Title of metanalysis :**Effectiveness of smartphone app-based interventions after surgery on quality of recovery among cancer patients: a systematic review and meta-analysis**

PubMed ID of metaanalysis:39140390

**Search terms**:

#1Mobile Applications[MeSH Terms]

#2mHealth applications[Title/Abstract] OR mHealth[Title/Abstract] OR portable software application[Title/Abstract] OR app[Title/Abstract] OR apps[Title/Abstract] OR app-based[Title/Abstract]

#3 #1 OR #2

#4Neoplasms[MeSH Terms]

#5cancer[Title/Abstract]OR tumor[Title/Abstract] OR neoplasia[Title/Abstract]

#6 #4 OR #5

#7Postoperative Period[MeSH Terms]

#8surgery[Title/Abstract] OR surg\*[Title/Abstract] OR surgical procedures[Title/Abstract]

#9 #7 OR #8

#10randomized controlled trial OR controlled clinical trial OR randomized OR placebo OR clinical trials as topic OR randomly OR trial

#11 #3 AND #6 AND #9 AND #10

**Inclusion Criteria:**

Population: Postoperative patients diagnosed with tumors.

Follow-up strategy: follow up with an intervention time of no less than four weeks.

Study design: Randomized controlled trials (RcTs).

Intervention: An intervention using a mobile health application with the goal of modifying behavior to enhance health and illness management(e.g. educational content, goal setting and tracking, reminders and alerts, symptom tracking and communication tools).Mobile applications compatible with all major operating systems(ios, Android, Windows).features applicable to mobile applications, including web-based functionality, message reminders (e.g. sMs texts), and video display capabilities.

Control group: Routine follow-up and usual care.

Outcomes: Measurable health result that can be evaluated for clinical efficacy,such as ratings obtained using a recognized standard instrument(e.g. self-efficacy scale, Anxiety and depression scale, short form Health survey, Quality of life scale and degree of satisfaction).

**Exclusion Criteria:**

Population: Minors and elderly individuals over 75 years old; patientshave no smartphone or lack smartphone expertise; rapid postoperative disease progression; readmission; severepost-operative morbidity; health condition precluding app use.

Follow-up strategy: follow-up models that do not include app-based interventions.

Study design: Animal research, literature reviews, case studies, commentary pieces, editorials, and abstracts from meetings or conferences.

Intervention: not an app for postoperative cancer patients.Mobile applications primarily designed for controlling other technological tools (e.g. robotics devices, functional electrical stimulation devices, virtual reality headsets,telerehabilitation systems, brain-computer interfaces).Mobile applications that are part of larger rehabilitative systems necessitating additional equipment.

Control group: blank control.

Outcomes: outcome measures cannot be calculated using specialized scales.

Search Date: March 3, 2024

Included studies:

| Study title | Pubmed ID of included study |
| --- | --- |
| Wolff J, Wuelfing P, Koenig A, et al. App-based lifestyle coaching (PINK!) accompanying breast cancer patients and survivors to reduce psychological distress and fatigue and improve physical activity: a feasibility pilot study. Breast Care (Basel). 2023;18(5):354–365. doi:10.1159/000531495 | * 37901047 |
| Gustavell T, Sundberg K, Segersvärd R, et al. Decreased symptom burden following surgery due to support from an interactive app for symptom management for patients with pancreatic and periampullary cancer. Acta Oncol.2019;58(9):1307–1314. doi: 10.1080/0284186X.2019.1633473. | * 31284797 |
| Yang J, Weng L, Chen Z, et al. Development and testing of a mobile app for pain management among cancer patients discharged from hospital treatment: randomized controlled trial. JMIR Mhealth Uhealth. 2019;7(5):e12542.Published 2019 May 29. doi: 10.2196/12542. | * 31144672 |
| Vos JAM, Duineveld LAM, Wieldraaijer T, et al. Effect of gen-eral practitioner-led versus surgeon-led colon cancer survi-vorship care, with or without eHealth support, on quality of life (I CARE): an interim analysis of 1-year results of a ran-domised, controlled trial. Lancet Oncol. 2021;22(8):1175–1187. doi: 10.1016/S1470-2045(21)00273-4. | * 34224671 |
| Temple-Oberle C, Yakaback S, Webb C, et al. Effect of smartphone app postoperative home monitoring after oncologic surgery on quality of recovery: a randomized clinical trial. JAMA Surg. 2023;158(7):693–699. doi:10.1001/jamasurg.2023.0616 | * 37043216 |
| Chang YL, Tsai YF, Hsu CL, et al. The effectiveness of a nurse-led exercise and health education informatics program on exercise capacity and quality of life among cancer survivors after esophagectomy: a randomized controlled trial. Int J Nurs Stud. 2020;101:103418. doi:10.1016/j.ijnurstu.2019.103418 | * 31670173 |
| Wang QQ, Zhao J, Huo XR, et al. Effects of a home care mobile app on the outcomes of discharged patients with a stoma: a randomized controlled trial. J Clin Nurs.2018;27(19-20):3592–3602. doi: 10.1111/jocn.14515 | * 29775491 |
| Uhm KE, Yoo JS, Chung SH, et al. Effects of exercise intervention in breast cancer patients: is mobile health(mHealth) with pedometer more effective than conven-tional program using brochure? Breast Cancer Res Treat.2017;161(3):443–452. doi: 10.1007/s10549-016-4065-8. | * 27933450 |
| Xu YF, Fei. Xu XIA, Song K, et al. Effects of extended care based on the wechat platform on self-efficacy and qual-ity of life of postoperative breast cancer patients. IJPS.2021;83:23-29. doi: 10.36468/pharmaceutical-sciences.spl.165. | not found |
| Dong X, Yi X, Gao D, et al. The effects of the combined exercise intervention based on internet and social media software (CEIBISMS) on quality of life, muscle strength and cardiorespiratory capacity in Chinese postoperative breast cancer patients:a randomized con-trolled trial. Health Qual Life Outcomes. 2019;17(1):109.Published Jun 26. doi: 10.1186/s12955-019-1183-0 | * 31242926 |
| Wang TF, Huang RC, Yang SC, et al. Evaluating the effects of a mobile health app on reducing patient care needs and improving quality of life after oral cancer surgery: quasiexperimental study. JMIR Mhealth Uhealth.2020;8(7):e18132. Published Jul 27. doi: 10.2196/18132. | * 32716303 |
| Jiang X, Chen J, Yuan X, et al. Feasibility of an individualized mhealth nutrition (iNutrition) intervention for post-discharged gastric cancer patients following gastrectomy: a randomized controlled pilot trial. Nutrients.2023;15(8):1883. URL: doi: 10.3390/nu15081883. | * 37111102 |
| Hao Y, Zhong L. Feasibility study on individualized man-agement of postoperative patients with differentiated thyroid cancer based on internet and programming technology. J Cancer Res Clin Oncol. 2023;149(13):12405–12412. doi: 10.1007/s00432-023-05078-2 | * 37438541 |
| Sui Y, Wang T, Wang X. The impact of WeChat app-based education and rehabilitation program on anxiety, depression, quality of life, loss of follow-up and survival in non-small cell lung cancer patients who underwent surgical resection. Eur J Oncol Nurs. 2020;45:101707.doi: 10.1016/j.ejon.2019.101707. | * 32078926 |
| Tan R, Wang L, Xia R, et al. Use of an application to in-crease self-care ability, improve quality of life, and decrease stoma complications in patients with ileocystoplas-ty or ureterostomy due to bladder cancer. Wound ManagPrev. 2022;68(11):26–31. doi: 10.25270/wmp.2022.11.2631 | * 36493374 |