A Systematic Review: Mobile Application Monitoring Post Operation Caesarean Section

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Abstract

Introduction: Surgical wound infection (ILO) is a serious complication and can cause significant morbidity, including increasing the risk of readmission and prolonging recovery time.
Objective: To review the effect of mobile apps to improve the quality of post-operative care by reducing the need for physical visits and increasing remote supervision.
Methods: The literature search used 5 databases: CINAHL, Proquest, Pubmed, Scopus, and ScienceDirect in 2017-2024. The articles selected were original research RCT and cohort, English language, containing postoperative sectio caesarea, and using an application. The keywords used were: Telehealth OR Mobile Application OR application OR app AND Wound Monitoring OR wound care AND Cesarean Section OR Cesarean Section. In assessing research bias using the Critical Appraisal Skills Program (CASP) and the Joanna Briggs Institute (JBI) obtained a score of 77-100%.
Results: Surgical wound infection (SSI) is a serious complication that can increase morbidity and prolong recovery time after caesarean. Of the 196 articles that were found, seven met the inclusion criteria and were further analyzed. Results suggest that mobile apps can track wound conditions in real-time, reduce the need for physical visits, and increase patient engagement in the care process. These findings suggest that mobile apps can detect early signs of infection and educate patients, supporting faster and more effective recovery.
Conclusions: The use of mobile apps can reduce financial burden, support home visit integration, reduce economic barriers and improve health outcomes.

Keywords: *Mobile application, surgical wound infection, monitoring, postoperative, sectio caesarea*

INTRODUCTION

The development of a mobile app for post-Cesarean section wound monitoring provides a great opportunity to improve patient care and outcomes. The integration of mobile health technology (mHealth) into postoperative care has been shown to improve patient engagement, reduce complications and simplify the follow-up process. This research problem can be framed in the context of existing literature highlighting the efficacy of mobile apps in various surgical situations. Firstly, mobile apps have demonstrated their potential in postoperative monitoring and management across various surgical disciplines. For example, research shows that mobile apps can effectively track postoperative recovery metrics, reducing the need for in-person follow-up visits. [1] The need for comprehensive mHealth solutions is further supported by the literature, which suggests that mobile apps can bridge gaps in healthcare delivery, especially in resource-constrained settings.[1] advocate the expansion of mHealth applications to improve access to services and patient outcomes, a sentiment that is particularly relevant for post-operative care in developing regions.

One of the main problems is the difficulty in detecting surgical wound infections (SSIs), which often occur after hospital discharge. Surgical wound infections can cause significant morbidity and increase the risk of readmission (Shah et al., 2021). In addition, patients are often unable to identify surgical wound complications with high accuracy, requiring more effective monitoring. Therefore, the use of mobile apps that allow patients to send real-time photos of their surgical wounds to the care team can help improve early detection of SSIs and facilitate more frequent and personalized interactions with the care team. However,

these apps should be designed to meet the needs of patients who are more diverse and have higher comorbid conditions, such as patients undergoing caesarean section.

Globally, the incidence of surgical wound infection (SSI) after caesarean section is still quite high, with prevalence varying between 1% and 30% depending on factors such as quality of care, hygiene, and patient condition. In Indonesia, as in many other countries, SSI is also a significant problem that can increase the cost of care and prolong patient recovery time [2]. The prevalence of SSI after caesarean section varies, but in general, the incidence of SSI can reach 7.3% in some countries, as reported in Indonesia [3]. In some other places, such as Iran, the incidence of ILO after abdominal surgery reached 17.4% [4]. This shows that ILO is still a big challenge in post-cesarean section wound surveillance. In addition, patients often do not have adequate access to routine surgical wound surveillance after discharge from the hospital, necessitating innovative solutions such as the use of mobile apps that allow patients to send real-time surgical wound photos to the care team.

