

Facilitator: It's got cheese in pesto though. [Cross talking 0:16:10].

Female 7: Cheese in the pesto, you don't have to do that, you can make pesto without it.

Male 5: I think I might. You don't have cheese in massive quantity unless you have a pizza.

20

Female 6: Yes, which has loads of it.

Facilitator: I kind of find, I'm lactose intolerant, so I've got an element where I can have a certain amount but if I go over that certain level it's just...

Female 6: *It's how regularly as well. I think if you go, once you start and you go for days of it I think you'll...*

Facilitator: When I see my girlfriend in Cardiff we go out a lot, so I'm ending up, I'm vegetarian, it's always a dairy option, there's always something with cheese.

Female 6: Yes, always, try stuff with cheese in it.

Facilitator: So after three days I'm going, "I just want to go home." That's always great fun. Stilton, it's my Achilles heel but it's like someone has just put a belt around my chest and just tightened it. It makes me really...

Female 6: It's like broccoli and stilton soup is so nice.

Female 7: *We still do it to ourselves, don't we, that's the point, it's so good.*

Facilitator: I'll go to my next question, do you get the symptoms of your intolerance without actually eating the food that you're intolerant to? So if you're walking down an aisle in a supermarket, like the dairy aisle and you're surrounded by milk products or something like that, can you feel the – no?

Female 6: No, not at all.

Female 7: The only thing I can think of now when I think of lobster it makes me feel, not physically ill, but it just gives me that unsettled feeling, but no way in shops or anything like that.

alexander wheatley 28/1/2016 13:57
Comment [54]: unsettled feeling by just thinking about it.

Female 6: Not at all, no.

Facilitator: Thanks for that one. Finally, my final question is what does your food intolerance mean to you? How did you get it or why do you have it or if you have any theories about it that'll be brilliant, just anything really.

Female 6: You can hear the cogs going.

Male 5: It doesn't make a lot of difference to me because I wasn't particularly keen on tomatoes in the first place. I don't like tomato sauce. I don't think I like tomatoes on pizza. Same with tomato spread it's good but I can eat that. It's just last time I ate it I got a migraine it was because I ate a bit of the whole tomato in it and I noticed it and thought that'll be alright because I've been eating for ages. If I don't eat the whole tomato it seems to make a difference. Just don't drink that much milk I'm alright.

Facilitator: Do you have any ideas on how you got it or do you think it's just something that progressed over time?

Male 5: I'm not sure, no.

Facilitator: I like that. I won't pry.

Female 6: I don't know really with pasta and the wheat thing. I mean I went and had ___[0:19:19] the test thing and that came

back negative, so I don't know. I mean obviously like I say I'm quite older now than I was then anyway, there's this thing that your digestive enzymes that you tend to lose a certain amount of them as you get older and your body is less able to break things down I know the stress has a lot to do with it as well. So that's probably making it a bit worse and maybe I'm stressed and craving it, so I'm having it even though I shouldn't really as well.

alexander wheatley 28/1/2016 11:31
Comment [55]: test came back negative but she still has it?

alexander wheatley 28/1/2016 11:31
Comment [56]: Then makes a justification.

Facilitator: Do you find your food intolerance is better when you're not stressed, they're not as effective?

Female 6: It's difficult to know because I tried to do that because when we had that break in the holidays I didn't do very much before I started here. I was constantly focusing on my stomach, so when I was eating something I was thinking how's my stomach going to behave with this. Whereas sometimes when I'm actually doing the coursework and I'm focused and it's not because I am distracted, so it's that as well. If I start to get stressed it's kicking in as well. It is a case I suppose with things like eating and trying to work out what I can eat and having the food and then thinking okay I need a gap of so much so often before.

alexander wheatley 28/1/2016 13:57
Comment [57]: Constant focus on stomach.

Male 5: Have you been to the doctors then?

Female 6: Yes, but they're not really...

Male 1: Have they definitely said like you're definitely food intolerant to gluten?

Female 6: No, probably because to them it's not extreme, that's their attitude that it's not an allergy, it's intolerance. If you

present with an allergy then they take a different sort of thing.

Facilitator: All they can usually do is just suggest that you need to take that part of your diet out.

Female 6: You just keep a record of what you eat and the symptoms and how long afterwards and whatever and things like that.

Male 5: I guess if you eat something ____ [0:21:28] and it doesn't react then you put it to the side.

Facilitator: The tests are quite unreliable and it's quite hard to actually get on with the...

Female 6: You get the little other test, the little allergy test that you can do or can't you, holistic test that you can do, that you can go, they're quite expensive to have done though. It's the equipment that they use. **I mean the thing is I know that it annoys my stomach. I know my stomach doesn't deal very well with breaking it down and things like that. I know stress annoys it as well, but I know complete inactivity makes me focus more on it, but it does make it difficult when you're thinking about, like I was saying, I'm vegetarian as well and I'm trying to go out and trying to deal with that.**

Facilitator: -----, going back to what you said, there's tests you can do. I mean on watch dog last week they had the test that you can do either at home, I think it's Boots or something where you just put your hand on this thing and it's two pressure points.

alexander wheatley 28/1/2016 13:59
Comment [58]: Elements that annoy her stomach.

Female 6: You do the skin ones, don't you?

Facilitator: It's exactly the same as what the scientologists use, and as you walk down into town, it's a galvanic response, it's very erratic and there's no true point to it.

Female 6: I won't want to find I was having problems I've already got. I can imagine coming back...

Female 7: Don't tell me more.

Female 6: ...oh look there's another five things that I'm allergic to.

Facilitator: Realistically that's like £30 for that test and it's not really that significant.

Female 7: I think you'd probably know more from your experience than you ever would from taking a test, that's the point. Sort of develop it on that basis and not on what they tell you.

I don't know, it was funny actually because looking at the studies I had to look again and realise I had a food intolerance. Because it came on so late, I grew up eating everything in my country house and everything was eaten and you're not fussy and try everything. It was fairly standard. So to develop something is very bizarre from my point of view and I still don't recognise it as being food intolerance in some way. It's just something that happens to me because I've never had allergic reactions to anything.

I've always been quite robust or I viewed myself as. I forget it when I'm eating fish as well. It's not something that's on my mind constantly because I'm quite lucky, it's very minimal to me.

Like I said it's only literally afterwards and I suddenly think, "Oh I didn't even think about it." When I feel the symptoms coming on and you regret it. It definitely doesn't get annoying but every now and then I do consider, I think went out to supper the other day and there was something fantastic, but it said something dory, it was Wagamamas and it had dory or something like that and I couldn't eat it because I knew the John Dory would not settle with me. So things like that that remind me of it now and then, but it's not something that gets in the way of my eating everyday luckily for me. It's not something that I associate with myself either which is quite bizarre but you just get on with it, with things like that I think or I can luckily.

Facilitator: That's great. Thank you very much all of you for taking part.

Female 7: Thank you.

Facilitator: Here's your debrief sheets, take them away. Any questions or any problems my email is at the bottom of the sheet or around there somewhere on the sheet. There are some helpful telephone numbers, if they're of any help maybe they are maybe they're not. Like I said any questions email me or any problems just email me. Thank you very much for taking part and I'll update the system in the next few minutes.

Female 7: That's brilliant, thank you.

Facilitator: Sorry we ended early, but they always end early.

Male 5: Can we put it in the bag?

Facilitator: That's cool, I can't go passed 20 minutes so hey ho.
That's the story of my life, but hey ho, that's great. I'll just
make sure that...

END AUDIO

File: focusgroup090209.mp3
Duration: 0:14:16
Participants: 8f, 9f.

START AUDIO

Facilitator: Okay, -----, if you could say your name, just so I can get my-

Female 8: -----.

Facilitator: That's cool. Can you say that again?

Female 8: -----.

Facilitator: That's perfect. Okey dokes. Hi there. How I'd like to begin, just if I can ask you the first question, and take it from there. Be as detailed as you possibly can, and that would be great.

Female 8: Okay.

Facilitator: The first question is, can you remember when your food intolerance first began?

Female 8: Well I've got **two food intolerances**, really: **wheat and orange**. **Orange started from when I was born, whereas wheat kind of developed as I was growing up.** Like, I did get occasional stomach pains and stuff like that, and then you'd go to the doctors and then they'd say, "Well, you just need to cut out something," and you found that when you cut it out it was a lot better. **Whereas orange, I found**

alexander wheatley 28/1/2016 11:32
Comment [59]: Two specific intolerances

alexander wheatley 28/1/2016 11:32
Comment [60]: Just eliminate the problem at the doctors.

out because, when I was a baby, basically I used to- because I had bad colic, my mum put me on an orange and chamomile drink, the health visitor did, and I used to, at eight months old, fling myself out of the cot and then fall down the stairs and then I'd be at the bottom of the stairs by the time my parents ran down to see what the thud was.

alexander wheatley 28/1/2016 11:32
Comment [61]: Illness primed with orange + chamomile drink (conditioned response maybe?)

Apparently that was- because once that stopped, they realised that it was associated with the orange, which is strange. I've always had it, ever since.

alexander wheatley 28/1/2016 11:32
Comment [62]: Repeated memory from parent, not self.

Facilitator: Is it just orange, or is it any other sort of citric fruit?

Female 8: Well...

Facilitator: ___ [0:01:39]. Okay. (Laughter)

Female 9: I was next door and I thought, "It's not going to [happen]," ___.

