Supplementary Table 1 Rome criteria

Rome criteria
Rome III Criteria[1] for diagnosing irritable bowel syndrome
Recurrent abdominal pain or discomfort at least three days/month in the last three months associated with two or more of the following:
Improvement with defecation
Onset associated with a change in frequency of stool
Onset associated with a change in form (appearance) of stool
Criterion fulfilled for the last three months with symptom onset at least six months prior to diagnosis.
Rome IV Criteria[2] for diagnosing irritable bowel syndrome
Recurrent abdominal pain, on average, at least one day/week in the last three months, associated with two or more of the following criteria:
Related to defecation
Associated with a change in frequency of stool
Associated with a change in form (appearance) of stool.
Criteria fulfilled for the last three months with symptom onset at least six months before diagnosis.

References

1 Saha L. Irritable bowel syndrome: pathogenesis, diagnosis, treatment, and evidence-based medicine. *World J Gastroenterol*. 2014;20(22):6759-6773. doi:10.3748/wjg.v20.i22.6759

2 Drossman DA. Functional gastrointestinal disorders: what's new for Rome IV? *Lancet Gastroenterol Hepatol*. 2016;1(1):6-8. doi:10.1016/S2468-1253(16)30022-X

Supplementary Table 2 Search strategy

Search strategy
Cochrane Central Register of Controlled Trials (CENTRAL) via Ovid Evidence-Based Medicine Reviews Database (EBMR)
1 ((Fecal or Fecal or microbiota or microbiome or microflora or feces or faeces or stool) adj3 (transplant* or transfus* or implant* or instillation or donor* or enema or reconstitution or infusion* or therap* or transfer* or treat*)).tw,kw.
2 (bacteriotherap* or colonic restoration or flora reconstitution or RBX2660).tw,kw.
3 FMT.ab.
4 ((bacteria or bacterio*) adj2 (transplant* or transfus* or implant* or instillation or donor* or enema or reconstitution or infusion* or therap* or transfer* or treat*)).tw,kw.
5 or/1-4
6 exp Irritable Bowel Syndrome/
7 ((irritable or spastic or unstable or spasm) adj (colon* or bowel)).tw,kw.
8 IBS.tw,kw.
9 mucous colitis.tw,kw.
10 or/6-9
11 5 and 10
MEDLINE (Ovid)
1 exp Fecal Microbiota Transplantation/
2 ((Fecal or Fecal or microbiota or microbiome or microflora or feces or faeces or stool) adj3 (transplant* or transfus* or implant* or instillation or donor* or enema or reconstitution or infusion* or therap* or transfer* or treat*)).tw,kw.
3 (bacteriotherap* or colonic restoration or flora reconstitution or RBX2660).tw,kw.
4 FMT.ab.
5 ((bacteria or bacterio*) adj2 (transplant* or transfus* or implant* or instillation or donor* or enema or reconstitution or infusion* or therap* or transfer* or treat*)).tw,kw.
6 or/1-5
7 exp Irritable Bowel Syndrome/
8 ((irritable or spastic or unstable or spasm) adj (colon* or bowel)).tw,kw.

9 IBS.tw,kw.

10 mucous colitis.tw,kw.

11 or/7-10

12 6 and 11

Note: No RCT filter was applied for Medline when the search was run on 16 December 2021, as number of citations was < 500 before applying the filter.

Embase (Ovid)

1 exp fecal microbiota transplantation/

2 exp feces microflora/ and exp therapy/

3 (bacteriotherap* or colonic restoration or flora reconstitution or RBX2660).tw,kw.

4 FMT.ab.

5 ((Fecal or Fecal or microbiota or microflora or feces or faeces or stool) adj3 (transplant* or transfus* or implant* or instillation or donor* or enema or reconstitution or infusion* or therap* or transfer* or treat*)).tw,kw.

6 ((bacteria or bacterio*) adj2 (transplant* or transfus* or implant* or instillation or donor* or enema or reconstitution or infusion* or therap* or transfer* or treat*)).tw,kw.

7 or/1-6

8 exp irritable colon/

9 ((irritable or spastic or unstable or spasm) adj (colon* or bowel)).tw,kw.

10 IBS.tw,kw.

11 mucous colitis.tw,kw.

12 or/8-11

13 7 and 12

14 random:.tw.

15 placebo:.mp.

16 double-blind:.tw.

17 or/14-16

18 exp animal/ not human/

19 17 not 18

20 13 and 19

Lines #14-17, Hedge Best balance of sensitivity and specificity filter for identifying "therapy studies" in Embase. https://hiru.mcmaster.ca/hiru/HIRU_Hedges_EMBASE_Strategies.aspx

Supplementary Table 3 Cochrane risk of bias tool

Cochrane risk of bias tool
Allocation sequence generation Low risk of bias: sequence generation was achieved using computer random number generation or a random number table. Drawing lots, tossing a coin, shuffling cards, and throwing dice were adequate if performed by an independent person not otherwise involved in the trial. Unclear risk of bias: the method of sequence generation was not specified. High risk of bias: the sequence generation method was not random. We will consider such studies only for assessment of harms. Allocation concealment Low risk of bias: the participant allocations could not have been foreseen in advance of, or during enrolment. Allocation was controlled by a central and independent randomisation unit; or the allocation sequence was unknown to the investigators (for example, if the allocation sequence was hidden in sequentially numbered, opaque, and sealed envelopes). Unclear risk of bias: the method used to conceal the allocation was not described so that intervention allocations may have been foreseen in advance of, or during enrolment. High risk of bias: the allocation sequence was likely to be known to the investigators who assigned the participants. We will consider such studies only for assessment of harms. Blinding of participants and personnel Low risk of bias: any of the following: blinding of participants and key study personnel ensured, and it was unlikely that the blinding could have been broken; or rarely no blinding or incomplete blinding, but the review authors judged that the outcome was not likely to be influenced by lack of blinding. Unclear risk of bias: any of the following: insufficient information to permit judgement of 'low risk' or 'high risk;' or the trial did not address this outcome. High risk of bias: any of the following: no blinding or incomplete blinding, and the outcome was likely to be influenced by lack of blinding; or blinding of key study

participants and personnel attempted, but likely that the blinding could have been broken, and the outcome was likely to be influenced by lack of blinding.

Blinded outcome assessment

Low risk of bias: any of the following: blinding of outcome assessment ensured, and unlikely that the blinding could have been broken; or rarely no blinding of outcome assessment, but the review authors judged that the outcome measurement was not likely to be influenced by lack of blinding.

Unclear risk of bias: any of the following: insufficient information to permit judgement of 'low risk' or 'high risk;' or the trial did not address this outcome.

High risk of bias: any of the following: no blinding of outcome assessment, and the outcome measurement was likely to be influenced by lack of blinding; or blinding of outcome assessment, but likely that the blinding could have been broken, and the outcome measurement was likely to be influenced by lack of blinding.

Incomplete outcome data

Low risk of bias: missing data were unlikely to make treatment effects depart from plausible values. The study used sufficient methods, such as multiple imputation, to handle missing data.

Unclear risk of bias: there was insufficient information to assess whether missing data in combination with the method used to handle missing data were likely to induce bias on the results.

High risk of bias: the results were likely to be biased due to missing data.

Selective outcome reporting

Low risk of bias: the trial reported the following predefined outcomes: all-cause mortality, variceal rebleeding, health-related quality of life, procedure-related mortality, post-shunt encephalopathy, and irreversible shunt occlusion. If the original trial protocol was available, the outcomes should have been those called for in that protocol. If the trial protocol was obtained from a trial registry (e.g. www.ClinicalTrials.gov), the outcomes sought should have been those enumerated in the original protocol if the trial protocol

was registered before or at the time that the trial was begun. If the trial protocol was registered after the trial was begun, we will not consider those outcomes to be reliable.

Unclear risk of bias: the study authors did not report all predefined outcomes fully, or it was unclear whether the study authors recorded data on these outcomes or not.

High risk of bias: the study authors did not report one or more predefined outcomes.

Other bias

Low risk of bias: the trial appeared free of other factors that could put it at risk of bias.

Unclear risk of bias: the trial may or may not have been free of other factors that could put it at risk of bias.

High risk of bias: there were other factors in the trial that could put it at risk of bias.

Overall risk of bias

We will assess overall risk of bias in the trials as:

Low risk of bias: if all the bias domains described in the above paragraphs are classified as low risk of bias;

High risk of bias: if one or more of the bias domains described in the above paragraphs are classified at 'unclear risk of bias' or 'high risk of bias.

Supplementary Table 4 Detailed description of the included trials

Aroniadis *et al* (2019)
Methods
Study design: Randomized controlled trial
Study grouping: Crossover
Participants
Baseline Characteristics
FMT
• Age, mean (SD): 33 (27-48)
• Sex, male, n (%): 16 (64%)
• IBS-D, n (%): 25 (100%)
• N: 25
Placebo
• Age, mean (SD): 42 (28-48)
• Sex, male, n (%): 14 (61%)
• IBS-D, n (%): 23 (100%)
• N: 23
Inclusion criteria: age 19-65 years established diagnosis of IBS-D as determined by Rome III Criteria moderate-severe disease activity (as determined by an IBS-Symptom Severity Score ≥175) persistent symptoms despite conventional therapy normal colonoscopy with biopsies in the past for work-up of IBS symptoms negative work-up for celiac disease either by duodenal biopsies or negative serologies
Exclusion criteria: pregnancy nursing cognitive impairment or severe neuropsychiatric comorbidity who are incapable of providing their own informed consent severely immunocompromised or immunosuppressed patients (e.g., organ transplant recipients, severe neutropenia with an absolute neutrophil count of <500cells/mL, current treatment or treatment within three months with antineoplastic agents and HIV-positive patients with CD4 counts <200cells/mm^3) treated with any antibiotics in the three months prior to FMT GI symptoms can be explained by the presence of an underlying organic disease

including, underlying inflammatory bowel disease, infectious enteritis, previously established and untreated small intestinal bacterial overgrowth or known motility disorder previous FMT severe (anaphylactic) food allergy unable to comply with protocol requirements American Society of Anesthesiologists (ASA) Physical Status classification IV and V acute illness or fever on the day of planned FMT will be excluded (not randomized) with the option of including that subject at a future date new antidepressant started or dose of antidepressant change less than three months prior to enrolment elevated ESR or CRP within the past three months baseline laboratory abnormalities on CBC, chemistry or liver tests pain score >75 on IBS-SSS
Pretreatment: proton pump inhibitors (PPI) for three days leading up to the transplantation
Other: Postinfection IBS, which was higher in the placebo-first group
Interventions
Intervention Characteristics
FMT
• Procedure: FMT capsules (OpenBiome)
• Quantity: 0.38 g donor stool/capsule x 75 (28.5 g)
• Form: Frozen capsules
• Route of administration: oral
• Frequency: 3 x 25 capsules
• Donor selection: One donor for one patient (4 different donors)
Placebo
• Procedure: Placebo capsules (OpenBiome)
• Quantity: 75 capsules
• Form: Frozen capsules
• Route of administration: oral
• Frequency: 3 x 25 capsules
• Placebo content: non-toxic brown pigment
Identification

