



Evaluation of mobile health applications for cancer care using the MARS scale

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INTRODUCTION

The European project Digital TRANSition and digital resilience in ONcology (TRANSITION) aims to improve digital competences in cancer care professionals. This includes the creation of a guide to digital tools used in cancer integrated management. To achieve this goal, a review of digital solutions (Deliverable 2.1 - Systematic Review Results on the content of the use of digital solutions in the field of Oncology) and the landscape of mobile applications designed for prevention, treatment, therapy, or support was explored (Deliverable 2.3 - Guide to digital health tools). Most of them did not have any evidence.

Consequently, in this step, we aim is to rigorously evaluate each app using a scale validated for this purpose, useful for clinical professionals, non-clinical professionals, and patients/caregivers.



RESEARCH QUESTION

▶ Which mobile cancer care apps score best using the MARS?

TRANSITION WP2



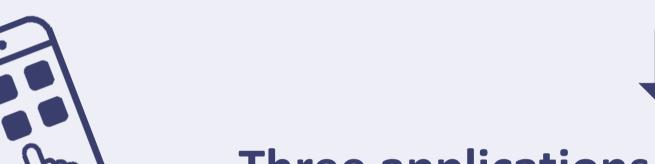
METHOD

APPLICATIONS SELECTED

The mobile applications selected for evaluation by a systematic review (Pubmed, EMBASE, CINAHL (EBSCO), AppStore and Google play)

Apps was currently accessible, and the basic cost was free*

*Some of the selected apps have a paid upgrade (e.g., activating some features/content and removing advertising). In this study, only the free content of each app was evaluated





Three applications have been removed

▶ Go-Exap app requires administrator privileges to use ▶ eGVHD is no longer supported after the latest Android update ▶ NBIA Data Retriever app due to technical issues that prevented it from being used



A total of 18 apps were included for evaluation

most of them available for both Android and iOS and affiliated with commercial entities.

Mobile App Rating Scale (MARS)

The apps were analysed using MARS (1-2). This is a tool for assessing the quality of mobile health apps that evaluates five constructs:

▶ Engagement ($\alpha = .80$); Functionality ($\alpha = .78$); Aesthetics ($\alpha = .85$); Information (α = .91); App subjective quality (α = .86)

PROCEDURE

Application reviewers were trained in a workshop



A peer review of each of the applications included in the study was conducted by 19 trained reviewers



In case the concordance between the reviewers was not reached (i.e. one point difference in sections A, B, C and/or D), a third evaluation was performed. Of the total number of apps, 10 received a third assessment

RESULIS						
APP	ENGAGEMENT (A)	FUNCTIONALITY (B)	AESTHETICS (C)	INFORMATION (D)	APP SUBJECTIVE QUALITY (E)	APP QUALITY MEAN SCORE (A+B+C+D)/4
ONCOassist	4.10	4.87	3.66	4.37	3.75	4.25
Oncology Board Review	3.47	4.33	4.11	4.24	3.17	4.03
Hematology & Oncology Consult	3.07	4.50	4.22	4.12	2.92	3.98
Radiation Oncology Exam Review	3.73	4.17	3.55	4.25	3.08	3.92
NCCN Guidelines®	3.20	3.62	3.83	4.75	3.87	3.85
ESMO Interactive Guidelines	3,60	4,62	3	4,10	3,87	3.83
Current Medical Diagnosis and Treatment	3,50	4,12	2,83	4,13	3,12	3.65
TNM Cancer Staging Manual	2.93	4.25	3.22	4.17	3.08	3.64
Pediatric Disease & Treatment	2.60	4.25	4.17	3.39	3.12	3.60
Radiation Oncology Q&A Review	2.93	4.17	3.67	3.59	2.66	3.59
Williams Manual of Hematology	3.20	4.37	3	3.58	2.62	3.53
All Diseases Treatments	2.50	4.62	4	2.95	2.50	3.52
Oncology Nursing Drug Handbook	3.07	3.75	3.78	3.11	2.66	3.43
Pharmacology for Nursing 2023	3.73	3.17	3.22	3.25	3.33	3.34
Washington Manual of Oncology	2.55	3.75	3	4.05	2.50	3.34
All Diseases Treatments 2023	1.90	4.37	3	3.20	2.37	3.12
Harrison's Manual of Medicine	2.60	3.67	3	3.15	1.83	3.11
Fitzpatrick's Color Atlas	2,60	3.33	2.78	3.12	2.58	2.96

POINTS FOR DISCUSSION

- How important is the use of mobile apps in general practice?
- Do we need them to be rated using a consistent methodology based on predefined ranking criteria?
- Is there a lack of scientific evidence for new and existing health applications?

REFERENCES

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