Facilitator: Okay, if you could sign that quickly, this is about food intolerance. We have actually just started sort of talking about stuff, but if you could run that through, but-

Female 8: Well, depending on what type of orange it is, if it's colourings and stuff like that, I'll go really delirious and I'll hallucinate, and I'll run around in circles. Less now, but I still can sometimes go a bit funny.

alexander wheatley 28/1/2016 11:32
Comment [63]: Sounds like additives, but very extreme!!

Facilitator: Okay.

Female 8: Whereas orange juice and eating oranges makes me sick. I sometimes have it with, say, grapefruit, and

alexander wheatley 28/1/2016 11:32
Comment [64]: Conditioned taste aversion ?

pineapple kind of things, but in a lot smaller forms, do you know what I mean?

Facilitator: Mmhmm.

Female 8: So it's not really all, but I think I associate that kind of acid taste, probably, with it, so it's maybe slightly psychosomatic for that kind of thing, anyway.

alexander wheatley 28/1/2016 11:32
Comment [65]: Taste association.
alexander wheatley 28/1/2016 11:32
Comment [66]: She realises that it could be psychosomatic.

Facilitator: Okay, that's great, thanks. I'll just fill you in quickly; we're just sort of doing- it should be a focus group but there are only two people here, so it's more of a question thing between each other. I'll just close this door. What I'm doing is just trying to ask questions for you to be as elaborate as possible on your experiences on the topic of the question, so I've just asked Hannah, can you remember when your food intolerance began, so if you could, like, to-

Female 9: Yeah, I'm allergic to seafood, and I remember- because I had this obsession with pink things- my mum wanted me to try some prawns and I was really sick, and there was something about just the taste, and, yuck. Anyway, that was when I was, I would guess, about four or five. I'm not sure if I'm allergic to fish as well, but since then I try fish and it makes my head rush, and I always get really dizzy. That might be just a psychological thing, but I don't really go there either. (Laughter)

alexander wheatley 28/1/2016 11:32
Comment [67]: Sounds more like food poisoning.
alexander wheatley 28/1/2016 11:32
Comment [68]: Disgust.

Facilitator: So is it just shellfish sort of stuff, and that's it? There's no dust allergies or anything?

alexander wheatley 28/1/2016 11:32
Comment [69]: A psychological thing?

Female 9: Well, I've never been tested, I just avoid it. I think if I was tested I would be allergic to at least prawns.

alexander wheatley 28/1/2016 11:32
Comment [70]: Self diagnosed.
alexander wheatley 28/1/2016 11:32
Comment [71]: Self belief.

Facilitator: Have you been diagnosed, or is it self-diagnosed?

Female 8: Well, with the orange, obviously, it's kind of self-diagnosed for me, because some doctors think it's really ridiculous. I mean, when I turn round to people and I say I'm allergic to orange, they kind of go, "Oh, right," do you know what I mean? (Laughter) "Oh, okay," whereas if it been like- I mean, my wheat allergy was actually said by the doctor. It isn't an allergy, it's an intolerance, but my orange is an actual allergy, and it's really weird; the wheat thing was very subtle but was diagnosed, but my orange; it was so crazy, do you know what I mean? It was like one extreme to the other. So it was like, I kind of... My parents technically diagnosed, but the health visitor was a bit of an idiot, so they kind of didn't do anything (Laughter). It sounds really silly, but because it was so extreme it kind of got diagnosed by itself really.

alexander wheatley 28/1/2016 11:32
Comment [72]: Self diagnosed
alexander wheatley 28/1/2016 11:32
Comment [73]: 'Ridiculous' to oranges.

alexander wheatley 28/1/2016 11:32
Comment [74]: crazy

alexander wheatley 28/1/2016 11:32
Comment [75]: parents diagnosed, health visitor was an idiot!

Facilitator: That's cool. I mean, this is probably not good for you guys because I'm sort of asking this question of can you remember what your lifestyle was like a few months before your food intolerance started, and as you were both very young, do you have a good recall of what was happening around that time, or..?

Female 8: Well, I can't remember when I was a baby, obviously, because it was incredibly early, do you know what I mean? In other ___[0:05:32] (Laughter) but I do remember when it started happening again, because obviously once my parents were in control of my diet they didn't really, tell me. They never really told me, They'd just not give me orange. Whereas when I got a bit older, and I remember when these digestives came out that had

alexander wheatley 28/1/2016 11:32
Comment [76]: Parent control.

chocolate orange on top, because our next door neighbour used to work for Cadbury's, they were trying it out. Anyway, she brought it round, and honestly, I went mental. I ate a couple ___[0:06:04] before I went to bed, and just spiders were crawling up the walls and I was absolutely terrified and I imagined...

It's strange that this has come at a good time, because I was talking to my mum about this- this was probably when I was about six or seven-ish, and I thought she'd turned round to me and said, "-----, you're being stupid, shut up," you know, like that, but apparently that was part of it as well, so I only found that out the other week. (Laughter) So I remember before then and during then, and then I thought, "Whoa, that was weird," and then I found out that it was pre the chocolate orange thing. It was only, like, two biscuits, so it's just strange.

Facilitator: Okay. What about you, -----?

Female 9: I don't really remember at all. In fact, I think it was the first time I'd ever tried seafood, so, yeah.

Facilitator: Okay.

Female 9: ___[0:06:53] put you off, really, doesn't it? (Laughter)

Facilitator: That's enough, but, yeah. Now, next one. So, you've kind of both said this, but how does your food intolerance manifest itself? Unfortunately, you're already explaining this and ___[0:07:11] you've said that two orange-covered chocolate things and you're nuts (Laughter) but...

Female 8: I think that's a psychological term. (Laughter)

alexander wheatley 28/1/2016 11:32
Comment [77]: First time, most likely food poisoning as it takes multiple exposure for allergy/intolerance,

Facilitator: So you do you totally avoid all shellfish and that's it?

Female 9: Yes.

Facilitator: Have you tried any, or is there any adverse reaction to having it?

Female 9: Well, I always thought that I'd have fewer symptoms with fish than seafood, so I tried fish again and I got really dizzy from that so I was like, "Whoa, probably a bad idea to try seafood as well," but even if- because my boyfriend's mum made this tuna pasta thing and I really wanted to impress her, so I was trying to eat it, but even just having the pasta around the tuna made me feel really sick, so I was, like, "Yeah, maybe not," (Laughter)

Facilitator: Okay, we'll move on to the next question. Do you guys, in any way, like the food that you're intolerant to? If so, why? I know probably it sounds like you don't-

Female 8: As in ___[0:08:29]?

Facilitator: No, no, do you like oranges?

Female 8: Oh, sorry.

Facilitator: Or wheat?

Female 8: I love [both 0:08:37]. I love bread so much. (Laughter)

Facilitator: Yes.

Female 8: I love white bread especially. Really doughy white bread. (Laughter) To my misfortune, I love it so much, but I just can't eat it. Well, I can eat it but I just have to deal with really bad stomachache, feeling sick for the next day or so, but I do really like it. Then pasta and noodles, and stuff like that.

alexander wheatley 28/1/2016 11:32

Comment [78]: Loves the food.

Facilitator: Do you think you like them more because you're intolerant to them or..?

Female 8: Well, the thing is, I used to eat so much pasta and I've ended up [kind of 0:09:12] stopping that. It's only really noodles. I've cut down on bread, but it does make it nicer when you know that you're not meant to have it, but you have it, and then- because you only have a small bit every so often, it's quite nice.

alexander wheatley 28/1/2016 11:32

Comment [79]: Naughty but nice.

Facilitator: So it's like a treat? [Crosstalk]

Female 8: Yes, kind of, because it's not- if it was like the orange, when I'm sick and everybody around me realises that I'm nuts, then... (Laughter) I did like orange as well. I used to love orange juice until it actually made me sick. I love chocolate orange, like Terry's Chocolate Orange, I love that to bits, but I just can't...

alexander wheatley 28/1/2016 11:32

Comment [80]: Loves the food she cant eat.

Do you know what I mean? So that makes me dislike it, in a way, but if I could eat it, I would.

Female 9: Yes, there was a period of time where I was actually allergic to chocolate. I just developed it and then I grew out of it as well.

Facilitator: When was that?

Female 9: It was probably when I was about eleven or twelve. I would get terrible stomach aches and really I couldn't even walk. We didn't really know what it was, so I had to cut out loads of things. Originally I had to cut out dairy and wheat and I actually felt a lot better from both of those things, but actually in the end, it wasn't really either of them, I just couldn't have too much of both, and chocolate was something I had to just completely avoid, but now it's sort of fine.

Facilitator: Okay, and you said you were eleven or twelve, but that kind of goes back to one of my earlier questions; what was happening in your life around then?

Female 9: Yes.

Facilitator: Was there anything happening then, or..?

Female 9: Well, I'd always get ill if I had too many sweets, but I guess that's normal, but I don't know. I never really had that much before, and then I think I was going through a place where I was eating a bit more than I was, and I just couldn't take as much as I used to be able to, and, I don't know. (Laughter)

Facilitator: Cool, that's great. My final question, really, is what does food intolerance mean to you? How do you get it or why do you have it? It's like your own perception of your food intolerance. If I have explained myself correctly, in any way, sorry ___[0:11:42]. (Laughter)

Female 9: I don't know. I guess your body just doesn't like certain things, and recognises it as a kind of foreign thing. I don't know, there's that test where you have a lot of...
I don't know. I can't really describe it, I just know that there is a high number, or a low number. (Laughter) I think, because everyone is so different, I guess your body would just sort of recognise things in different ways and that's probably why you're intolerant, or not intolerant.