Sponsorship source: This study was supported by grants from the National Center for Advancing Translational Science at the US National Institutes of Health (grant numbers KL2TR001071 and UL1TR001073). The fecal microbiota transplant and placebo capsules for the study were provided courtesy of OpenBiome. Microbiome analyses were done courtesy of Finch Therapeutics Group. We thank the research coordinators and medical students involved in this study, including Ian Downs, Alana Zanetti-Yabur, Yolanda Ramos, and Candace Cotto, for their support.
Country: USA
Setting: Montefiore Medical Center (Bronx, NY, USA), Concorde Medical Center (New York, NY, USA), and the Medical Research Center of Connecticut (Hamden, CT, USA)
Authors name: Olga C Aroniadis
Institution: Department of Medicine, Montefiore Medical Center, Bronz, New York, USA
Email: Olga.Aroniadis@stonybrookmedicine.edu
Address: Department of Internal Medicine, Montefiore Medical Center, New York, NY 10467, USA
Clinicaltrials.gov: NCT02328547
Notes: Further data was provided by Olga Aroniadis on request
Risk of bias
Random sequence generation (selection bias)
Judgement: Low risk of bias
Support for judgement: "A randomisation scheme with a block size of four was computer generated by the principal investigator using Randomization and subsequently used by OpenBiome (Somerville, MA, USA) to allocate the treatment assignment."
Allocation concealment (selection bias)
Judgement: Low risk of bias
Support for judgement: An independent staff member assigned the treatments according to consecutive numbers that were kept in sealed opaque envelopes. The same independent staff member also gave the capsules to participants after randomisation. FMT or placebo capsules were identical-appearing placebo

Blinding of participants and personnel (performance bias)
Judgement: Low risk of bias
Support for judgement: All participants and staff were masked to randomisation
Blinding of outcome assessment (detection bias)
Judgement: Low risk of bias
Support for judgement: "Double blinding was achieved by the preparation of identical appearing capsules. An independent staff member assigned the treatments according to consecutive numbers that were kept in sealed opaque envelopes. The same independent staff member also gave the capsules to participants after randomisation." Outcome assessors and patient were not aware of treatment group
Incomplete outcome data (attrition bias)
Judgement: Low risk of bias
Support for judgement: Done according to PP analysis however 3 patients were not reported in the ITT study.
Selective reporting (reporting bias)
Judgement: Low risk of bias
Support for judgement: All prespecified primary and secondary outcomes were reported. The trial was registered with ClinicalTrials.gov, number: NCT02328547
Other bias
Judgement: Low risk of bias
Support for judgement: The trial was terminated due to equal responses in the FMT and placebo group; however, the data was completely described for included participants
El-Salhy *et al* (2020)
Methods
Study design: Randomized controlled trial
Study grouping: Three parallel group
Participants
Baseline Characteristics
30 g FMT

• Age, mean (SD): 39.2 (12.4)
• Sex, male, n (%): 14 (26%)
• IBS-D, n (%): 20 (37%)
• IBS-C, n (%): 20 (37%)
• IBS-M, n (%): 14 (26%)
• N: 54
60 g FMT
• Age, mean (SD): 39.3 (13.2)
• Sex, male, n (%): 9 (16%)
• IBS-D, n (%): 22 (40%)
• IBS-C, n (%): 20 (36%)
• IBS-M, n (%): 13 (24%)
• N: 55
Placebo
• Age, mean (SD): 41.2 (13.7)
• Sex, male, n (%): 8 (15%)
• IBS-D, n (%): 21 (38%)
• IBS-C, n (%): 22 (40%)
• IBS-M, n (%): 12 (22%)
• N: 55
Inclusion criteria: Patients between 18 Years to 85 Years who fulfil Rome IV criteria for the diagnosis of IBS. Patients with moderate to severe IBS symptoms (IBS-SSS ≥ 175).
Exclusion criteria: Presence of systemic disease, immune deficiency or treatment with immune-modulating medication. Pregnant, planning pregnancy or lactating. Having undergone any abdominal surgery, with the exception of appendectomy, cholecystectomy, caesarean section and hysterectomy. Severe psychiatric disorder, or alcohol or drug abuse. Use of probiotics or treatment with antibiotics within 8 weeks prior to study entry. Use of IBS medication within the previous three months, with the exception of polyethylene glycol and loperamide.

Pretreatment: None.
Other: None.
Interventions
Intervention Characteristics
30 g FMT
• Procedure: gastroscope to distal duodenum
• Quantity: 30 g suspension of healthy faeces microbiota in sterile saline solution
• Form: Frozen
• Route of administration: Gastroscope
• Frequency: Once
• Donor selection: One donor.
60 g FMT
• Procedure: gastroscope to distal duodenum
• Quantity: 60 g suspension of healthy faeces microbiota in sterile saline solution
• Form: Frozen
• Route of administration: Gastroscope
• Frequency: Once
• Donor selection: One donor.
Placebo
• Procedure: gastroscope to distal duodenum
• Quantity: 30 g own faeces in sterile saline solution
• Form: Frozen
• Route of administration: Gastroscope
• Frequency: Once
• Placebo content: autologous faeces
Identification
Sponsorship source: The study was supported by grants from Helse Fonna (grant no. 40415) and Helse Vest (grant no. 192234).
Country: Norway

Setting: Outpatient clinic at Stord Hospital
Authors name: Magdy El-Salhy
Institution: Stord Hospital, Stord, Norway
Email: magdy.elsalhy@sklbb.no
Address: Stord Hospital, Stord, Norway
Clinicaltrials.gov: NCT03822299
Notes: Further data was provided by Professor El-Salhy on request
Risk of bias
Random sequence generation (selection bias)
Judgement: Low risk of bias
Support for judgement: "The patients were randomised to the placebo (30 g of their own faeces), 30g FMT and 60g FMT groups at a ratio of 1:1:1 in blocks of six using a Web-based system (http://www.randomization.com) by a nurse who was not involved in the trial"
Allocation concealment (selection bias)
Judgement: Unclear risk of bias
Support for judgement: Not thoroughly reported
Blinding of participants and personnel (performance bias)
Judgement: Low risk of bias
Support for judgement: "The researcher who prepared the transplant was not aware of the identity of the fecal sample used for transplantation. The patients and researchers involved in the study were blinded to the randomisation."
Blinding of outcome assessment (detection bias)
Judgement: Unclear risk of bias
Support for judgement: Blinding during the data-analysis is not stated
Incomplete outcome data (attrition bias)
Judgement: Unclear risk of bias
Support for judgement: No information regarding whether there was missing data or how this would have been handled.
Selective reporting (reporting bias)

Judgement: Unclear risk of bias
Support for judgement: Primary endpoint and secondary endpoints were reported. The trial was registered with ClinicalTrials.gov, number: NCT03822299. However, the registration was conducted 1 year after initiation of the study.
Other bias
Judgement: Low risk of bias
Support for judgement: No comments
Halkjær *et al* (2018)
Methods
Study design: Randomized controlled trial
Study grouping: Parallel group
Participants
Baseline Characteristics
FMT
• Age, mean (SD): 37.28 (12.48)
• Sex, male, n (%): 8 (32.0)
• IBS-M, n : 11
• IBS-D, n: 7
• IBS-C, n: 7
• N: 25
Placebo
• Age, mean (SD): 35.54 (10.58)
• Sex, male, n (%): 8 (30.8)
• IBS-M, n : 8 (30.8)
• IBS-D, n: 8 (30.8)
• IBS-C, n: 10 (38.5)
• N: 26

Inclusion criteria: Moderate-to-severe disease activity (IBS-SSS ≥175); Able to read and speak Danish; Normal colonoscopy (performed within 1 year) if the patient was ≥40 years or if the patient had blood in stool.
Exclusion criteria: Other chronic GI disease; Fecal sample positive for enteropathogenic microorganisms; Positive screening for HIV, HBV or HCV antibody; Surgical interventions in the GI region (except for appendectomy, hernia repair, cholecystectomy and gynaecological and urological procedures); Psychiatric disorder; Fecal calprotectin ≥50mg/kg; Abuse of alcohol or drugs; Medications other than birth control pills, hormone supplements, allergies/asthma agents, blood pressure and cholesterol-lowering agents, proton pump inhibitors and non-prescription medicines; Abnormal screening biochemistry; Abnormal colonoscopy findings; Pregnant, planned pregnancy or breastfeeding females; Ingestion of probiotics or antibiotics <8 weeks before the inclusion
Pretreatment: A bowel cleansing with Picoprep
Interventions
Intervention Characteristics
FMT capsules
• Bowel cleansing: Before the first treatment a bowel cleansing with Picoprep performed corresponding to the procedure before a colonoscopy
• Procedure: One daily dosage of 25 capsules contains approximately 12 g of frozen fecal material
• Form: Frozen capsules
• Route of administration: Oral
• Frequency: 12 days of 25 capsules
• Donor selection: Donormix from four donors
Placebo capsules
• Bowel cleansing: Before the first treatment a bowel cleansing with Picoprep performed corresponding to the procedure before a colonoscopy
• Procedure: 25 placebo capsules made from saline, glycerol and food colouring E150.
• Form: Frozen capsules

