Mobile Health Interventions

Examining medication adherence outcomes among patients with cancer

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BACKGROUND: Treatment for cancer is trending toward oral therapies, which patients can self-manage from home. Proper adherence to oral therapy is vital to safe and optimal care in this setting. Mobile health interventions (i.e., text message reminders, mobile applications, and automated calls) are an evolving strategy aimed at improving medication adherence for patients on long-term oral therapies.

OBJECTIVES: This review aims to provide an overview of research outcomes for the use of mobile health interventions among patients with cancer.

METHODS: A comprehensive review of CINAHL®, MEDLINE®, and PubMed® was completed. Eleven articles were eligible for inclusion in this review.

FINDINGS: Mobile health interventions are an acceptable approach among patients with cancer and may improve adherence outcomes for those at highest risk for suboptimal adherence.

KEYWORDS
mobile health interventions; medication adherence; patients with cancer

DIGITAL OBJECT IDENTIFIER
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TREATMENT OPTIONS FOR CANCER HAVE EVOLVED from the traditional offerings in the hospital or clinic setting. Oral therapies are an emerging option that allow individuals to manage their condition from home. However, oral therapies bring unique challenges, such as suboptimal medication adherence. The World Health Organization (2003) defines adherence as "the extent to which a person's behavior, taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a healthcare provider" (p. 3). Suboptimal medication adherence has gained greater attention in medical and behavioral research because of its significant impact on the health of the population, as well as its related burden on the healthcare system. Research has shown an estimated 125,000 deaths annually related to suboptimal medication adherence (Benjamin, 2012; Kleinsinger, 2018). Related healthcare costs are estimated to be as high as $100 billion annually (Kleinsinger, 2018). A review by Greer et al. (2016) showed adherence to oral therapies among patients with cancer to run as low as 46%. Suboptimal adherence can lower treatment efficacy and the chance of achieving optimal control of disease (Spoelstra et al., 2013b).

According to the World Health Organization (2003), there are five dimensions to adherence: patient and caregiver–, therapy-, condition-, health system–, and social/economic-related factors. A review by Goh et al. (2017) supports the concept of adherence as a multifactorial phenomenon. The review by Goh et al. (2017), which focused on the pediatric oncology population, found that patient and caregiver–related factors include the patient's personality, demographics, disease and treatment perceptions, and social support. Therapy-related factors include side effects, length and complexity of treatment, and route of administration. Condition-related factors include disease prognosis. Health system–related factors include health literacy, access to healthcare, patient–provider relations, and perception of hospital care. Social/economic-related factors include financial difficulties, transportation issues, and family dynamics. Similar findings were seen in the adult oncology population (Irwin & Johnson, 2015).

Forgetfulness, considered a patient-related factor, is among the leading factors contributing to suboptimal medication adherence (Goh et al., 2017). Reminder notifications delivered via text message and mobile applications (apps) are among the mobile health interventions that are growing in

popularity and have proven efficacy at improving adherence in various chronic conditions (Hammonds et al., 2015; Weisman et al., 2018). However, there is limited research available on the effectiveness of such interventions at improving adherence to medications among patients with cancer. This literature review aims to summarize the extant literature on medication adherence outcomes for mobile health interventions used in the oncology population.

Mobile Health Interventions

Mobile health interventions use mobile technology (i.e., smartphones) to enhance healthcare delivery. According to the Pew Research Center (2021), 97% of Americans own mobile phones, 85% of which are smartphones. The wide accessibility and use of smartphones in the United States support mobile technology as a tool to foster healthy behaviors. The use of mobile health interventions for medication adherence has been studied in a variety of healthcare specialties and have demonstrated statistically significant improvements in medication adherence and, in some cases, clinical outcomes among individuals with hyperlipidemia, myocardial infarction, attention-deficit/hyperactivity disorder, HIV, and hypertension (Fang & Li, 2016; Johnston et al., 2016; Márquez Contreras et al., 2019; Perera et al., 2014; Weisman et al., 2018).