Female 8: I've got a bit of a strange theory about it, because-

Facilitator: I'd be very happy to hear it.

Female 8: With the wheat, I think that's inherited, because me and my mum and my nana are all anaemic and we also find that with anaemia we get really bad stomach aches sometimes. We found that, because we're anaemic most of the time, it means that we have to get tested for Coeliac's disease, which is something about wheat. So my mum and me and my nana were all negative for Coeliac's, but as soon as we cut out wheat, it really stops, that kind of reaction, that kind of intolerance.

I think wheat intolerances, and other intolerances, can be brought on by stress as well. With the orange, it's a bit strange, but this is what and my mum think: she had a craving for oranges when she was pregnant with me, and unfortunately the guy next door to them works in the market, and he used to bring round a crate of oranges every day, every market day, just a whole crate, and she'd sit there and eat them the whole day, so that's our theory, because it is a bit of a strange allergy, isn't it? It's not exactly...

I think my perception of my orange allergies is that if it wasn't so extreme I would just think I was being stupid.

alexander wheatley 28/1/2016 11:32

Comment [81]: Has her own theory.

alexander wheatley 28/1/2016 11:32

Comment [82]: genetic

alexander wheatley 28/1/2016 14:01

Comment [83]: stress induced and cta bi-proxy? .

Unfortunately I don't think it is, but everyone else thinks I'm really weird, (Laughter) so my perception of food intolerance is to try and keep it schtum ____ [0:14:02] (Laughter). So it's a bit of a weird theory, but that's the only one we can really think of.

Facilitator: That's brilliant. Oh, [bless you 0:14:15]. On that note, thank you very much.

END AUDIO

File: focusgroup110209.mp3

Duration: 0:18:40

Participants: 10f, 11f, 12f, 13f, 14f.

START AUDIO

Facilitator: Cool. Okey dokes. Well, I've brought you all here today - and thanks very much for turning up. That's brilliant - to do a focus group on food intolerance. What I'm going to do is, in a minute, just ask my first question and hopefully, if you can give your opinion, that'd be lovely. Can you remember when your food intolerance began? If someone would like to start.

Female 10: Mine only started a few weeks ago, so I don't really know much. I'm still in the process of understanding it.

Facilitator: Right. That's very recent, (Laughter) [but how long ago 0:01:15]?

Female 10: About a couple of months ago.

Female 12: I don't know. Probably my food intolerance to dairy products, especially to milk, might have been as early as, I don't know, probably six years, when I was about six years old. I really only focused on it when I was in my late 20s. I realised that every time when I had anything dairy, especially milk, cows' milk, I became really bloated and windy. It was really uncomfortable and disturbing really,

alexander wheatley 28/1/2016 11:33
Comment [84]: Had it since being a child but only "focused" on it in her late 20's.

so I switched to goats' milk and that seems to have improved much more.
Obviously I still have cheese spread. They are dairy products, so I still get influenced by it, but not as much. I'm trying to cut dairy products as much as possible.

Facilitator: That's great. Thank you.

Female 11: Mine was when I was a baby when I started eating food, so my mum found out, I didn't.

alexander wheatley 28/1/2016 11:33
Comment [85]: Parent in control.

Facilitator: It's still a problem now?

Female 11: Yes, it's still the same.

Facilitator: Yes, and what's that to?

Female 11: Nuts and eggs, and I can't really eat dairy products because of my eczema and I can't eat strawberries because of my asthma. (Laughter)

Female 13: Mine is pretty much the same, pretty much from when I started eating food. It always caused bad eczema flare-ups and asthma things.

Female 14: I'm clearing my throat because just the other day I had a big thing of macaroni cheese and I don't usually drink milk or eat dairy, cows' cheese. It was my son's birthday and I had a big thing of macaroni cheese, and it makes me very flemmy. I try and avoid it. That's the intolerance level that I'm at really. I know if I'm going to eat it, I know what the reaction will be. It's not a severe reaction, so I can balance it out. I used to be very strict on myself and give

alexander wheatley 28/1/2016 11:33
Comment [86]: Justification of being here!

myself no dairy at all. I've decided that it's not so severe, so I can play with it, as it were.

alexander wheatley 28/1/2016 11:33
Comment [87]: Self control of the condition

Facilitator: Cool. Good. We'll move onto our next question now, if that's alright. Can you remember when your life-? Oh, excuse me. I'm getting messed up myself today. (Laughter) Can you remember what your lifestyle was like in the few months before your food intolerance started? I know you two, (Laughter) babies, that's going to be quite hard to do. If you guys would like to tell me, well, really, what your lifestyle was like in the first few months when your food intolerance came about.

Female 10: Mine came through when I was really stressed out with work. I'm wheat intolerant, so I never used to have much bread or anything, just because of weight issues and stuff. I never used to have much, so it just came on all of a sudden when I started to eat more, when I came to uni especially, basic diet. (Laughter)

alexander wheatley 28/1/2016 11:33
Comment [88]: Stressed at work.

Female 14: Lots of toast.

alexander wheatley 28/1/2016 11:33
Comment [89]: Change of diet and surroundings.

Female 10: Yes. (Laughter)

Female 12: I probably ate loads of yoghurt, and I'm a cheese fan, and drunk milk as well. Then after, I actually realised that I don't even feel like milk. I didn't feel like drinking milk anymore and I've gone off yoghurts. I stayed with cheese. I don't know whether it was my body's reaction to it. I switched to goats' milk because I thought that perhaps I ought to have some milk. (Laughter) Yes, probably just full or dairy products. I remember my mum buying me yoghurts and making me drink milk because that's healthy for bones. (Laughter)

Facilitator: A bit of calcium is always good. Sorry, going back, did you say when you started with food intolerance?

Female 12: I don't know. I just remember cases, and I was a teenager. I remember myself being on the bed and just excruciating pains in my stomach, in my tummy. I just didn't know what it was. I wonder whether it was due to that or just stress, irritable bowel [symptoms 0:05:38]. I'm not quite sure whether it was due to that, but I remember always having bloated tummy problems and irritable bowels symptoms. I don't know because I haven't actually been diagnosed. I absolutely love bread and I wonder whether I might be intolerant to that, but I dare not be tested because if I am, then... (Laughter)

alexander wheatley 28/1/2016 11:33
Comment [90]: stress

Female 14: I tried it out. I thought I might be intolerant to wheat, so I cut it out completely. That's quite a hard one to cut out, as well as dairy. You're very limited to what you can eat.

alexander wheatley 28/1/2016 11:33
Comment [91]: self medicated

Facilitator: More of a Japanese diet than a western diet.

Female 14: Yes, but when you're vegetarian as well and you haven't got the fish and you haven't got the meat it really gets quite restrictive. You suddenly realise all the things you're missing.

alexander wheatley 28/1/2016 14:01
Comment [92]: missed

Facilitator: Yes, I know. As a vegetarian and living in Cornwall, it's very hard. Every veggie option, like a sandwich or something, has got cheese in it. It's just like, "Aargh." You're totally stuck really unless you go to London or something, but hey ho. It makes me sad inside, (Laughter) limited to eating.

Female 12: I don't know. I can't really answer your question. I'm not sure.

Facilitator: No, no, that's cool. I think you've given me enough. That's brilliant. Thank you. Can you remember what your lifestyle was like before your intolerance flared up?

Female 14: I don't know if my intolerances have flared up. I've just noticed the way I am physically. I'm not very happy with it not being- everything okay. I've tried eliminating this or I've tried eliminating that, and so I can't really remember. Then part of me thinks maybe it's all psychological and it's all in my mind. It's not such an extreme reaction, so I don't really know when-

alexander wheatley 28/1/2016 11:33
Comment [93]: self elimination without medical support.

alexander wheatley 28/1/2016 11:33
Comment [94]: Psychological.. all in the mind.

Facilitator: This is what I'm here to find out. (Laughter) Well, thanks for that. I think most of you have already answered this question, but my next question is how does your food intolerance manifest itself? You guys have said the eczema and stuff, but if you'd like to just say it again that'd be really good.

Female 11: How does it work? (Laughter)

Facilitator: Sorry.

Female 11: Sorry.

Facilitator: How does your food intolerance manifest itself? What are your symptoms if you-?

Female 11: Well, if I touch raw egg then I swell up everywhere, my arms, everything. If I eat it, it just makes me feel really ill.

alexander wheatley 28/1/2016 11:33
Comment [95]: allergy

If I eat nuts, then I'm really sick and I get loads of saliva in my mouth and stuff. Just eczema for the other ones.

Female 13: Mine is literally just it comes out really bad eczema. It gets all infected and also affects my breathing. I can't move without feeling like I'm out of breath.

alexander wheatley 28/1/2016 11:33

Comment [96]: allergy

Female 10: I just get really bloated and just in excruciating pain. I have to curl up.

Female 12: I get bloaty and windy. Even sometimes when I try to think what dairy product I had, it might be as little as having a cup of tea and someone offered me a cup of tea with, obviously, cows' milk in it.

Female 14: Yes, that's enough to make me go as well, but it just makes me very flemmy. I've always wondered maybe if I was allergic to some- sometimes when I eat bananas and have oranges as well that makes me feel a bit flemmy as well. I try and avoid those, but if I eat them I know the consequences. Also, I stopped eating wheat because I thought it was making me very loose and when I went to loo it was very loose. I think that might have been the wheat, so I don't have too much wheat either.