Surgical wound infection (ILO) is a serious complication and can cause significant morbidity, including increasing the risk of readmission and prolonging recovery time [5]. With the prevalence still high, as reported in several countries, the development of innovative solutions such as a mobile application for early detection of ILO is needed. These apps allow patients to send real-time photos of surgical wounds to the care team, enabling early intervention and improving the quality of postoperative care[6]. In addition, the use of mobile technology can also increase patient engagement in the wound surveillance process, which in turn can improve

clinical outcomes and enhance patient quality of life. Therefore, this study has a high urgency to develop an effective and efficient solution to the problem of ILO after cesarean section.

In the 2000s, the incidence of post-cesarean section surgical wound infection (ILO) began to attract the attention of healthcare professionals. Early studies showed that the prevalence of ILO after caesarean section was high, with incidence rates varying from 1% to 30% depending on factors such as quality of care and hygiene [2]. In the 2020s, several epidemiologic studies showed that the prevalence of post-cesarean section ILO is still high in several countries, including Indonesia. This data suggests that many patients still experience post-cesarean complications, and innovative solutions are needed to address this problem [7].

The urgency of this study is the discovery that the phenomenon of wound infection after sectio caesarea surgery is a serious problem that can cause severe complications, including high morbidity and mortality. Mobile applications designed to monitor wounds can help in monitoring signs of infection, such as erythema, pus, and changes in skin texture, so that they can be found and treated more quickly [3]. This review can help in the development of better health innovations. By understanding how mobile apps have been used and their benefits, researchers and developers can improve app design to better meet patient needs.

Thus, this systematic review aims to provide a comprehensive overview of the use of mobile applications in monitoring and treating wounds after sectio caesarean surgery, as well as to improve the quality of care and effectiveness in the treatment of such wounds.

The aim of this study is to provide a comprehensive overview of the use of mobile applications in monitoring and treating wounds after sectio caesarean section surgery, as well as to improve the quality of care and effectiveness in the treatment of such wounds.
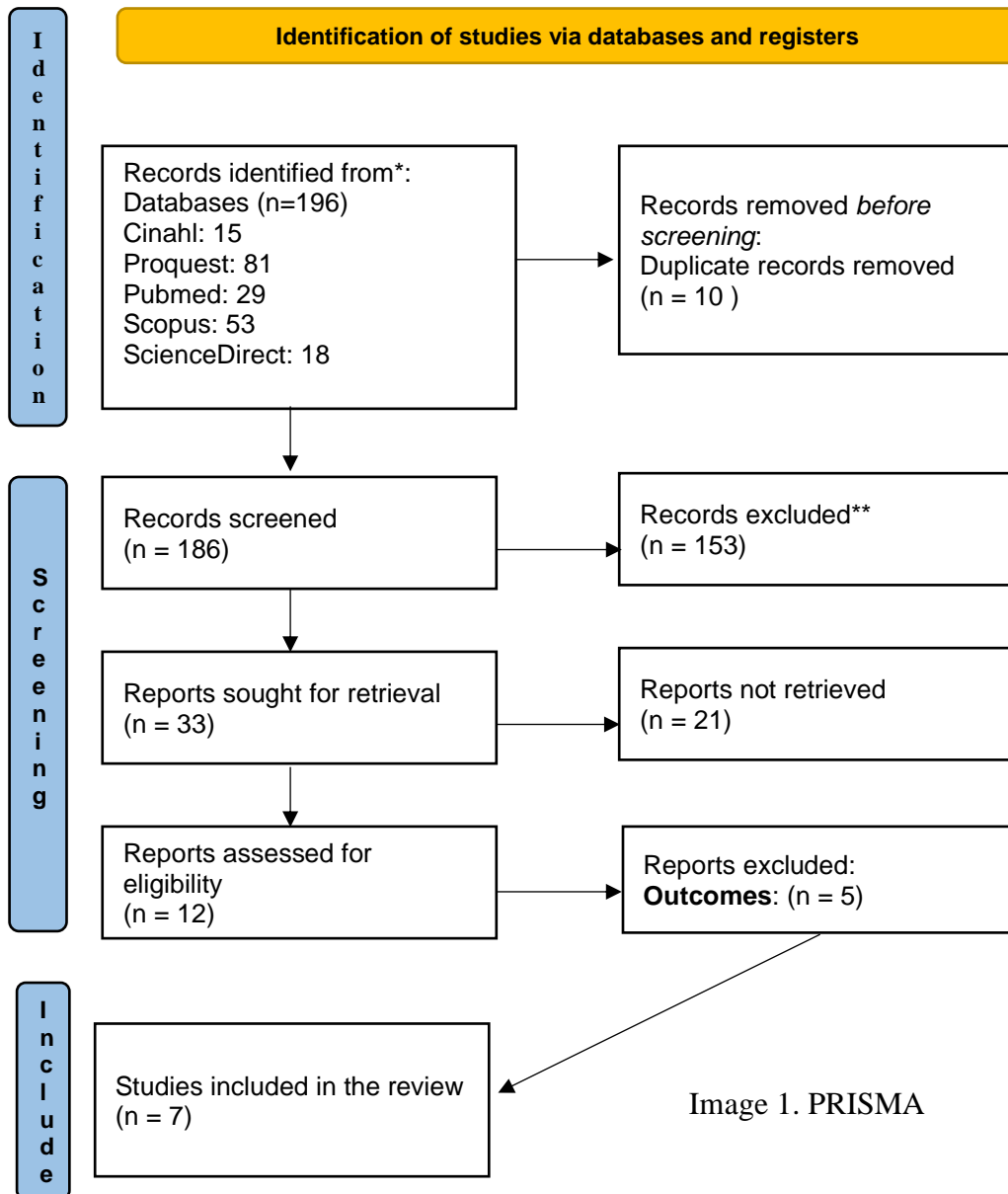
Identification of studies via databases and registers

