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THE PREVALENCE OF EATING DISORDER RISK IN IRRITABLE BOWEL SYNDROME, COELIAC, AND INFLAMMATORY BOWEL DISEASES USING SCOFF

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Author contributions: DSS conceptualised and designed the study. Data was collected by WH, SAR, MN, AR, NT and collated by WH. Data analysis and interpretation was completed by WH, SAR, AR, KEI and CMJ. The manuscript was written by WH and edited by SAR, KEI and CMJ. DSS is the guarantor.

Abstract:

Introduction: Eating Disorders (EDs) and Disordered Eating Behaviours (DEB) are common in the general population. Those with gastrointestinal (GI) disorders may be particularly at risk, as they may need dietary therapies. There are no direct comparisons of the risk of EDs in patients with coeliac disease (CeD), inflammatory bowel disease (IBD) and irritable bowel syndrome (IBS). We present the first study comparing the prevalence of ED risk and risk factors in CeD, IBD and IBS using the SCOFF questionnaire.

Methods: Patients attending GI clinics with diagnosed CeD, IBD or IBS were approached to complete the SCOFF questionnaire between 2021-2022 and compared to controls.

Results:
In total, 501 (41.6 %male, mean age 46.7 years) participants completed the questionnaire. The prevalence of those at risk of EDs in patients with IBS (18%) was higher than CeD (9.4%, p=0.01), IBD (11.5%, p=0.03) and controls (6%, p<0.05). There was no difference in the risk of EDs between patients with CeD and IBD (p=0.57) nor between CeD or IBD and controls (p= 0.26 and p =0.09 respectively). Patients at risk of EDs were more likely to be a younger age (OR:0.96, 95%CI: 0.94-0.98) and have psychiatric disorders (OR: 3.04, 95%CI 1.87-4.93, p<0.001)

Conclusion:
ED risk is more common in IBS than CeD or IBD. SCOFF can be used to quickly identify patients at risk of EDs particularly those with identified risk factors, such as younger patients with pre-existing mental health conditions. Further assessment would be needed in those identified as at risk of ED.

Key Messages:

What is already known on this topic:
Disordered eating behaviour (DEB) has been shown to be more prevalent in gastrointestinal (GI) conditions and linked with a variety of risk factors, including those who are on dietary therapies for GI disorders. However, there has not been a direct comparison of prevalence of eating disorder risk in GI conditions in a single study.

What this study adds:
We directly compared prevalence of ED risk in three common GI conditions. We found younger patients and those with mental health conditions are mostly likely to be at risk of EDs.

How this study might affect research, practice, or policy:
Identifying at risk patients means EDs and DEB could be screened for earlier, using tools such as SCOFF. Thorough assessment of at-risk patients may be required before commencing patients on restrictive dietary therapies, which could exacerbate DEB.

Introduction:

Eating Disorders (EDs) such as anorexia and bulimia nervosa are thought to affect over 10% of people in their lifetime [1] and yet they remain chronically underdiagnosed [2]. EDs are known to have a significant negative impact on mental, physical and social wellbeing, which can be improved with treatment, namely psychological therapy [3]. The outcomes are bettered through early diagnosis [3–5].

The precursor to EDs is disordered eating behaviour (DEB), which describes any behaviour around food that falls outside of societal and cultural norms. Whilst all patients with an eating disorder show DEB, disordered eating alone is not an eating disorder. Therefore, those with at risk of an ED are at risk of disordered eating. Individuals with DEB exhibit behaviours that can negatively impact health and wellbeing such as emotional eating, food avoidance and calorie counting [6]. Identifying patients with DEB allows for the opportunity to address these behaviours earlier to avert progression to an ED. DEB is associated with psychiatric co-morbidities such as anxiety and depression, and affect physical health through an increased risk of malnutrition [7–12] . This ultimately leads to a reduced quality of life in those with disordered eating compared to those without [13,14].