Skrabal Ross et al. (2018) completed a scoping review of the existing literature on mobile health interventions for oral chemotherapy adherence. Interventions were mainly comprised of mobile apps and text message reminders. Strategies included symptom reporting, symptom management, and medication dosing reminders. The review found the interventions useful and feasible in the oncology setting. However, the authors identified a need for further research on the effect of mobile health interventions on adherence outcomes in oncology (Skrabal Ross et al., 2018). The research question for this review is: Are mobile health interventions an effective approach to improve medication adherence in the oncology setting?

Methods

A database search of PubMed®, MEDLINE®, and CINAHL® was conducted using a combination of the following search terms: *text messaging* or *texting* or *SMS messaging, mhealth* or *mobile health* or *mobile application, cellphones* or *smartphones* or *mobile phones, smartphone, medication adherence* or *compliance* or *medication nonadherence* or *medication noncompliance, medication self-management,* and *oncology* or *cancer*. Studies were included if they were primary research, focused on the cancer population, used mobile technology as the medication adherence intervention, quantitatively measured adherence outcomes, and were English language.

Two searches were completed between November 2019 and December 2020. One hundred and forty-nine titles resulted from this search. After duplicates were removed, 130 titles and abstracts were reviewed, including five studies identified via hand searching of selected reference lists. Eleven peer-reviewed studies were found eligible and included in this review (see Figure 1).

"An estimated 125,000 deaths annually are related to suboptimal medication adherence."

Results

The eleven studies included in this review cover the time period from 2013 to 2020 (see Table 1). The interventions studied include automated phone calls, text message reminders, and mobile apps. All but one study was conducted in the United States; Kim et al. (2018) was performed in South Korea. Adherence was primarily measured using subjective methods, such as self-report surveys, medication possession ratio, relative dose intensity, and electronic pill caps. Krok-Schoen et al. (2019) also measured hormonal levels pre- and post-study, and Hershman et al. (2020) measured urine aromatase inhibitor assay levels as objective adherence measures. Reliability data for study instruments were described by Kim et al. (2018), who reported a Cronbach's alpha of 0.71 for the Korean Medication Adherence Rating Scale, and Spoelstra et al. (2015), who reported a Cronbach's alpha 0.66 for the Medication Adherence Rating Scale.

Automated Phone Calls

Two studies investigated the effects of automated voice response call reminders on medication adherence and symptom management outcomes. One study was a three-group exploratory pilot study (Spoelstra et al., 2013a), and the other was a double-arm randomized controlled trial (Sikorskii et al., 2018). Participants in Spoelstra et al. (2013a) included individuals with breast (n = 39), lung (n = 30), colorectal (n = 11), and other oncologic diseases (n = 39). Oral anticancer treatment regimens in Spoelstra et al. (2013a) were described as complex (n = 55) and noncomplex (n = 64). Participants in Sikorskii et al. (2018) included individuals with a variety of solid tumor and hematologic malignancies. Oral treatments in Sikorskii et al. (2018) included kinase inhibitors (n = 127), cytotoxic agents (n = 95), sex hormone inhibitors (n = 27), and other (n = 23). The mean age in Spoelstra et al. (2013a) was 59.6 years, and the mean age in Sikorskii et al. (2018) was 61 years. Study durations ranged from 10 to 12 weeks.

The interventions consisted of routine automated telephone calls that assessed medication adherence (Spoelstra et al., 2013a) or

reminded patients of their scheduled doses (Sikorskii et al., 2018). Symptoms were also assessed and managed via automated calls. Calls for adherence were made either daily (Sikorskii et al., 2018) or weekly (Spoelstra et al., 2013a). In Spoelstra et al. (2013a), three arms of the study included automated calls alone or automated calls plus additional calls from a nurse who provided guidance on medication adherence and/or symptom management, depending on patient feedback during automated calls. Spoelstra et al. (2013a) measured adherence by self-report, whereas Sikorskii et al. (2018) used relative dose intensity.

