

Antidepressant Medication use is Associated with Abdominal Symptoms in People without a Functional Gastrointestinal Diagnosis

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Te Whare Wānanga o Ōiāro
NEW ZEALAND

National
SCIENCE
Challenges

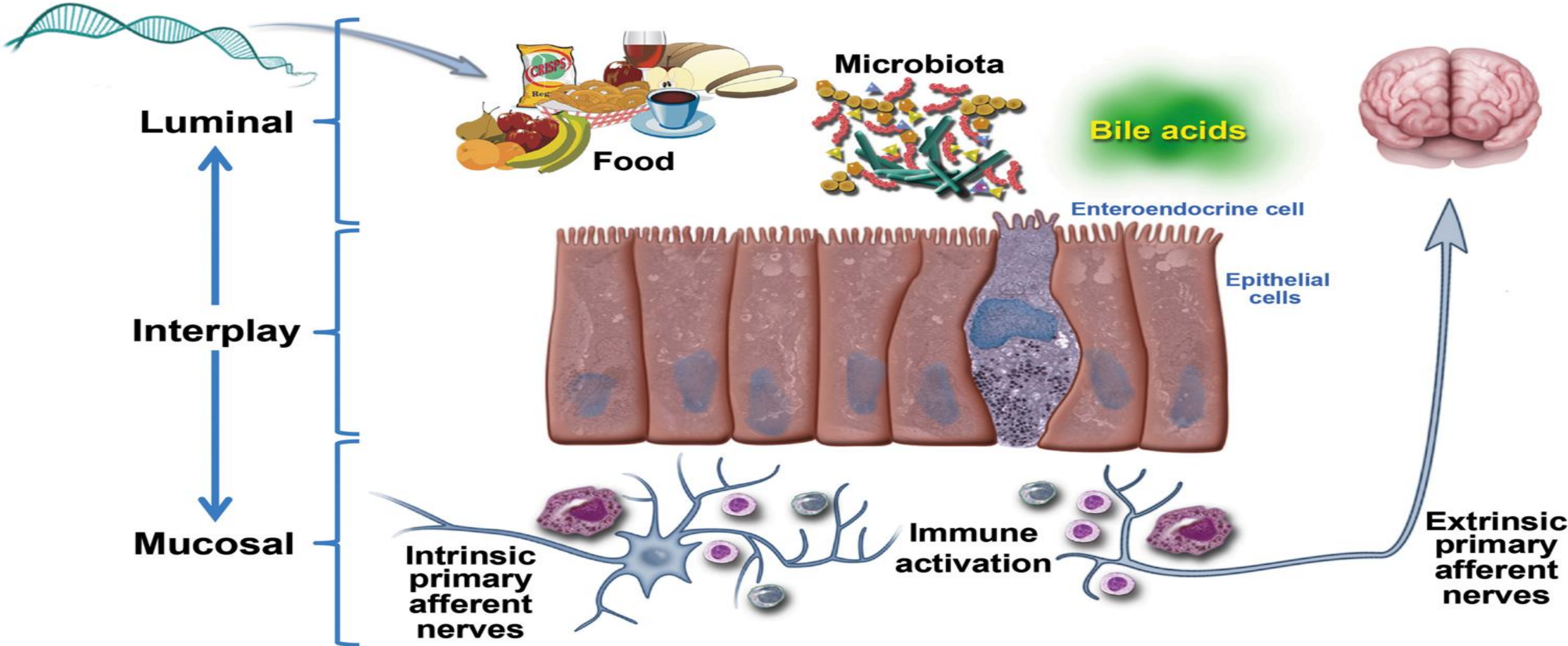
HIGH-VALUE
NUTRITION

Ko Ngā Kai
Whai Painga

Introduction

- ▶ Functional Gastrointestinal Disorders (FGID)
 - ▶ Dysregulation of the Brain-Gut Axis in the absence of organic disease
- ▶ Irritable Bowel Syndrome (IBS)
 - ▶ Pain and bloating with a change of bowel habit
 - ▶ Subtypes IBS-C, IBS-D, IBS-M
 - ▶ Other FGID: Functional Constipation / Functional Diarrhoea
- ▶ Global prevalence 10-20% of the adult population
- ▶ ↑ direct and indirect costs, ↓ quality of life, ↑ work / school absenteeism

The intestinal microenvironment and IBS



Link between FGIDs, anxiety and depression

FGIDs	Mood Disorders
Anti-Depressants	Anti-Depressants
Cognitive Behavioural Therapy	Cognitive Behavioural Therapy
Hypnotherapy	Hypnotherapy
Diet	ECT
Pre- and Probiotics	
Antibiotics	
5-HT3 agonists/antagonists	
Dietary Supplements (Fibre)	
Pharmacotherapeutics	

Aim

- ▶ To determine if Anti Depressant (AD) medications are associated with FGID symptoms in a New Zealand based IBS cohort

Methods

Christchurch IBS cOhort to investigate Mechanisms FOr gut Relief and improved Transit

COMFORT

Diet Diary

3 Day Diet Diary and corresponding Gastrointestinal Live Symptoms Score

LGS DAY 1 Food intake Date: _____

Please mark on the scale if you had any of the symptoms over the last 24 hours, and write the severity of the symptoms using the following scale:
 1. Not bad at all 2. A little bad 3. Somewhat bad 4. Quite bad 5. Very bad

Symptom 1. Abdominal pain None

Symptom 2. Abdominal swelling/distension None

Symptom 3. Abdominal fullness None

Symptom 4. Abdominal bloating None

If you had a Bowel Motion in the last 24 hours please mark on the scale, if you didn't please tick the box.