Identification

Records identified from*:
Databases (n=196)
Cinahl: 15
Proquest: 81
Pubmed: 29
Scopus: 53
ScienceDirect: 18

→ Records removed *before screening*:
Duplicate records removed (n = 10)

Screening

Records screened
(n = 186)

→ Records excluded**
(n = 153)

Reports sought for retrieval
(n = 33)

→ Reports not retrieved
(n = 21)

Reports assessed for eligibility
(n = 12)

→ Reports excluded:
Outcomes: (n = 5)

Include

Studies included in the review
(n = 7)

Image 1. PRISMA

SEARCH STRATEGY

Article searches were conducted using 5 electronic databases, namely Cinahl, Proquest, Pubmed, Scopus and ScienceDirect. The search was conducted on September 8, 2024. The keywords were applied by using Boolean Logic (AND, OR) in the article search. The combination of keywords and MeSH terms developed was then adapted toother databases. The keywords and subject headings used in the article search were Telehealth OR Mobile Application OR application OR app AND Wound Monitoring OR wound care AND Cesarean Section OR Cesarean Section. Publication August 22, 2017 to January 9, 2024 and English articles.

SELECTION PROCESS

Based on the results of the article search, 196 articles were obtained as a result of keyword adjustment with details of Cinahl (n = 15), Proquest (n = 81), Pubmed (n = 29), Scopus (n = 53), and ScienceDirect (n = 18), of the 196 articles found, checks or duplication checks were

carried out and 10 articles were found to be the same, so they were deleted and 186 articles remained. Reviewers then filtered based on titles that match the theme and found 153 articles that did not match so 33 articles were found. Reviewers then filtered based on the abstract and found 21 articles that were not appropriate, leaving 12 articles that were appropriate. Reviewers then screened eligibility based on the predetermined inclusion criteria and exclusion criteria, resulting in 7 articles that could be used in this review. The inclusion and exclusion criteria for this review are contained in appendix 1. The article selection process was carried out independently by the researcher who was then reviewed by authors 2 and 3.