DEB in gastrointestinal (GI) conditions such as coeliac disease (CeD), inflammatory bowel disease (IBD), and irritable bowel syndrome (IBS), is thought be present in between 13–55% of patients, making it likely gastroenterologist will encounter such behaviour in patients under their care [15–17]. In these conditions dietary interventions like a gluten free diet, low fibre diet, or through the exclusion of fermentable oligosaccharides, disaccharides, monosaccharides and polyols (FODMAPs), often form a large basis of treatment [18–20]. Adherence to dietary therapy is associated with the presence of DEB in individuals with GI conditions. Increased adherence to a low-FODMAP diet in patients with IBS has been shown to increase the risk of DEB compared to patients who do not adhere to a low-FODMAP diet (57% versus 35% $p<0.05$). Interestingly, other studies have found that higher rates of adherence to a GFD in CeD put patients at a lower risk of disordered eating behaviours [7,10,21,22].

Patients who may be at greater risk of DEB includes those who are female, [21,23,24] and those with ongoing or more severe GI symptoms [14,25,26]. However, despite recognition of these risk factors, the identification of EDs in GI clinics is poor, with pilot studies showing healthcare providers had 0% sensitivity to identifying patients at risk of EDs [27]. The clinical utility of using body mass index (BMI) and dietary compliance as markers of disordered eating remains contradictory, with studies suggesting both good and poor dietary compliance can lead to DEB [7,9–11,15,21,24].

The importance of awareness to DEB/EDs in GI patients is well recognised in the literature [28] and SCOFF is a validated screening tool used to assess at risk patients [29]. As CeD, IBD and IBS are common conditions, recognising the risk of DEB/EDs and their prevalence can allow for greater vigilance where required. There are currently no studies using disordered eating screening tests to directly compare prevalence of ED risk in these three common GI conditions. We therefore present the first study to directly compare the prevalence and risk factors of eating disorder risk between common gastrointestinal conditions and controls using a brief screening tool.

Methods:

Patients attending GI clinics between January 2021 and June 2021 (both virtually or in person) at two Teaching Hospitals in Sheffield with known CeD, IBD or IBS were invited to take part in the study. A questionnaire, (including demographic information, self-reporting mental/physical health conditions,

and the SCOFF), were then sent by either post, email or in person depending on their convenience. A further control group of patients without GI conditions was recruited and asked to fill in the same questionnaire as those within the GI cohorts. The control population included relatives of participants, and members of the public recruited by advertisement around the hospital – to be eligible participants had to be over 18 years of age and not diagnosed with IBS, IBD or CeD.

Clinical notes were reviewed prior to GI clinics to check diagnoses for participants and further disease information, including if on active treatment (i.e. on biologics for IBD) and disease duration. Data collected on demographics (age, sex, height, weight), whether on active treatment (including dietary interventions) and past medical history (including a history of EDs and psychiatric illness) was self-reported by participants. In the event of missing data, this was corroborated with the clinic letters where possible for patients with GI conditions.

SCOFF:

To establish whether disordered eating was present in this cohort the validated SCOFF questionnaire developed by Morgan, Reid and Lacy [30] was used. This test is quick, and employs five simple questions with a score of two or more suggesting someone is at risk of an ED:

The SCOFF questionnaire asks the following five questions:
S - Do you ever make yourself Sick because you feel uncomfortably full? Yes/No
C - Do you worry you have lost Control over how much you eat? Yes/No
O - Have you recently lost more than One stone in a three-month period? Yes/No
F - Do you believe yourself to be Fat when others say you are too thin? Yes/No
F - Would you say that Food dominates your life? Yes/No