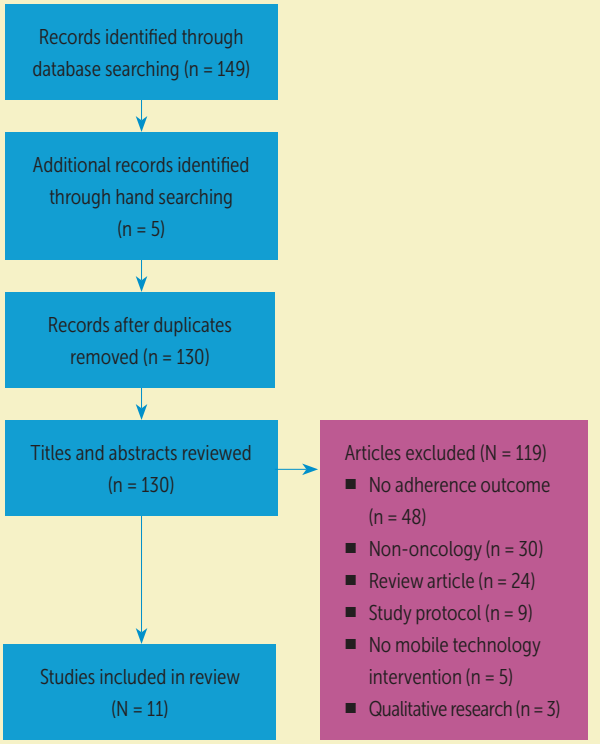
There were no significant differences in adherence outcomes between treatment arms in either study. However, Spoelstra et al. (2013a) noted a trend toward greater adherence rates among study groups randomized to receive additional nursing phone calls, but not at a statistically significant level: calls for symptom management and adherence, $p = 0.11$; calls for adherence only, $p = 0.54$.

Text Message Reminders

Five studies investigated the use of text message reminders. Designs included four randomized trials and one repeated measures study. Sample sizes ranged from 27 to 702, and participants' ages ranged from 8 to 60 years. Diagnoses included breast cancer (n = 2), acute lymphoblastic leukemia (ALL) (n = 1), and a variety of cancer diagnoses (n = 2). Participants received treatment with a variety of oral hormonal and nonhormonal anticancer agents. Study durations ranged from 10 weeks to 2 years.

Interventions included three studies focused on daily text message reminders of medication dosing (Krok-Schoen et al., 2019; Spoelstra et al., 2015, 2016). Participants in Spoelstra et al. (2015) and Spoelstra et al. (2016) received routine symptom assessment via automated voice response calls. Krok-Schoen et al. (2019) offered assessments via mobile app, which could be forwarded to the patient's physician. Bhatia et al. (2020) randomized pediatric participants with ALL in their study to an education program plus daily text message reminders or the education program alone. Intervention group participants and their parents received daily text message reminders from their physicians, delivered via an interactive web-based app, to prompt daily dosing of oral mercaptopurine (Bhatia et al., 2020). The education program consisted of video vignettes focused on ALL and mercaptopurine treatment, barriers to adherence, and ways to address those barriers (Bhatia et al., 2020). Patients and parents viewed the educational video on study day 29 during a scheduled clinic visit; daily text message reminders began on day 29 for those in the intervention group and were renewed by the physician every 28 days for 16 weeks (Bhatia et al., 2020). Hershman et al. (2020) studied twice-weekly educational text messages that focused on overcoming barriers to adherence, cues to action, statements related to treatment efficacy, reinforcement of physicians' recommendations to take medication, and providing words of support.