Bowel motions No bowel motions

Bowel Motion Chart DAY 2

Please complete the following chart reporting symptoms with each bowel motion that you passed in the last 24 hours:

How much did you strain to pass the bowel motion?
 1. Not at all
 2. Slightly strain
 3. Moderately strain
 4. Significantly strain
 5. Unable to empty bowel

Did you have abdominal pain before your bowel motion?
 1. Not at all
 2. A little bad
 3. Somewhat bad
 4. Quite bad
 5. Very bad

How much urgency do you experience when you need to have a bowel motion?
 1. Not at all
 2. A little urgency
 3. I have to hurry
 4. I have to go immediately
 5. I am incontinent (unable to control the urge and had an accident)

Bristol Stool Chart

Type 1: Dry hard lumps, like nuts (hard to pass)
 Type 2: Sausage shaped but lumpy
 Type 3: Like a sausage but with cracks on the surface
 Type 4: Like a snake or ribbon, smooth and soft
 Type 5: Soft blobs with clear-cut edges (passed easily)
 Type 6: Fully formed with ragged edges (passed easily)
 Type 7: Watery, no solid pieces (Emergency! Liquid)

Bristol stool type	BM1	BM2	BM3	BM4	BM5	BM6	BM7	BM8	BM9
How much did you strain?									
Abdominal pain before BM?									
Urgency?									
Abdominal pain relieved by BM?									
Abdominal pain worsened by BM?									

Questionnaires

- Rome VI Diagnostic Criteria
- SF-12 Quality of Life
- Medical History and Demographics
- Hospital Anxiety and Depression Scale
- Patient Reported Outcomes Measures Information System
 - Gastrointestinal
 - Emotional Distress
- Structured Assessment of Gastrointestinal Symptoms Scale

PHQ-15 from Beck - C P - Emotional Distress - Anxiety - Short Form 7a

Emotional Distress - Anxiety - Short Form 7a

Please respond to each item by marking one box per row.

In the past 7 days--

	Never	Rarely	Sometimes	Often	Always
I felt fearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt anxious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt worried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I found it hard to focus on anything other than my worries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt nervous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt uneasy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt tense	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Days 1 to 3

Biological Samples



Metabolomics
 Neuromarkers
 PBMCs
 Immune markers
 DNA
 Biobank



Volatile Metabolites



Untargeted metabolomics
 Targeted metabolomics
 16s DNA
 Metagenome DNA
 Biobank metagenome RNA
 Biobank



Biobank



Biobank

Day 4

Data

- ▶ 250 Participants
- ▶ FGID diagnosis with Rome IV criteria
- ▶ Patient Reported Outcomes Measurement Information System (PROMIS)
 - ▶ Results modelled against a standardised population, determines 'burden'
 - ▶ Patient reported outcomes are important for subjective measures

Results

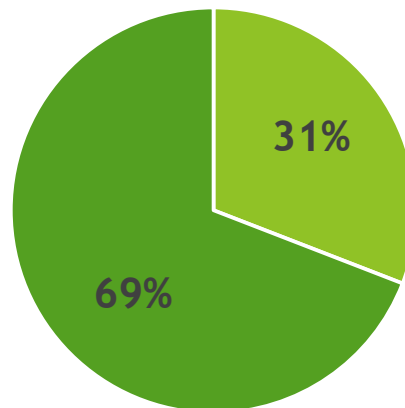
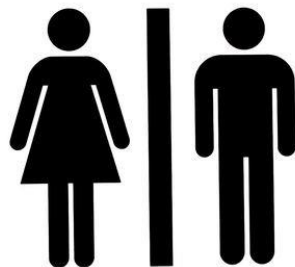
Age



Case/Control	Average Age (years)
IBS (n=109)	53.4 ± 12
FD/FC (n=49)	59.6 ± 8
Control (n=92)	56.4 ± 16

No statistically significant difference between age groups

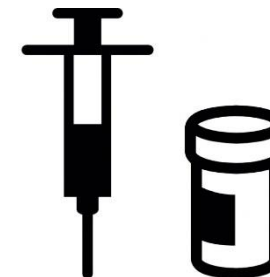
Gender



■ Male ■ Female

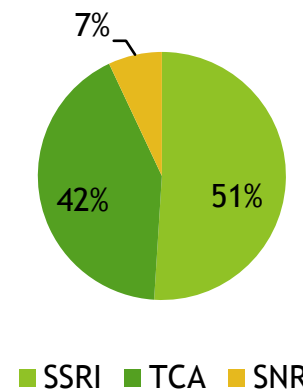
Case Control	Female	Male
IBS	82.76	17.24
FD/FC	72.34	27.66
Control	53.21	46.79

