REFERENCE NO: MAN 8

TITLE: Irritable Bowel syndrome among shift-workers: investigating direct and indirect effects of shiftworking.

ORGANISATION:
Institute of Occupational Health, University of Birmingham
The Department of Gastroenterology, Blackpool Victoria Hospital

DURATION: 24 months

APPROXIMATE COST £

SUMMARY:
There are no definitive and reliable biological, sociological or psychological markers of Irritable Bowel Syndrome (IBS) even though IBS patients traditionally show more psychological distress and greater prevalence in Gastroenterology Departments (G.D) than the general population. Understanding if shift-working is directly associated with IBS, or if other subtle indirect associations are present has been difficult for previous studies to achieve, when not attempting to investigate work-related factors beyond those of “occupation”. The biopsychosocial approach to investigating occupational associations with Gastrointestinal (G.I) disorders employed in this study will acknowledge the interactive process between individual psychosocial factors, job choice and retention, health-modifying behaviours and health awareness. By collecting data from patients attending a gastroenterology unit for investigation of IBS symptoms, this approach will investigate the true relationship between shift work and G.I symptoms while accounting for known confounding factors. Data collected will concern patients’ occupational history, current occupation, lifestyle, and individual psychosocial factors. By accounting for individual psychosocial factors, it will be possible to ascertain how influential occupational factors actually are in the aetiology of Irritable Bowel, either directly or, as indirect modifiers of behaviours that may be associated with increased symptomology.

INTRODUCTION
Gastroenterology departments are used by patients with a wide variety of functional disorders, that sometimes cannot be explained by structural or biochemical abnormalities. These include oesophageal disorders, gastroduodenal disorders, bowel disorders, biliary and ano Rectal disorders, although the most common appears to be Irritable Bowel Syndrome (IBS), accounting for between 13% and 52% of new referrals to gastroenterology units (Walker et al., 1990). It is a common digestive disorder which can cause troublesome and persistent symptoms which vary greatly between individuals, but usually includes cramping, discomfort, bloating, and a disruption of bowel habit. Despite considerable research, the cause of IBS remains to be fully understood.

It is documented in research and also anecdotally among clinicians that certain subpopulations are over-represented in gastroenterology departments, with particular functional disorders, especially IBS. Many studies have demonstrated significant
relationships between the broader range of functional G.I disorders and specific sub-populations, such as a positive correlation between traumatic life events in the year preceding treatment and the severity of abdominal symptoms (Creed et al., 1988 and Arun et al., 1994). Other studies have found associations between the severity of IBS and many psychosocial factors such as psychological stress, personality disorders, anxiety, depression and somatization (Lynn and Friedman 1993), increased pain-perceptions (Whithead et al., 1980) being female (Kay et al., 1990 and Lee et al., 2001) and general psychiatric illness (Cassileth, and Drosman 1993). Most studies conclude that although the aetiology, reporting and compliance with treatment of IBS have significant psychosocial components, it is not a psychological disorder, but psychosocial factors do influence how symptoms are interpreted and reacted to. However, just as there have been no definitive biological markers of IBS, there do not appear to be any definitive characteristic psychological markers either: even though IBS patients traditionally show more psychological distress than the general population, they do not have a universal profile that can be identified on common psychometric tests.

This lack of definition is similar when attempting to associate occupational factors with G.I problems, although it is understood that some occupational groups have more G.I. symptoms than others. Cucino and Sonnenburg (2001) identified significant reductions in Inflammatory Bowel Disorder in occupations associated with manual work and farming, and increases in the more sedentary indoor occupations. Other research has suggested (occupational) chemical exposures may trigger G.I. symptoms (Lieberman and Craven 1998), but by far the largest occupational group seen to be at risk of IBS and other G.I disorders are shift-workers, especially those who perform night-shifts. Night-workers seemingly present themselves in Gastroenterology clinics more than day-workers, although there may be reasons concerning access and availability which require further investigation that relate to this observation. However, research in this area consistently fails to address if genuine aspects of shift-work effect G.I. health, or if other psychosocial aspects of shift-workers and their lifestyles effect G.I health, which may wrongly be categorized under the umbrella of “night shift effects”.