RISK BIAS

Overall risk bias assessment, all studies that have been risk analyzed typically use CASP RCTs, and JBI Cohort studies.

Table 1. Research originality results

No.	Title and author	Method	Result
1	Perioperative mobile application for mothers undergoing Cesarean delivery: a prospective cohort study on patient engagement 9	- **Design:** *Cohort* - **Subjects:** 36 patients undergoing elective cesarean section. - **Dependent Variable:** 1. User engagement level 2. Satisfaction 3. Recommendations for the app 4. Effectiveness of the app in providing patient education 5. Self-monitoring of potential anesthesia complications during the perioperative period 5. - **Independent Variable:** C-Care mobile app by participants. - **Instrument:** The C-Care mobile app and online questionnaire were used to collect data on user engagement, satisfaction, and recommendations for the app. - **Analysis:** 1. *Means* 2. *Standard deviation*	Of the 36 participants recruited, 35 used the app after orientation, with an average of 15 visits over 30 days. Participants completed an average of 3 out of 5 self-monitoring questionnaires and viewed an average of 4 out of 8 educational topics, with the topic "Controlling Pain" being the most popular. The median satisfaction score for the app was 7.5 out of 10, and 83% of respondents recommended it to others. Feedback indicated a desire for more information and an earlier introduction to the app.
2	mHealth-community health worker telemedicine intervention for surgical site infection diagnosis: a prospective study among women delivering via caesarean section in rural Rwanda 10	- **Design:** *Cohort* - **Subject:** 787 elective cesarean section patients - **Variabel Dependent:** 1. use of mobile health interventions (mHealth) 2. involvement of community health workers (CHWs) 3. general practitioners (GPs) in the diagnosis process - **Independent Variable:** Effectiveness of surgical wound infection (SSI) diagnosis via	A mobile health (mHealth) intervention for postoperative surgical wound infection (SSI) follow-up in a rural hospital in Rwanda had a good acceptance rate among patients and shows potential for application in similar contexts. Diagnosis via telemedicine showed high specificity (97.6%), meaning the method was effective in ruling out SSIs. However, the sensitivity was low (36.8%), suggesting that the method was less effective in identifying all cases of SSI.

No.	Title and author	Method	Result
		telemedicine.	
		- **Instrument:** Using the Wound Screener app on a Samsung Galaxy J8 smartphone	
		- **Analysis:** 1. *Sensitivity and specificity test*	
3	Post-Caesarean Section Surgical Site Infection Surveillance Using an Online Database and Mobile Phone Technology [11]	- **Design:** *Cohort* - **Subjevt:** 105 elective cesarean section patients - **Dependent Variable:** Occurrence of surgical wound infection (ILO) after cesarean section - **Independent Variable:** Factors that may influence the incidence of SSI - **Instrument:** a mobile app called how2trak for surgical wound infection (SSI) surveillance. - **Analysis:** Chi-square test	The use of how2trak mobile app for post-cesarean section surgical wound infection (SSI) surveillance after cesarean section is feasible. Of the 105 registered participants, 45% submitted at least one photo of their incision. The SSI rate among all participants was 0.9%, and 2.3% among those who uploaded photos. The study found that the app facilitated real-time data collection and enabled effective monitoring without requiring a patient visit to a healthcare facility.
4	Usability and Quality Evaluation of the "E-Midwife" Mobile Application for Nurse Midwives in Obstetric Complications: A Randomized Controlled Trial [12]	- **Design:** *Randomized Control Trial* - **Subject:** 196 nurse-midwives, of which 140 subjects were randomly allocated into intervention and control groups - **Dependent Variable:** 1. increase in knowledge 2. skills in handling obstetric complications after using the application - **Independent Variable:** "E-Midwife" mobile application by nurse-midwife - **Instrument:** Mobile application evaluation questionnaire distributed to participants which includes the SUS scale (System Usability	The "E-Midwife" mobile application has a good level of usability, with a System Usability Scale (SUS) score of 82.75. In addition, the quality of the app was assessed using the Mobile Application Rating Scale (MARS) which resulted in an average score of 3.77 from five categories: engagement, functionality, aesthetics, information, and subjective quality. Research participants found the app easy to use and professional. Some suggestions for improvement included enlarging images and font size.