Answering Yes to two or more indicates a risk of an ED [30,31]. SCOFF was developed as a screening tool to identify patients 'at risk of eating disorders' and was validated against DSM-IV diagnostic guidelines for Anorexia and Bulima - it has not, to our knowledge, been validated as a tool to diagnose disordered eating behaviour. The SCOFF questionnaire was initially validated for use in screening young women at risk of EDs in primary care, with high sensitivity and specificity. Outside of this group, and especially in general population, it has been shown that the sensitivity of SCOFF is reduced [31,32]. A positive SCOFF is not diagnostic of DEB, but has been used to investigate eating disorder risk in GI conditions previously, although was not validated for use in the population used in these studies [9,13]. Given its brevity and the ability to integrate it easily into consultations, SCOFF was used to investigate ED risk in this study, balancing the potential for reduced sensitivity and specificity in this more generalised population. It is important to note that a positive SCOFF identifies risk, and is not enough to diagnose someone with and ED or DEB [33].

Statistical analysis:

Statistical analysis was performed using IBM SPSS statistics version 26. Data was analysed both between disease cohorts and between SCOFF positive and negative groups. Categorical data was summarised as number (n) and percentages. Continuous variables were assessed for skewness via Shapiro-Wilk test (significant if $p<0.05$), and expressed as mean or standard deviation if following a Gausian distribution, and as a median and interquartile range (IQR) otherwise. The Chi-squared test was used to assess differences in categorical data between groups where expected values were greater than five. Where this assumption was not fulfilled, Fishers' exact test was performed. In cases of multiple comparisons, Bonferroni correction was used to adjust the p-value. For non-

parametric continuous variables, the Mann-Whiney U-test was used to assess differences between SCOFF positive and negative groups. For parametric data, independent samples T-test was used.

For comparison of continuous variables between multiple groups, analysis of variance (ANOVA) was used for parametric data, and Kruskal-Wallis was used for non-parametric data with Bonferroni correction when appropriate. Once significant variables influencing DEB risk were found, a binomial logistic regression model was used to test which variable remained significant when accounting for co-variates when identifying those with and without eating disorder risk.

Where patients were identified at being at risk of eating disorders through a positive SCOFF, their GP and responsible GI consultant were notified. They were contacted for further discussion, and signposted to the BEAT eating disorders website and the South Yorkshire Eating Disorder Assocation, where participants could self-refer.

Ethics:
Ethical approval was granted for this study through East of Scotland Research Ethics Service and Health Research Authority (REC reference: 20/ES/0106, STH: 21416 and IRAS ID: 287765)

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Results:

Data from 501 participants was collected (Table 1). Pairwise comparison between disease groups for significant variables are available in Appendix 1. Participants with IBS were younger than those with CeD (40 (28-50) versus 50 (34 - 65) respectively, p=0.001) and controls (40 (28-50) versus 52 (33 - 63) respectively, p=0.004). Patients with CeD were more likely to be female compared to those with IBD (67.7% versus 49.7% respectively p=0.0016) or controls (67.7% versus 52.8 %, respectively. p=0.0193). Patients with CeD were more likely to weigh less than patients with IBD (69.9 (58.5-79.0) versus 76.1 (65.3-88.7), p=0.001) and IBS (69.9 (IQR 58.5-79.0) versus 75.0 (64.8-89.8) p=0.019). IBS patients were more likely to have a psychiatric co-morbidity compared to CeD (p=0.004), IBD (p<0.0001) and controls (p<0.0001). Patients with CeD were also more likely to have psychiatric co-morbidity compared to controls (p=0.008).

Table 1: Comparison of demographics, disease status, dietary interventions, and SCOFF responses of patients with coeliac disease (CeD), irritable bowel syndrome (IBS), inflammatory bowel disease (IBD) and controls.

