Abstract LI2022-0394

On the look for quality mobile apps promoting healthy diets

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Objectives

- **eHealth and health apps** are rapidly growing in popularity, but quality **evaluation procedures are scarce**.
1 – To identify mobile apps focusing on promotion of healthy, evidence-based dietary patterns ("**diet apps**") aimed for adults.
2 – To evaluate their quality using **QUEST** (quality evaluation scoring tool)

Results

- A total of **19 diet apps were identified** of which 6 were evaluated at least by two of the national or international initiatives. None undergone a defined formal evaluation of the scientific content of the apps except for the ORCHA initiative.
- **Image 1** shows the app identification and inclusion flowchart. **Image 2** describes their QUEST scores (total). **Table 1** shows the results of the inter-observer analysis.

IMAGE 1: App identification and inclusion flowchart.

Image 2: Quality evaluation scoring tool (QUEST). Total scores for each diet app and reviewer.
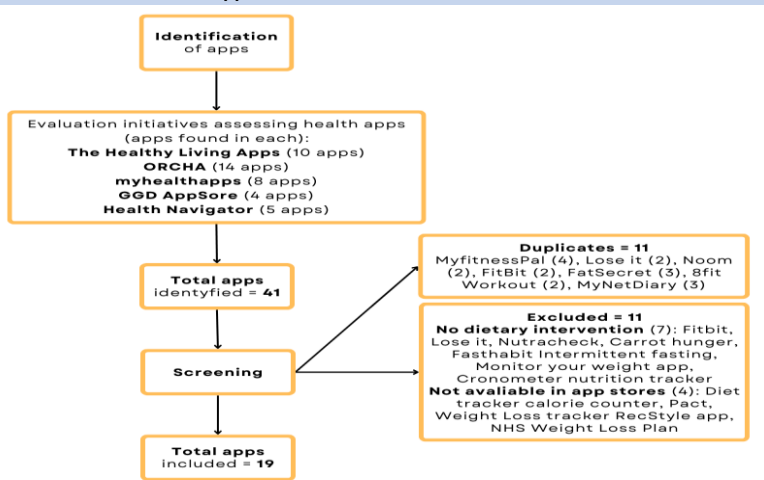
Materials & methods

- Between August and December 2021 we searched for **diet apps in 14 national and international evaluation initiatives**. Only **5 included nutrition apps**: *The Healthy Living Apps, myhealthapps, ORCHA, GGD AppStores and Health Navigator*.
- **3 researchers** installed and **reviewed the apps** (each app by 2 researchers). Then they applied **QUEST**. We used **weighted kappa** (for each individual item in QUEST) and **inter-class correlation coefficient** (for the total score) as measures of inter-reviewer concordance. We used R-software: Rstudio version 1.3.10565 with the *vcd* library.
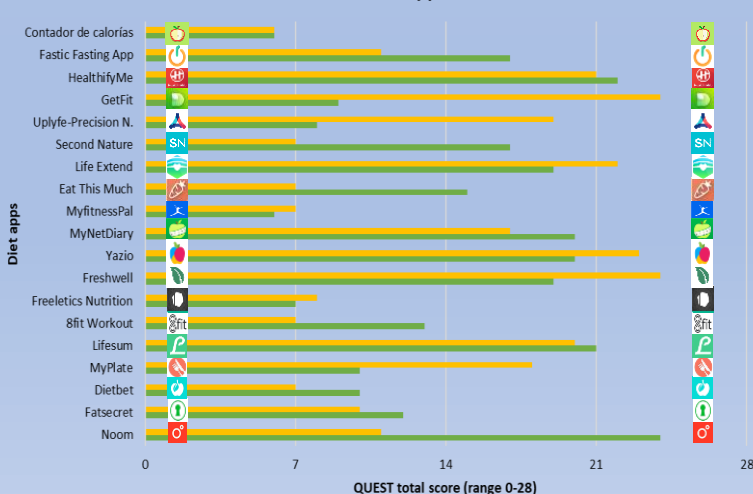
← **Quality Evaluation Scoring Tool (QUEST)**

TABLE 1: results of the inter-observer analysis.

QUEST items	Reviewers 1, 2 N= 8 apps	Reviewers 1, 3 N = 7 apps	Reviewers 2, 3 N = 4 apps
TOTAL, ICC (range 0-28)	0.5 CI 95% -0.29 – 0.88	0.67 CI 95% 0.20 – 0.93	0.66 CI 95% 0.11 – 0.97
TOTAL, Kappa (range 0-28)	0.28 CI 95% -0.12 – 0.67	0.2 CI 95% -0.26 – 0.23	0.38 CI 95% -0.13 – 0.89
AUTH, Kappa (range 0, 1 or 2)	0.27 CI 95% -0.27 – 0.82	0.46 CI 95% 0.01-0.91	0.75 CI 95% 0.36 – 1
ATTRIB, K (range 0, 3, 6 or 9)	0.15 CI 95% -0.34 – 0.65	0.27 CI 95% -0.28 – 0.82	0.5 CI 95% -0.21 – 1
STUDY T, kappa (range 0, 1 or 2)	0.25 CI 95% -0.22 – 0.72	0.29 CI 95% -0.37 – 0.94	0.33 CI 95% -0.22 – 0.89
CONF I, kappa (range 0, 3 or 6)	0.52 CI 95% 0.05 – 0.99	0.42 CI 95% -0.13 – 0.97	1 CI 95% 1-1
CURR, kappa (range 0, 1 or 2)	0.57 CI 95% 0.04 - 1	Insufficient sample	0.33 CI 95% -0.22 – 0.89
COMP, kappa (range 0 or 1)	Insufficient sample	0.09 CI 95% -0.62 – 0.8	1 CI 95% 1 – 1
TONE, kappa (range 0, 3 or 6)	-0.09 CI 95% --0.27 – 0.09	-0.11 CI 95% -0.31 – 0.11	0 CI 95% 0 – 0

TOTAL: total score. ICC: intra-class correlation coefficient. CI 95%: 95% confidence interval. AUTH: authorship. ATTRIB: attribution. STUDY T: study type. CONF I: conflict of interest. CURR: currency. COMP: complementarity. TONE: tone.

Discussion

- **Dietary-advice health apps market is heterogeneous** and **there are no standardized evaluation procedures**.
- Even after selecting diet apps previously reviewed by national or international evaluation initiatives, there was mostly no formal scientific evaluation of their content. **Most initiatives include similar concepts as evaluation criterion**: *functionality, usability, ease of use, engagement, aesthetics, privacy, data protection and effectiveness at achieving behavioural change*.
- **QUEST yielded low concordance** among reviewing researchers. Although this is **probably influenced by small sample size**, they reported **difficulties evaluating the apps** due to **hard to find information** (specially regarding authorship, attribution and study type).
- We consider that a **specific tool for evaluation of health and nutritional information in apps needs to be developed.**