Facilitator: Okay. Leading up to my next question, do you like the food you're intolerant to? If so, why? Do you like eggs?

Female 11: Yes, stuff like cake and stuff, I can sometimes eat it, depending on what it is, the amount of egg and stuff. It depends. It's more raw egg which is worse for me. I wouldn't just eat an egg [by itself if I had to 0:09:44]. Nuts, I think the smell of it just puts me off because I know what it does to me.

alexander wheatley 28/1/2016 11:33

Comment [97]: aversion.

Female 13: Mine is a bit more awkward than that because mine is actually spices in food and citrus stuff, so I have to check what's in food before I can actually eat it. It's not just one type of food, so it limits sometimes what I can eat.

alexander wheatley 28/1/2016 11:33

Comment [98]: limiting

Female 10: I love bread, so it's (Laughter) quite an issue for me. I'm not really a big fan of pasta, so that's not so much an issue. It's just the bread.

alexander wheatley 28/1/2016 11:33

Comment [99]: loves bread

Female 12: As I said, I don't know whether I'm intolerant to bread, but I hope I'm not because I (Laughter) love it. With milk, no, I don't really like milk. The only way I like it is if it's made into hot chocolate. (Laughter) Yes, yoghurts, I'm not keen on them, but Cheese I love, and spread, loads of spread.

Facilitator: You still have hot chocolate even though you know the consequences?

Female 12: At home I have it with goats' milk, but if I'm here, yes, I'm afraid (Laughter) I do and then I suffer. (Laughter)

Facilitator: They do have soya milk in the coffee shop in the library.

Female 14: Oh, do they?

Facilitator: Yes, which is a good option. You have to ask them for it. Carol and Sandra are very helpful.

Female 12: They do soya milk hot chocolate?

Facilitator: They do soya milk hot chocolate, yes, if you ask very nicely.

Female 12: Which one?

Facilitator: The coffee shop on the top floor of the library.

Female 12: The library, okay. Thank you. Thank you for that.

Facilitator: No, that's alright. (Laughter) Years of knowing.

Female 14: Yes. I really like dairy products. I love cows' cheeses and things, but I try to avoid them as much as possible.

They're like a comfort food. I find dairy products very comforting. I remember when I was little I used to drink huge, big glasses of milk and I used to love it. No, I can't anymore.

alexander wheatley 28/1/2016 11:33
Comment [100]: Comforting.

alexander wheatley 28/1/2016 11:33
Comment [101]: Past love.

Facilitator: With me, there's a certain amount of something I can eat before I have a reaction. Do you have a certain level of food that you can-? I can have so much of a cheesecake before any adverse reaction goes on, but if I have a whole cheesecake I'm screwed. Have you guys got an understanding of, "If I eat this, I'll be alright, but if I eat that as well, ooh"? Do you get what I'm saying?

Female 14: Yes, I do that all the time because I haven't got a severe reaction, I've just got a continuum. I know if I go too far up that line it's going to become unbearable.

alexander wheatley 28/1/2016 11:33
Comment [102]: Balancing act

Facilitator: It's like a balancing?

Female 14: It's, yes, balancing it out.

Female 12: Same for me.

alexander wheatley 28/1/2016 11:33
Comment [103]: Balancing

Female 13: Mine, so I just can't have any of it. If spicy food has been put through a saucepan, I can't use that saucepan. It's quite severe. (Laughter)

Facilitator: Yes. It must be a nightmare.

Female 14: That's very hard.

Female 13: Especially in a house where my housemates love spicy curries.

Facilitator: Oh, I bet.

Female 13: I have my own saucepans and they're not allowed to put spicy stuff in it.

Female 10: I can have up to one slice of bread because I'm not severe. It's just pain, so I just don't go over one slice of bread.

Facilitator: How did you come to that? Did you start off having three slices and then work your way down?

Female 10: Yes. (Laughter) I just had what I normally had and I cut myself down. One, I still get tummy ache, but I can put up with it. It's not too bad.

Facilitator: Do you think it's like self-medication, so you know what you're putting in and how much you're putting in and that'll be alright, but [outside that 0:13:23], I'm not sure?

Female 10: I guess to a degree, yes.

Female 14: Yes.

alexander.wheatley 28/1/2016 11:33

Comment [104]: Putting up with the symptoms.

Facilitator: I've overestimated how long these things last, so it's a good (Laughter) two points for everyone, hopefully. My final question is what does food intolerance mean to you? How did you get it? Why do you have it? Have you got any ideas about your own food intolerance that you'd like to say? I had a girl two days ago who had a theory about it, which was quite interesting, I have to say, but crazy. (Laughter) If you'd like to tell me, what does food intolerance mean to you? Anyone like to begin? It's quite a broad question, I know. (Laughter)

Female 14: For me, it's slightly psychosomatic and I've decided that it's mostly in my head. When I do eat dairy and I think, "Oh God, I'm going to get all flemmy," I'm thinking, "Oh sugar, I've made myself flemmy by thinking about it, not through eating the product." I believe, in a way, that it's my thinking that's making me physically react and not the actual product. That's why I've decided that I'm not allergic to wheat and so I can eat wheat, but I'm not pushing it at the same time (Laughter) because I'm not really sure that my thinking is strong enough to overcome any physical reactions.

alexander wheatley 28/1/2016 11:33
Comment [105]: psychosomatic

alexander wheatley 28/1/2016 11:33
Comment [106]: mind over matter.

Facilitator: When you eat something and you don't realise that there's dairy in it and then only after the event you eat it, are you okay? Let's just say if I was to have a milkshake and someone told me it was a soya milkshake, I could drink it happily. Then a few days later they'll say, "I think that was a milkshake" and I'll go, (Draws breath) but I've had no adverse reactions.

Female 14: Yes, that illustrates my point. It's not very often that I eat food that I don't know what's gone into it, to be honest. I

very rarely eat out or have any prepared food, if you see what I mean. Yes.

Facilitator: Next?

Female 12: To me, it results, as I said, in being bloated and very windy, which makes me uncomfortable and it's unpleasant. I don't know. I'm trying not to let it affect me or just turning into a ___[0:15:50] because I like eating out. I like just eating anything. I'm just trying to keep an eye on it, on how much. I know if I eat something and don't know what's in it because I don't actually check what goes in it, I have a reaction after and try to think, "What was that I was eating or drinking?" Yes, I realise, "Oh, it was, for example, that cup of tea someone offered me or a piece of cake or something."
Yes, I don't think it's just in my head because I don't actually have it all the time. When I stick to my cows' milk, or when I have very little dairy products, then it doesn't manifest in such a way as if I become lazy and have some cows' milk, or dairy products with cows' milk in it.

Female 10: I don't really think mine is in my head, just because I love bread and (Laughter) I really want to eat it. I just try not to make it rule my life. I still eat it, but limit myself and just try and control it from there.

Female 11: Yes, mine is not psychological, especially with nuts. Sometimes if I can smell nuts if someone has eaten them it actually gives me the symptoms. I think that's psychological. I'm like, "Oh, no, that's-"

Female 14: It might not be because I've got a friend who's allergic to peanuts and actually just smelling peanuts can spark off-

alexander wheatley 28/1/2016 11:33
Comment [107]: in her head, as she doesn't have it all the time.

alexander wheatley 28/1/2016 11:33
Comment [108]: Self control for something she loves.

alexander wheatley 28/1/2016 11:33
Comment [109]: physical

Female 11: Yes. Yes because I can just have it in my mouth and take it out and that affects me for five hours of agony. Yes, mine, I don't think it's psychological.

Female 13: No, I don't think mine is really. I can feel the flare-up of eczema on my face today. I just know mine is genetic because my dad is allergic to the same thing. It's something that in our house just we always knew about, so I don't really know any different, so it doesn't really particularly affect me.

Facilitator: That's cool.

Female 12: Can I ask you, what brought this up? You said today you flared up with eczema, so did you have something?

Female 13: Yes. It could be anything really. I don't actually know. There's no way of pinpointing it down. It could just be that one of my housemates used a pan and didn't wash it up properly and didn't tell me. It could be something as silly as that. Most of the time I have no clue, which is-

Female 12: That's quite disabling, isn't it?

Female 13: ...the awkward thing of eliminating it.

Facilitator: Well, thank you very much.

END AUDIO

alexander wheatley 28/1/2016 11:33

Comment [110]: as its something her dad has got she accepts she has the same.. she doesn't know any different.

alexander wheatley 28/1/2016 11:33

Comment [111]: interesting, yet more to do with allergy not intolerance. the way that others around her can effect her condition.

File: focusgroup130209.mp3
Duration: 0:16:42
participants: 15f, 16f, 17f.

START AUDIO

Facilitator: If you'd like to just all say your names.

Female 16: ----.

Female 15: -----.

Female 17: -----.

Facilitator: That's perfect. Okay, that's cool. Alright, so let's begin. My name is Alex Wheatley, as you've probably already read. I'm doing a study looking into food intolerance. What the intentions are today is this a focus group setting, so I ask you quite broad questions for a reason and you answering and hopefully adding things and saying some incredible things which will (Laughter) make my research even better than what I hope it will be. I'd like to start again. If you could say your name and where you're from.

Female 17: -----, and I'm from Ruislip.

Female 16: -----, and I'm from Plymouth.