FIGURE 1.
MOBILE HEALTH INTERVENTION AND MEDICATION ADHERENCE SEARCH STRATEGY



No statistically significant changes in adherence were found in either Spoelstra et al. (2015) or Spoelstra et al. (2016). Krok-Schoen et al. (2019) found significant improvement in self-reported adherence from baseline to end of study ($p = 0.015$), as well as a significant decline in hormone levels ($p < 0.001$) by the exit interview. Although Hershman et al. (2020) found no difference in rate of adherence failure between both arms of the study, a statistically significant difference in intervention effect by race ($p = 0.04$) was seen. However, the specifics of how outcomes differed by race were not provided. There also appeared to be a beneficial effect on participants who were older than age 65 years, treated at a teaching hospital, had higher co-payments, and lacked private insurance (Hershman et al., 2020). Bhatia et al. (2020) found no significant difference between groups on proportion achieving mercaptopurine adherence rates of 95% or higher, after adjusting for baseline adherence, time in study, and paternal education (odds ratio = 1.33, 95% CI [1, 2], $p = 0.08$). However, participants with 95% or greater adherence at baseline who received the education program alone showed greater declines in adherence rates than those who received the intervention (Bhatia et al., 2020). Of note, among participants aged

TABLE 1.
MOBILE HEALTH INTERVENTIONS AND MEDICATION ADHERENCE: SELECTED STUDIES

STUDY	DESIGN, SAMPLE SIZE, AND DIAGNOSIS	TREATMENT, INTERVENTION, AND ADHERENCE MEASURE	OUTCOME
Spoelstra et al., 2013a	Three-arm pilot exploratory study; N = 91, with a mean age of 59.6 years; diagnoses include breast (n = 39), lung (n = 30), colon/rectal (n = 11), and other (n = 39).	Oral chemotherapy; randomization to either AVR/SMT, AVR/SMT plus nurse strategies to manage symptoms and improve adherence, or AVR/SMT plus nurse strategies to improve adherence; self-report	No significant difference was noted in adherence between intervention arms.
Spoelstra et al., 2015	Double-arm, longitudinal, randomized controlled trial; N = 80, with a mean age of 58.6 years; diagnoses include breast (n = 19), prostate (n = 9), lung (n = 8), colon (n = 7), multiple myeloma (n = 6), renal (n = 4), leukemia (n = 4), esophageal (n = 2), brain (n = 1), kidney (n = 1), liver (n = 1), melanoma (n = 1), pancreatic (n = 1), rectal (n = 1), and other (n = 15).	Oral chemotherapy; text message with or without automated voice recording reminders; self-report and RDI	RDI was greater in the intervention group, but not at a statistically significant level. Adherence was higher in the intervention group for several weeks throughout the study but was not consistent.
Spoelstra et al., 2016	Multisite, double-arm, longitudinal, randomized controlled trial; N = 75, with a mean age of 60 years; diagnoses include breast (n = 19) and other (n = 56).	Oral chemotherapy; text message reminders versus usual care; self-report and pill counts	The control group had higher adherence rates early on in the study, whereas the experimental group's adherence was higher in the long-term.
Graetz et al., 2018	Pilot randomized controlled trial; N = 48, with a mean age of 59.9 years; all diagnoses were breast cancer.	Aromatase inhibitors; mobile app with or without text and/or email reminders; self-report	The app plus reminder group had greater adherence at a statistically significant level.
Kim et al., 2018	Randomized controlled trial; N = 76, with a mean age of 50.9 years; all diagnoses were breast cancer.	Oral chemotherapy; web-based game app; self-report	Mean adherence scores were significantly higher in the intervention group.
Sikorskii et al., 2018	Two-arm, randomized controlled trial; N = 272, with a mean age of 61 years; all diagnoses include breast (n = 57), colorectal (n = 41), pancreatic (n = 27), prostate (n = 26), renal (n = 24), gastrointestinal (n = 17), leukemia (n = 16), sarcoma (n = 15), liver (n = 12), lung (n = 10), melanoma (n = 8), myeloma (n = 7), esophageal (n = 3), lymphoma (n = 3), brain (n = 2), and other (n = 4).	Oral chemotherapy; automated telephone medication reminders and symptom assessment, with weekly symptom management intervention as needed; RDI	No observed difference was noted in RDI postintervention.
Krok-Schoen et al., 2019	Cross-sectional pilot study; N = 27, with a mean age of 59.7 years; all diagnoses were breast cancer.	Adjuvant hormonal therapy; daily text messages and weekly mobile app surveys on adherence and symptoms; self-report and hormonal biomarkers	Self-reported adherence significantly improved from baseline to the end of study. Hormone levels significantly declined by the exit interview.
Linder et al., 2019	Mixed-method, single-group intervention longitudinal design; N = 23, with a mean age of 20.2 years; diagnoses include leukemia (n = 8), lymphoma (n = 4), brain (n = 4), sarcoma (n = 4), and other (n = 3).	Oral chemotherapy, antibiotics, and other cancer-related supportive medication; mobile app; electronic pill caps	No change was noted in adherence from pre- to postintervention.
Bhatia et al., 2020	Unblinded, parallel-group, randomized trial; N = 444, with a mean age of 8.1; all diagnoses were acute lymphoblastic leukemia.	Oral chemotherapy; daily text messages; electronic pill caps	No significant difference was found between groups in proportion achieving adherence rates of 95% or higher.
Greer et al., 2020	1:1 parallel assignment, randomized controlled trial; N = 181, with a mean age of 53 years; diagnoses include hematologic (n = 60), NSCLC (n = 33), breast (n = 26), high-grade glioma (n = 26), sarcoma (n = 12), gastrointestinal (n = 8), genitourinary (n = 7), melanoma (n = 7), and non-gastrointestinal stromal tumor (n = 2).	Targeted therapy and chemotherapy; mobile app; electronic pill caps and self-report survey	No differences were noted in adherence (pill count or self-report).
Hershman et al., 2020	Multicenter randomized trial; N = 702, with a mean age of 60.9 years; all diagnoses were breast cancer.	Aromatase inhibitors; twice weekly educational text messages; aromatase inhibitor urine assay	No differences were noted in rates of adherence failure between both arms of the study.

