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Reproductive
Health

Testing a sexual and reproductive health mHealth prototype in the United States

Introduction

As laws and onerous restrictions on access to abortion and reproductive health increase, innovations in mobile technology, such as smartphone applications (apps), have great potential to reach diverse audiences facing a range of geographic, racial, and economic barriers. An app that provides evidence-based information about sexual and reproductive health (SRH) can increase knowledge and provide support to users in making decisions about their own SRH. However, it's not only about providing comprehensive information, but also ensuring user's preferences and experiences are respected and that the content, design, and overall experience inspires confidence in the app.

Building on formative research from 2017

In 2017, we set out to explore what role a comprehensive SRH app could serve for users in the United States by conducting qualitative formative research with people assigned female at birth. We sought to better understand their smartphone use patterns, SRH information needs, and their desire for an app that could help fill SRH information gaps.[1] Additionally, we conducted a landscape analysis of existing period tracking apps available in the US market. Results from this formative research revealed that current SRH apps lack information about abortion and make incorrect assumptions about the fertility desires, birth control use, and menstrual regularity of its users.

Through focus group discussions (FGDs) and in-depth interviews (IDIs), participants expressed a desire for a supportive, customizable, and secure app that would provide comprehensive SRH information, including information on abortion. Participants wanted an app that would provide emotional support and impart feelings of warmth, friendliness, and connection.

In addition, they requested that the app be tailored to their current reproductive health realities as well as modified to meet changing SRH needs throughout their lives. Participants articulated a need for an app to include and reflect a diverse spectrum of users across sexual practice, gender identity, race and ethnicity, age, education, and health experiences. An app that emphasized privacy and security related to personal health information was both desired by participants and also found to be lacking among existing SRH apps.

Designing with a community advisory team

Working with partners throughout the app design and development process, a Community Advisory Team (CAT) was formed to ensure that the app would meet the needs of potential users. This group was tasked with providing guidance and feedback on all elements of the app, including branding, content, design, and functionality. The seven-member CAT was comprised of individuals who met the profile of prospective users of the app, including being under 35 years old, assigned female at birth, and currently not trying to get pregnant. CAT members lived across the country and had varied experiences working or volunteering in the reproductive health, rights, and justice field.

The CAT met monthly over an eight-month period via facilitated video calls. The final CAT meeting was held in person to review the alpha version of the app and provide feedback directly to the design and development team. CAT members were instrumental in ensuring that app functionality and content would fit the diverse needs of users, and in creating a brand that balanced evoking warmth and compassion with providing evidence-based information.

USER TESTING

From May to August 2018, we conducted a second round of FGDs and IDIs with people assigned female at birth to test a beta version of a new SRH app called Euki. Interviews with abortion clients were conducted specifically to test the abortion content and functionality of the app. In this second round of research, we partnered with service-delivery and community-based organizations in California, Georgia, Illinois, Massachusetts, Minnesota, North Dakota, and Tennessee (Figure 1).

Focus groups and interviews employed a combination of public health research methodologies and technology user-testing strategies. Researchers guided participants through a series of tasks where participants interacted with various features of the app. Some tasks were broad and allowed participants to explore the app—these tasks were meant to inform understanding of participant preferences and intuitiveness of the app. Other tasks guided users to different features of the app to gain specific feedback on content and illustrations. Focus groups and interviews were audio recorded and transcribed. In addition, observational notes documented how participants navigated the content and features of the app.

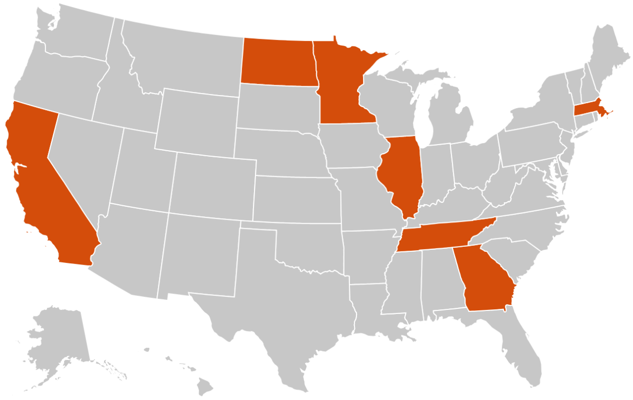

Figure 1. User-testing locations

We conducted five FGDs and eight IDIs across seven states in the Northeast, Southeast, Midwest, and West coast. Participants ranged in ages from 16 to 46 and disclosed a variety of personal sexual and reproductive health experiences, including abortions, miscarriages, births, adoptions, and others (Figure 2). Overall, participants were pleased with the tone of the app and found it warm, trustworthy, relevant, and friendly. When asked why they felt positively about the app, one participant responded:

> *I guess the language used. It's like so, like friendly and like not too professional. Like you'll feel like you're talking to like a friend or something that just knows about the subject.*
>
> *- Tennessee, IDI*

Participant Characteristics (n=59)	*n (%)*
Age	
16-19	3 (5.1)
20-24	13 (22)
25-30	17 (28.8)
31-35	14 (23.7)
36 and older	12 (20.3)
Racial Identity*	
American Indian/First Nations	8 (13.6)
Asian	3 (5.1)
Black/African American	31 (52.5)
Hispanic/Latinx	11 (18.6)
Middle Eastern	1 (1.7)
Native Hawaiian/Pacific Islander	2 (3.4)
White/Caucasian	12 (20.3)
Education	
Some high school	3 (5.1)
High school graduate/GED	6 (10.2)
Some college	9 (15.3)
Associate's degree	5 (8.5)
Bachelor's degree	24 (40.7)
Master's degree	9 (15.3)
Professional degree or Doctorate	3 (5.1)
Reproductive health experience*	
Has experienced pregnancy	22 (37.3)
Has experienced abortion	27 (45.8)
Has children	15 (25.4)
Has experienced miscarriage	2 (3.4)
Never been pregnant	24 (40.7)
Other	1 (1.7)
Currently use SRH apps	
Yes	44 (74.6)
No	14 (23.7)
Missing	1 (1.7)

** Respondents were able to choose more than one option*

A total of 59 individuals participated in our research study; 86.4% (n=51) in focus groups while 13.6% (n=8) in interviews.

