

ORIGINAL ARTICLE

Functional Gastrointestinal Disorder among Health Care Workers in Aswan University Hospital

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ABSTRACT

<p>Keywords: Functional Gastro intestinal Disorder, health care, psychological conditions.</p> <p>*Corresponding author: Ahmed Ismail Doka Email: drahmedabodoka@gmail.com Tel: : 0115351153</p>	<p>Background: Functional gastrointestinal disorders (FGIDs) are defined by the existence of chronic gastrointestinal symptoms that originate from the digestive system, although no physical abnormalities may be detected. Purpose: The frequency of FGIDs among health care workers in Aswan University Hospital. Materials and methods: Three hundred healthcare personnel at Aswan University Hospital who were 18 years of age or older were given a questionnaire that was based on Rome IV criteria. Results: Among the studied cases, IBS was the most common FGIDs (40.7%), while functional dyspepsia was found in 33.3. Functional constipation came third with a percentage of 11%, while functional diarrhea was encountered in only 5.3%. Patients with FGIDs were significantly younger and had a significant longer duration of working hours per day compared to participants without FGIDs { median age of 25 +/- 0.47 SE (range:18-58) with a median number of working hours per day of 12 +/- 0.36 SE (range: 6-24)} and {median age 35 +/- 1.107 SE (range: 18-58) a median number of working hours per day of 8 +/- 0.316 SE (range: 6-24)}, respectively. Conclusion: The most commonly FGIDs was IBS. The most significant risk factors for FGIDs were age and working hours.</p>
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INTRODUCTION

Functional gastrointestinal disorders (FGIDs) are chronic conditions known to have neither structural (organic) pathology nor biochemical abnormalities interfering and accounting for the defining symptoms [1-3]. There is another definition for functional GI disorders that was attributable to the disharmony in Gut-Brain Interaction [4,5]. Chronic conditions like FGIDs have greatly affected aspects of life and being widespread, they become a public health problem.

Rome IV classification consist of: (1) Gastroduodenal Disorders. (2) Esophageal Disorders. (3) Bowel Disorders. (4) Gallbladder and Sphincter of Oddi Disorders. (5) Centrally Mediated Disorders of GI Pain. (6) Anorectal Disorders. The most prevalent and best-researched FGIDs are irritable bowel syndrome (IBS), functional vomiting, functional dyspepsia, functional abdominal pain, functional constipation or diarrhea [4,6,7].

The occurrence of FGIDs among health care workers (HCWs) as well as its burden is not fully properly documented or reported in many studies. The prevalence of one or more FGIDs has been discussed separately. There, the IBS is reported to be one of the greatest in occurrence in HCWs than other professions. It is a major problem affecting many HCWs and the healthcare systems as well so it shall be investigated to reduce its obstacles. Stress is likely to be one of the greatest in FGIDs occurrence among HCWs and many other psychological factor [7,8]. HCWs are supposed to be in a good health to cope with their jobs and fulfill their roles with no delay in providing complete system care.

The objective of this research was to evaluate the incidence of FGIDs among health care workers in Aswan University Hospital. To identify the potential risk factors of FGIDs among HCWs.

PATIENTS & METHODS

A questionnaire involving Rome IV diagnostic criteria [1] was administered to 300 healthcare professionals older than 18 years (70 doctors, 209 nurses and 21 workers) working at Aswan university hospital. The research was communicated to healthcare workers, who provided written consent to participate. The questionnaire form involved inquiries on age, gender, occupational group, length of professional experience, existence of alarming (red flag) symptoms, and particular inquiries aimed at identifying individuals with IBS who fulfill the diagnostic criteria outlined in ROME IV.

Inclusion Criteria: All health care workers having symptoms of FGIDs in Aswan University Hospital above 18 years old.

Exclusion Criteria: Patients will be to exclude from the study if they have:

- One or more of red-flag symptoms: dysphagia, unintentional weight loss, gastrointestinal bleeding, nocturnal diarrhea, bloody diarrhea and history of gastrointestinal tumors.
- Any systemic disorders affecting GIT motility (e.g., chronic renal failure, diabetes, systemic lupus erythematosus & multiple sclerosis).
- utilizing any medications impacting GI system (antihypertensive involving calcium channel blockers & β -blockers).
- The research excluded hyperthyroidism and hypothyroidism individuals.