Female 15: -----, and I'm from Bristol.

Facilitator: I'm Alex Wheatley and I'm from Fowey. I'm now going to begin with my first question. Hopefully everything has all been explained in the consent sheet, so that's all good. I will begin. My first question is can you remember when your food intolerance began?

Female 16: I just had a takeaway. (Laughter) #

Facilitator: Okay. Do you want to take your time and think about it while someone else answers?

Female 16: Can I write on a piece of paper just so I can work it out?

Facilitator: Yes, sure. Yes. If you can use the back side of that paper.

Female 16: Thank you. Just so it's accurate. Let somebody else [crosstalk 0:01:40].

Facilitator: Yes, someone else please, can you remember when your food intolerance began?

Female 15: I can't remember when it began, but I started to try and work it out last year. I've been a vegetarian for 13 years, so I've struggled with my diet a bit. Then I was feeling a bit lethargic and stuff and trying to work out what it was. I thought it was my iron levels, but they were fine. Then I started cutting things out of my diet and then found out that it was mainly cheese and then dairy stuff. That's how I found out last year. By cutting it out it made me feel a lot better.

Facilitator: Oh, that's cool. Cool. Same question to you.

alexander wheatley 28/1/2016 11:33
Comment [112]: Self elimination.

Female 17: When I was about 10 I started seeing a doctor because certain foods were making me sick and bringing me up in a rash, so I was diagnosed medically when I was about 10.

alexander wheatley 28/1/2016 11:33
Comment [113]: Allergic response

Facilitator: Okay. Have you worked it out yet?

Female 16: Yes. (Laughter)

Facilitator: Okay. It doesn't have to be precise. It's fine.

Female 16: Okay. Well, it was 1998. I had a spell of depression and various other things as well going on at that time. Yes, I kept having a really bad stomach, so that's where it started really. I went to the doctor's because I didn't know what it was. It's lots of things I think. I couldn't eat wheat. I had to cut wheat out completely. With other things as well. It wasn't just wheat. It was a whole big list of things, which I was quite (Laughter) distraught about because what do I eat? It started from there really and I was about 22.

alexander wheatley 28/1/2016 11:33
Comment [114]: Depression and other things + bad stomach... interesting.

Interviewer: Okay. Have you found that that list has got bigger over time?

Female 16: Well, I don't eat a lot of wheat. There's certain things that I can't drink or eat, which is orange juice, definitely not orange juice, and certain things. I'm not really supposed to drink ale, but that's my favourite drink, so I do moderate it. It has improved over time as well just by watching what I eat and listening to my stomach because my stomach tells me when I'm about to have a spell of bad cramps or whatever.

alexander wheatley 28/1/2016 11:33
Comment [115]: moderation

alexander wheatley 28/1/2016 11:33
Comment [116]: listens to her body.

Facilitator: That's cool. You've answered all my questions there, so that's brilliant, but if we can re-go over these. I'll move onto the next thing, is can you remember what your lifestyle was like a few months before your food intolerance started? Sorry, I didn't say that question at all well. (Laughter) Can you remember what your lifestyle was like the few months before your food intolerance started? You said that you didn't really know when, but you started cutting out.

Female 15: Yes. You could just tell as soon as you cut it your lifestyle was better because you felt more energetic. I don't know. It just made me feel a whole load better.

alexander wheatley 28/1/2016 11:33
Comment [117]: Self elimination, possibly self empowerment?

Facilitator: Yes, but do you remember what was happening in your life so you made that decision to actually start cutting out foods and stuff?

Female 15: I think it was just around my exam time, so it was stressful exams and things. I was trying to make myself feel better so I could concentrate more, so I put it down to food.

alexander wheatley 28/1/2016 11:33
Comment [118]: Stress induced.. put it down to food.

Facilitator: The symptoms got worse around your exams?

Female 15: The exams, yes. Then I just cut out bit by bit and then it got better.

alexander wheatley 28/1/2016 11:33
Comment [119]: Cut it out, improved.

Facilitator: Cool.

Female 17: Mine has always been the same since I was young because I've always had it, ever since I was little. Whenever I ate a meal I was just used to feeling very sick afterwards and not feeling great, so I suppose it was the

same from when I was very little. Nothing really changed before I was diagnosed.

Facilitator: Okay, cool. Yes, unfortunately, sometimes people have been diagnosed when they're babies, so it's very hard for them to answer that question. Thank you very much. You've already said a bit, but you don't have to go into too much detail.

Female 16: Yes. I think it's important to add as well that when I was about 14/15 I had an eating disorder. I think that added to my intelligen- intolerance? Did it. (Laughter) I'm not sure.

alexander wheatley 28/1/2016 14:03
Comment [120]: interesting thinks her eating disorder added to her intolerance.

Facilitator: Well, that's what we're here to find out.

Female 16: Yes, it added to my troubles with eating later because if I did eat it was just wheat-based stuff, like cereal. I just lived on cereal when I did eat, so I've had an issue with that. Before I went to the doctor, my lifestyle, I was in a new job, about six months into a new job. My personal life wasn't great. This is all very personal, but I'm going to say.

Facilitator: You don't have to.

Female 16: No, I would like to actually, if that's okay. (Laughter) I'm on a roll. I had a breakdown at work, and that's all at the same time as my stomach started again, if you like.

alexander wheatley 28/1/2016 11:33
Comment [121]: really interesting.. stomach problem appeared the same time of her breakdown,

Facilitator: That's brilliant. Thank you. Now, so moving on. That was the tricky question. Now it gets a bit easier from hereon in. (Laughter) How does your food intolerance manifest itself? You've all said stomach pains and stuff so far, but if

you could reiterate what happens when you eat the wrong kind of food.

Female 17: If I eat too much wheat I get sick and feel sick for about two hours afterwards. If I've eaten more than I think is acceptable it physically makes me sick. When I was younger I used to get a rash all over my arms and down my legs from eating too much wheat, and really bad stomach cramps. Then if I have too much dairy it makes me feel really sick and I get stomach cramps as well.

Facilitator: Yes. Cool.

Female 15: Yes. When I eat too much cheese then I can feel sick. I've never been sick from eating too much cheese. It also makes me very bloated, so it's uncomfortable. That's the main thing really.

Female 16: Yes, I get very bloated as well. It can be one extreme to the other. I can not able to get off the loo or I can't go to the loo for weeks. With that is really bad stomach cramps. That's really, really painful, but I don't know which is worse. (Laughter) I really don't. Yes, it starts with the cramps. It's a different kind of cramps as well. That's the most severe. I don't let it get to that point now.

Facilitator: Yes, so you're saying you control your diet through knowing-?

Female 16: Yes.

Facilitator: Like you said earlier, you listen to your stomach.

Female 16: Yes. Depending on the pain, I go, "Well, okay," because if it's too much, if I'm sitting on the loo too much, I have to eat a little bit of wheat just to counteract that. It's standing on scales, if you like.

alexander wheatley 28/1/2016 11:33
Comment [122]: balancing act.

Facilitator: It's like a balancing act.

Female 16: Yes, yes.

Facilitator: No, that's cool. Well, thank you. Now, my next question is do you like the foods your intolerant to? If so, why? Now, you're all smiling here, (Laughter) but if someone would like to answer that, that would be lovely.

Female 15: Well, yes, I used to love- well, I still do, love cheese. (Laughter) What with being vegetarian, it cuts a lot out. Cheese was my big thing. I used to eat a big block a week, so I was gutted when I found out that it was that that made me feel ill. I still cut it out because it was bad. I feel more human. (Laughter) I have it now once a week and then you appreciate it more. (Laughter) I still love it.

alexander wheatley 28/1/2016 11:33
Comment [123]: Love the food
alexander wheatley 28/1/2016 11:33
Comment [124]: Interesting point.
alexander wheatley 28/1/2016 11:33
Comment [125]: More appreciated if eaten less.

Facilitator: Cool.

Female 16: Yes, I love the smell of freshly baked bread. The amount of breads that you get these days is just phenomenal. I did have a little bit of lemon. I have to tell you it's divine. (Laughter) This lemon and some sort of seed bread, it was just out of this world. I'm going, "Ah," but I can't eat it a lot. I can't go to the bread section very often. (Laughter) I think it's because I can't eat it, but I would like it more.

alexander wheatley 28/1/2016 11:33
Comment [126]: Love it

Female 17: Yes, I'm a very, very fussy eater anyway and I find it very, very difficult to cut out all the things with gluten and that

because I love them. I don't really eat much else. I'm not a vegetarian, but I don't eat meat, so I struggle on what to eat. Generally, I will just eat things with gluten anyway, but small amounts.

Facilitator: Yes. My girlfriend makes the best key lime pie in the whole of the world. I watch her make it and you go, "Oh, so much soft cheese, so much cheese. Oh God."
(Laughter) I know. It's worth it in the short term, but in the long term it's not very nice. (Laughter) Right. Thank you for that. Also, another question, let's just say if you thought of the foods you're intolerant to, do you get any reactions from that, if you think too much about bread?

Female 15: Sometimes it makes me feel a bit ill because I live in a house of seven and they all eat cheese all the time. There's always eight pints of milk in the fridge, (Laughter) so it's hard to avoid. My boyfriend tends to eat a lot of cheese, which is a bit unfair. (Laughter) It depends. When it's under your nose it can make you feel- it's the same with meat. I don't like the smell and stuff. It can make you feel a bit ill. Yes.