No.	Title and author	Method	Result
		Scale - **Analysis:** 1. Means 2. Standard deviation	
5	The Fit After Baby randomized controlled trial: An mHealth postpartum lifestyle intervention for women with elevated cardiometabolic risk [13]	- **Design**: *Randomized Control Trial* - **Subject**: 82 elective cesarean section patients - **Dependent Variable:** 1. body weight 2. BMI 3. dietary intake 4. physical activity 5. cardiometabolic risk - **Independent Variable:** 1. basic values 2. kilocalorie intake - **Instrument**: The questionnaires used in this study included adapted versions of the Pregnancy Physical Activity Questionnaire (PPAQ), Edinburgh Postnatal Depression Scale (EPDS) and Research Electronic Data Capture (REDCap). - **Analysis:** 1. SAS versi 9.4 2. JMP Pro 14	This study concludes that the "Fit After Baby" (FAB) intervention, a mobile health (mHealth) program for postpartum women at high risk of cardiometabolic disease, shows potential in weight management. While there was no significant difference in weight loss between the intervention and control groups for the entire study population, participants in the FAB group who were not affected by the COVID-19 pandemic experienced more significant weight loss. This study highlights the potential of mHealth interventions to engage postpartum women and suggests further research to evaluate the effectiveness of such programs in larger trials. The COVID-19 pandemic impacted data collection and participant engagement, which affected the study results.
6	Effect of a text messaging-based educational intervention on cesarean section rates among pregnant women in China: Quasirandomized controlled trial [14]	- **Desain**: *Randomized Control Trial* - **Subject**: 4629 elective cesarean section patients - **Dependent Variable:** Cesarean delivery rate - **Independent Variable:** Assignment to each intervention group (basic, care-seeking, home practices, all texts) - **Instrument**: Monitoring via test using mobile phone - **Analysis:** regresion logistic	The study concluded that a text message-based intervention can effectively reduce the rate of unnecessary cesarean delivery. The group that received all text messages showed a significant reduction in the likelihood of undergoing cesarean delivery, with an odds ratio of 0.67 (P=.01). The intervention aimed to change women's preferences, empower them to refuse unnecessary cesarean delivery, and reduce legitimate indications for cesarean delivery. These results demonstrate the potential of mobile health interventions in improving

No.	Title and author	Method	Result
			maternal health services and outcomes, especially in rural areas where cesarean delivery rates are higher than those recommended by the World Health Organization.

7	The Effect and Feasibility of mHealth-Supported Surgical Site Infection Diagnosis by Community Health Workers After Cesarean Section in Rural Rwanda: Randomized Controlled Trial [15]	- **Design**: *Randomized Control Trial*
		- **Subject**: 1025 elective cesarean section patients
		- **Dependent Variable:** Influence and feasibility of surgical site infection diagnosis
		- **Independent Variable:** Post-cesarean section infection
		- **Instrument**:
		  1. Demographic data
		  2. sosioeconomy,
		  3. mobile health
		- **Analysis:** regresion logistic
			Results from this study show that a mobile health (mHealth) intervention led by community health workers (CHWs) to monitor surgical site infections (SSIs) after caesarean section in rural Rwanda is feasible. Return-to-care rates were high across all groups, with no significant difference between the intervention and standard care groups. Although there were no significant differences in return-to-care behavior or nurse-diagnosed SSI rates between the groups, this study suggests that home visits and phone calls by CHWs are feasible methods for monitoring postoperative care. The study also highlights the potential reduction in the financial burden of travel for patients and supports the integration of home visits by CHWs into standard post-cesarean section care to reduce economic barriers and improve health outcomes..