Statistical analysis of the data: The computer processed the data and conducted analysis using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp.) The qualitative data were quantified using numerical values and expressed as percentages. The normality of the distribution was evaluated by the Kolmogorov-Smirnov test. The quantitative data were analyzed using several statistical measures, such as the range (minimum and maximum values), mean, standard deviation, median, and interquartile range (IQR). The findings obtained were considered statistically significant at the 5% level.

The tests that were utilized were: 1-The chi-square test is utilized to compare various groups while analyzing category data. The 2-Student t-test is utilized to compare two groups that have normally distributed quantitative variables. 3- Analysis of regression. The test being referred to is Spearman's rho correlation coefficient test.

RESULTS

The median age of the studied participant was 26 +/-0.53 SE (range: 18-58), among the studied cases there were 163 (54.3%) female and 137 (45.7%) males. 70 doctors, 209 nurses and 21 workers. and 100 (33.3%) were aware of the diagnosis. The median duration of working in months was 36 +/-6.11 SE (range: 3-516) the median number of working hours was 12 +/- 0.25 SE (range: 6-24).

Among the studied cases, IBS was the most common FGIDs (40.7%), while functional dyspepsia(FD) was found in 33.3%; out of which, 10.3% had FD only, 15.3 had FD with IBS, 6% had FD with functional constipation and 1.7% had FD with functional diarrhea. Functional

constipation came third with a percentage of 11%, while functional diarrhea was encountered in only 5.3% (table1).

Patients with FGIDs were significantly younger and had a significant longer duration of working hours per day Compared to participants without FGIDs {median age of 25 +/- 0.47 SE (range:18-58) with a median number of working hours per day of 12 + /- 0.36 SE (range: 6-24)} and {median age 35 +\ 1.107 SE (range: 18-58) a median number of working hours per day of 8 +/- 0.316 SE (range: 6-24)}, respectively (table 2).

Our research found a significant modest negative correlation among the age of participants and having any FGIDs ($r[300] = -.415$, $p = .001$), and a positive correlation between the number of working hours and having any FGIDs ($r[300] = .519$, $p = .001$), respectively (Table 2). This indicates the younger the participants are and the more working hours, the more they are vulnerable to have the disease (table2).

DISCUSSION

FGIDs, also known as disorders of gut-brain interaction (DGBIs), are gastrointestinal (GI) disorders that involve a combination of disturbances in gut movement, heightened sensitivity in the gut, changes in the function of the gut lining and immune system, changes in the composition of gut microbiota, and changes in the way the central nervous system (CNS) processes information [9].

They lead to substantial worldwide medical costs and a decline in health-related quality of life. In published research, diagnostic criteria, study populations, questionnaires, as well as data collection techniques have all been highly variable. The documented prevalence estimates for the two most studied disorders, IBS in addition to functional dyspepsia (FD), are extremely broad (1.1–45.0% for IBS & 1.8–57.0% for FD, correspondingly) [10].

FGIDs are defined by the existence of chronic and recurring gastrointestinal symptoms that are believed to originate from the digestive system, but cannot be explained by any detectable organic or metabolic abnormalities by standard medical tests. FGIDs tend to be defined as IBS, FC & FD.

The pathogenesis of FGIDs is unknown, however it involves a bidirectional dysregulation of gut-brain connection, resulting in visceral hypersensitivity, motility disruption, and changes in

gut microbiota, immunological and mucosal function. Psychological and social variables have also been linked to the pathophysiology of FGIDs [11].

In the present study we found that there were 122 (40.7%) with IBS which is greater than previous studies which is about 10% - 15%.

The incidence of IBS amongst medical students and interns at King Abdulaziz University, Jeddah, was 14.4%, in accordance with Ibrahim et al., however our research indicated a lower frequency [13].

Kasemy et al. stated that the incidence of IBS was determined to be 14.4 percent among HCWs, contrasted with 6.8 percent among the control group, which is lower than the findings of our research [14].

Our current findings regarding functional dyspepsia symptoms clearly revealed that 100 (33.3%) with functional dyspepsia our with greater rates than functional dyspepsia symptoms among the previous studied which revealed that the prevalence of FD ranges from 5-11% worldwide [25].

In the present study we found that there were 33 (11%) with functional constipation. This was in line with Gallas et al. reported that the frequency of functional constipation (FC) was 11.6% [20]. Consistent with research conducted by Chu et al., the occurrence of FC amongst medical students globally varies from 2 to 34%. [21]. The wide range in frequency can be ascribed to variations in dietary patterns among nations and diverse ethnic groups.

