Weak Educational Components in mHealth Devices for Diabetes Support Available on the Italian Market

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On the frontier between technology, psychology, and the behavioral sciences, the research field of positive technology studies the kinds of technological devices that can impact individuals' well-being and the way they do so. In a way, mHealth can be considered as a subset of positive technology in that it aims at supporting "individuals in reaching engaging and self-actualizing experiences."[1] In spite of this potential, there remain a few open questions as to the effectiveness of the mHealth devices currently on offer.[2,3]

We report the results of a review of apps for diabetes patients on offer for the Italian-speaking public. Apps were identified by conducting a search in the Google Play Store (for the Android mobile operating system) and Apple App Store (for the IOS mobile operating system) during October 2015. We have considered 140 apps on the Google Play Store (GPS) and 73 apps on the Apple App Store (AAS). The smaller number of apps considered for IOS users probably depends on different inclusion criteria adopted by the 2 stores. Of the 180 rejected apps, 53.5% do not have an Italian-language user interface (67% for Android category and 25% for IOS category), 21.7% are paid apps (15% for Android category and 35% for IOS category), and 13.9% are not apps designed for the task of diabetes self-management (12.5% for Android category and 16.7% for IOS category). The total number of eligible apps is 20 for the GPS and 13 for the AAS, of which 16 are duplicate apps and have thus been left out. Overall, the final selection is of 17 apps (of which just 3 apps are available on both stores).

The 17 selected apps resulting from our selection have been analyzed by looking at how they are structured as regards the educational level. International reviews have already underlined the lack of educational contents in the majority of mobile applications worldwide.[4,5] Our review confirms this result also for Italy. In considering which of the apps' functionalities to include in the category "educational," we have decided to include those functions designated to offer information aimed at improving self-awareness and autonomy of patients regarding their disease. In particular, we have regarded education as a composite category and we have analyzed apps with reference to 6 subcategories: decision support (8 apps feature this function; 47%), messages (8 apps feature this function; 47%), contents (2 apps feature this function; 11.8%), visual aids (16 apps feature this function; 94.1%), goal setting (3 apps feature this function; 17.6%), social sharing (3 apps feature this function; 17.6%).

Our analysis of the educational functionalities reveals an underlying idea of education that is mostly limited to the transmission of information. For example, when we paid attention to the linguistic structure of the messages used by the apps we observed that all messages evaluated are used to provide alerts or reminders. We never found messages used as instruments for critical thinking to foster self-awareness and autonomy. This exemplification suggests that the educational functionalities included in the reviewed apps did not take into account more comprehensive conceptions of education, which include the ability to process and interpret information, allowing users to then act on it. Based on these observations, we are planning to design and test a new mobile app for diabetes support for the Italian market. By working in particular on the visual aids, goal setting functions and messages functions included in the app, we are designing messages encouraging critical thinking that are based on the theoretical assumptions derived from the use of a cognitive-argumentative model of verbal communication.[6] To verify the efficacy of our assumptions regarding the effectiveness of the messages featured in this application, we will test a prototype with type 2 diabetes patients in 2 hospitals in Italy. Further interventions devoted to assessing the role of different educational functions to improve diabetes self-management are necessary.

Abbreviations

AAS, Apple App Store; GPS, Google Play Store.

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