app—application; AVR—automated voice recording; NSCLC—non-small cell lung cancer; RDI—relative dose intensity; SMT—symptom management toolkit

12 years or older with lower baseline adherence, adherence rates were significantly higher among the group that received text message reminders (83% versus 75%; p = 0.008) (Bhatia et al., 2020).

Mobile Applications

Mobile apps were the subject of four studies. Designs included three randomized trials and a mixed-method single group intervention longitudinal trial. Sample sizes ranged from 23 to 181. Participants' ages ranged from 20 to 60 years old. Diagnoses included a variety of solid and hematologic malignancies, and participants were receiving a variety of treatments, including aromatase inhibitors, chemotherapy, and antibiotics. Study durations ranged from 3 to 12 weeks.

Graetz et al. (2018) used an interactive web-based app that allowed participants to record their symptoms and adherence. The app also enabled direct communication between participants and their care providers and interfaced with the patient's electronic health record. Participants all received the app; randomization occurred to either app alone or with text message reminders to use the app. Linder et al. (2019) used a mobile medication reminder app that delivered routine dosing reminders. Kim et al. (2018) studied an educational mobile gaming app to improve treatment adherence, symptom management, and psychological distress among patients with breast cancer undergoing chemotherapy. Participants were randomized to either the ILOVEBREAST educational web-based gaming app, which included personal avatars, social networking, information on symptom management, and psychological support, or a 26-page educational brochure offering strategies for coping with chemotherapy side effects (Kim et al., 2018). Participants in each arm were instructed to either use the app or read the brochure for more than 30 minutes per day, three times per week (Kim et al., 2018). Greer et al. (2020) randomized participants to use a mobile app that the authors developed, which included a personalized medication dosing schedule with optional reminders, adherence and symptom assessment modules, educational resources, and Fitbit™ integration, or usual clinical care.