		CeD (n=127)	IBD (n=183)	IBS (n=83)	Controls (n=108)	Overall p-value
Age (median, IQR)		50 (34 - 65)	44 (31-61)	40 (28-50)	52 (33 - 63)	<0.001*
Sex (n female, %F)		86 (67.7)	91 (49.7)	59 (71.1)	57 (52.8)	<0.001*
Employment (n, %)	Employed	66 (52.8)	118 (64.8)	53 (64.6)	68 (63.0)	0.016
	Unemployed	18 (14.4)	30 (16.5)	11 (13.4)	4 (3.7)	
	Retired	32 (25.6)	27 (14.8)	11 (13.4)	24 (22.2)	

	Student	8 (6.4)	7 (3.8)	7 (8.5)	11 (10.2)	
	Missing	2 (1.6)	1 (0.5)	1 (1.2)	0 (0)	
Highest educational attainment (n, %)	Higher degree	32 (25.2)	36 (19.9)	5 (11.1)	29 (26.9)	0.122
	HND/Diploma	14 (11)	25 (13.8)	7 (15.6)	22 (20.4)	
	GCSE	30 (23.6)	47 (26.0)	7 (15.6)	20 (18.5)	
	Bachelor's Degree	24 (18.9)	24 (13.3)	9 (20.0)	19 (17.6)	
	A-levels	10 (7.9)	17 (9.4)	7 (15.6)	6 (5.6)	
	NVQ	9 (7.1)	17 (9.4)	6 (13.3)	11 (10.2)	
	No Qualifications	8 (6.3)	15 (8.3)	4 (8.9)	1 (0.9)	
	Missing	0	2	38	0	
Marital Status (n, %)	Married	78 (61.4)	124 (68.1)	47 (57.3)	73 (67.6)	0.111
	Single	34 (26.8)	46 (25.3)	32 (39.0)	27 (25.0)	
	Divorced	9 (7.1)	9 (4.9)	2 (2.4)	2 (1.9)	
	Widow	6 (4.7)	3 (1.6)	1 (1.2)	5 (4.6)	
	Missing	0 (0)	1 (0.5)	1 (1.2)	1 (0.9)	
Ethnicity (n, %)	White	120 (94.5)	159 (84.7)	74 (90.2)	95 (88.0)	0.553
	Mixed ethnic group	1 (0.8)	6 (3.3)	1 (1.2)	1 (0.9)	
	Asian/Asian British	3 (2.4)	12 (6.6)	3 (3.7)	6 (5.6)	
	Black/African/ Caribbean/ Black British	1 (0.8)	3 (1.6)	3 (3.7)	3 (2.8)	
	Other ethnic background	2 (1.6)	2 (1.1)	1 (1.2)	2 (1.9)	
	Missing	0 (0)	1 (0.5)	1 (1.2)	0 (0)	
Weight (median IQR)		69.9 (58.5-79.0)	76.1 (65.3-88.7)	75.0 (64.8-89.8)	73 (62.0-85.0)	<0.001*
Height (mean, SD)		1.68 (0.11)	1.71 (0.11)	1.69 (0.11)	1.71 (0.11)	0.179
BMI (median, IQR)		24.1 (21.5-26.9)	25.5 (22.5-29.3)	25.8 (22.1-29.5)	24.4 (21.9-27.7)	0.033
Disease duration (IQR, median)		4.0 (7.0)	9.5 (14.0)	1.5 (4.0)		<0.001*
Known ED (n, %)		7 (5.6)	9 (4.9)	5 (6.0)	0 (0)	0.079

Psychiatric Disorder (n,%)		21 (16.9)	19 (10.4)	28 (33.7)	6 (5.6)	< 0.001* (IBS and all groups, and CeD and controls)
On diet (n,%)		121 (96.8)	41 (22.5)	33 (39.8)	13 (12.1)	<0.001*
SCOFF responses						
S -Sick (n, %)		4 (3.1)	3 (1.6)	10 (12.0)	0 (0)	<0.001* (between IBS and all groups)
C – Control (n, %)		12 (9.5)	18 (9.9)	17 (20.5)	8 (7.4)	0.023
O – One stone (n, %)		13 (10.2)	26 (14.3)	10 (12.0)	3 (2.8)	0.019
F – Fat (n, %)		6 (4.8)	11 (6.0)	13 (16.0)	8 (7.4)	0.017
F – Food (n, %)		27 (21.3)	24 (13.2)	19 (23.2)	5 (4.6)	<0.001* (between GI disorders and controls)
SCOFF score (mean, SD)		0.46 (0.77)	0.45 (0.83)	0.83 (1.08)	0.22 (0.57)	p<0.001* (between IBS and all groups)
SCOFF positive (n, %)		12 (9.4)	21 (11.5)	18 (21.7)	6 (5.6%)	0.005* (between IBS and all groups)
* Where multiple comparisons are made, the p value was adjusted via Bonferroni method. Pairwise Comparisons of significant variable are available in Appendix 1.						

