Effectiveness Of Patient Education On Laparoscopic Surgery Postoperative Outcomes: A Systematic Review Of Randomized Controlled Trials. Is Direct Coaching The Best Approach?

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Introduction/Background

- Patient postoperative non-compliance can increase the risk of complications by up to 52.4% after laparoscopic abdominal surgery[1]
- Modernized educational formats:[2-4]
  - Verbal/ written/ multimedia education
  - Mobile applications
  - One-on-one or group counseling.
- No singular pre-operative education intervention (POEI) demonstrates consistent improvement in patient outcomes across the procedures.

Purpose

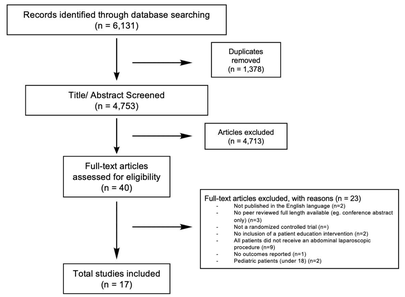
- To determine which POEI could be the most effective on post-operative patient outcomes by systematically reviewing all the POEI reported in the literature.

Methods

- Adhered to the PRISMA and Cochrane guidelines
- Databases searched: PubMed, MEDLINE, Embase, Web of Science, and Scopus
- Inclusion criteria were:
  - Inclusion of a patient education intervention
  - Adult patients undergoing abdominal laparoscopic surgery
  - Randomized controlled trials (RCTs)
  - Articles including postoperative outcomes
- Extraction Form:

Results

Figure 1: PRISMA Overview



- Seventeen included studies[5-21]
- 1,831 patients
- Low overall risk of bias

One-on-one and group education or coaching

- One-on-one
  - Supervised and personalized training programs (1-3 months postoperatively)
  - Nutritional guidance by nurses and physicians (in-person or telehealth)
  - Personalized preoperative education brochures
  - Portion-controlled meal deliveries and counseling (Bariatric surgery)
- Group
  - Comprehensive lifestyle and behavioral/motivational sessions

Educational Presentations

- Physician/ nurse educational presentation

Table 1: Patient Education Interventions and Patient Outcomes

Intervention Type (# of studies)	Surgery Type	Patient Outcomes
One-on-one education/ coaching (7 studies)	Laparoscopic Cholecystectomy	• Nausea* • Pain* • Percentage of unexpected hospitalizations • Quality of life
	Bariatric Surgery: Laparoscopic Gastric Bypass	• Weight** • Caloric Intake*
	Laparoscopic Colectomy	• Complication Rate* • First Exhaust Time* • First Defecation Time* • ICU Admission*
Educational Video (4 studies)	Laparoscopic Cholecystectomy	• Anxiety** • Pain** • Nausea*
	Bariatric Surgery: Laparoscopic Gastric Sleeve	• Pain**
Group education/ coaching (2 studies)	Bariatric Surgery: Laparoscopic Gastric Bypass	• Weight** • BMI** • Exercise** • Depressive symptoms**
Presentation (2 studies)	Laparoscopic Cholecystectomy	• Anxiety** • Fatigue**
Mobile App (2 studies)	Bariatric Surgery: Laparoscopic Gastric Bypass	• BMI* • Self care mean agency scores • Body Image Scale • Postoperative patient compliance

- Statistical significance: *p<0.05; **p<0.01

- 15 studies reported a statistical significance improvement in one or more patient postoperative outcomes

Educational Videos

- Short animations - pre and postoperatively (about surgery, recovery, etc…)
- CDs + physician/ nurse produced videos → preoperative education about surgery

Advanced Technology

- Mobile Apps
  - Access educational resources on their own time
  - Information about post-surgical care, weight-tracking, and nutrition
  - Exercise regimens with recovery goals during the first three months of surgery
- Coming soon:
  - Virtual Reality (VR)
  - Artificial Intelligence (AI)

Conclusions/Discussion

- 37.5% of the laparoscopic cholecystectomy studies: statistically significant decrease in postoperative anxiety, pain, and nausea = **educational video**
- Nearly 50% of the studies found that **one-on-one education and coaching** improved outcomes for a variety of surgical procedures.
- **Educational videos** were most effective at reducing anxiety, nausea, and pain after surgery.
- **Direct education and coaching** (one-on-one or group-based) → more positive impact on postoperative outcomes than newer POEIs (e.g. mobile apps)

Limitations

- Tools varied across studies, preventing meta-analysis and highlighting the need for more uniform, evidence-based POEIs
- Limited surgery types and sample sizes restricted generalizability

Future Directions

- Expanding the use of POEIs to additional surgical procedures
- Further testing POEIs that incorporate more recent technology

References