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The use of an online messaging platform as a reminder for prehabilitation adherence and perioperative outcomes in patients undergoing major elective abdominal surgery

Submission date
22/09/2026

Recruitment status
Recruiting

Registration date
30/09/2026

Overall study status
Ongoing

Last Edited
30/09/2026

Condition category
Surgery

[X] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[X] Record updated in last year

Plain English summary of protocol
Not provided at time of registration

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Scientific, Public

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Study information

Scientific Title
The use of an online messaging platform as a reminder for prehabilitation adherence and perioperative outcomes in patients undergoing major elective abdominal surgery: a prospective randomised controlled trial

Acronym
PROMPT

Study objectives
1. To determine the increment of prehabilitation adherence in patients undergoing major abdominal surgery via online messaging platforms as reminder
2. To compare differences in functional capacity (6 minute walking test) and nutritional status (bioimpedance analysis, hand grip test) preoperatively in patients undergoing major abdominal surgery who receive online messaging reminders versus standard care
3. To measure the difference in postoperative outcomes between patients who receive online messaging reminders versus standard care
3.1. Complication Rate (Clavien–Dindo)
3.2. Length of Hospital Stay
3.3. 30-day Mortality and Morbidity

Ethics approval required
Ethics approval required

Ethics approval(s)
Submitted 02/09/2026, Jawatankuasa Etika Penyelidikan (Hospital Canselor Tuanku Muhriz, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Wilayah Persekutuan Kuala Lumpur, Kuala Lumpur, 40150, Malaysia; +60 391455046; sepukm@ukm.edu.my), ref: JEP-2026-626

Primary study design
Interventional

Allocation
Randomized controlled trial

Masking
Blinded (masking used)

Control
Active

Assignment
Parallel

Purpose
Health services research, Supportive care

Study type(s)

Health condition(s) or problem(s) studied
Preoperative physical and nutritional deconditioning and suboptimal adherence to prehabilitation among patients undergoing major elective abdominal surgery

Interventions
This is a prospective, double-blinded (participant, outcome assessor), randomized controlled trial with concealed allocation, assessor blinding, and intention-to-treat analysis. Randomization will be conducted using a computer-generated sequence with permuted blocks. Allocation will be concealed using sequentially numbered (1-60), opaque, sealed envelopes, which will be opened by an independent researcher not involved in assessment or intervention delivery.

Blinding Statement
Patients and outcome assessors will remain blinded to treatment allocation. The staff delivering daily WhatsApp reminders cannot be blinded due to the nature of the intervention. To maintain blinding, intervention details will not be recorded in medical records, and outcome assessments will be conducted by independent, blinded assessors offsite. Messaging will be scheduled separately from assessment days to minimize unblinding. Any disclosure of intervention details by participants will be documented and reported. Participants were informed only that they would be randomized to one of two sets of interventions, without disclosure of specific content to minimize placebo and Hawthorne effects.

Participants scheduled for major surgery will be recruited and randomized into one of two groups:
1. Control Group
The patients will receive standard care which consist of standard prehabilitation counselling (ERAS clinic) and follow up with dietician and physiotherapy sessions.

(a) Physiotherapy Session
Patients will be routinely referred to an exercise-based prehabilitation program, previously published as the standard care protocol for phase II cardiac rehabilitation (Md Ali et al, 2023, Ahmad et al, 2025) which employs Moderate Intensity Continuous Training (MICT) to enhance cardiovascular fitness. In this trial, supervised incremental upper-limb (UL) resistance training was incorporated to strengthen muscles, along with inspiratory muscle training and an active cycle of breathing exercises designed to improve lung capacity and respiratory muscle strength. Specifically for the aerobic exercise component, participants will start with low-intensity exercise during the first week, with gradual progression to moderate-intensity continuous training (MICT) as tolerated. Moderate intensity will be defined as 55–75% of maximum heart rate (MHR). Aerobic training may include treadmill walking, cycling, or walking exercises, performed 1–3 times per week, with each supervised session lasting up to 60 minutes, over a typical preoperative period of 2–4 weeks prior to surgery.

For the progressive resistance exercise component, training will target the major upper-limb and trunk muscle groups, including the biceps and triceps brachii, pectoralis major and minor,

latissimus dorsi, deltoid, and rhomboids. Resistance exercises will be performed using free weights and other resistance equipment, including a PVC weighted bar, resistance bands, dumbbells, and kettlebells, depending on patient ability and availability of equipment. The prescribed intensity will be approximately 70–80% of the estimated 10-repetition maximum (10RM). The exercise load will be adjusted to avoid joint pain, excessive muscle fatigue, or arm fatigue. Each exercise session will last approximately 45–60 minutes, including warm-up and cool-down. This will include approximately 30–45 minutes of MICT, depending on the participant's tolerance. Sessions will be conducted 1–3 times per week. For inspiratory muscle training, participants will perform training for 20 minutes per day at an intensity of 30% of maximum inspiratory pressure (MIP).

