

Preferences for digital mental health interventions among middle-aged and older adults with chronic pain: A qualitative analysis

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INTRO

- Up to 50% of chronic pain patients experience depression or anxiety,¹ and treating one condition without the other is often less effective.²
- Access to both mental health and chronic pain treatments remains limited.³
- Digital solutions offer a promising opportunity.
- While mental health apps are growing in popularity, most are not designed for older adults or for addressing comorbid chronic pain.⁴

OBJECTIVE

Identify stakeholder preferences for content and engagement to guide the design of an app addressing comorbid mental health and chronic pain.

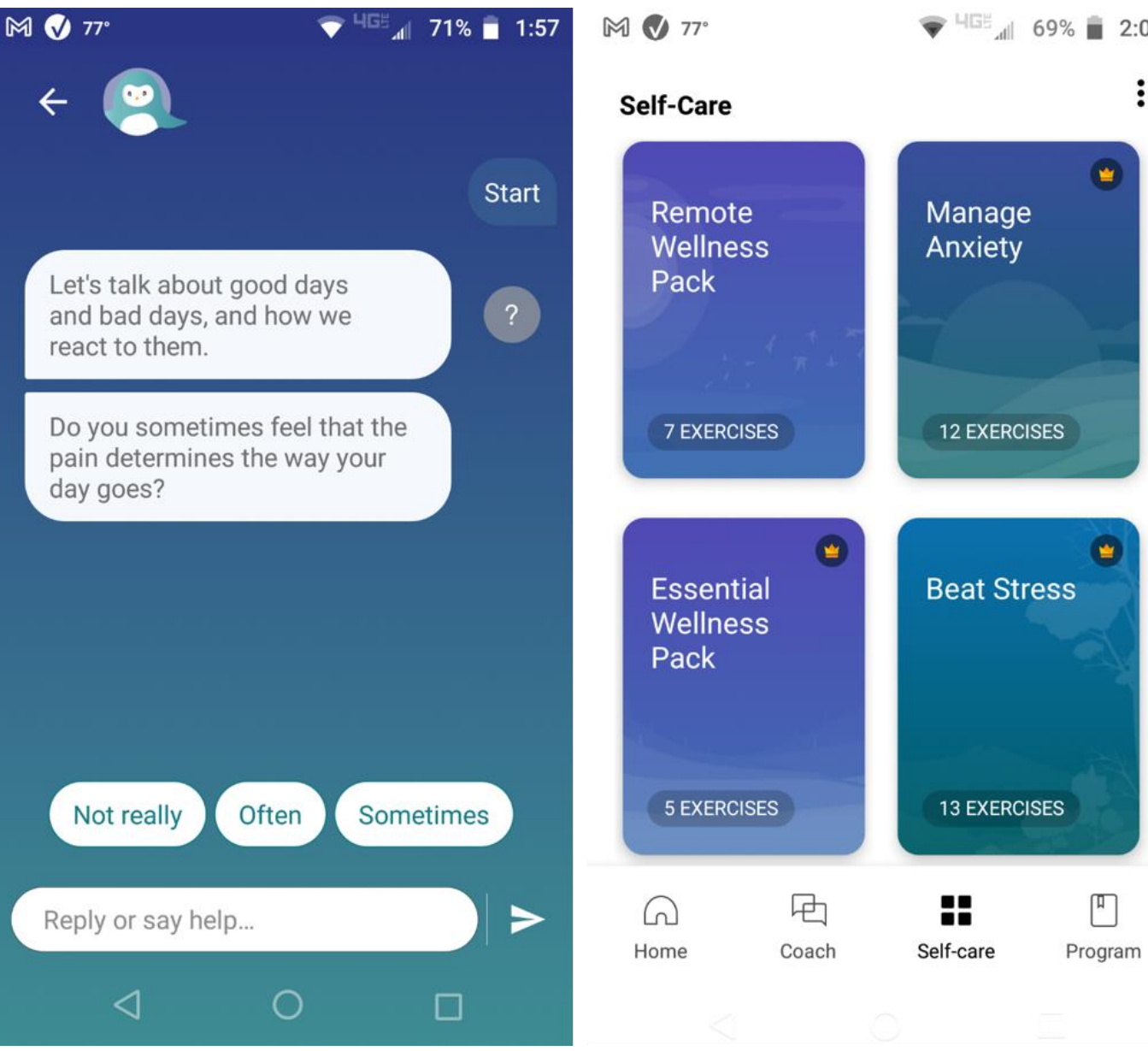
METHODS

- Eligibility:** 45+ years, 3+ mo of pain, PHQ-9 and/or GAD-7 >=10.
- Recruitment:** a musculoskeletal lifestyle medicine clinic; tertiary academic center research registry, online mental health support platform.
- Format:** Semi-structured interviews, iterative usability testing of an app.
- Analysis:** Qualitative thematic coding.