Our current findings clearly revealed there was a significant relation among IBS, age and number of working hours. In parallel to our results, Kasemy et al. noted that Individuals with IBS exhibited significantly greater age (37.74 ± 6.16), years of experience (37.74 ± 6.16), and working hours (13.24 ± 4.18) in contrast to those without IBS. Furthermore, the incidence of IBS was significantly greater amongst HCWs employed in critical specialties in contrast to those in non-critical specialties [12].

The results correlate with Elsaied et al.'s research on the correlation among socio-demographic factors and anxiety: depressive disorders in individuals with IBS. The study revealed that IBS

was more frequent among women than men in Western countries, with a female-to-male odds ratio of 2:1. Additionally, IBS appears to be more common among individuals aged from twenty to forty. Based on the observed symptoms, the researchers hypothesized that sex hormones could alter the regulatory mechanisms of the brain gut–microbiota axis, which is involved in the pathogenesis of IBS [16].

The findings indicate that nurses have a higher likelihood of experiencing stress-related disorders, such as gastro-esophageal reflux disease (GERD), gastritis, and hypertension. This may be related to the fact that nurses begin their careers at a younger age in highly demanding work environments and have frequent direct contact with patients, exposing them to more stressful situations.

Okami et al. found that females had a greater risk to IBS in comparison to males, which matches their findings [17]. This finding is consistent with the research conducted by Liu et al., which shown that women were almost twice as likely as males to report symptoms of IBS. Additionally, the study by Ibrahim et al. identified female gender as the primary predictor of IBS [13,18]. The increased likelihood of stress for women in both the workplace and the home explains this.

Therefore, the current research has established that functional gastrointestinal diseases are strongly associated with certain risk variables. These risk factors include, but are not limited to, sex, age, and psychiatric illnesses that are particularly prevalent in our modern life, such as anxiety and depression. Healthcare personnel frequently encounter highly stressful situations in their everyday employment, making them one of the most vulnerable groups at risk of developing FGIDs. This risk is particularly prominent among nurses, who have constant interaction with individuals during their duty. After considering the above issues, we urge more workplace investigations in healthcare institutions to reduce the psychological strain on health care workers.

Several limitations were present in our research. Firstly, our survey relied on voluntary participation, resulting in a very small sample size. Furthermore, the evaluation of the outcomes was conducted using a self-administered questionnaire (Rome IV), without the utilization of gastrointestinal endoscopy to definitively verify the nonexistence of organic colonic problems. Nevertheless, these ratings have been extensively utilized with commendable dependability.

Furthermore, this study exclusively targeted medical personnel who possess expertise in FGIDs. Therefore, it is not possible to apply our findings to the entire Egyptian population as a whole.

CONCLUSION:

The most commonly FGIDs was IBS .

FGIDs is strongly associated with specific risk factors. These risk factors encompass, among others, age and number of working hours. Healthcare personnel frequently encounter extremely stressful situations in their everyday employment, making them one of the most prevalent groups at risk for developing FGIDs.

Conflict of interest: No conflict of interest for the authors.

Ethics approval and consent to participate: The 1975 Declaration of Helsinki's ethical criteria were followed when Aswan University Hospital's Institutional Review Board permitted human subject research. serial (534/6/21). Before joining the research, all individuals gave informed consent.

-Consent for publication: Non applicable.

-Authors' contributions: The final manuscript was reviewed and approved by all writers. The first author is the person who is primarily responsible for the work.

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TABLES AND FIGURES:

	Cases (n=300)	
	N	%
IBS	122	40.7
Functionaldyspepsia	100	33.3
FDonly	31	10.3
FDwith IBS	46	15.3
FDwithfunctionalconstipation	18	6.0
FDwithfunctionaldiarrhea	5	1.7
Functionalconstipation	33	11.0
Functionaldiarrhea	16	5.3
Free	98	32.7

Table (1) Distribution of FGIDs among studied population

Table (2) correlation coefficient analysis between age and working hours and the presence of FGIDs

	(r)*	p- value**
age of participants in years	-.415	.001
Number of working hours	.519	.001
*(r) Spearman's rho Correlation Coefficient test.		
** p- value is significant $\leq .001$		