Figure 2. Participant demographics

Consistent with findings from the formative research phase, participants felt that apps containing SRH information should be even more sensitive to privacy needs compared to other apps they use, and for this reason participants expressed more concern about protecting the information stored in Euki. While testing the prototype, participants overwhelmingly expressed feelings that Euki prioritized their privacy through features and customization, such as adding a PIN, determining which content areas are viewable on the main screen, and the ability to delete all stored data at set intervals. Participants especially appreciated Euki's lack of a backend system, noting that it is important to them that their data are both safe and private.

A large number of participants described different scenarios where the app could provide support for their decision making and communication. Several participants felt that it could be used as a preventive tool in their lives, both for helping them make more informed choices, and preventing prior health experiences they did not desire.

> *"I think if this app would have come out earlier, I probably never would have gotten gonorrhea or gotten pregnant.*
>
> *- California, youth focus group*

Others envisioned using the app to help manage interactions with clinicians, specifically naming the calendar and other tracking features as essential tools to document health experiences as they occurred so that they could later share them with health professionals (Figure 3). This was especially salient for some participants who felt their doctors did not listen to them. One participant in Memphis considered tracking her health information as useful for specifying her symptoms.

> *[Tracking health symptoms] transfers to the calendar, from my understanding, so I know, you know, how not being able to tell your doctor what's going on. So, if they transfer to the calendar, if you're logging these things daily, then you can say, 'This is what's wrong with me.'*
>
> *- Memphis, focus group*

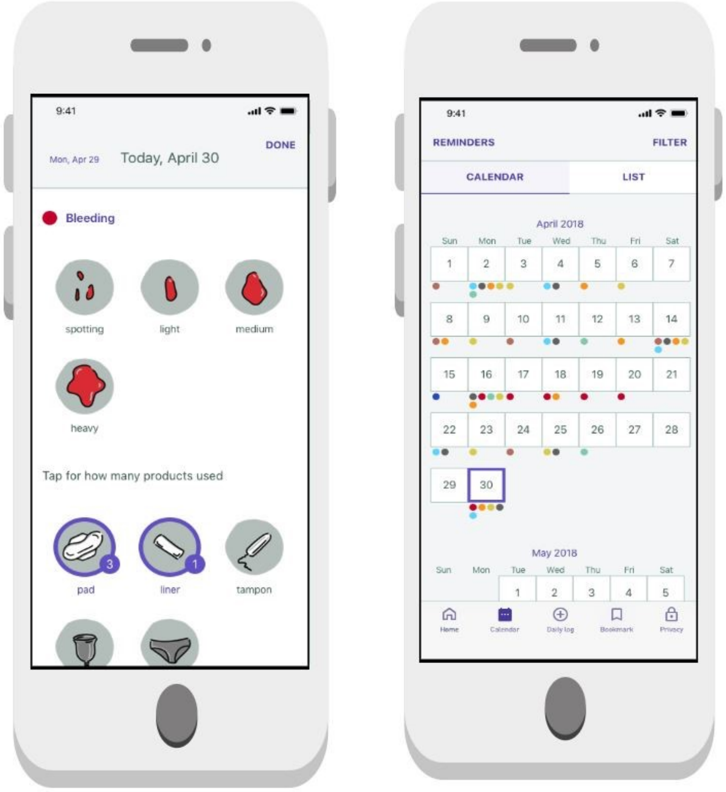

Figure 3. Euki screenshots

Some participants requested explicitly gender-inclusive language and resources, racially-diverse illustrations as well as additional resources regarding abortion and communicating about sexual health with partners. Participants also requested a more in-depth introductory tutorial to the app to orient users to Euki's features and customizability. Constructive feedback from participants helped to inform several key illustration changes and content modifications and additions, identify clunky design features, and fix bugs throughout the app.

CONCLUSION

Our approach incorporated qualitative research principles, user-testing methodologies, and strategic partnerships to test the acceptability of a new comprehensive, evidence-based SRH app. For SRH apps to be inclusive and truly comprehensive, our research demonstrated the need to include accurate, complete information about abortion alongside other SRH information, free from assumptions about the user, as well as a deep understanding and prioritization of user preferences for privacy and security. As we contend with current and future laws and restrictions on abortion access, and as technology increasingly plays a greater role in how we interact with the health care system and manage our own health, we hope these findings mean Euki will more directly meet the needs of a wide range of people who need access to SRH information. We also hope the approach we've described can serve as a model in informing the development of future technologies in SRH and across other areas of health care.

REFERENCES

1. Ibis Reproductive Health. Understanding the mHealth needs for sexual and reproductive health information in the United States. August 2019.

Thank you to the amazing organizations that made this research possible!

Advocates for Youth
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