Female 17: I don't think thinking about the particular food makes me feel sick. It's more thinking about the aftermath of what is going to happen to me if I eat that food which is more annoying because it just puts me off. I do love pasta and stuff and I just don't want to eat it because it makes me ill.

Female 16: I don't think thinking about it makes me have symptoms or anything like that. It just makes me want it more. It's the actual eating of it that makes me feel that pain.

alexander wheatley 28/1/2016 11:33
Comment [127]: Being around the foods makes her feel ill

Facilitator: Okay, so thank you all very much. You've been doing brilliant. My final question is what does food intolerance mean to you, in ways of how did you get it or why do you have it? It's a very broad question, but if you could answer it that'd be brill. (Laughter)

Female 16: I think mine started with a lot of things really. I think I've mentioned before. It's emotional. Habits of eating when I was younger, I think that added- depending on my stress levels. I don't think it's necessarily actually the wheat. They do infuse it and it takes a long time to ingest, so I don't think anybody should eat too much wheat. There's a lot of food tolerance out there of chemicals and stuff. What they put in it adds to your intelligen- oh, I keep saying that. (Laughter) Oh, I should have eaten today. Yes, so it adds to it. It's a lot of things. I think it is a very broad question.

alexander wheatley 28/1/2016 11:33
Comment [128]: its emotional

alexander wheatley 28/1/2016 11:33
Comment [129]: stress

alexander wheatley 28/1/2016 11:33
Comment [130]: chemical and the way everything is added to.

Facilitator: No, that's perfect. Thank you.

Female 15: I think in a way it can control your life because you have to make the decision whether to have it and enjoy it for that moment and deal with the consequences or think in the long term. In a way, you have to think about it more than maybe someone who doesn't have an intolerance.

alexander wheatley 28/1/2016 11:33
Comment [131]: control

Female 17: Yes. I quite like having a food intolerance actually because it means I can control very much what I eat. Because I'm a very fussy person anyway and I've always been, food has always been a love/hate relationship with me. I quite like the fact that I control it. I like the fact that with my gluten intolerance it was diagnosed by a doctor, so it's not just me imagining it. I suppose dairy, I just convinced myself that I was intolerant to it because it

alexander wheatley 28/1/2016 11:33
Comment [132]: she likes having a food intolerance because it gives her more control.

alexander wheatley 28/1/2016 11:33
Comment [133]: its real the other (milk) just convinced.

made me feel a bit sick, but I think that's probably me just controlling what I'm eating more than anything else.

alexander wheatley 28/1/2016 11:33

Comment [134]: very interesting about control

Facilitator: Okay, so by you saying that it gives you more control, so do you think it's a part of your personality, it's a part of you?

Female 17: I suppose if I hadn't been diagnosed with having a gluten intolerance I think I would still be very controlling over what I eat because I'm very particular, but I think it's probably more me than anything else.

alexander wheatley 28/1/2016 11:33

Comment [135]: control

Facilitator: Yes. That's great. Well, thank you very much for participating. That's been really good. I'll just give you some of these forms. Right. This tells you a little bit more about why I'm doing it, not that much because it's very broad at the moment. Oh, [which set have I-0:16:05]? Yes, that'll do. At any time, if you don't want anything to be used in the final write-up- your names won't be added at all in my write-up, but if you don't want the data to be used, just email me and I can take it out of the data. It's all typed up by me. Any problems or any complaints or any questions, please email me. My email is on there, and I'm over in the psychology department. Thank you very much for taking part, and I'll update your points in the next 10/15 minutes. Cheers. Thank you.

END AUDIO

File: focusgroup180209.mp3

Duration: 0:24:09

Participants: 18f, 19f, 20f, 21f.

START AUDIO

Facilitator: Okay, if you'd like to start off by saying your names, and where you're from.

Female 20 I'm ---, and I'm from Exmouth.

Female 19: I'm ---, and I'm from Cornwall.

Female 18: I'm -----, and I'm from [Wirral 0:00:20].

Facilitator: And I'm Alex, and I'm from Cornwall. Hello.
Thanks for all coming, this is brilliant. What I want to do today is ask you a few questions, and hopefully get your answers, as an aid to start, hopefully, a bit of discussion. But if not, just try to answer the questions, and that will be lovely.

Female 19: Okay.

Facilitator: My first question- sorry, I'm Alex Wheatley, I'm doing my PhD on food intolerances, and I hope you've all been aware of the- well, you've signed the sheets, and you read through everything, so that's all good.

Female 18: Yes.

60

Facilitator: Okay. I'd like to begin with my first question. Can you remember when your food intolerance began?

Female 18: Are we going the same way again?

Facilitator: Either or. Or I'll try to mix it up a bit. So, start with you.

Female 18: When I was about five, probably.

Facilitator: Okay.

Female 18: I just went to the doctor's, well, I think because I had honey when I was like five, and then I was rushed to hospital. Not good, really.

Facilitator: No.

Female 18: Bit scared of that now.

alexander wheatley 28/1/2016 11:34
Comment [136]: Scared of honey from early negative experience.

Facilitator: Okay.

Female 19: Mine started about nine, when I had- I went out for dinner, and I had a lasagne, and they put peppers in it. And the whole table got covered in vomit, in the middle of the restaurant.

Facilitator: Okay. I bet the restaurant really liked you.

Female 19: Yes. My favourite customer.

Female 20: Mine's not serious. I probably found out about mine about two and a bit years ago, and-

Facilitator: Sorry. Just remember where you are.

Female 18: Hold that thought.

Facilitator: Here for food intolerance?

Female 21: Yes.

Facilitator: Take a seat there, and just read through that. We've actually begun.

Female 21: Okay.

Facilitator: So I'll run through it again. Sorry about stopping you there.
So if you'd like to just sign that form quickly, that'll be brill.

Female 21: Yes, okay.

Facilitator: And like I've already said, we're just sort of having a focus group where I'm just asking you questions, and we're just answering them, really, and hopefully a kind of discussion, or just talk, if you're lucky. (Laughter) Or just answer the questions.

Female 21: Okay.

Facilitator: So that's cool.

Female 21: It's the 18th.

Facilitator: It's the 18th.

Female 21: Thank you.

Female 20: Yes.

Facilitator: That's great, thanks.
This is all recorded, but it won't actually be used in there.
Your names won't be used in the final study.

Female 21: Okay.

Facilitator: So that's all good.

Female 21: Cool.

Facilitator: Okey-dokes. So can I stop you with that one, but can I take you, if I can sort of go through the first question again, can you remember when your food intolerance began? I'd like to ask you that.

Female 21: I think it was ever since my mum was pregnant with me, because she told me that she ate nuts one year at Christmas, and they didn't stay down at all. She just couldn't eat them ever since then.
I tried them when I was young, and that didn't work either.

Facilitator: That's cool, thanks.
And the second question, which I'm going to go back to you if that's all right. No, sorry, I'm running on the first question still.
Can you remember when your food intolerance began? I'd like to jump back to you.

Female 20: Yes, so like two and a bit years ago. It was just like from drinking milk. I just started reacting really strangely, and my partner was the person who noticed it. We just researched it, and I realised I was allergic to lactose.

alexander wheatley 28/1/2016 11:34
Comment [137]: Her mum ate nuts when pregnant with her.. by proxy??

Facilitator: Oh, right. Cool. What do you mean, 'strangely'? Sorry.

Female 20 It's really embarrassing, because I'd just make a really, really weird noise in my throat.

Facilitator: Oh, right.

Female 20 Because it gets really itchy.

Female 18: I do that.

Female 20 And like my ears get really, really hot.

Female 18: I do that.

Female 20 I researched it online, and it's called clucking.

Facilitator: Oh, right.

Female 18: Is it?

Female 20 It's really stupid. And I just have to lay down, and I have to put cold stuff over my ears, they get really hot.

Facilitator: Okay.

Female 20 It's quite stupid.

Female 18: I get that way with nuts and apples and pears, and things. I get really itchy in my throat, and my ears get really itchy.

Female 20 Yes.

Female 18: It's like itching your ears from the inside, however weird that sounds.

Female 20: Yes. My dad's always done it, and I always think it's really strange.

Female 18: It's really weird.

Female 20: And then I started doing it, and I realised-

Female 18: It works, though.

Female 20: Yes, it does work.

Female 18: I came here, and moved in with new housemates and everything, and I did it because I had an apple. If I peel them, they're not that bad. So it's more like to do with the peel, obviously, I don't know.
But still sometimes I get really itchy and everything, and I do that thing, and they're like, "What are you doing, ---?" And I was like, "Itching my ears from the inside."
They were like, "That's so weird." And ---- was like, "That's so horrible, don't do it." It creeps them out a bit.

Facilitator: Thank you very much. And so to sort of emphasise the embarrassment and stuff, I've spent three days of my life looking at different forms of faeces.

Female 18: Lovely.

Facilitator: So if anything's embarrassing, my life is. So don't be worried about anything you said, and sort of clucking-

Female 18: Clucking, yes.

Facilitator: No, that's kind of cool.
My second question, and sorry for screwing up the first question-

Female 20: That's okay.

Facilitator: But anyhow, I lose track of everything.
Can you remember what your lifestyle was like a few months before your food intolerance started?
I mean, most of you were sort of diagnosed- well, you sort of started it, it went from birth and early childhood, so it's quite hard to maybe remember how you were then, or what was going on in your life around then. But if you'd like to give it a go, that would be great.
So, starting with you?