RESULTS

Demographics (n=42)	N (%) or median (range)
Age (years)	55 (45-76)
Sex	
Women	32 (76%)
Men	10 (24%)
Race	
White	30 (71%)
Black	9 (21%)
Other	3 (7%)
Ethnicity	
Hispanic	3 (7%)
Non-Hispanic	37 (88%)
Recruitment	
In-person	16 (38%)
Online	26 (62%)
University Registry	23 (55%)
Support Platform	3 (7%)
Tech proficiency	
Very	38 (90%)
Somewhat	4 (10%)
Not	0 (0%)

- App for mental health and chronic pain:**
- Currently available on the market.
 - Built with evidence-based techniques—behavioral activation, pain acceptance, CBT, mindfulness, and sleep optimization.
 - Delivered via an interactive chatbot (left⁵) and self-guided tools (right⁵).



*“I think [the app] is probably going to be some kind of... **mindfulness** activity to help control and **manage pain.**”*

*“If it could provide me instant relief – such as a **chatbot** just in case I’m in a **crisis** – hey, **bring it on.**”*

*“Maybe my activity level is higher. Maybe my emotional level is better. I would think **tracking** all of those things that correlate directly to my pain level...see the results of the **app working with you...would be good**”*

“If [the app] recognizes that you struggled, and if you're honest with it, then maybe it can touch base a little bit sooner.”



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Selected Themes	Selected Quotes
Technology use High usage of smartphone	<i>“I rarely turn it off.”</i> <i>“I pretty much use my phone for absolutely every aspect of my life...work, grocery list, like everything.”</i>
Awareness - Unaware of apps for pain - Unclear how an app can help with pain, requesting clear explanation	<i>“I had no idea there were any.”</i> <i>“I don’t know how this is going to work...I guess my knees and my back are preventing me from exercising. Is that what you’re talking about? Mental and physical health going together?”</i>
Desirable features - Functions for education, accountability, and community - Best if recommended by a medical professional - Foster intrinsic motivation over extrinsic rewards - Tracking features - Free or low cost	<i>“I primarily enjoy getting information from them.”</i> <i>“It’s normally based on advice from a medical professional that I would download something of this type.”</i> <i>“An emotional reward is a good thing... I’ve accomplished what I want. I don’t need something extra on top of that.”</i> <i>“I think it would feel a little disconnected without also tracking any kind of pain scale.”</i> <i>“I don’t typically pay for a lot of the apps. There’s usually free versions of something out there that you can find.”</i>
Undesirable features - Insufficient data protection - Overly cheerful or informal tone - Passive data collection (e.g. steps, screen time) to infer symptoms and prompt engagement	<i>“Making sure...invasion of privacy is not an issue.”</i> <i>“I think a [cartoon-like chatbot avatar] kind of makes it a little childish.”</i> <i>“I tend to steer away from apps that ask me that ... because I’m not comfortable being tracked in where I am, what I’m doing. I just find it intrusive.”</i>

DISCUSSION

- Participants’ openness to app use reflected an interest in improving quality of life and self-management, even in the absence of awareness about existing pain-related apps.
- Although pain tracking was valued, frequent symptom monitoring may unintentionally increase pain rumination. Focusing on pain interference rather than intensity may be more productive.
- Participants wanted to relate pain to mood, sleep, app engagement, and daily activities, highlighting the importance of tailored feedback and personalized insights to support self-management.
- Designing for middle-aged and older adults should emphasize clear guidance and usability, as they use apps as often as younger users but respond less to games or playful features.

CONCLUSION

Middle-aged and older adults are frequent smartphone users and are interested in digital interventions that address pain and mental health. Efforts should focus on increasing awareness and customizing app features to meet their needs.

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