Kim et al. (2018) found significantly higher adherence scores in the group using the ILOVEBREAST app at the end of study (7.6 versus 6.5; p < 0.001). Scores range from 0 to 10, with higher scores indicating higher likelihood of medication adherence (Thompson et al., 2000). Graetz et al. (2018) found statistically higher levels of adherence in the group that received text message reminders to use the mobile app (p ≤ 0.05). However, the app's actual effect on adherence is unclear because all participants had access to it (Graetz et al., 2018). Overall, Greer et al. (2020) found no difference in adherence outcomes between study groups. However, participants in the mobile app group who had baseline adherence problems or higher anxiety levels at baseline showed higher adherence rates compared with standard of care, 86% versus 64% (p = 0.034) and 85% versus 69% (p = 0.044), respectively. In addition, participants who spent more time using the app were found to take a greater proportion of their medications (r = 0.29; p = 0.022) (Greer et al., 2020). Linder et al. (2019) found no appreciable change in adherence pre- and postintervention.

IMPLICATIONS FOR PRACTICE

- Recognize the need for mobile health interventions as a way to help improve medication adherence among patients with cancer.
- Augment mobile health adherence outcomes among patients with cancer through symptom management and interactive feedback.
- Target those most likely to benefit from mobile health interventions by assessing a patient's risk for barriers to adherence.

Patient Feedback on Interventions

Among the studies that elicited participants' satisfaction, interventions were overall rated satisfactory and helpful at improving medication adherence (Graetz et al., 2018; Kim et al., 2018; Krok-Schoen et al., 2019; Linder et al., 2019; Spoelstra et al., 2015). However, Spoelstra et al. (2015) noted considerable attrition postintervention within the intervention arms of each of their studies. Individuals in each study were either lost to follow-up or withdrew from the study: 24% (Spoelstra et al., 2013a), 15% (Spoelstra et al., 2015), and 14% (Spoelstra et al., 2016).

Discussion

Eleven articles were identified that measured medication adherence outcomes of mobile health interventions used exclusively among patients with cancer. Similar to Burhenn and Smudde (2015), the current review finds that interventions to date have largely included automated voice response, text messaging, and mobile apps. Although patients were overall satisfied with their use of these interventions and found them helpful, adherence outcomes were mixed.

The adherence findings may, in part, be related to the variety of methods, samples, and interventions included in this review. Similar outcomes were noted by Mathes et al. (2014) in their systematic review of adherence interventions for oral anticancer agents and Anglada-Martinez et al. (2015) in their systematic review of mobile health interventions in chronic disease, HIV, and healthy populations. A meta-analysis of electronic reminders in chronic disease by Tao et al. (2015) found overall improvement in adherence among their diverse group of studies, but the pooled effect size was small. In addition, several articles in this review were small pilot studies aimed at establishing proof of concept and, therefore, not sufficiently powered to detect intervention effects. Adherence measures were also largely subjective which, though a cost effective and common method used in adherence research, has been shown to vary significantly from findings obtained with objective measures (Atkinson et al., 2016). Finally, the lack of a standard adherence definition made comparison among studies a challenge. This limitation has been highlighted in previous reviews on medication adherence in oncology (Greer et al., 2016; Mathes et al., 2014; Morrison et al., 2017).

The interventions in this review mainly functioned as cue reminders for medication dosing, although several also offered education and symptom management support. Of note, interventions associated with statistical improvements in adherence included interactive components that provided for feedback and communication with medical providers, educational tools, and/or social networking (Graetz et al., 2018; Kim et al., 2018; Krok-Schoen et al., 2019). A similar trend exists among studies on adherence interventions in HIV (Perera et al., 2014) and hypertension (Márquez Contreras et al., 2019). Given the multifactorial nature of medication adherence, of which forgetfulness is only one of many determinants, it stands to reason that studies employing multidimensional interventions most effectively demonstrated positive outcomes.

The importance of tailoring mobile health adherence interventions to patients' specific needs was highlighted in this review. Sikorskii et al. (2018) failed to demonstrate improvements in adherence among their sample, who were highly adherent at baseline, while Bhatia et al. (2020) and Greer et al. (2020) showed statistically significant improvements in adherence measures specifically among their participants with lower baseline adherence. Kjos et al. (2018) found a similar trend in their study on a medication adherence app for type 2 diabetes.

