USER EXPERIENCE OF A CHATBOT FOR SUPPORTING SELF-MANAGEMENT OF PERIPHERALLY INSERTED CENTRAL CATHETER FOR CHEMOTHERAPY

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BACKGROUND

A peripherally inserted central catheter (PICC) for vesicant or long-term chemotherapy (CTx) is recommended to offer safe and sustainable administration. However, regular and careful management is essential to ensure the benefits. Although education and telephone consultation are provided by medical staffs, proactive support at anytime and anywhere is still limited. To overcome this, we developed a chatbot-based PICC management. In this study, we aim to figure out its feasibility based on their usage experience.

METHODS

A mixed-method study was conducted from September to December 2022. Cancer patients scheduled for PICC insertion, and their caregivers were recruited. The chatbot was designed to provide structured answers according to pre-specified dialog trees and automatically understand user's intents based on natural language processing. Participants were asked to voluntarily use the chatbot for about one month. Afterward, we investigated most frequently asked questions, usability, and perceived benefits and barriers to using it.

RESULTS

Out of 56 participants, 66.1% were patients, and 69.6% were female, with an average age of 55.3. 23 participants used the chatbot at least once. Non-users responded that they had no PICC-related problems at that time (n = 13) or felt difficulty to use it (n = 10). Questions related to catheter maintenance were most frequently asked, followed by daily precautions, symptoms, and heparin (Table 1). 75% of the users felt necessity of using the chatbot and 64% responded that it was helpful to reduce anxiety. However, some felt discrepancies in their intents and the chatbot's responses and suggested improvements for an elderly-friendly user interface.

Table1. Top 5 most frequently asked inquiries in the PICC chatbot

Rank	Caring for the catheter (Obs =126)		Managing daily life (Obs = 85)		Symptoms (Obs = 72)		Heparin (Obs = 55)	
	Sub-themes	n (%)	Sub-themes	n (%)	Sub-themes	n (%)	Sub-themes	n (%)
1	Time to change dressing	22 (17.5)	Workouts	24 (28.2)	Fever	38 (52.8)	Timing of heparin injection	44 (80.0)
2	Buying dressing materials	17 (13.5)	Showers	14 (16.5)	Bleeding	10 (13.9)	Dosage	4 (7.3)
3	IV meds through the catheter	15 (11.9)	Travel and flight	11 (12.9)	Pain at inserted site	10 (13.9)	Refill	3 (5.5)
4	Time to remove the catheter	13 (10.3)	Driving	11 (12.9)	Numbness	5 (6.9)	Storage	2 (3.6)
5	Management video	9 (7.14)	Wearing clothes	11 (12.9)	Abscess	2 (2.8)	Not specified inquiries regarding Heparin	0 (0.0)

CONCLUSION

We found that using a chatbot was feasible for supporting the self-PICC management. We anticipate that a virtual agent of a chatbot better provides psychosocial support compared to conventional mobile health. It needs to further identify patient-friendly chatbot interfaces and clinical impacts on psychosocial aspects.

ACKNOWLEDGEMENT