Development of an mHealth interventions evaluation tool. What has been done and next steps

19th International Conference on Integrated Care, San Sebastian, 01-03 April 2019

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Introduction: Health apps are dynamic, versatile, illustrative tools that allow patient empowerment, healthy habits improvement, health data monitoring/storage, diagnosis and direct health provision. The initiatives that attempt to define their evaluation, account incomplete aspects. The objective of the AQuAS-UOC mHealth research group is to develop a tool for a comprehensive evaluation of mHealth interventions - in general and for overweight and obesity in particular-, considering the expertise of developers, health professionals, health technology assessment agencies and users/patients.

Theory/Methods: During 2015, initial workshops were undertaken with mHealth experts to assess the necessity of developing an evaluation tool and classifying apps according to their risk. Focus groups were also conducted with users, health professionals and technicians to explore mHealth evaluation needs. A literature search is allowing the identification of mHealth evaluation initiatives and establishing an initial pool of criteria for their evaluation. Next steps include the agreement of a) those criteria and domains to be included in the tool through a Delphi technique, and b) the format of the tool through focus groups/workshops.

Results: Initial workshops and focus groups led to a publication of a theoretical framework for mHealth assessment in which, ideally, a chosen set of domains and subdomains should address the appropriate use of each mHealth solution, develop expedited and conclusive methods to evaluate them, assess mHealth solution risk and inform stakeholders of relevant results.

For the content to be included in a general tool and for a more specific one (targeted to weight management apps), 95 and 114 criteria were listed respectively and grouped in 10 domains: app purpose, privacy/security, clinical evidence, intervention content, user experience, usability, interoperability, costs, organizational impact, and legal/ethical issues. Mixed methods (data tracking, validated and ad-hoc questionnaires and qualitative research) are used to assess them. Final tool will be developed once qualitative research (focus groups with different stakeholders) will be conducted.

Discussion: A high number (unmanageable in practice) of criteria for mHealth assessment were identified; Delphi techniques, focus groups and workshops with professionals, app developers and technicians from health assessment agencies should help to prioritize, reduce and define the tool.
Conclusions: The tool must support the process of evaluating mHealth solutions and help key agents to make informed decisions when developing, integrating, selecting, recommending, implementing or adopting mHealth solutions. The tool will help identifying those solutions that provide value to patients, health professionals and health system.

Lessons learned:
- An agreed content and format of the tool can maximize its use.
- mHealth evaluation should be in constant adaptation to changes in standards and find an equilibrium between its development and implementation.

Limitations:
- Initial workshops and literature search was done at an international level, however, qualitative techniques (Delphi and focus groups) are being done with Spaniards professionals and end-users.
- High heterogeneity among mHealth assessment tools; most instruments used are not yet validated.
- The constant and rapid development of new mHealth solutions demands a continuous update and review of the assessment tool.

Suggestions for future research: The developed tool should be piloted on existing mHealth initiatives

Keywords: evaluation; validation; mhealth interventions; co-design