Patients with IBS were more likely to make themselves sick compared to other cohorts (p<0.001). Patients with gastrointestinal disorders more often reported food dominated their life compared to controls (CeD vs controls 21.3% vs 4.6 % p = 0.0002, IBD vs controls 13.2% vs 4.6 % p = 0.0196, IBS vs controls 23.2% vs 4.6 % p = 0.0002)
Overall, there was a significant difference in the prevalence of risk of EDs between cohorts (p= 0.005). Prevalence of ED risk was higher in IBS cohort, with patient more likely to have scores suggestive of DEB (SCOFF $\geq$2) compared to all other cohorts (CeD 9.4% vs IBS 21.7% p=0.0132, IBD 11.5% vs IBS 21.7% p=0.0291, Controls 5.6% vs IBS 21.7% p=0.0005). Pairwise comparisons of significant variables between cohorts are available in Appendix 1.

Data comparing those with and without ED risk was used in Table 2. ED risk was more common in those who were younger (OR:0.96, 95%CI: 0.94-0.98) and those with psychiatric disorders (OR: 3.04, 95%CI 1.87-4.93). Weight loss as a variable was not included given the fact it is included in the

SCOFF questionnaire itself. There was some difference in weight in women between disease groups, but given weight was not an influence on eating disorder risk this data was not included.

Using binomial logistic regression, age, psychiatric disorder, and disease group were included as the significant variables influencing SCOFF after accounting for Bonferroni correction when comparing SCOFF positive and SCOFF negative participants. Only a younger age (OR = 0.961 95%CI 0.942 - 0.981) and a history of psychiatric disorder (OR = 3.294 95%CI 1.742 - 6.228) were associated with a positive SCOFF score with logistic regression analysis, meaning that, when accounting for co-variates, the presence of a GI condition was not a risk factor for ED risk.

None of the GI disorders investigate had a significant impact on predicting a positive SCOFF score (CeD OR=1.332 95%CI 0.459-3.865, IBD OR=1.661 95%CI 0.628-4.389, IBS OR=2.669 95%CI 0.947-7.528).

Table 2 – Comparing demographic and disease data between those with and without DEB (SCOFF $\geq$ 2)

		SCOFF negative (n=443)	SCOFF positive (n=57)	p-value
Age (median, IQR)		47.0 (33.0-63.0)	34.0 (26.5 - 46.5)	p<0.001*
Sex (n, %F)		253 (57.1)	39 (68.4)	0.103
Employment (n, %)	Employed	269 (61.3)	39 (63.2)	0.033
	Unemployed	50 (11.4)	13 (22.8)	
	Retired	90 (20.5)	3 (5.3)	
	Student	28 (6.4)	5 (8.8)	
Highest educational attainment (n, %)	Higher degree	92 (22.3)	10 (21.3)	0.850
	HND/Diploma	62 (15.0)	6 (12.8)	
	GCSE	95 (23.0)	9 (19.1)	
	Bachelor's Degree	69 (16.7)	7 (14.9)	
	A-levels	35 (8.5)	5 (10.6)	
	NVQ	37 (9.0)	5 (10.6)	
	No Qualifications	23 (5.6)	5 (10.6)	
Marital Status (n, %)	Married	293 (66.4)	28 (49.1)	0.077
	Single	115 (26.1)	24 (42.1)	
	Divorced	18 (4.1)	4 (7.0)	
	Widow	14 (3.2)	1 (1.8)	
Ethnicity (n, %)	White	398 (90.2)	49 (86.0)	0.618
	Mixed ethnic group	7 (1.7)	2 (3.5)	
	Asian/Asian British	20 (4.5)	4 (7.0)	
	Black/African/ Caribbean/Black British	8 (1.8)	2 (3.5)	
	Other ethnic background	7 (1.6)	0 (0)	