RESULT

The results of the systematic review of 7 articles obtained, the article screening process was applied in PRISMA found in appendix 3, which focused on interventions using mobile applications to prevent postoperative wound infections, there were 2 themes generated. Overall, these studies used cohort, randomized control trial, and quasi-randomized controlled trial designs to evaluate mobile apps, mobile health interventions, and text message-based educational interventions in the context of maternal and postoperative health. Key variables analyzed included the level of user engagement, app effectiveness, cesarean delivery rates, occurrence of surgical wound infections, and others. The results of this study demonstrate the potential of mobile apps and mobile health interventions in improving maternal and postoperative health outcomes, as well as facilitating real-time data collection.

The studies reviewed showed some important findings in the field of maternal and postoperative health. First, the study "Perioperative Mobile Application for Mothers Undergoing Cesarean Delivery" by [9] found that the C-Care mobile application can improve patient engagement and satisfaction of new mothers after cesarean section. Of the 36 patients recruited, 35 used the app after orientation, with an average of 15 visits over 30 days. The median satisfaction score for the app was 7.5 out of 10, and 83% of respondents recommended it to others.

Secondly, the study "mHealth- Community Health Worker Telemedicine Intervention for Surgical Site Infection Diagnosis" by [16] showed that a mobile health intervention (mHealth) for surgical wound infection (SSI) follow-up after cesarean section in a rural hospital in Rwanda had a good acceptance rate. Diagnosis via telemedicine showed high specificity (97.6%), but low sensitivity (36.8%), suggesting that this method was less effective in identifying all SSI cases.

Third, the study "Post-Caesarean Section Surgical Site Infection Surveillance Using an Online Database and Mobile Phone Technology" by [17] found that the use of the how2trak mobile application for post-caesarean section surgical wound infection (SSI) surveillance was feasible. Of the 105 patients enrolled, 45% submitted at least one photo of their incision. The SSI rate among all participants was 0.9%, and 2.3% among those who uploaded photos. The app facilitated real-time data collection and enabled effective monitoring without requiring a patient visit to the healthcare facility.

Fourth, the study "Usability and Quality Evaluation of the 'E-Midwife' Mobile Application for Nurse Midwives in Obstetric Complications" by [18] shows that the mobile application "E-Midwife" has a good level of usability. The SUS score was 82.75, and the MARS average score was 3.77 out of five categories. Research participants found the application easy to use and professional, with some suggestions for improvement such as enlarging images and font size.

Fifth, the study "The Fit After Baby Randomized Controlled Trial: An mHealth Postpartum Lifestyle Intervention for Women with Elevated Cardiometabolic Risk" by [13] found that a mobile health (mHealth) intervention called 'Fit After Baby'

(FAB) has potential in weight management and improving health outcomes in a population of postpartum women at high risk of cardiometabolic disease.

Finally, the study "Effect of a Text Messaging-Based Educational Intervention on Cesarean Section Rates Among Pregnant Women in China" by [14] showed that a text messaging-based educational intervention can effectively reduce the rate of unnecessary cesarean delivery. The group that received all text messages showed a significant reduction in the likelihood of undergoing cesarean delivery, with an odds ratio of 0.67 (P=.01).

Theme 1: Prevention of surgical site infections (SSIs)

Surgical site infections (SSIs) are a significant concern in healthcare, associated with longer hospital stays, increased morbidity, mortality and healthcare costs, and poorer patient quality of life. To prevent SSIs, a multifaceted approach is essential, involving preoperative, intraoperative and postoperative measures.

1. Intraoperative

1) Normothermia: Maintaining normothermia during surgery is very important. Active heating techniques such as warmed intravenous fluids, skin heating, and forced warm air help to maintain body temperature above 36°C, thereby reducing the risk of hypothermia-related infections [19].

2) Glycemic Control: Controlling perioperative glucose levels is important. High glucose levels can increase the risk of infection, so it is recommended to keep blood glucose below 150 mg/dL [20].