Female 19: Yes. Well, I can't really particularly remember, because my mum is intolerant to peppers and things, as well.

Facilitator: Yes.

Female 19: So we never had them in the house. So it was only when we went out for meals anywhere, obviously other people put them in. so it never actually affected my life before I started going out for dinner.

Facilitator: So you'd never had peppers until the lasagne incident?

Female 19: Yes.

Facilitator: All right. Okay.

Female 19: It was the first time.

alexander wheatley 28/1/2016 11:34
Comment [138]: Parent had the same thing

Facilitator: Okay. And have you had any peppers since, or have you just stayed just totally avoiding them?

Female 19: I've gone out for meals again, and they've managed to hash it up quite a few times, because obviously you're looking at things, and they're saying, I don't know, pasta with peppers in it.

Female 21: Yes, you look [sort of worse 0:06:24].

Female 19: And like the garnish all has peppers in it. I have to specifically ask for no peppers. But sometimes it's hidden within the food.

Facilitator: Yes.

Female 19: And I've been quite ill from that. But you get a lot of free meals.

Female 18: Do you get like, just if the pepper touches something, and then if you take it back off, will that affect you? Is it that bad, or is it just if you eat it?

Female 19: That just tends to make me quite nauseous, and I get quite dizzy.

Female 18: Ah, okay.

Facilitator: Okay.

Female 18: That's pretty bad, though.

Female 19: If I actually eat it, I get really sick.

Female 18: Yes, I have to actually eat things to have an allergy, in order to get anything. It's not that serious for me.

Facilitator: Okay. And I'd like to go to you.

Female 21: I don't think my life was much different than it is now. It's just if I eat them, or touch them, I have an allergic reaction.
If I eat them, my tongue starts to swell up and things, so it's not good. If I touch them, then it's more like a rash.

Facilitator: Yes.

Female 21: Like on my hands. But I can't really remember what it was like beforehand.

Facilitator: That's the problem with it really-

Female 18: Yes, we're a bit useless there. It's the same with me.

Facilitator: No, it's all right, because I mean, it's kind of funny, because some people do have intolerances from birth, and other people just develop it over time.

Female 18: Yes.

Facilitator: So it's kind of interesting. I know it's a bit of a clanger to ask a question of someone who was two years old when they- "Can you remember what your lifestyle was like?"

Female 18: Yes.

Facilitator: It's very hard to do. But sometimes it gives you a nice insight, especially sort of people who develop when they're a teenager, or when they're about 20, or whatever. It's quite common.

Female 21: Obviously with my mum being ill when she ate them, while she was pregnant with me, she kind of had an inkling that I wasn't going to like them.

alexander wheatley 28/1/2016 11:34
Comment [139]: Parental effect

Facilitator: Yes.

Female 21: So she didn't necessarily give them to me, sit me down and try them. But I've tested foods, and yes, it wasn't pretty.

Facilitator: So she was a lot more cautious, was she?

Female 21: Yes. She was.

Facilitator: That's cool. Okay.
And the same question to you.

Female 18: Well, I don't know, I think I just realised, when I eat stuff for the first time that I didn't really react to it very well, like the honey. And with like nuts and apples and stuff, I just got really itchy and everything.

Female 21: Yes.

Female 18: It was really uncomfortable. I never had swelling up or anything, it's never that bad, except for with honey.

Facilitator: Yes. Was the honey and everything else, was all that at the same time?

Female 18: I think it was probably all figured out around the same time. The only thing is, a couple of years ago, I started getting the same with peaches. But I love peaches. I don't eat the as much any more, because Mum was like, "You're not allowed to eat them by yourself," in case I had a massive reaction, or died, or something.

alexander wheatley 28/1/2016 11:34
Comment [140]: fear

Facilitator: Yes.

Female 18: And no-one would be there to save me. It was like, "You're not allowed to eat them by yourself." And plums, as well, are a bit annoying. So I can't eat stuff by myself, in case anything happens. Strict orders from Mummy.

alexander wheatley 28/1/2016 11:34
Comment [141]: Fear

alexander wheatley 28/1/2016 11:34
Comment [142]: Mother knows best

Facilitator: Okay, that's cool.

Female 20: I don't know. I don't think my life was much different. Because I don't have a really severe reaction, I still have milk products, so I've always just carried on the same. I just try to substitute them for stuff.

Facilitator: Yes.

Female 20: Like I have soya milk, and stuff.

Facilitator: Yes.

Female 20: It does help.

Facilitator: Cool. Because I mean, some people have said, when they came to uni and stuff, like there's been a change and stuff. Because of a change of diet, maybe, or a

change in lifestyle. It's a different sort of- I don't know, I'm waffling.

And I'm doing what I shouldn't do. If I start sort of going down a track of trying to make you say one certain thing, that's wrong of me, and this is what I shouldn't be doing.

Female 18: We should do it all by ourselves, sorry.

Facilitator: Yes, sorry. I should just ask questions and smile.

(Laughter)

My third question is, how does your food intolerance manifest itself? I mean, you've all kind of said elements so far, with the clucking and stuff. (Laughter) But if you'd like to go through that again, if that's cool.

Let's start with you.

Female 19: Yes. Well, I begin by just suddenly getting quite nauseous, and the room starts spinning.

Female 18: That sounds so bad.

Female 19: I'm really good at projectile vomiting. (Laughter) I'll be ill for the rest of the day, like constantly vomiting to the point where you're just sicking up bile and things, and it just gets really painful.

Facilitator: Yes.

Female 19: And then the day after, and for the next couple of days, I tend to have like a hangover, if you know what I mean.

Facilitator: Yes.

Female 19: And like the headache, and you just can't eat anything.

Female 21: That's unlucky.

Female 19: And you just stay in a dark room. (Laughter)

Facilitator: Okay. That sums it all up, yes.

Female 20: That's really bad.

Female 19: Yes, it's horrible.

Facilitator: Yes. And you've already explained you do the clucking stuff.

Female 20: Yes.

Facilitator: But if you'd like to go through it again, sort of how it manifests itself?

Female 20: Yes, I just do that, really. Just like my throat will really start to hurt, and it will just feel really hot and itchy.

Facilitator: Right,

Female 20: My ears will re just really burn. So I don't know, I just make funny expressions when I try and itch my throat.

Female 18: Yes.

Facilitator: Right.

Female 20: I just like to try and keep my ears really cold, to stop it itching.

Facilitator: Okay.

Female 20: But that's about it.

Facilitator: Cool.

Female 21: Well, depending on the amount that I've eaten, of the nut or whatever, my tongue will swell. Sometimes I won't be able to talk or anything, and sometimes I can calm it down. Other times, it's more serious. So I have to then get help, if it goes that bad.

But obviously, unless it's a big bowl of nuts and I eat half of it, I'm not really going to know the quantity that I've eaten.

Facilitator: Yes.

Female 21: But yes, it's a mixture of the swelling, and then the rash. But that's about it.

Female 18: Okay, well, when I eat apples and stuff, even if I peel it, and then touch the apple, and then forget to wash my hands, if it gets in my eye or something, my eyes will get really bad. And sometimes if it gets really bad, I get like a layer of grey gel on my eye.

Facilitator: Right.

Female 18: Which is kind of gross. And then I just get itching in my throat and my ears.
And also, if I eat apples or something like that, if I have any cuts on my lips or anything, then my lips will swell up. That's pretty much about it.

alexander wheatley 28/1/2016 14:04
Comment [143]: Allergic histamine response

Facilitator: Cool. That's great, thank you very much.
My fourth question would be, do you like the foods you are intolerant too, and if so, why?
So, do you like peppers?

Female 19: I love peppers.

alexander wheatley 28/1/2016 11:34
Comment [144]:

Facilitator: Really?

Female 19: That's the thing. I first tried them in this lasagne, and I was like, "Wow, this tastes really amazing." I loved it, and then I've just gone from there.
I love the smell of them. And I work at Tesco's, so I serve food. And they're quite a popular food, and everyone seems to buy them. I'm fine if it's in packaging, but I get them sometimes if they've broken, or things.

Female 18: Oh, yes.

Female 19: I have to go wash my hands, because I get the same sort of thing if I touch.

Female 18: Really, ah.

Female 19: And I just love the smell. I really love them.

Female 18: Yes, peppers do smell nice, actually.

Female 19: And they look really good on food, as well, so much colour to it.

Female 18: Yes, they look so pretty, with all the colours.

Female 19: It does.

Female 18: Pretty colours.

Female 19: It really frustrates me that I can't eat them.

Facilitator: Right.

Female 21: Well, I do think that nuts are a nice taste, but sometimes, they can be a harsher taste. Like you know you can have salted and then different things, like you can have fruit and nut, like in chocolate bars. That's not so bad. But then if you just eat a nut, like you get at Christmas, sort of thing, that's not as great. But I mean, I do like them.

Facilitator: So it's a bit more processed, kind of thing.

Female 21: Yes.

Facilitator: Yes.

Female 21: If it's like smushed up, or powder, or something.

Female 18: If it's in something, or in a Bueno, when it's all processed nuts, I can eat that.

Female 21: Yes. I still might have a little rash, but that would be okay. It's kind of like the milk thing, you can substitute it. So yes, I do like the taste of them, but not too much. (Laughter)

Female 18: That's like me and apples, really. I love apples. I don't know why, they just taste fresh, and nice and juicy. It's good, and peaches as well, I love it.