• Route of administration: Oral
• Frequency: 12 days of 25 capsules
• Placebo content: Placebo capsules where made from saline, glycerol and food colouring E150. Also, the placebo contained 30% glycerol.
Identification
Sponsorship source: The study was financed by grants from the private foundations: Wedell-Wedellsborgs Fund, Toyota-Fonden Denmark, Danish colitis-crohn's associations research Fund, Tømmerhandler Johannes Fogs Fond, Villy Safft Nielsens Fond, Villum Foundation Block Stipend, MicroHealth (Innovation Fund Denmark) and co-financed by Aleris-Hamlet research and Development Fund and Department of Gastroenterology Copennhagen University Hospital Hvidovre
Country: Denmark
Setting: Patients were recruited from Department of Gastroenterology, Aleris-Hamlet Hospitals Copenhagen and Department of Gastroenterology, Copenhagen University Hospital Hvidovre, Copenhagen
Authors name: Sofie Ingdam Halkjær
Institution: Department of Gastroenterology, Copenhagen University Hospital Hvidovre, Copenhagen, Denmark
Email: Andreas.Munk.Petersen@regionh.dk
Address: Department of Gastroenterology, Copenhagen University Hospital Hvidovre, Copenhagen 2650, Denmark
ClinicalTrials.gov Identifier: NCT02788071
Risk of bias
Random sequence generation (selection bias)
Judgement: Low risk of bias
Support for judgement: Randomization done in blocks of four by researcher not involved in patients' treatment using a website
Allocation concealment (selection bias)
Judgement: Low risk of bias

Support for judgement: The allocation sequence was unknown to the investigators
Blinding of participants and personnel (performance bias)
Judgement: Low risk of bias
Support for judgement: Investigators, patients and outcome assessors were blinded to treatment
Blinding of outcome assessment (detection bias)
Judgement: Low risk of bias
Support for judgement: The randomization key was revealed after data analysis.
Incomplete outcome data (attrition bias)
Judgement: Unclear risk of bias
Support for judgement: No information giving regarding incomplete data handling. Here were participants missing from both arms of the study for various reasons which might represent a bias.
Selective reporting (reporting bias)
Judgement: Low risk of bias
Support for judgement: All prespecified outcomes were reported. The trial was registered with ClinicalTrials.gov, number: NCT02788071
Other bias
Judgement: Low risk of bias
Support for judgement: No comments
Holster *et al* (2019)
Methods
Study design: Randomized controlled trial
Study grouping: Parallel group
Participants
Baseline Characteristics
FMT
• Age, mean (SD): 34.9 (11.0)
• Sex, male, n (%): 5 (62.5)

• IBS-M, n : 2
• IBS-D, n: 5
• IBS-C, n: 1
• N: 8
Placebo
• Age, mean (SD): 40.9 (10.9)
• Sex, male, n (%): 3 (37.5)
• IBS-M, n : 1
• IBS-D, n: 4
• IBS-C, n: 3
• N: 8
Inclusion criteria: Signed informed consent; Fulfilled Rome III diagnostic criteria for IBS, and frequency of IBS pain or discomfort for at least 2 days a week in the last 12 weeks; Age: 18-65 years; low buryate-producing bacteria in their fecal samples
Exclusion criteria: High proportion of butyrate-producing microbiota in fecal samples; Known organic gastrointestinal disease (e.g. IBD); Previous complicated gastrointestinal surgery; Non-gastrointestinal malignancy; Dementia, severe depression, major psychiatric disorder, or other incapacity for adequate cooperation; Females who are pregnant or breast-feeding; Severe endometriosis; Antimicrobial treatment 4 weeks prior to first screening visit; Antimicrobial prophylaxis (e.g. acne, urinary tract infection); Regular consumption of probiotic products 4 weeks prior to randomization; Recently (within the last three months) diagnosed lactose intolerance; Celiac disease; Abuse of alcohol or drugs; Any clinically significant disease/condition which in the investigator's opinion could interfere with the results of the trial
Pretreatment: bowel cleansing and 4 mg loperamide
Other: selective serotonin reuptake inhibitor were more frequent in FMT
Interventions
Intervention Characteristics
FMT

• Procedure: administered into the caecum by whole colonoscopy after bowel cleansing. Patients received 4 mg loperamide before the colonoscopy to retain the transplant.
• Quantity: 30 g of stool in 150 ml sterile saline and 10% glycerol
• Form: frozen
• Route of administration: caecum by whole colonoscopy
• Frequency: one infusion
• Donor selection: Two donors (3 patients received stool from donor 1, the remaining 5 from donor 2).
Placebo
• Procedure: administered into the caecum by whole colonoscopy after bowel cleansing. Patients received 4 mg loperamide before the colonoscopy to retain the transplant.
• Quantity: 30 g of own stool in 150 ml sterile saline and 10% glycerol
• Form: frozen
• Route of administration: caecum by whole colonoscopy
• Frequency: one infusion
• Placebo content: autologous faeces
Identification
Sponsorship source: W.M. de Vos was supported by SIAM Gravitation Grant (024.002.002) and the Spinoza 2008 Award of the Netherlands Organization for Scientific Research (NWO). Part of this research was funded by the Swedish Nutrition Foundation granted to Savanne Holster in 2016.
Country: Sweden
Setting: Örebro University Hospital in Örebro, Sweden, from May 2014 to April 2016
Authors name: Savanne Holster
Institution: Nutrition-Gut-Brain Interactions Research Centre, Faculty of Health and Medicine, School of Medical Sciences, Örebro University, Örebro, Sweden
Email: Julia.Konig@oru.se
Address: Nutrition-Gut-Brain Interactions Research Centre, Faculty of Health and Medicine, School of Medical Sciences, Örebro University, Örebro, Sweden

NCT02092402: NCT02092402
Risk of bias
Random sequence generation (selection bias)
Judgement: Low risk of bias
Support for judgement: The randomization list was generated by a researcher not involved in the study
Allocation concealment (selection bias)
Judgement: Low risk of bias
Support for judgement: Before intervention the same researcher removed all information about allogenic or autologous treatment
Blinding of participants and personnel (performance bias)
Judgement: Low risk of bias
Support for judgement: Study participants and staff were blinded to treatment allocation.
Blinding of outcome assessment (detection bias)
Judgement: Low risk of bias
Support for judgement: "All participants and investigators remained blinded until the analyses of the primary outcome and the symptom scale data were completed."
Incomplete outcome data (attrition bias)
Judgement: Unclear risk of bias
Support for judgement: No description of how incomplete data was handled.
Selective reporting (reporting bias)
Judgement: Low risk of bias
Support for judgement: All prespecified outcomes were reported. The trial was registered with ClinicalTrials.gov, number: NCT02092402
Other bias
Judgement: Low risk of bias
Support for judgement: No comments
Holvoet *et al* (2021)
Methods

Study design: Randomized controlled trial
Study grouping: Parallel group
Participants
Baseline Characteristics
FMT
• Age, mean (SD): 40 (25-59)
• Sex, male, n(%): 13 (31)
• IBS-D, n (%): 11 (25.6%)
• IBS-M, n (%): 32 (74.6%)
• N: 43
Placebo
• Age, mean (SD): 36 (18-63)
• Sex, male, n(%): 11 (59)
• IBS-D, n (%): 5 (26.3%)
• IBS-M, n (%): 14 (73.4%)
• N: 19
Inclusion criteria: Signed informed consent- IBS with predominant diarrhoea as defined by the ROME III criteria and with symptoms of abdominal bloating- IBS symptom score > 2 on at least 2 subscores (abdominal discomfort, abdominal bloating, abdominal pain, urgency, stool frequency, stool consistency)
Exclusion criteria: predominant constipation as defined by Rome III criteria pregnancy or inadequate anti conception for the duration of the trial celiac disease any contra-indications for colonoscopy structural abnormalities of the colon (e.g. ileocecal resection, gastric bypass) severe gastro-intestinal comorbidities (e.g. IBD, coloncarcinoma) non gastro-intestinal malignancy severe psychiatric comorbidity which had important effects on the quality of life antimicrobial treatment 4 weeks prior to screening visit treatment with probiotics 2 weeks prior to screening visit recent diagnosis of lactose intolerance (< three months before screening visit) any severe comorbidity that might interfere with the study course as determined by the treating physician

Pretreatment: bowel cleansing before transplantation
Other: Male predominance in the placebo group
Interventions
Intervention Characteristics
FMT
• Procedure: nasojejunal administration
• Quantity: Single dose
• Form: fresh
• Route of administration: nasojejunal administration
• Frequency: once
• Donor selection: 2 healthy donors
Placebo
• Procedure: nasojejunal administration
• Quantity: Single dose
• Form: fresh
• Route of administration: nasojejunal administration
• Frequency: once
• Placebo content: Autologous stool
Identification
Sponsorship source: Tom Holvoet and Marie Joossens were supported respectively by a doctoral and postdoctoral fellowship from the Research Foundation–Flanders. Hans Van Vlierberghe holds a senior research position from the Research Foundation–Flanders.
Country: Belgium
Setting: Tertiary hospital center
Authors name: Tom Holvoet
Institution: Department of Gastroenterology, Ghent University Hospital, Ghent, Belgium
Email: tholvoet@hotmail.com
Address: Department of Gastroenterology, Ghent University Hospital, Ghent, Belgium
ClinicalTrials.gov number: NCT02299973