Weight (median IQR)		73.0 (22.3)	72.6 (26.0)	0.484
Height (mean, SD)		1.71 (0.11)	1.71 (0.10)	0.831
BMI (median, IQR)		24.8 (6.4)	24.9 (7.7)	0.726
GI disorder		339 (76.5)	50 (87.7)	0.056
Disease duration	CeD (median, IQR)	4.0 (6.8)	3.0 (8.5)	0.510
	IBD (median, IQR)	9.0 (15.0)	10.0 (13.5)	0.300
	IBS (median, IQR)	2.0 (9.0)	4.5 (10.5)	0.384
Crohn's vs colitis (n Crohn's, %)		90 (56.6)	9 (45.0)	0.325
Active IBD (n yes, %)		96 (59.6)	13 (61.9)	0.923
Known ED (n, %)		17 (3.9)	4 (7.0)	0.504
Psychiatric Disorder (n, %)		54 (12.2)	20 (35.7)	p<0.001*
On diet (n, %)		185 (42.0)	23 (41.1)	0.889
*Where multiple comparisons are made, the p value was adjusted via Bonferroni method.				

Discussion:

This is the first study to directly compare the prevalence and predictors of eating disorder risk in patients with CeD, IBD, IBS and controls and found a prevalence of 9.4%, 11.5%, 21.7%, and 6.2%, respectively. The SCOFF screening tool identified the highest rate of ED risk in patients with IBS (21.7%) and lowest in controls (5.6%). Risk factors for ED risk in this study were a younger age and history of mental health conditions, which are replicated from previous studies [7–11,26,34–36].

SCOFF has previously been used as a screening tool in patients with IBS and reported similar SCOFF positive rates (23%, 25.4% and 33%) but it has not been used in patients with CeD or IBD [9,13,37]. In these studies, the risk of DEB was associated with depression and anxiety, alongside higher stress levels and was more common in those suffering worse GI symptoms. In our study, patients with IBS more often had psychiatric disorders regardless of their SCOFF result. It is therefore difficult to establish the relationship between IBS and ED risk, and perhaps psychiatric disorders are a better predictor of DEB rather than specific GI conditions, like IBS.

The prevalence of ED risk in the CeD cohort (9.4%) is lower than previously reported in the literature (15-42%)[10,22–24]. This may be due to different screening tools used to identify patients with DEB. In our study, SCOFF was used as a brief tool for assessing ED risk allowing for direct comparison to other patient groups and can be easily implemented in a busy clinical consultation.

Previous studies on patients with IBD have found a similar prevalence of disordered eating to our study (10.2% -20.0%) [10,11,25]. However, different screening tools were once again used to classify disordered eating. Interestingly, there was no link between ED risk and the presence of active disease in our study, and no difference in the prevalence of ED risk between Crohn's disease and colitis. The literature is conflicting and merits further research. Werlang *et al* [25] showed significant

differences in the prevalence of disordered eating in Crohn's disease vs ulcerative colitis (14.2% vs 2%) and a link with active disease whilst another study showed no link with disease severity [27].

There is a risk of ascertainment bias in this study looking at weight loss as a risk factor, given that SCOFF specifically asks for weight loss of at least a stone, and is likely why patients with ED risk were found to lose more weight (as would score +1 on SCOFF if lost more than >6.3kg) [30]. Therefore, this was not considered a co-variate for the purpose of the study. Weight loss was found to be a risk factor for disordered eating in one study, [38] but more commonly DEB is linked to participant weight itself or malnutrition [11,12,24].