(b) Dietician Session
Patients scheduled for major elective abdominal surgery will be referred for dietician counselling and will undergo nutritional screening as per Nutritional Risk Score (NRS) that is officially recommended by the European Society of Parenteral and Enteral Nutrition (ESPEN). It is based on the amount of malnutrition, as defined by weight loss, food intake, and BMI, as well as on the severity of disease of the patient. If severe malnutrition is identified, surgery should ideally be postponed to allow oral or enteral nutritional support for approximately two weeks before the operation. For patients with an NRS score of 3 or more, nutritional support should be started for 5–7 days preoperatively, either as sip enteral nutrition or immunonutrition depending on clinical suitability. If the patient does not have significant nutritional risk after repeated assessment, surgery may proceed within the enhanced recovery protocol. For patients managed within an enhanced recovery protocol, nutritional therapy should still be considered if prolonged postoperative fasting or inadequate oral intake is anticipated. Postoperatively, if there is a high probability of prolonged fasting or insufficient food intake, nutritional support should be continued, preferably by the enteral route. Parenteral nutrition may be considered when enteral feeding is contraindicated or inadequate, and this should be continued until sufficient oral or enteral intake is achieved.

(c) Psychological Session
Patients will undergo assessment based on Hospital Anxiety and Depression Scale (HADS) and psychological sessions only will be triggered when HADS score more than 11.

Adherence to the prehabilitation exercise programme will be monitored using three methods: participant diary, self-assessment adherence form, and weekly phone call follow-up.

(a) Participant Diary
All participants will be provided with a prehabilitation diary to record their daily progress and completion of prescribed activities. Participants will be advised to document their prehabilitation activities as contemporaneously and accurately as possible in order to minimise recall bias and better reflect actual adherence. Participants will be reassured that failure to adhere to the prescribed prehabilitation programme will not result in any punitive action and will not affect the timing, scheduling, or provision of their planned surgery. The Diary responses will be recorded to calculate overall prehabilitation adherence, which constitutes the primary outcome.

(b) Self Reported Adherence Form
Participants will also be given a nominal self reported adherence form. This form will consist of nominal questions designed to provide a qualitative assessment of the participant's adherence to the prescribed prehabilitation programme. The responses will be used to supplement the diary-based adherence data and to better understand patient-reported barriers or facilitators to adherence.

(c) Weekly Phone Call Follow-up
Participants will receive a weekly phone call, scheduled every Friday, to assess their exercise participation and overall prehabilitation progress. The phone call will also serve as a reminder to complete the diary and self-assessment adherence form. Information obtained during the phone call will be used for monitoring and follow-up purposes, but the primary adherence outcome will be calculated based on diary-recorded completion of prescribed activities.

2. Intervention Group
The patients will receive the same standard care as per Control Group with additional daily online messaging reminders via Whatsapp for 2-4 weeks from decision for surgery until admission. This includes daily reminders for exercise and dietary modification throughout the prehabilitation period.

Intervention Type
Behavioural

Primary outcome(s)
1. Adherence Rate to Prehabilitation measured using patient records at from enrolment until the day before surgery

Key secondary outcome(s)
1. Functional capacity measured using 6 minute walking test at baseline (prior prehabilitation), and follow up at 3 time points (prior discharge, 4 weeks and 12 weeks)

2. Hand Grip Test measured using kilogram (kg) at baseline (prior prehabilitation), and follow up at 3 time points (prior discharge, 4 weeks and 12 weeks)

3. Complication Rate measured using Clavien Dindo Classification at baseline (prior prehabilitation), and follow up at 3 time points (prior discharge, 4 weeks and 12 weeks)

4. Length of Hospital Stay measured using day (s) at baseline (prior prehabilitation), and follow up at 3 time points (prior discharge, 4 weeks and 12 weeks)

Completion date
31/05/2028

Eligibility

Key inclusion criteria
1. Patient undergoing major elective abdominal surgery at 2- 4 weeks ahead
2. Adult aged > 18 years old
3. Ownership of a smartphone with WhatsApp access
4. Good comprehension in Malay or English

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
18 Years

Upper age limit
80 Years

Sex
All

Total final enrolment
0

Key exclusion criteria
1. Emergency operations
2. Cognitive impairment affecting consent or compliance
3. Inability to read or respond to WhatsApp messages
4. Lost of contact in 2 weeks interval
5. Incomplete medical data

Date of first enrolment
01/11/2026

Date of final enrolment
01/11/2027

Locations

Countries of recruitment
Malaysia

Sponsor information

Organisation
Hospital Canselor Tuanku Muhriz (HCTM), Universiti Kebangsaan Malaysia (UKM)

Funder(s)

Funder type

Funder Name
Investigator initiated and funded

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not expected to be made available