Notes
Further data was provided by Tom Holvoet on request
Risk of bias
Random sequence generation (selection bias)
Judgement: Low risk of bias
Support for judgement: Patients were randomized by personnel not involved in trial using a randomization website
Allocation concealment (selection bias)
Judgement: Unclear risk of bias
Support for judgement: Not specified
Blinding of participants and personnel (performance bias)
Judgement: Low risk of bias
Support for judgement: Study participants and staff were blinded to treatment allocation
Blinding of outcome assessment (detection bias)
Judgement: Unclear risk of bias
Support for judgement: Although not thoroughly described the review authors judged that the outcome measurement was not likely to be influenced by lack of blinding.
Incomplete outcome data (attrition bias)
Judgement: Low risk of bias
Support for judgement: All patients enrolled were included for the ITT analysis
Selective reporting (reporting bias)
Judgement: Low risk of bias
Support for judgement: All prespecified outcomes were reported. The trial was registered with ClinicalTrials.gov, number: NCT02299973
Other bias
Judgement: Low risk of bias
Support for judgement: No comments
Johnsen *et al* (2018)
Methods

Study design: Randomized controlled trial
Study grouping: Three parallel group
Participants
Baseline Characteristics
FMT fresh
• Age, mean (SD): NA
• Sex, male, n (%): 19 (35)
• IBS-M, n (%): 24 (44)
• IBS-D, n (%): 31 (56)
• N: 26
FMT frozen
• Age, mean (SD): NA
• Sex, male, n (%): 9 (32)
• IBS-M, n (%): 15 (54)
• IBS-D, n (%): 13 (46)
• N: 29
Placebo
• Age, mean (SD): NA
• Sex, male, n (%): 9 (32)
• IBS-M, n (%): 15 (54)
• IBS-D, n (%): 13 (46)
• N: 28
Inclusion criteria: aged 18–75 years, diarrhoea or mixed IBS according to the Rome III criteria moderate to severe IBS symptoms by the IBS severity scoring system (IBS-SSS; a score of ≥175).
Exclusion criteria: Participants with severe cardiac disease, pulmonary disease, or kidney failure. To avoid other mimicking diseases, we did not include participants with nocturnal abdominal pain or long-lasting constant abdominal pain with no variability because these symptoms are atypical for IBS. For safety reasons, we did not include participants with

immune deficiency or if they used immunomodulating medication. We also excluded participants who were assessed as likely to be non-compliant (i.e., not adhering to the tasks they were to perform as participants).
Pretreatment: bowel cleansing before transplantation
Interventions
Intervention Characteristics
FMT fresh
• Procedure: colonoscope to the caecum
• Quantity: 50–80 g of faeces mixed with 200 mL of isotonic saline and 50 mL of 85% glycerol
• Form: fresh/frozen
• Route of administration: rectal
• Frequency: single infusion
• Donor selection: Donor mix from two donors
FMT frozen
• Procedure: colonoscope to the caecum
• Quantity: 50–80 g of faeces mixed with 200 mL of isotonic saline and 50 mL of 85% glycerol
• Form: frozen
• Route of administration: rectal
• Frequency: single infusion
• Donor selection: Donor mix from two donors
Placebo
• Procedure: colonoscope to the caecum
• Quantity: 50–80 g of faeces mixed with 200 mL of isotonic saline and 50 mL of 85% glycerol
• Form: frozen
• Route of administration: rectal
• Frequency: single infusion

• Placebo content: autologous FMT
Identification
Sponsorship source: The funder of the study had no role in the study design, data collection, data analysis, data interpretation, or writing of the report. The corresponding author had full access to all the data in the study and had final responsibility for the decision to submit for publication. HelseNord and the Norwegian Centre of Rural medicine, University of Tromsø
Country: Norway
Setting: University hospital
Authors name: Peter Holger Johnsen
Institution: University Hospital of North Norway Harstad, Harstad, Norway
Email: peter.holger.johnsen@unn.no
Address: University Hospital of North Norway Harstad, 9406 Harstad, Norway
Clinicaltrial.gov: NCT02154867
Risk of bias
Random sequence generation (selection bias)
Judgement: Low risk of bias
Support for judgement: A researcher not involved in the trial, created the allocation sequence using a randomization website
Allocation concealment (selection bias)
Judgement: Low risk of bias
Support for judgement: The randomization sequence was sealed in opaque envelopes
Blinding of participants and personnel (performance bias)
Judgement: Low risk of bias
Support for judgement: Investigators were only aware of the active to placebo ratio of 2:1 in each block and that the blocks with fresh transplant as active treatment were the first to be done. Otherwise, the investigators and outcome assessors were blinded to the allocation and intervention
Blinding of outcome assessment (detection bias)

Judgement: Unclear risk of bias
Support for judgement: Did not state whether the outcome assessors were blinded to the treatment during analysis
Incomplete outcome data (attrition bias)
Judgement: Low risk of bias
Support for judgement: Modified intention to treat analysis including 83 of 90 randomized patients. Reasons for exclusion are described and equally distributed between groups
Selective reporting (reporting bias)
Judgement: Low risk of bias
Support for judgement: All prespecified primary and secondary outcomes were reported. The trial was registered with ClinicalTrials.gov, number: NCT02154867
Other bias
Judgement: Low risk of bias
Support for judgement: No comments
Lahtinen *et al* (2020)
Methods
Study design: Randomized controlled trial
Study grouping: Parallel group
Participants
Baseline Characteristics
FMT
• Age, median (SD): 47.3 (16.8)
• Sex, male, n (%): 11 (47.8%)
• IBS-D, n (%): 9 (39.1%)
• IBS-M, n (%): 3 (13.0%)
• IBS-U, n (%): 9 (29.1%)
• IBS-other, n (%) (other = not meeting Rome III criteria at baseline): 2 (8.7%)
• N: 23

Placebo
• Age, median (SD): 46.3 (14.3)
• Sex, male, n (%): 9 (34.6%)
• IBS-D, n (%): 16 (61.5%)
• IBS-M, n (%): 4 (15.4%)
• IBS-U, n (%): 5 (19.2%)
• IBS-other, n (%) (other = not meeting Rome III criteria at baseline): 1 (3.8%)
• N: 26
Inclusion criteria: Diagnosis of IBS based on Rome III criteria Having received traditional treatment for at least 1 month Availability of consecutive fecal samples over one year. Compliance to attend ileocolonoscopy and FMT procedure. 18-75 years.
Exclusion criteria: Unable to provide written consent, pregnancy, organic gastrointestinal diagnosis (e.g., IBD), comorbidities such as lymphocytic colitis, proctitis, and bile acid diarrhoea, antibiotic treatment within past three months.
Pretreatment: Bowel cleansing before transplantation
Other: More IBS-D in placebo group
Interventions
Intervention Characteristics
FMT
• Procedure: administered via colonoscopy
• Quantity: 30 g
• Form: frozen fecal suspension
• Route of administration: administered into the caecum via colonoscopy
• Frequency: Single treatment
• Donor selection: Single donor.
Placebo
• Procedure: administered via colonoscopy
• Quantity: 30 g
• Form: fresh - donated within 6 hours prior to the colonoscopy

• Route of administration: administered into the caecum via colonoscopy
• Frequency: single treatment
• Autologous FMT
Identification
Sponsorship source: The study was funded with research grants obtained by the researchers: Jonna Jalanka; Finnish Academy (grant no. 0313471-7), Reetta Satokari; Sigrid Juselius Foundation, Perttu Lahtinen; the Competitive State Research Financing (grant no. 200230042). The research was independent of the funding sources.
Country: Finland
Setting: The university hospital of Helsinki
Authors name: Perttu Lahtinen
Institution: Department of Gastroenterology, Päijät-Häme Central Hospital, Lahti, Finland
Email: perttu.lahtinen@phhyky.fi
Address: Gastroenterology, Päijät-Häme Central Hospital, Lahti, Finland.
ClinicalTrials.gov: NCT03561519
Notes: Further data was provided by Perttu Lahtinen on request
Risk of bias
Random sequence generation (selection bias)
Judgement: Low risk of bias
Support for judgement: Randomization done in blocks of six by study nurse not involved in the treatment of patients.
Allocation concealment (selection bias)
Judgement: Unclear risk of bias
Support for judgement: No description of allocation concealment prior to data analysis. However, study nurse, not involved in the trial, did the randomization.
Blinding of participants and personnel (performance bias)
Judgement: Low risk of bias

Support for judgement: The patients and the hospital personnel were blinded to type of feces being transplanted
Blinding of outcome assessment (detection bias)
Judgement: Unclear risk of bias
Support for judgement: Decoding was only done when all patients had completed the 52 weeks follow-up. However, no information was given in regard to whether the decoding was done before or after analysis.
Incomplete outcome data (attrition bias)
Judgement: Unclear risk of bias
Support for judgement: No given information regarding how incomplete data has been handled (or whether there were some).
Selective reporting (reporting bias)
Judgement: Low risk of bias
Support for judgement: The prespecified primary and secondary outcomes were reported. The trial was registered with ClinicalTrials.gov, number: NCT03561519
Other bias
Judgement: Low risk of bias
Support for judgement: No comments
Singh *et al* (2022)
Methods
Study design: Randomized controlled trial
Study grouping: Parallel group
Participants
Baseline Characteristics
FMT alone
• Age, mean (SD): 38.4 (11.5)
• Sex, female, n (%): 6 (54.5%)
• IBS-D, n (%): 11 (100%)
• N: 11

Placebo
• Age, mean (SD): 35.8 (14.2)
• Sex, female, n (%): 5 (41.7%)
• IBS-D, n (%): 12 (100%)
• N: 12
Inclusion criteria: Patients who were between 18 and 80 years of age and who had IBS-D (Rome III criteria). Enrolled patients were included if they had active IBS symptoms at screening (as defined by having IBS-SSS score >150), a colonoscopy with normal random biopsies following the onset of IBS symptoms and within five years or since the onset of any of the following alarm features (if applicable): unintentional weight loss, nocturnal symptoms, and rectal bleeding or anemia. Patients were allowed to stay on their IBS medications provided they had been on a stable dose for at least 30 days prior to entering the study and were not planning to change the dose or make changes to their diet or lifestyle.
Exclusion criteria: Exclusion criteria included i) patients with organic disease of their GI tract such as inflammatory bowel disease, pancreatitis, or malignancy; ii) patients who had major abdominal surgery excluding cholecystectomy (as long as the IBS symptoms predated the surgery and there was no evidence of post-cholecystectomy biliary tract pain) appendectomy, polyp removal, hysterectomy, tubal ligation, C-section); iii) patients with recent use of antibiotics within 28 days; iv) patients with immunodeficiency or intolerant of/or hypersensitive to ciprofloxacin, metronidazole, or rifaximin.
Pretreatment: Bowel cleansing before transplantation (magnesium citrate, up to 3 bottles). For 2 days prior to FMT, participants were treated with omeprazole 20 mg.
Interventions
Intervention Characteristics
FMT
• Procedure: administered via capsules
• Quantity: A single dose of 19 capsules with each pill consisting of 0.75 g of frozen fecal filtrate (OpenBiome).