Although various cancer types were included in this review, about half of the studies focused on individuals with breast cancer. A notable exception was the use of oral immunosuppressants in the hematopoietic stem cell transplantation (HSCT) population. Suboptimal adherence rates among patients undergoing HSCT have consistently been found to be greater than 50% (Gresch et al., 2017; Lehrer et al., 2018). As Corrêa et al. (2016) noted, suboptimal adherence with immunosuppressant medications can result in significant morbidity related to graft-versus-host disease; this highlights the need for more research on adherence interventions in the HSCT population. The participants included in this study were also overwhelmingly older, White, well educated, and middle- to upper-class economic status. Graetz et al. (2018) had a more diverse sample, with 25% of participants being racial minorities, 28% with low health literacy, and nearly 40% with incomes of 150% or more below the federal poverty level. Similarly, Bhatia et al. (2020) included 40% Hispanic, 9% African American, and 12% Asian or mixed-raced participants in their sample, of whom roughly 26% earned less than $20,000 per year. Greater diversity is needed in adherence research, particularly concerning mobile health interventions, when considering the potential impact of technological literacy and access, healthcare access, and health literacy on outcomes.

Implications for Nursing

According to the World Health Organization (2003), nursing strategies to improve adherence include "suggesting cues and reminders such as detailed schedules, integrating medication times with daily habits, using medication boxes and timers, alarms, beepers, etc." (p. 158). Mobile health interventions align with these strategies and provide a means by which oncology nurses may help to improve patient adherence to medications. The use of mobile health interventions for adherence need not require the purchase or subscription to a mobile app or service. Patients who are prone to forgetfulness can be instructed to set timers on their smartphones to alarm them at the designated time of dosing (Burhenn & Smudde, 2015). An important safety consideration is the need to adjust reminder alarms for treatment holidays, drug discontinuation, or other periods where treatment will not be continued. In addition, Hershman et al. (2020) noted that increased text messaging and electronic alerts can create alert fatigue, therefore limiting the impact of the interventions. Setting an alert frequency that is effective and does not overburden the patient is critical.

The findings of this review demonstrate the importance of tailoring mobile health interventions to the individual needs of each patient. The Washburn-Barriers to Medication Adherence Screening Instrument (Washburn & Thompson, 2020) is an instrument under development that may offer nurses a means of systematic assessment for patients at greatest risk for adherence challenges and who may benefit most from mobile health interventions.

The use of mobile health interventions alone may not be sufficient for demonstrable improvement in adherence outcomes. Across the studies in this review, clinician interaction with patients augmented the effects of those interventions that included this additional support. These findings suggest that clinician support (e.g., nursing assessments, symptom management) support patients' ability to adhere to their medication regimens. The ability to social network and receive feedback on adherence is also a significant component of mobile health intervention success, which nurses are well-positioned to provide.

Conclusion

This review finds that mobile health interventions are an acceptable approach that may improve adherence outcomes for patients with cancer. The findings are in accordance with extant research findings on mobile health in other chronic diseases. This review's findings support the use of mobile health interventions that are tailored to patient's needs and are multidimensional in their approach. Implications for further research include the need for large, powered studies, greater standardization of adherence definitions, greater use of biomarkers and other objective adherence measures, and greater diversity among research participants.

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QUESTIONS FOR DISCUSSION

USE THIS ARTICLE FOR JOURNAL CLUB

Journal club programs can help to increase your ability to evaluate the literature and translate those research findings to clinical practice, education, administration, and research. Use the following questions to start the discussion at your next journal club meeting.

- Based on experience from your clinical practice, what mobile health interventions would your patients use for medication adherence? Reminders about appointments? Reinforcing patient education? Other?
- What are the incentives to encourage patients to use mobile health interventions?
- What are the downsides for patients regarding the use of mobile health interventions? How would you overcome them?

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