

An App to Support Difficult Interactions Among Providers, Patients, and Families

JOY V. GOLDSMITH, PhD,¹ ELAINE WITTENBERG, PhD,² and BETTY FERRELL, PhD, MA, FAAN, FPCN²

From ¹University of Memphis, Memphis, Tennessee; ²City of Hope Comprehensive Cancer Center, Nursing Research and Education, Duarte, California

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Correspondence to: Joy V. Goldsmith, PhD, University of Memphis, 235 Art and Communication Building, Memphis, TN 38152-3150. E-mail: jvgldsmt@memphis.edu

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Oncology advanced practitioners are responsible for effective communication regarding diagnosis, prognosis, and treatment options. The Institute of Medicine's Report on Delivering High-Quality Cancer Care recommends that patients and their families be provided understandable information and decision aids to personalize information at key decision points along the continuum of cancer care (Institute of Medicine, 2013).

One of the most challenging aspects of clinical care is sensitive and timely communication with patients and families. With the explosion of applications (apps) for oncology providers (Doyle-Lindrud, 2014), there is an opportunity for increased technology use to facilitate patient/family caregiver communication.

The range of mobile health, or "mHealth," apps is impressive, spanning care delivery, monitoring, diagnostics, training, and more (Kumar, Nilsen, Pavel, & Srivastava, 2013). The Healthcare Information Management Systems Society's 2014 study on mobile device analyt-

ics finds that device usage has proliferated and that clinicians tend to view mHealth tools positively. Clinicians indicate that future technologies will have a positive impact on their communication with other clinicians and patients (Healthcare Information Management Systems Society, 2014).

Health-care technologies and patient care have evolved rapidly, whereas the communication utility and efficacy of mHealth technologies have lagged behind (Nagler et al., 2014). Too little is known about how health-care providers utilize these systems (Barakat, Woolrych, Sixsmith, Kearns, & Kort, 2013) and about how patient/provider communication can be supported with mHealth technologies. Understanding the communication value of these technologies must move beyond a nascent area of research (Sherry & Ratzan, 2012). Communication skills training for providers improves the quality of life of patients and improves patient satisfaction with the quality of care (Fukui, Ogawa, & Yamagishi, 2011; Visser & Wysmans, 2010).

The COMFORT communication curriculum (see Table 1) is the first theoretically grounded curriculum developed for teaching patient-centered communication (Wittenberg-Lyles, Goldsmith, Ferrell, & Ragan, 2012). The app described here was created approximately 18 months ago and is an mHealth translation of the COMFORT curriculum (www.pccinstitute.com).

To date, the Health Communication app is the only existing mHealth iOS (iPhone operating system) app that provides supportive communication tools for health-care providers encountering com-

munication challenges with patients, families, and other team members. The content and design offer practice suggestions with language at a sixth-grade level to support advanced practitioners with communication resources and a simplistic design.

PROJECT DESIGN AND METHOD

We pursued a convenience sample of eight providers, including two physicians, two nurses, two social workers, and two chaplains. Inclusion criteria included professional practice at a cancer center and involvement in palliative care. Familiarity with handheld iOS devices was required. Two study team researchers administered testing with each participant in his or her preferred setting. This educational research activity was exempt under the institutional review board at the supporting university.

Participants were asked to complete several video-recorded tasks, which were assessed for completion attempts, length of time, and success/failure. Tasks included opening features of the app and browsing for specific information. Following task assessment, participants completed the Systems Usability Scale (SUS; Brooke, 1996) and a qualitative survey to assess the effectiveness, efficiency, and satisfaction of the app.

Usability of the Health Communication iOS App

Of the eight participants, six practice at a comprehensive cancer center in the western United States, one practices at a comprehensive pediatric cancer center in the mid-south, and one practices at a pediatric care center in the mid-south. Six of the eight providers reported using mHealth apps regularly.

Participants performed all tasks in 11 seconds or less. All tasks were accomplished successfully, with only one task requiring more than two attempts (mean); the remaining tasks were accomplished in 1.50 attempts or less (see Table 2).

The SUS measured the Health Communication app's usability at a 91.56 on a scale of 0 to 100, achieving a grade of A (Bangor, Kortum, & Miller, 2009; see Table 3). Scaled converted responses that total an 80.3 or higher were graded as an A (the top 10% of scores) with the SUS tool. This is also the point at which users are more likely to recommend the product to a friend (Bangor et al., 2009).

Table 1. COMFORT Communication Curriculum Modules

Element	Communication processes
Communication	<ul style="list-style-type: none"> Understanding the patient's story Using person-centered messages Recognizing task and relationship practices
Options and opportunity	<ul style="list-style-type: none"> Gauging health-literacy levels Understanding cultural humility Formulating a pathway of care
Mindfulness	<ul style="list-style-type: none"> Engaging in active listening Becoming culturally competent Understanding nonverbal communication
Family	<ul style="list-style-type: none"> Observing family communication patterns Recognizing caregiver communication patterns Responding to the varying needs of family caregivers
Openings	<ul style="list-style-type: none"> Identifying pivotal points in patient/family care Communicating in difficult moments Finding common ground with patients/families
Relating	<ul style="list-style-type: none"> Realizing the multiple goals for patients/families Accepting inherent conflicts in goals Linking care to quality-of-life domains
Team	<ul style="list-style-type: none"> Developing team processes Cultivating team structures Distinguishing successful collaboration from group cohesion