• Form: frozen capsules
• Route of administration: oral
• Frequency: Single treatment of 19 capsules
• Donor selection: Six donors. "Each FMT preparation was derived using filtrate from a single donor; filtrates from different donors were never mixed. Capsules were made from six donors and same six donors were used for all three groups. All three groups received FMT from six donors."
Placebo
• Procedure: administered via capsules
• Quantity: 19 capsules containing glycerol with brown coloring agent
• Form: frozen capsules
• Route of administration: oral capsules
• Frequency: single treatment of 19 capsules
• Placebo content: glycerol with brown coloring agent
Identification
Sponsorship source: The study received no outside funding
Country: USA
Setting: Teaching hospital of Harvard Medical School
Authors name: Prashant Singh
Institution: Division of Gastroenterology at Beth Israel Deaconess Medical Center, Boston
Email: singhpr@med.umich.edu
Address: Division of Gastroenterology at Beth Israel Deaconess Medical Center, Boston
ClinicalTrials.gov: NCT02847481
Notes: Unknown if patients were included due to an IBS-SSS score of >150 or >175, both is written in the article. Unknown if patients received capsules from a single or multiple donors.
Risk of bias
Random sequence generation (selection bias)
Judgement: Unclear risk of bias

Support for judgement: Randomly allocated (1:1:1:1) to one of four treatment arms. No description on the generation sequence
Allocation concealment (selection bias)
Judgement: Unclear risk of bias
Support for judgement: No information regarding allocation concealment. In regarding to this systematic review, the FMT only and the Placebo were not able to differentiate between the two groups. However, patients receiving antibiotics before treatment knew that they would get FMT.
Blinding of participants and personnel (performance bias)
Judgement: Low risk of bias
Support for judgement: The identity of the capsules was unknown to participants, researchers and primary investigators.
Blinding of outcome assessment (detection bias)
Judgement: Unclear risk of bias
Support for judgement: No further information regarding which measures was taken to blind the assessors. In regard to this systematic review the assessors did not know whether the participants were FMT only or placebo. However, the assessors did know if the patient recieved pre-treatment with antibiotics that the patients would receive FMT.
Incomplete outcome data (attrition bias)
Judgement: Low risk of bias
Support for judgement: Per protocol analysis er conducted. However, no more information regarding how missing data was handled. However, ITT analysis lacked one patient
Selective reporting (reporting bias)
Judgement: Low risk of bias
Support for judgement: Prespecified outcomes reported
Other bias
Judgement: Low risk of bias
Support for judgement: No comments

Supplementary Table 5 Characteristics of donors in the included trials

Characteristics of donors in the included trials
Aroniadis *et al* 2019[1]
Number of donors: Four. Each participant received from one donor.
Inclusion criteria: Not specified, see other.
Exclusion criteria: Not specified, see other.
Other: Stool capsules provided by non-profit stool bank (OpenBiome, Somerville, USA).
El-Salhy *et al* 2020[2]
Number of donors: One.
Inclusion criteria: Not specified, according to published guidelines[3,4].
Exclusion criteria: According to published guidelines[3,4], including exposure to infectious agents or risky social or sexual behaviour such as drug abuse (assessed by interview about medical history and lifestyle habits); gastrointestinal, metabolic or neurological disorders (assessed by physical examination as well as blood tests); aberrant liver and thyroid function test; HIV, syphilis, hepatitis A, B and C (serology); positive stool test for pathogenic bacteria (*Shigella spp*., *Salmonella spp*., *Campylobacter spp*., *Yersinia spp*. and toxin producing *Clostridioides difficile*); positive rotavirus test; stool ova and parasites.
Other: Donor was an athletic Caucasian male, 36 years of age, unrelated to any of the trial participants, born via vaginal delivery, breastfed, total times of antibiotics treatment during life: three, regular exercise (five times per week one hour), regular intake of dietary supplements rich in proteins, vitamins, fibre and minerals, normobiosis according to the GA-map Dysbiosis Test (Genetic Analysis, Oslo, Norway).
Halkjær *et al* 2018[5]
Number of donors: Four. Pooled into one batch for all experiments.
Inclusion criteria: Aged between 18 and 45 years; previously and currently healthy; normal weight (body mass index between 18.5 and 24.9 kg/m^2); normal bowel movements (defined as 1–2 per day and type 3–4 at Bristol Stool Form Scale); no medication consumption.

Exclusion criteria: Known or high risk of infectious diseases such as HIV, HAV, HBV or HCV; positive stool sample for *C. difficile* toxin, parasites or other enteropathogens; antibiotic treatment in the past six months; abuse of alcohol or drugs; smoking; tattoo or body piercing within the last six months; allergy, asthma or eczema; family history of GI diseases, cancer, diabetes, obesity, autoimmune diseases, allergy, asthma, eczema, cardiovascular diseases, neurologic or mental illnesses; participation in high-risk sexual behaviours; born by caesarean section.

Other: Donors were instructed to maintain a healthy lifestyle during the collecting period. Screening according to published guidelines[6,7].

Holster *et al* 2019[8]

Number of donors: Two. One for the first three participants, one for the remaining five.

Inclusion criteria: Signed informed consent; high-butyrate producing microbiota in fecal samples; age: 18-65 years.

Exclusion criteria: Current communicable diseases; known organic gastrointestinal disease; gastrointestinal malignancy or polyposis; history of major gastrointestinal surgery; eosinophilic disorders of the gastrointestinal tract; known or high risk of infectious diseases such as HIV or hepatitis; nongastrointestinal malignancy; dementia, severe depression, major psychiatric disorder; metabolic syndrome; autoimmune diseases; allergies; chronic pain syndromes; severe or morbid obesity; pregnancy or breast-feeding; use of immunosuppressive or chemotherapy agents; antimicrobial treatment within last six months; abuse of alcohol or drugs; tattoo or body piercing obtained within the six months before screening; high-risk sexual behaviours; travelling to areas with endemic diarrhoea during three to six months before screening; positive stool tests for *C. difficile* toxin, enteral pathogens (*Salmonella*, *Shigella*/enteroinvasive *E. coli* (EIEC), *Campylobacter*, enterohaemorrhagic *E. coli* (EHEC), enterotoxigenic *E. coli* (ETEC), Yersinia enterocolitica, *Vibrio* and *Plesiomonas shigelloides*), ova, parasites, Giardia antigen, cryptosporidium antigen; positive blood tests for HIV, Hepatitis A, B, or C.

Other: -

Holvoet *et al* 2021[9]

Number of donors: Two. One for n=17 participants, one for n=26 participants.

Inclusion criteria: Good overall condition; between 18 and 65 years of age; to have normal, regular bowel movements and to have no gastrointestinal symptoms.

Exclusion criteria: Body mass index > 30; antibiotic use in the past six months; chronic disease or abnormal screening results; positive serology for *Treponema pallidum,* HIV-1 and 2, Hepatitis A (IgM), Hepatitis B (HbsAg), Hepatitis C (Anti HCV), Hepatitis E, *Strongyloides stercoralis* (based on donors' history); positive stool test for *C. difficile*, *Salmonella* spp, *Shigella* spp, *Yersinia enterocolitica*, *Yersinia pseudotuberculosis*, *Campylobacter* spp, *Aeromonas* spp, antibiotic resistant bacteria (carbapenemase-producing Enterobacterales (CPE) and extended spectrum beta-lactamase (ESBL) producing organisms), eggs, cysts and/or larvae of parasites, presence of *C. difficile* toxins A and B.

Other: Two healthy male volunteers were selected based on clinical efficacy in a previous pilot trial[10] and based on a high microbiota diversity (assessed with 16S amplicon community profiling). During the course of the trial, donors were asked to stay on a stable diet. Donors were asked about changes in diet, health, medication intake, transit time (using Bristol stool score) and travelling abroad with every stool sample donation.

Johnsen *et al* 2018[11]

Number of donors: Two. Mixture of both.

Inclusion criteria: Healthy volunteers.

Exclusion criteria: Use of antibiotics in the past three months; new tattoos or piercings in the past three months; high-risk sexual behaviour; former imprisonment; history of the following conditions: chronic diarrhoea, constipation, inflammatory bowel disease, IBS, colorectal polyps or cancer, immunosuppression, obesity, metabolic syndrome, atopic skin disease, or chronic fatigue; positive fecal microscopy for parasites, ova, and cysts; positive stool cultures for *Salmonella* spp, *Shigella* spp, *Campylobacter* spp, *Yersinia* spp, and toxin-producing *C. difficile*; positive fecal tests for *Helicobacter pylori* antigen, viruses (Norovirus, rotavirus, Sapovirus, adenovirus), calprotectin, and occult blood; positive blood test for glycated haemoglobin; positive serology for HIV, *Treponema pallidum*, and hepatitis A, B, and C.

Other: -

Lahtinen *et al* 2020[12]

Number of donors: One.

Inclusion criteria: According to criteria from Mattila et al[13]: No antimicrobial therapy for the past six months and no intestinal symptoms.