And honey, I haven't really had it since, so I don't know.

Facilitator: Yes.

Female 18: I have a sweet tooth, so I'm guessing I would like it. But apples, I eat anyway, just one at a time. No more than one a day.
If I buy like a pack of four, then ----- like, "You're allergic to apples."
I say, "Well, I feel like them. Leave me alone. I can eat one at a time, it's fine." Peel them, they're good.

Female 20: I like it so much, I don't stop eating it. (Laughter) I still have it.
I don't really like milk just to drink on its own, anyway.

Female 19: No.

Female 20: So I'm okay with replacing milk, for in my cereal and stuff.
But I find chocolate really, really hard.

Female 19: Oh, yes.

Female 20: I really don't like not having chocolate. I used to always buy soya chocolate, which doesn't taste the same.

Facilitator: No.

Female 21: No, it doesn't.

Female 20: I kind of limit myself. I make sure I only have like one small chocolate a week. Before, I used to just eat it every day. I do find it really, really hard.

There are some really good substitutes, though, so I think I'm quite lucky in that sense.

- Facilitator: Yes.
- Female 20: But they just don't taste as good.
- Female 18: Can you have cheese?
- Female 20: No.
- Female 18: Oh my gosh, you poor thing. Cheese.
- Female 20: I went out to Walkabout on Friday, and I had a cheesy lasagne, and the next morning I really regretted it. I was literally up all night, my throat was really sore from it.
- Female 18: Oh, that's awful.
- Female 20: Like my throat's still a bit bad now, that's because of it as well. But literally, it's really bad if I eat too much.
- Female 18: I could not live without cheese, that's awful. Cheese toasties.
- Facilitator: Ah, cheese. But yes. (Laughter)
- Female 18: Cheese, wonderful cheese.
- Facilitator: Yes, I'm sort of lactose intolerant. I was up in Cardiff with my girlfriend at the weekend, so we had this chocolate dessert. But when we got in on Monday night, and I thought, "Yes, that's great," ten o'clock, having this really

thick, creamy chocolate dessert. I was like, "This is great. That tastes lovely, it'll be all right."

I went to sleep, woke up in the morning, and I was in the worst pain ever. I was like, literally I'm sitting on the train all the way back, just going, "This is the worst ever, this is shocking." I just felt so rotten.

Female 21: It's kind of almost like not enough to put yourself through it.

Facilitator: Yes. Yes, it is. But being a vegetarian, lactose-intolerant sort of person down here, everything veggie option is just all cheese-based, so it's like, "Oh."

Female 18: That's a bit hard.

Facilitator: So it's like, if you want to eat something, you've got to just-

Female 21: Just go out and buy it from the store.

Facilitator: Yes. Or if you want something, like a sort of fast-foody element, you've got to go to London. (Laughter) Then hopefully you'd get something.

Female 18: Bit of a way away.

Facilitator: Yes, it's a bit of a kick in the bum. But I'm sorry, I digress. Going to my next question.

Do you get your symptoms of your food intolerance without actually eating the food you're intolerant to? So it's like if you're walking- say if you're lactose-intolerant, walking down the milk aisle, and you're surrounded by

dairy products, you know, does it make you feel any worse?

Female 18: Oh, god.

Facilitator: Let's start with you.

Female 18: No, it doesn't affect me if anyone eats anything around me, or anything. The only thing is like, if I touch it, and then touch my eye or something, then that will affect me.

Facilitator: Yes.

Female 18: That's the only thing, unless I have to eat it, really. So it's not that bad with me.

Female 21: Yes, with me it's generally the contact of any form, really.

Facilitator: That's cool.

Female 20: No, it doesn't affect me. I have to eat it.

Facilitator: It doesn't, no?

Female 19: No.

Facilitator: It was a bit of a shot in the dark, but okay. And my final question is, what does your food intolerance mean to you? Like sort of general, how do you think you got it, or why do you have it? Have you got any theories about it?

Female 20: My dad's allergic to wheat, so I don't know, it could be linked to that. But it's really strange, because I got it so

late. Most people would have it from a young age, everyone here did.

Even now, if I go back home for the weekend and go round to my mum's, she'll make me a cup of tea, and she'll completely forget I can't have milk.

Facilitator: Yes.

Female 20: So it is kind of like annoying, because it just literally did come up from nowhere.

Facilitator: Yes.

Female 20: But I don't know. It doesn't really affect me, though, so I'm kind of lucky that there's loads of substitutes. And even if I do have it, it doesn't really, really affect me. So it hasn't really changed too much for me.

Facilitator: Cool.

Female 21: Sorry, I forgot the question.

Facilitator: Oh, sorry.

Female 18: I was just thinking that.

Facilitator: Yes, sorry, so, what does your food intolerance mean to you? If you have any sort of ideas about it, or where it comes from, or any kind of theories?
There was this one guy who, if he ate white cheese, he was allergic to it, but his antidote was Red Leicester. So if he ate a bit of white cheese, then he'd have to go and have a bit of Red Leicester, just to sort of counteract the... It's a bit out there, but anyway.

Female 21: I suppose, because when my mum was pregnant with me, she ate the nuts, that way I suppose it would be genetic.

Facilitator: Yes.

Female 21: Or some form of link there. But if I eat nuts, or something like that, and my tongue does swell, but not too seriously, I can try and calm down, have ice or something like that, and then it will calm it down. So I suppose that way, it's an antidote.
But I think it would just be the genetic link. Because Mum's not allergic to nuts.

Facilitator: Yes.

Female 21: I know this is not really like a food intolerance, but she is scared of spiders. She didn't want me to be scared of spiders, so she tried to pick up one, but then she had a panic attack, and now I'm scared of spiders. So I guess that's a link.

Facilitator: Okay.

Female 18: Yes, that's true, actually. It's like with ----- and -----, my little siblings- this is a bit out of the subject.

Facilitator: No, it's cool, keep going.

Female 18: Mum was all really terrified of spiders, but then one day it was- I didn't know anything, I was so young- but she thought, "Okay, I'm not going to be scared of spiders,

alexander wheatley 28/1/2016 11:34
Comment [145]: Backfired, conditioning effect!

because then they'll be scared of spiders." It's silly really, I was thinking I was frightened.
So she picked up one, and she went, "Oh look, it's a little spider," and they were like, "Oh yes, look at that," and now they love spiders.
So it's something to do with how you're raised, as well.
But that doesn't really affect your food intolerance.

Female 21: No. But like my granddad, he said to my mum, "Don't try and pick up a spider again whilst you're pregnant. You're going to just ruin everything."

Facilitator: Yes.

Female 21: Because she just had a panic attack, and she freaked out.

Female 18: When she was pregnant with you?

Female 21: Yes.

Female 18: Oh, really?

Female 21: While she was pregnant with me, she tried to pick up a spider, because she knew how terrified she was.

Female 18: Yes.

Female 21: And she tried to hold one. No.
And now I'm not as bad as she is, but when she freaks out, it's not good.

Female 18: Still, fair enough.

Female 21: I get so scared.

Female 18: I don't know, maybe it's to do with how you're raised. Maybe if you're not introduced to certain things, because you know how you can develop things, like you sort of developed your lactose intolerance recently. I don't know, maybe if you're not used to having things, then all of a sudden your body will react if you get it a late age, if you haven't tried it before or something. I don't know, that would be a theory, a bit out there.

Facilitator: No, it's very valid.

Female 19: Well, yes, partly what they were saying, because I had never obviously been introduced to them. But because my mum suffers from the same, so I think it could be linked to her. But my brother is fine. It's just me and my mum.

Female 18: Girly problems.

Facilitator: Well, I think that's about it, you've gone and answered it, so that's good.

Female 18: Yes.

Facilitator: So yes, I think that's perfect. Thank you very much for taking part. I'll bring out your debrief forms, you can take them away. Any problems, you've got your individual number at the top, so if at any point you want me to take your data out of the pool, just email me with that number, and I'll take it out.

But any problems or any complaints or whatever, just email me, and thank you very much for taking part.

Female 18: Thank you.

Female 20 Thank you.

Facilitator: That's cool. And good luck for you, and cluck away, and whatever. (Laughter)

Female 18: Sorry.

Facilitator: No, it's all right.

Female 18: [If that's the colour that I'm going, I'll laugh so much.
0:23:07]

Facilitator: That's perfect. Thanks very much for taking part.

Female 20 Thank you.

Female 19: Thank you.

Facilitator: And I never knew it was called clucking, because my dad used to do it all the time when I was a kid.

Female 20 Yes.

Female 18: My dad used to gross me out.

Female 20 I didn't know what it was until like a Channel 4 health episode.

Female 18: No, I didn't know what it was, I just thought it was me being weird.

Female 21: Some people can actually do it without having a food intolerance, can't they?

Facilitator: Yes.

Female 20: Yes.

Female 18: My friend Jim does it, and he doesn't have a food intolerance.

Female 20: No, I did wonder, because I didn't ever think anything of doing it, because I've done that for a long time. But I watched a programme about someone who did it, who did it because she was lactose intolerant. And then I thought I'd do like a trial, change my diet for a month, and when I changed my diet, I completely stopped doing it. So I don't know.

Facilitator: I should have been recording that.

Female 18: I was just thinking that.

Facilitator: Actually, I was, brilliant.

Female 20: Oh, that's all right.

Facilitator: All right, cheers. Well, thank you very much. Take care, and good luck. See you.

END AUDIO

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