Table 2. Application Task Performance Across Participants (n = 8)

Task	Mean time to complete (seconds)	Mean attempt to complete (number)	Completed/incomplete task
1. Find Health Communication app and open it	11	1.50	8/0
2. Open the communication toolkit menu	5	1.25	8/0
3. Within the communication toolkit menu, select one topic and view the content under that topic	4	1.00	8/0
4. Open the scenarios menu	10	2.10	8/0
5. Within the difficult scenarios, select a topic and view the content under that topic	6	1.00	8/0
6. Open the plain language planner	9	1.00	8/0
7. Select a medication and view the plain language suggestion box	5	1.00	8/0

Qualitative responses revealed that all providers found the app easy to use and navigate and aesthetically satisfying. Similarly, all providers indicated they would use the app with patients and families as well as other team members (see Table 4). Physicians and nurses described the app as designed to “teach,” “inform,” and “educate,” whereas social workers indicated the app could facilitate communication between physicians and patients. Chaplains described the app as “equipping” and “empowering” their clinical practice communication.

Positive descriptors of the app focused on the benefits of the plain language planner as well as

the utility of having potential responses at hand for difficult encounters. Suggested changes for future builds included simplifying conflict topics, altering video clip content, and fortifying the plain language planner with content that includes side effects and language translations.

The Health Communication iOS app performed strongly on the SUS; task performance was 100% successful, with rapid completion in few attempts. Qualitative feedback showed collective agreement about its ease of use, layout, and navigation. Participant descriptions of the app confirmed its utility in providing useful content to

Table 3. System Usability Scale Measures for Health Communication iOS App^a

System Usability Scale items	Mean
1. I would like to use this app frequently.	4.00
2. I found the app unnecessarily complex.	1.33
3. I thought the app was easy to use.	4.50
4. I think that I would need technical support to be able to use the app.	1.00
5. I found the various functions in this app were well integrated.	4.17
6. I thought there was too much inconsistency in this app.	1.00
7. I would imagine that most people would learn to use this app very quickly.	4.83
8. I found the app very cumbersome to use.	1.00
9. I felt very confident using the app.	4.33
10. I need to learn a lot of things before I could get going with this app.	1.00

Note. iOS = iPhone operating system; app = application. Information from Brooke (1996).

^aBased on a scale of 1 = strongly disagree to 5 = strongly agree.

Table 4. Qualitative Data Summary of Application Assessment

Feedback responses	Interprofessional discipline			
	Medicine	Nursing	Social work	Chaplaincy
Describe when you would use this app	<ul style="list-style-type: none"> In front of others [team] With my team or patients/families for simplification of terms 	With patients, families, and team	<ul style="list-style-type: none"> Upgrades would encourage returning often In front of patients and families With teams 	<ul style="list-style-type: none"> With patients and families With teams In preparation for meetings and visits
Describe the navigation of the app	Easy	Easy	Intuitive	Easy
Describe the purpose of the app	<ul style="list-style-type: none"> To inform For providers to use with patients and families 	To educate	To ease communication between physicians and patients	<ul style="list-style-type: none"> To inform, to teach To show us how to respond or to suggest a response To equip and empower us to be more effective in our work and better communicators
Describe the layout/design appearance of the app	Simple, good color	Simple and easy to read	Clean, simple, bright and easy to use	The color scheme was great. Kudos for the total design: not too bright/harsh or subtle. Great choice!
Provide positive descriptions of the app	Liked the plain language the most	Very easy to use and clear	<ul style="list-style-type: none"> Most liked the plain language planner for medication descriptions It's cool how scripts are provided 	<ul style="list-style-type: none"> The app provided information that could be used readily Practical, helpful information at my fingertips
Offer suggestions to advance the app in future builds	<ul style="list-style-type: none"> Screen topics were sometimes difficult to navigate Side effects are important and should be listed, especially for nurses 	Videos seem long	<ul style="list-style-type: none"> Bullet point the content of the videos before they play Build the plain language planner in Spanish also Add side effects to plain language planner Define scenarios more clearly; some conflicts presented are too compounded 	<ul style="list-style-type: none"> Get the word out about it This is a tool that should be in the hands of a lot of health-care professionals; it would be if they knew about it

the four provider areas (medicine, nursing, social work, chaplaincy) considered in this study.

TOOL LIMITATIONS AND FUTURE DIRECTIONS

The app is currently available for iOS-platform devices only. To date, this mobile resource has been tested only with oncology health-care providers experienced in palliative care. Future intervention research with the app should examine an array of care

specialties and contexts. In addition, future updates should incorporate unfolding research associated with the app's toolkit, difficult scenarios, and plain language planner as they are studied and tested in clinical contexts.

CONCLUSIONS

The Health Communication iOS app is a free intervention available from the iTunes store. The interactive possibilities of mHealth present lim-

itless opportunities and challenges as we create, test, and restructure resources to deliver quality cancer care for patients and their families. ●

Disclosure

The authors have no potential conflicts of interest to disclose.

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