Exclusion criteria: According to criteria from Mattila et al[13]: Positive stool test for *C. difficile* (culture and toxin A/B test), enteric bacterial pathogens (*Salmonella*, *Yersinia* and *Campylobacter*, selective media culture) and ova and parasites (light microscopy); positive serum test for HBV (HBV surface antigen), HCV (Anti-HCV antibodies by EIA), HIV 1 and HIV 2 (Anti-HIV antibodies by EIA), *Treponema pallidum* (Plasma reagin test); abnormal total blood count, C-reactive protein, creatinine, and liver enzyme levels. In addition, positive stool test for antibiotic-resistant bacteria (MRSA, ESBL) and *Helicobacter pylori*.

Other: Young adult male donor with in good general health and normal weight, delivered through vaginal childbirth, no antibiotic treatment during the previous year, not a health care worker, no long-term diagnoses, no use of permanent medications, no history of high-risk sexual behaviour, no use of illicit drugs or recent travels to areas with high incidence of infectious diarrhoea.

Singh *et al* 2022[14]

Number of donors: Six.

Inclusion criteria: Not specified, see other.

Exclusion criteria: Not specified, see other.

Other: Stool capsules provided by non-profit stool bank (OpenBiome, Somerville, USA).

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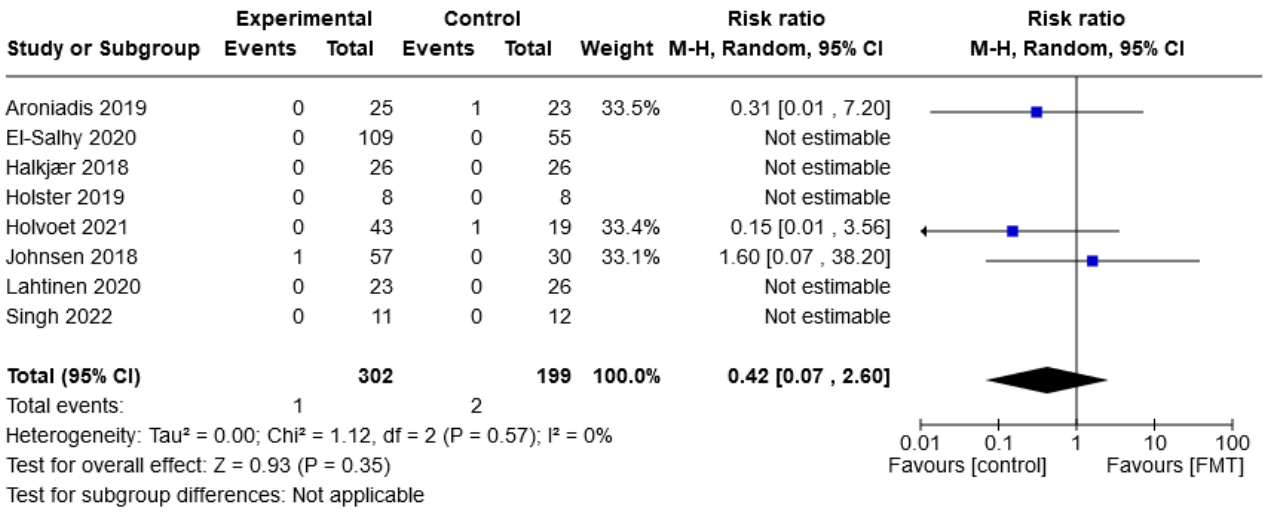
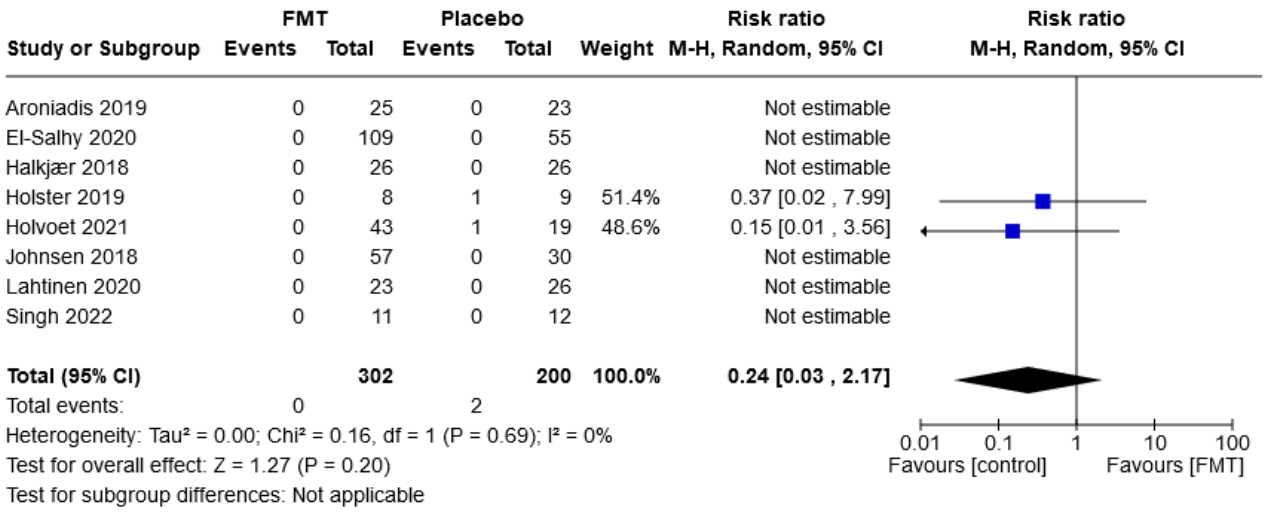
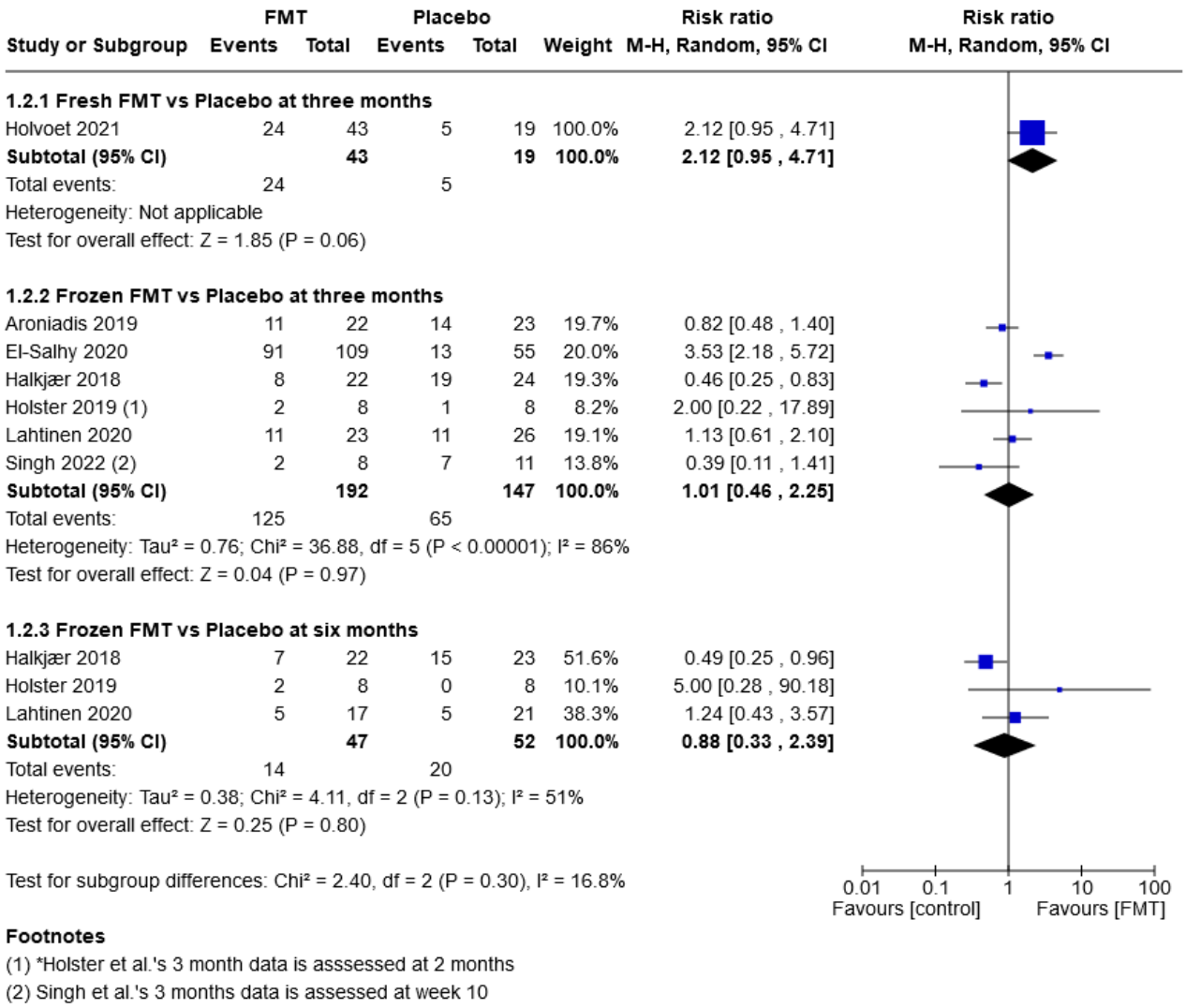