AD Use



	Meds	No Meds
IBS	22.5%	77.5%
FD/FC	21.6%	79.4%
Control	16%	84%

Entire cohort: 19% prescribed AD



■ SSRI ■ TCA ■ SNRI

Statistics

Hypothesis

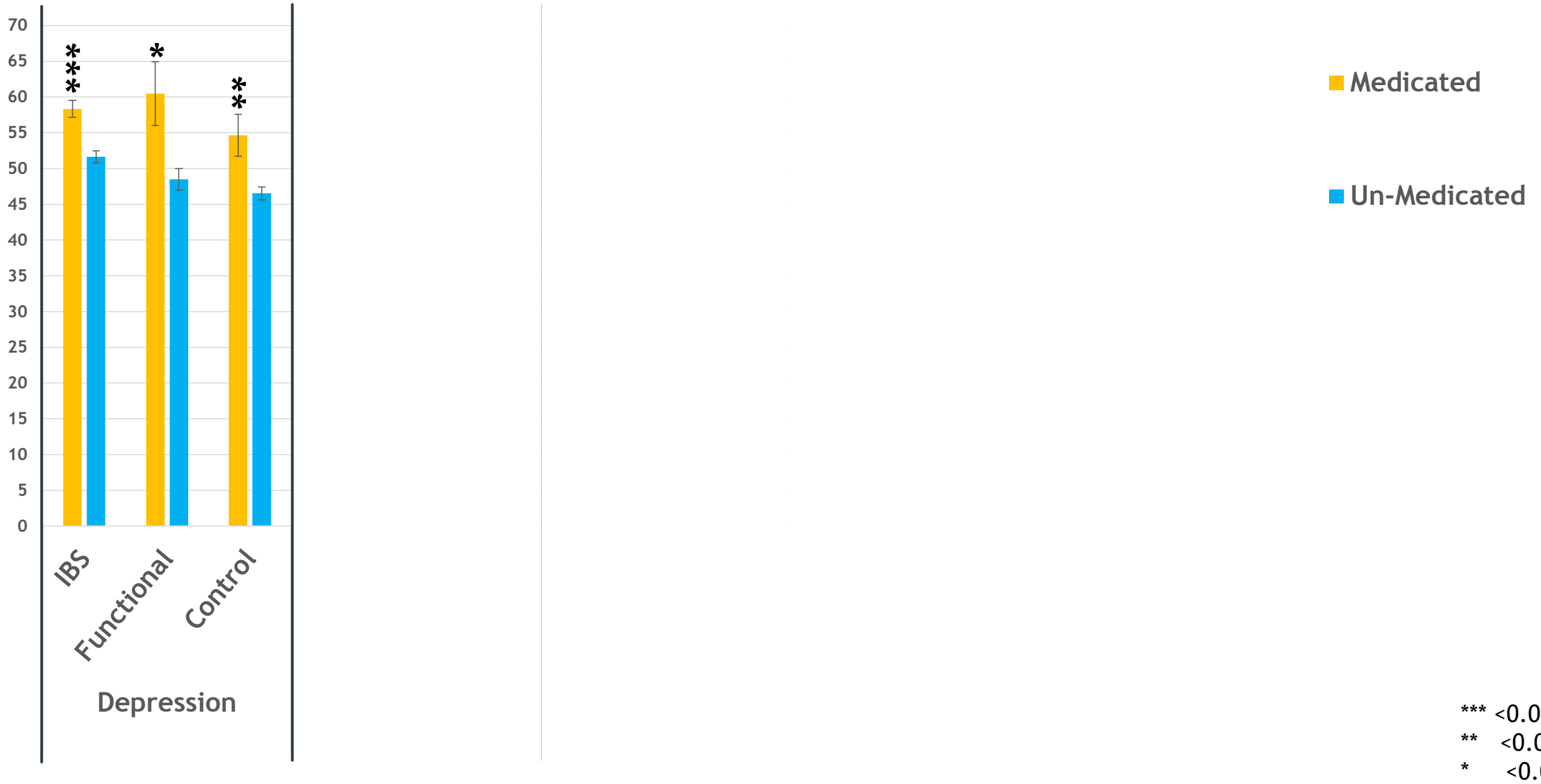


Univariate ANOVA
is there an effect?



Students T-test
where is the effect?

Comparison of average PROMIS scores between medicated and un-medicated participants broken down into IBS, FD/FC (Functional) and Control groups



IBS
Functional
Control
Depression

Discussion

- ▶ AD use in COMFORT (19%) higher than the general population (11%)
- ▶ AD use associated with higher self-reported rates of anxiety / depression
- ▶ AD side effects may include constipation, dry mouth
- ▶ Controls without FGID describe higher rates of abdominal pain when prescribed antidepressants
 - ▶ side effect of AD vs “sub clinical” symptoms in those who are depressed?

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Thank-you!

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the right side of the frame, creating a modern, layered effect against the white background.