Female sex is considered a risk factor for eating disorders and DEB [1], however in our study this was not the case. This does follow a shift in the consensus that EDs may affect men with a similar extent to women, but lack of understanding and consideration by clinicians leads to missed or delayed diagnosis [39]. Recent studies have also suggested similar prevalence of EDs in men and women across a general population [40].

There are limitations to our study. Patients identified as SCOFF positive were notified of this, and their GPs and responsible GI clinicians made aware, but they were not followed up by our study. However, the SCOFF tool is a validated and recommended screening tool due to its quick and easy use in a clinical setting [3,41]. Secondly, this study has not assessed the bidirectional relationship between ED risk and GI conditions. Further research is required to establish whether DEB develops prior to a GI diagnosis, or whether initiation of dietary therapies directly contribute to disordered eating. A recent review investigating patients with EDs who attending GI clinics suggested a majority of patients (74.2%) had pre-existing EDs, attending GI clinics most commonly for symptoms relating to IBS and reflux [42]. We did not investigate adherence to dietary therapies in this study, which is known to influence DEB [7,9–11,15,21,22,24], although the direction of the influence in protecting against it or contributing to it remains disputed.

There are further limitations to this study. In a generalised population SCOFF has been shown to be a less sensitive and specific tool for identifying those at risk of EDs than the young, female group it was originally validated for [31,32]. Furthermore, SCOFF has been validated for assessing those "at risk of an eating disorder", but not specifically for diagnosing or measuring the degree of disordered across the DSM-5 criteria [33]. Other tools can be used to assess for disordered eating and DSM-5 EDs, including for specific diagnosis such as the binge-eating scale, [43] the nine-item ARFID scale (NIAS) [44], and the Pica, ARFID and Rumination Disorder Interview which has been recently developed for younger individuals [45]. Ultimately, ED diagnosis relies on diagnostic interview by psychiatrists and other mental health professionals. Further research validating SCOFF in GI populations would be a helpful to investigate the practicality of using it in the context of patient with GI conditions. The final question about food dominating life is relevant in this population given diet is used as a treatment, hence may impact validity of using the SCOFF in this population, and thus increase the risk of false positives. For example, food may well dominate individuals with CeD's life, due to the nature of the treatment being a GFD, but this may not always be pathological – it may be a practical aspect of managing the treatment, which could similarly be true for an individual with IBS on a Low FODMAP diet.

In line with other publications, those identified at risk of eating disorders by a positive SCOFF score should be further reviewed to establish the impact this behaviour is having, and the contribution of ongoing dietary therapy [6,9,17]. Where patients may be particularly at risk (i.e. younger patients with pre-existing psychiatric disorders), then closer follow up - either with GI clinicians or specialist dietitians - may be beneficial to track behaviours and identify if alterations to dietary therapy

improve symptoms [17]. Where there is concern for DEB or EDs, patient can be referred to mental health professionals who can assist in making diagnoses where appropriate and commence treatment, most commonly behavioural therapy [6,46]. In our study, patients of concern were reviewed by a specialist dietitian and GP and the caring consultant notified.

Conclusion:

In conclusion, ED risk is higher in those with GI conditions compared to controls but is significantly higher in IBS where high rates of psychiatric co-morbidity may increase the prevalence of DEB. Overall, clinicians should consider screening for ED risk in younger patients with co-morbid psychiatric illness, who we have shown to be particularly at risk. The SCOFF screening tool provides a very quick measure clinicians can use to begin exploring DEB in patients. Gastroenterologists need to be aware of this, as overlooking disordered eating can impact on patients' biopsychosocial wellbeing and reduce quality of life, especially if considering starting such patients on restrictive dietary therapy.

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