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Research review

A systematic review of adherence to restricted diets in people with functional bowel disorders

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ABSTRACT

Functional bowel disorders such as irritable bowel syndrome are commonly experienced within the population, and have an adverse impact on emotions, physical well-being, social activity, and occupational output. Adherence to a restricted diet can reduce symptoms, which in turn leads to increased quality of life and well-being. The aim of this review was to assess the extent to which predictors of dietary adherence have been considered in studies relating to functional bowel disorders and following a restricted diet. This was done firstly by examining such studies which contained a measure or indicator of adherence, and then by examining predictors of adherence within and between studies. A search of PsycINFO, Medline, CINAHL, Web of Science, and Cochrane databases was performed during July 2014, with the search criteria including relevant terms such as gastrointestinal disorder, irritable bowel syndrome, diet, and adherence. Of an initial 7927 papers, 39 were suitable for inclusion. Fourteen of the 39 studies included had a structured measure or indicator of dietary adherence, and the remaining 25 mentioned adherence without any structured levels of adherence. There was little investigation into the predictors of adherence, with symptom relief or induction being the primary goal of most of the studies. This review indicates that predictors of dietary adherence are rarely considered in research regarding functional bowel disorders. Further investigation is needed into the variables which contribute to rates of adherence to restricted diets, and more rigorous research is needed to characterise those individuals most likely to be non-adherent. Such research is necessary to ensure that people with these conditions can be provided with appropriate support and interventions.

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Introduction

Functional bowel disorders (FBDs) are a group of disorders that include irritable bowel syndrome (IBS), functional bloating, functional diarrhoea, and functional constipation (Drossman et al., 2006). It is estimated that 10–20% of individuals worldwide experience IBS, 10–30% experience functional bloating, up to 27% experience functional constipation, and 5–10% experience functional diarrhoea (Longstreth et al., 2006). The most commonly experienced symptoms among people with FBDs are bloating, abdominal pain, abdominal distension, and altered bowel habits (Longstreth et al., 2006).

Living with a FBD has a number of adverse impacts on an individual's emotions, physical well-being, social activity, functioning in the home environment, and occupational output (Drossman, 2006). These disorders have a negative impact on an individual's overall quality of life (QOL), with reduced QOL shown to be one of the primary indirect costs of FBDs (Lackner, Gudleski, DiMuro, Keefer, & Brenner, 2013). The symptoms experienced by people with FBDs have been found to play a key role in QOL outcomes. Severity of abdominal pain and discomfort have been shown to be independent predictors of reduced QOL in FBD populations (Wilson et al., 2004); a review of the impact of IBS on QOL reported that the health related impact of IBS is of a similar significance to that experienced by people with diabetes, hypertension, and kidney disease (Agarwal & Spiegel, 2011).

Many of the symptoms seen in FBDs, such as bloating and bowel motility changes, stem from distension of the intestinal lumen (Gibson & Shepherd, 2010). Reducing foods which have the potential to cause luminal distension is an effective approach to reducing the onset of FBD symptoms (Shepherd, Parker, Muir, & Gibson, 2008). For example, adhering to a restricted diet by reducing consumption of one or more of fermentable oligosaccharides, disaccharides (lactose), monosaccharides (fructose), and polyols (known collectively as FODMAPS); which are poorly absorbed in the small intestine has been shown to lead to symptom relief in up to 75% of people with IBS (Gibson & Shepherd, 2010; Thomas, Nanda, & Shu, 2012). Gibson and Shepherd (2010) have argued that the research base for the benefits of following a low FODMAP diet is sufficient for it to be recommended as an evidence based clinical approach to treating functional gut symptoms.

The extent to which individuals adhere to restricted diets has been linked to the magnitude of reduction in FBD symptoms experienced, and to increases in QOL in a number of studies (Atkinson, Sheldon, Shaath, & Whorwell, 2004; Austin et al., 2009; Drisko, Bischoff, Hall, & McCallum, 2006). Given the considerable symptom relief associated with adherence to such a restricted diet and the relationship between extent of adherence and symptom relief, it might be expected that individuals with FBDs are typically strictly adherent to restricted diets. However, research from other gastrointestinal disorders with overlapping gastrointestinal symptom profiles (e.g. coeliac disease; Sanders, 2002) suggests that this may not be the case. Given the long term health implications of non-adherence to a gluten free diet for individuals with coeliac disease (Yao, Gibson, & Shepherd, 2013), it would be expected that individuals with coeliac disease would be highly motivated to adhere to the diet. Instead, a systematic review of adherence to gluten free diets within coeliac disease reported that up to 32% of people with a confirmed diagnosis of coeliac disease do not adhere to the gluten free diet at all, while up to 60% of people are only partially adherent to the diet (Hall, Rubin, & Charnock, 2009). The low rates of dietary adherence seen in people with coeliac disease suggest that individuals with FBDs may also struggle to adhere to restricted diets that would provide symptom relief. Gaining an understanding of the adherence to restricted diet among individuals with FBDs, and the factors that place individuals at increased risk of non-adherence, is an important step in providing effective treatment and support for individuals with FBDs.

The aim of this review is to assess whether predictors of dietary adherence have been considered in studies relating to FBDs and following a restricted diet. In order to achieve this aim, the review will consider all such studies which have assessed adherence to restricted diets within FBD populations. This will be done firstly by examining such studies which contained a measure or indicator of adherence, and then by identifying those which have considered predictors of adherence.

Materials and methods

A systematic review was performed in accordance with the PRISMA guidelines (Fig. 1; Liberati et al., 2009). Studies that had examined adherence to a restricted diet among individuals with a FBD were identified through searching the following databases: PsycINFO, Medline, CINAHL, Web of Science, and Cochrane. Dates in the search spanned from 1965 until 22nd July 2014. Search terms included *gastrointestinal disorder*, *irritable bowel syndrome*, *diet*, and *adherence* (see Appendix A for the full search strategy). Searches were restricted to English-language papers and human studies. The participants of interest were adults aged 18 years and over. Studies solely involving children and adolescents were rejected as it may

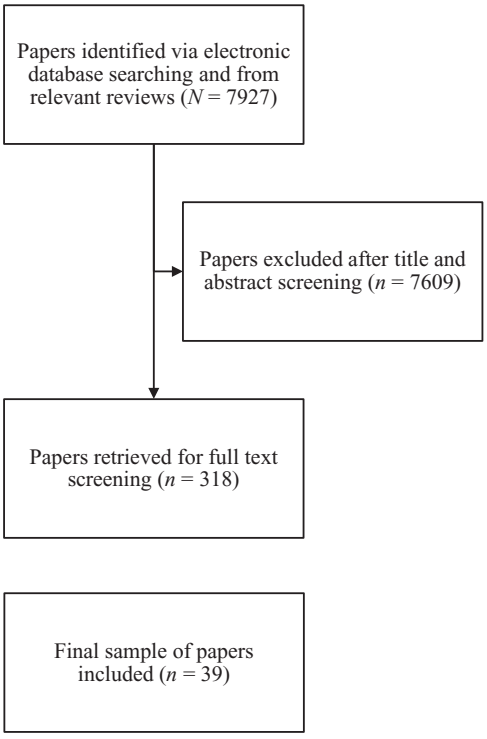

Fig. 1. PRIMSA flow diagram.

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