**OBJECTIVES**
The study will deliver a final and full report of the collected data, identifying any direct and indirect associations between aspects of IBS symptoms, prevalence, and referral rates and (i) occupation (ii) shift-work (iii) shift-worker lifestyle and (iv) the psychosocial characteristics of shift-workers. This data will help to further understanding of why some occupations seem more prone to IBS than others, and it may additionally assist in the targeting of awareness and prevention information to members of such populations. The research team will produce three-monthly progress reports for the HSE and an additional report of preliminary findings will be made after 12 months of data collection.

**METHODOLOGY**
The study proposes to access the patient population of new referrals in the Gastroenterology department in Blackpool Victoria Hospital over an 18 month period. This busy unit performs approximately 9000 procedures per year and will provide access to a study population residing within the largest geographical spread of any single NHS Trust in England. Patients attend the Gastroenterology unit either for
investigation and/or treatment of functional disorders which often meet the Rome criteria for IBS classification; although it is important to the validity of the study that data and measurements are secured from patients before any treatment or clinical inquiry begins in earnest.

Study information and consent forms will be posted to all patients who are offered appointments in the Gastroenterology department within the study period. They will also be asked to complete a short screening questionnaire and return it back to the Gastroenterology department (along with the consent form) before their initial appointment. This will ensure no disruption to those patients in the Gastroenterology unit who would not be suitable for participation in the study, and only minimal involvement for those who would be suitable.

If meeting the screening criteria (working, and aged between 18 – 65 years) patients will be asked to complete the additional research questionnaire upon their initial visit to the Gastroenterology department, where they will be able to work through the information with a qualified research nurse. Details of those consenting to the study but not meeting the screening criteria will be used for preliminary analysis and to provide prevalence rates. Questionnaires will collect data concerning the following factors:

**Screening data:** occupation, shifts, age, sex, education, ethnicity, marital status, domestic status, health, diet, and exercise

**Occupational data:** employment history, job type, working hours, shifts, hazard exposure, work-related illness, and sickness absence

**Psychosocial data:** personality, health beliefs, general health, mental health, and life events.

**Symptom data:** symptoms, severity, G.I history, and quality of life

Questionnaires will use Hospital ID numbers and not patient names, and when sent to Birmingham for data entry and analysis, none of the research team will have any ability of linking data to patient names. Data will be stored on a secure fire-walled server, and questionnaires will then be archived appropriately in accordance with University of Birmingham policy. Analysis will allow for three robust outcome measures to be examined (i) presence & prevalence in the Gastroenterology department, (ii) diagnostic classification, and (iii) symptoms and severity (while controlling for other factors associated with G.I. symptoms) that will permit of occupational, lifestyle and psychosocial aspects of patients to be investigated.

**PERMISSIONS REQUIRED**
Before commencement of the study, full application will be made to the Local Ethical Research Committee which covers the Blackpool Victoria Hospital region.
RELEVANT EXPERIENCE OF THE TEAM
Dr Isaacs and Dr Jackson have previously worked together on a project concerning IBS and treatment regimes, developing a questionnaire measure of symptoms, demonstrated to be useful in investigating symptomology in this patient group.

Craig A. Jackson - University of Birmingham.
Dr Jackson is a Research Fellow in Psychology at the Institute of Occupational Health and his expertise concerns …..

Peter Isaacs - Blackpool Victoria Hospital.
Dr Isaacs is a consultant Physician / Gastroenterologist at Blackpool Victoria Hospital. He has extensive experience in Gastroenterological research…..

Michael Rolland - Blackpool Victoria Hospital.
Michael is a Research Nurse at Blackpool Victoria Hospital, with much experience in Gastroenterology, has also worked within most areas of the nursing field…..

APPROXIMATE COST BREAKDOWN FOR 2 YEARS
Birmingham Staff
Craig Jackson - Research Fellow / Statistician 50 %
Overheads @ 40% of staff costs

Blackpool Staff
Michael Rowland – Research Nurse (grade F) 50 %
Peter Isaacs – Consultant Gastroenterologist 10 %
Admin. Support 10 %
Overheads @ 40% of staff costs

Equipment & IT
PC & Software
IT support

Consumables
Postage
Telephone
Photocopying
Office costs
Travel

Total
REFERENCES