3) Antisepsis: The use of chlorhexidine gluconate and alcohol-based skin preparations is more effective than povidone iodine and alcohol in reducing SSI rates [21].

4) Negative pressure therapy: For high-risk surgeries, negative pressure wound therapy can be used to reduce the risk of infection by promoting wound healing and reducing bacterial counts [22].

2. Tindakan Pasca Operasi

1) Wound Care: Proper wound care is very important post-surgery. This includes monitoring for signs of infection and ensuring the wound is kept clean and dry. Wound care after caesarean section (C-section) is essential to prevent complications and ensure optimal recovery for the mother. Postoperative wound management involves various strategies, including selection of dressing material, use of antibiotics [23]. Effective wound care after caesarean section encompasses a multifaceted approach that includes the use of innovative topical treatments such as honey, careful selection of surgical techniques and materials, appropriate antibiotic prophylaxis, and diligent hygiene practices. These strategies collectively contribute to minimizing complications and promoting faster recovery for women postpartum [24].

2) Surveillance: Regular surveillance of SSIs using internationally accepted methodologies helps monitor the effectiveness of the interventions implemented and identify areas for improvement [25].

3) Quality Improvement: Implementing evidence-based practices through quality improvement processes helps achieve effective and sustainable outcomes in reducing SSI rates [26].

4) Mobile health (mHealth)

interventions to monitor surgical site infections by conducting home visits and phone calls are feasible methods to monitor postoperative care.

Theme 2: Controlling pain

Pain control is an important aspect of postoperative care, particularly in cesarean section (C-section) surgery. The postoperative period can be characterized by moderate to severe pain, which if not effectively managed, can lead to chronic pain, increased opioid use, delayed functional recovery, and increased risk of postpartum depression. Mobile apps have emerged as a promising tool for monitoring postoperative wounds and managing pain in a more efficient and patient-centered manner [27].

The Role of Mobile Apps in Pain Management

Mobile apps can significantly improve postoperative pain monitoring and management. These apps can provide patients with a platform to report their pain levels, track wound healing, and receive alerts regarding potential complications. For example, mobile wound care apps with integrated algorithms for detecting complications have been shown to improve monitoring and early treatment of complications. Such apps can also facilitate communication between patients and healthcare providers, ensuring timely interventions and reducing the need for unscheduled visits [28]. The use of mobile apps can potentially reduce the financial burden of travel for patients and support the integration of home visits into standard post-cesarean section care to reduce economic barriers and improve health outcomes [15].

Feasibility and Effectiveness of Mobile Monitoring

Studies have demonstrated the feasibility and effectiveness of using mobile apps for postoperative wound monitoring. Studies have shown that patients can easily use these apps to report their wound status, with high levels of usability and ease of use. The use of photographic imaging via mobile phones has also been shown to be effective in detecting complications, such as wound infection, in real-time. This method has been shown to have comparable accuracy to face-to-face examination and offers the added benefit of shorter response times [29].

Patient-Centered Approach

A patient-centered approach is essential in the development of mobile apps for postoperative care. Patients and anesthesiologists have been involved in the design of a mobile app to improve perioperative care, particularly in elective caesarean sections. The app aims to meet patients' specific needs regarding postoperative follow-up, ensuring that care is tailored to the individual experience. By involving patients in the design process, these apps can better meet the needs of postoperative patients, thereby improving their overall recovery experience [30].

Future Directions

The use of mobile apps in post-cesarean section wound monitoring is a growing field with significant potential for future research. Future research should focus on validating the algorithms used in these apps and exploring the relationship between postoperative wound leakage and the incidence of prosthetic joint infection. In addition, the integration of non-pharmacologic approaches, such as transversus abdominis plane (TAP) block and quadratus lumborum block, into this app may further enhance pain management strategies [2].

