Features of Mobile Application for Diabetes Self-management in China: Do They Fit for Older Adults?

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Background
- Mobile apps for self-managing diabetes are increasingly popular
- Limited research on diabetes apps features acceptable to Chinese older adults
- No research on the alignment of content with evidence-based guidelines

Purpose
1. Provide overview of features and contents of Chinese diabetes apps for self-management
2. Evaluate fit of Chinese diabetes apps with usability requirements for older adults
3. Examine alignment of the diabetes apps with issues specific to older adults

Method
1. Review diabetes apps
   Data source: Apple app store and 360 Mobile Assistant
2. Usability test
   Tool: Usability and assessment criteria for older adults
   Sample: Top seven diabetes apps in China in iOS system
3. Comparison the included 71 apps with the International Diabetes Federation (IDF) guideline for managing older people with type 2 diabetes

Results
- 71 Chinese diabetes apps were included
- Most diabetes apps were multi-featured
- Usability of all tested apps was rated moderate to good
- 4 guideline areas were generally absent: depression, falls, pain and sexual health
- Hypoglycemia, nutrition, fluid consumption, and education features were inadequate

Areas | Guideline Recommendations | Description of relevant features/ contents in 71 diabetes apps
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Depression | • Screening for and monitoring of depressive symptoms  • Involvement of the family in assessment | • Emotion recording: 11 apps (15.5%)  • Depression assessment: 1 app (1.4%) |
Falls | • Provide education about fall prevention  • Provide a referral or intervention  • Undertake home safety checks and modifications in collaboration with patient and their family | • Providing education about falls seldom appeared in education |
Pain | • Assess pain risk  • Provide an appropriate pain assessment tool  • Provide a referral | • Providing education about pain seldom appeared in education |
Sexual health | • Assess sexual health and well-being  • Provide appropriate counseling and management | • Providing education about sexual seldom appeared in education |

Discussion
- Periodic assessment of hypoglycemia risk, depression, pain, and sexual health could be added to future diabetes apps.
- Individualized education based on assessments and daily data recording, as well as reviews and summaries of key points should be sent to the older adults and their caregivers.
- Usability domains such as size of operating elements, fault tolerance, and instant feedback need to be addressed.
- To increase the flexibility and usefulness of diabetes apps, functions not needed by a particular user or at a particular time could be hidden, and reestablished when needed.

Features of 71 Chinese diabetes apps
- data tracking: 100.0%
- patient education: 56.30%
- reminders: 52.10%
- professional consultation: 45.10%
- data entry automation: 80.40%
- data report assessment: 21.10%
- social support: 18.30%

Usability test of top seven diabetes apps
- general characteristics: 3.4
- usability: 3.7
- presentation: 3.7
- comprehensibility: 3.9

References