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Dietary Fibre Intake: Validity of a Short-Term Food Frequency Questionnaire; Association with Gastrointestinal Health and Public Perceptions

A thesis presented in partial fulfilment of the requirements for the degree of

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In
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John Micah
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Abstract

Introduction: Dietary fibre is an important constituent of the diet as it plays a key role in reducing the risk of certain diseases. There are several validated dietary assessment tools that measure current fibre intakes; however these are lengthy, cannot be self-administered or classify dietary fibre intakes. The beneficial effects of fibre consumption have led to dietary recommendations that encourage adequate intake, yet there are a limited number of studies that have investigated the effect fibre has on gut symptoms or examined the perceived benefits versus barriers to eating fibre containing foods.

Objectives: This study aimed to validate a tool that measures short term dietary fibre intake against a 4-day food record, and compare dietary fibre intake to gastrointestinal symptoms. The study also aimed to survey perceived benefits and barriers to dietary fibre intake.

Methods: One hundred and five healthy male and female participants aged 19-65 years completed the study. All eligible participants completed a 4-day diet record, a food frequency questionnaire based 9-item dietary fibre intake tool (DFiT), a daily gastrointestinal symptom diary and a 15-item dietary fibre perceptions survey. Agreement between the 4-day diet record and DFiT was analysed using a paired t-test, correlation coefficient, cross-classification, weighted k statistic and Bland Altman analysis.

Results: The DFiT was accurate in classifying but not estimating total dietary fibre intakes. When different levels of dietary fibre intakes were compared to markers of gastrointestinal health, there were no associations found for occurrence or severity for gastrointestinal symptoms. However, high fibre consumers pass one additional bowel motion per day and had softer stool than low fibre consumers. The survey of perceptions showed that the majority of participants agreed with the health benefits, however just over half of participants identified with barriers. There were some differences in responses between genders, levels of dietary fibre intake and socioeconomic status.

Conclusion: The DFiT is a valid, simple, short and easy to use questionnaire for classifying but not estimating total short term dietary fibre intakes. In the context of sustainability and shift towards a higher consumption of dietary fibre, it is important to further investigate the effect of dietary fibre on gastrointestinal symptoms and perceptions of barriers.
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**Abbreviations list**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>CHD</td>
<td>Coronary heart disease</td>
</tr>
<tr>
<td>CRC</td>
<td>Colorectal cancer</td>
</tr>
<tr>
<td>CVD</td>
<td>Cardiovascular disease</td>
</tr>
<tr>
<td>DFI-FFQ</td>
<td>Dietary fibre intake food frequency questionnaire</td>
</tr>
<tr>
<td>DFiT</td>
<td>Dietary fibre intake tool</td>
</tr>
<tr>
<td>FFQ</td>
<td>Food frequency questionnaire</td>
</tr>
<tr>
<td>GSRS</td>
<td>Gastrointestinal symptom rating scale</td>
</tr>
<tr>
<td>HbA1c</td>
<td>Glycosylated haemoglobin</td>
</tr>
<tr>
<td>LoA</td>
<td>Limits of agreement</td>
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