DISCUSSION

Surgical wound infection (ILO) is a serious complication and can cause significant morbidity, including increasing the risk of readmission and prolonging recovery time [5]. With the prevalence still high, as reported in several countries, the development of innovative solutions such as a mobile application for early detection of ILO is needed. These apps allow patients to send real-time photos of surgical wounds to the care team, enabling early intervention and improving the quality of postoperative care [6]. In addition, the use of mobile technology can also increase patient engagement in the wound surveillance process, which in turn can improve clinical outcomes and enhance patient quality of life. Therefore, this study has a high urgency to develop an effective and efficient solution to the problem of post-cesarean section ILO. One of the problems of postoperative infection is the difficulty in detecting surgical wound infection after the patient is discharged from the hospital. Surgical wound infections can cause significant morbidity and increase the risk of readmission [31]. In addition, patients are often unable to identify surgical wound complications with high accuracy, requiring more effective monitoring. Therefore, the use of mobile apps that allow patients to send real-time photos of their surgical wounds to the care team can help improve early detection of SSIs and facilitate more frequent and personalized interactions with the care team.

Proper wound care monitoring is essential post-surgery. This includes monitoring for signs of infection and ensuring the wound is kept clean and dry. Wound care after caesarean section (C-section) is critical to prevent complications and ensure optimal recovery for the mother. Postoperative wound management involves various strategies, including selection of dressing material, use of antibiotics [23]. Effective wound care after caesarean section encompasses a multifaceted approach that includes the use of innovative topical treatments such as honey, careful selection of surgical techniques and materials, appropriate antibiotic prophylaxis, and diligent hygiene practices. These strategies collectively contribute to minimizing complications and promoting a faster recovery for postpartum women [24].

The implication of the results of the systematic review of mobile wound monitoring applications after cesarean section surgery is to improve the quality of information and optimize the use of technology in the health sector. The results of this systematic review provide systematic and accurate information about the effectiveness and safety of various wound monitoring apps, which can help healthcare professionals make more informed decisions. In addition, these results can also be used to develop better healthcare strategies, increase awareness and education about the importance of postoperative wound monitoring, and ensure that practices are based on solid scientific evidence. Thus, knowledge about the use of technology in healthcare becomes more comprehensive and structured, which can ultimately improve patient outcomes and reduce the risk of complications.

In the systematic review study on mobile wound monitoring application after sectio caesarea surgery, several limitations can be found. Firstly, limitations in the reviewed studies include lack of representative samples, lack of consistent data, and potential bias in data collection. In addition, within the systematic review itself, limitations involve the complexity of the systematic process, the need for substantial time

and resources, and potential errors in classification and evaluation of the literature. Therefore, it is important to understand and acknowledge these limitations to ensure the accuracy and reliability of systematic review results.

SUGGESTION

1. Follow-up assessment to determine the long-term impact of the intervention using the mobile app for 30 days post-surgery.
2. Create complete features such as signs of infection, postoperative infection prevention education

CLINICAL IMPLICATIONS

Mobile apps can be integrated with medical care systems to monitor wounds in real-time. This can help doctors to monitor patients' conditions more effectively and provide timely interventions.

CONCLUSSION

The main conclusion of this systematic review of mobile wound monitoring apps for sectio caesarean section surgery is that these apps can improve the efficiency and accuracy of postoperative wound monitoring. Key findings include the effectiveness of the apps in reducing pain intensity, monitoring wound condition in real-time, and improving quality of care. The relevance of these findings to the field is that these apps can help improve patient outcomes by reducing the risk of complications and facilitating the recovery process. The practical implication is that healthcare institutions can integrate these apps in their care systems, thereby improving the quality of care and making post-operative care management easier. Thus, patients can receive more effective and safe care, and improve the outcome of the sectio caesarea surgery process.

The results of this study also noted some limitations, systematic research may only be able to cover a limited sample due to the small number of related articles found, such as patients who have undergone caesarean section at a particular hospital. This may limit the generalizability of the study results to a wider population.

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