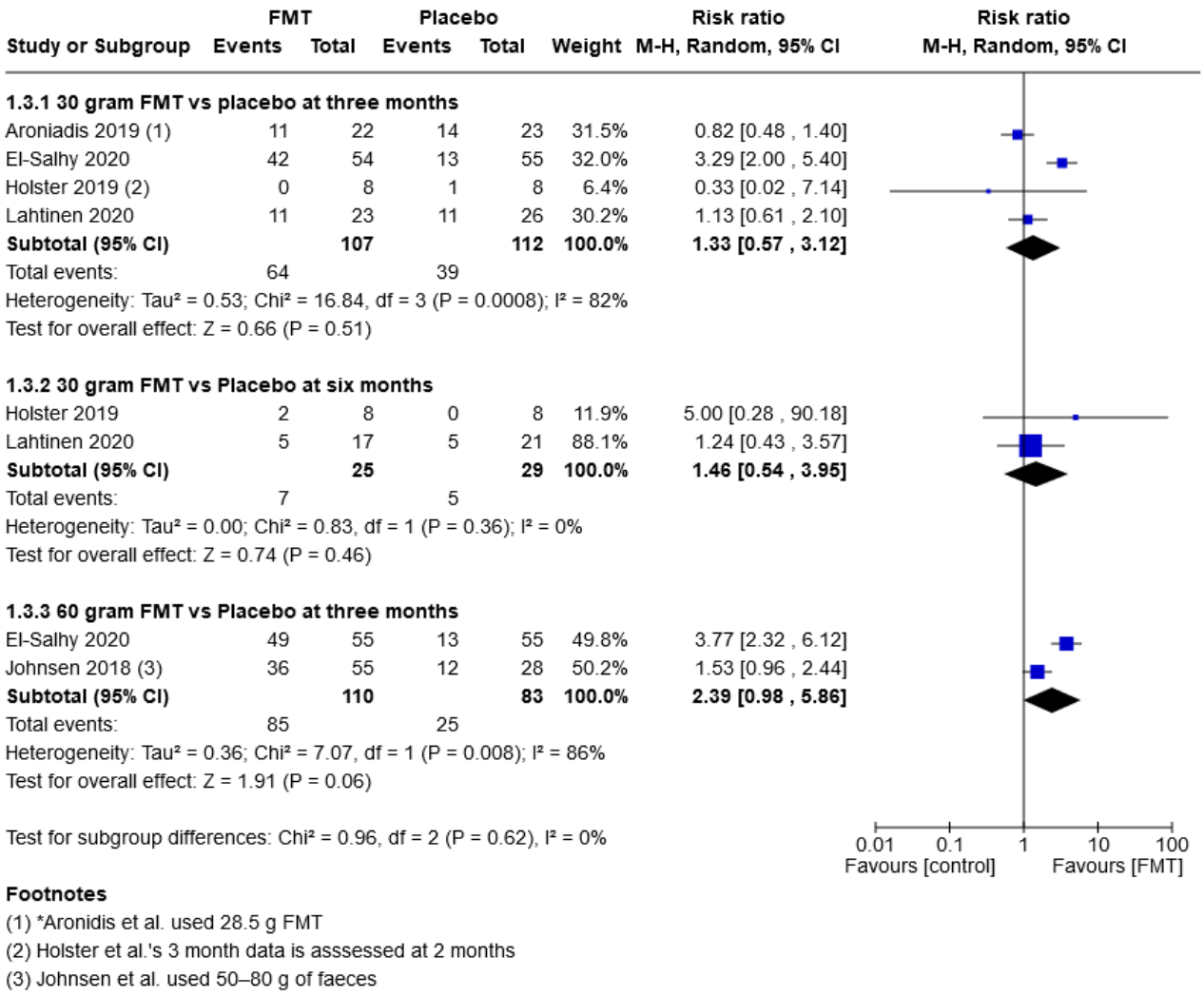
Supplementary Figure 1 Forest plot of randomised controlled trials of fecal microbiota transplantation in irritable bowel syndrome: serious adverse events.



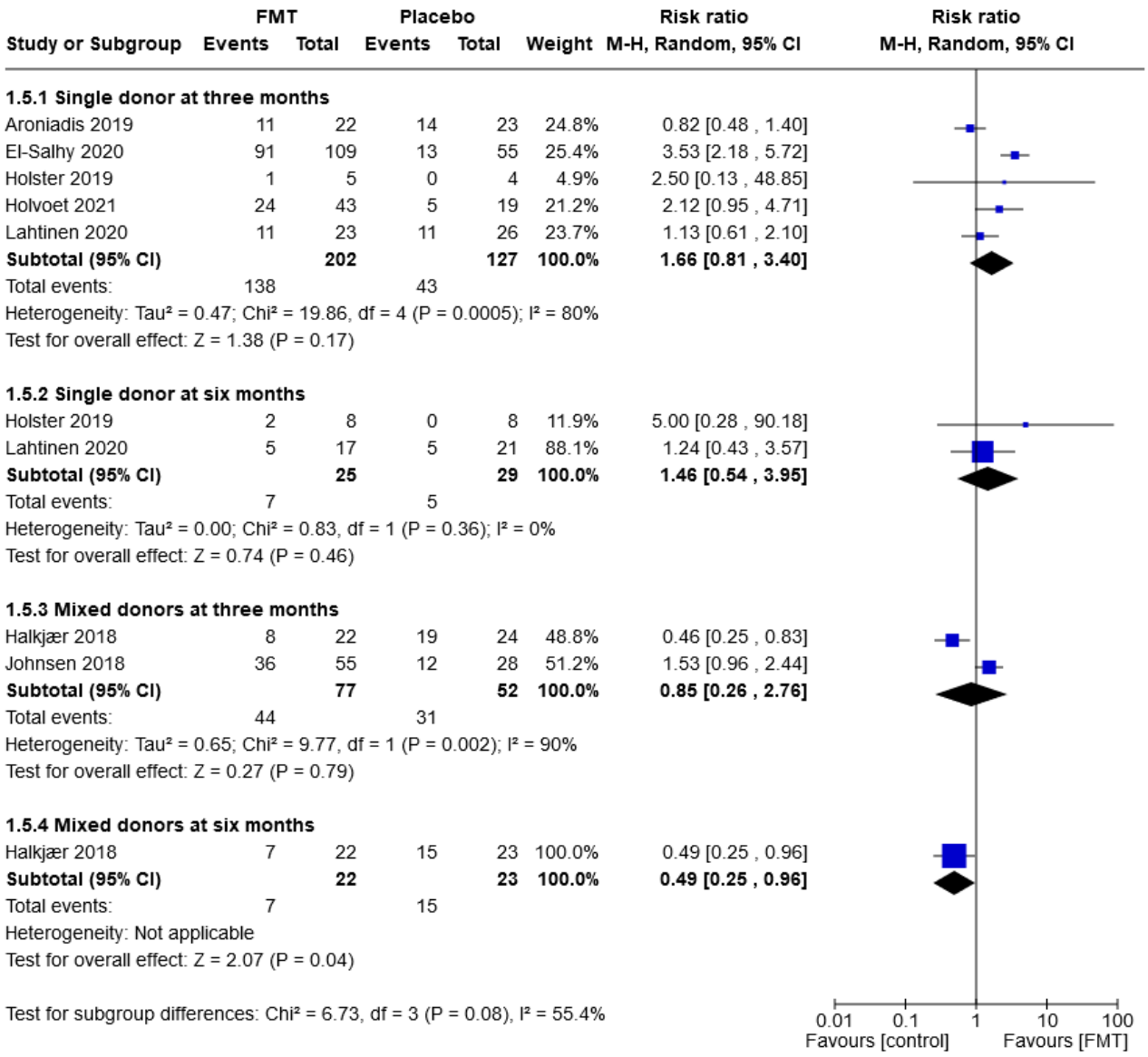
Supplementary Figure 2 Forest plot of randomised controlled trials of fecal microbiota transplantation in irritable bowel syndrome: dropouts due to adverse events.



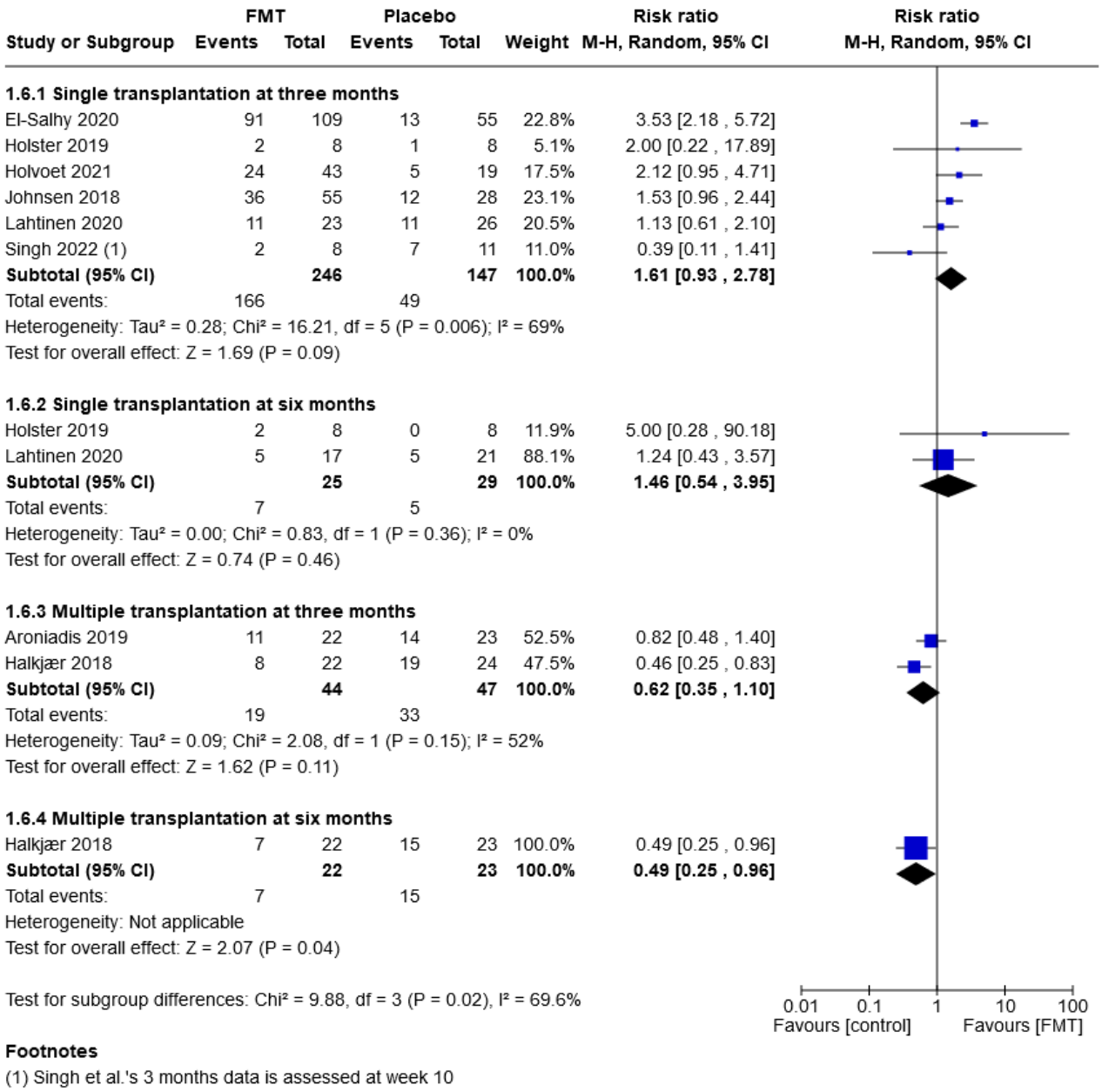
Supplementary Figure 3 Forest plot of randomised controlled trials of fecal microbiota transplantation in irritable bowel syndrome: effect on symptom improvement at three and six months (subgroup analysis fresh vs. frozen transplant).



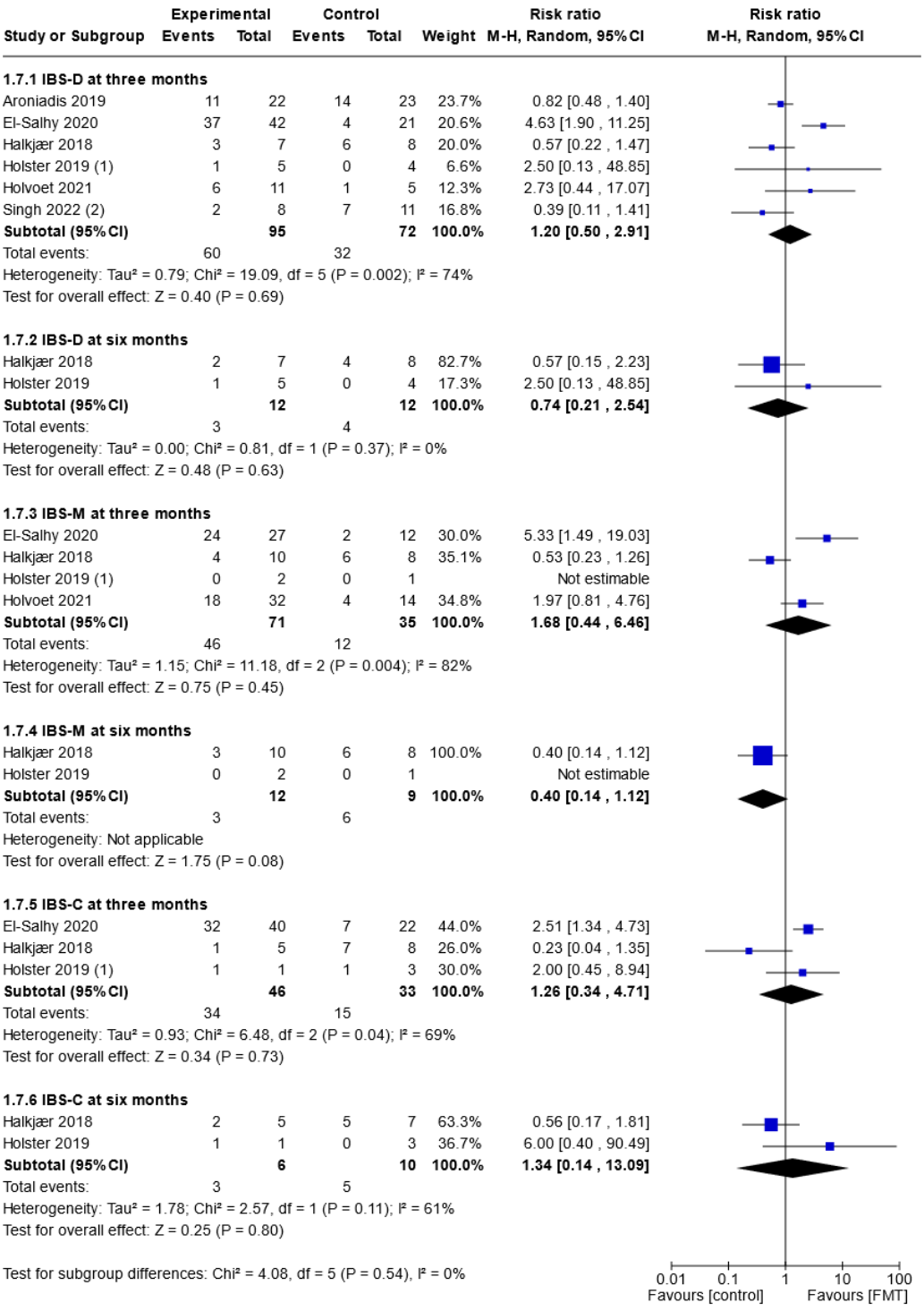
Supplementary Figure 4 Forest plot of randomised controlled trials of fecal microbiota transplantation in irritable bowel syndrome: effect on symptom improvement at three and six months (subgroup analysis quantity of transplant).



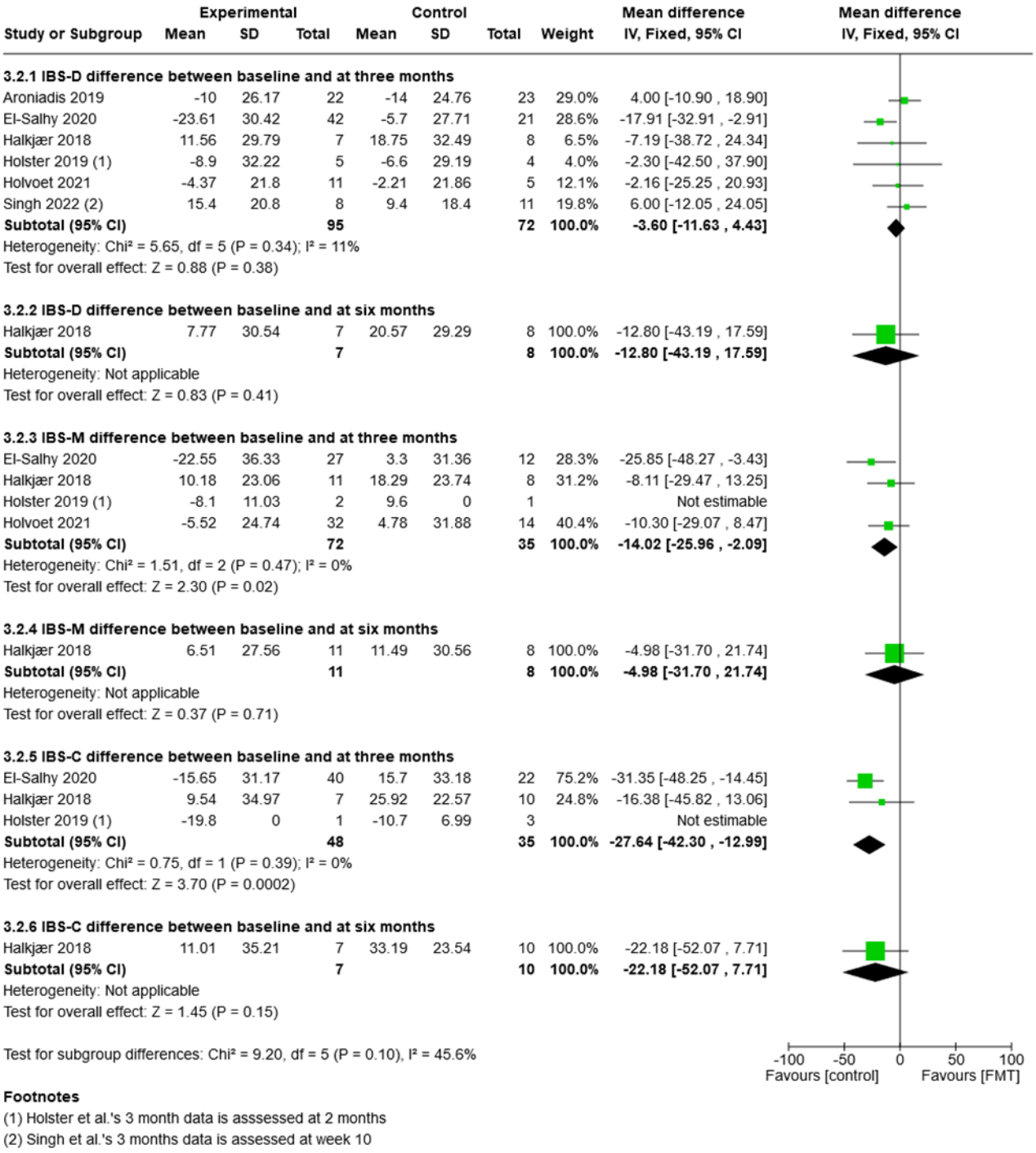
Supplementary Figure 5 Forest plot of randomised controlled trials of fecal microbiota transplantation in irritable bowel syndrome: Effect on symptom improvement at three and six months (subgroup analysis single vs. donor-mix).



Supplementary Figure 6 Forest plot of randomised controlled trials of fecal microbiota transplantation in irritable bowel syndrome: effect on symptom improvement at three and six months (subgroup analysis frequency of administration).



Supplementary Figure 7 Forest plot of randomised controlled trials of fecal microbiota transplantation in irritable bowel syndrome: effect on symptom improvement at three and six months (subgroup analysis irritable bowel syndrome subtype).



Supplementary Figure 8 Forest plot of randomised controlled trials of fecal microbiota transplantation in irritable bowel syndrome: effect on quality-of-life scores at three and six months (subgroup analysis irritable bowel syndrome subtype).