



Introduction

Advancements in technology have increased the accessibility of consumer health and drug information. Currently, there are more than 9000 health-related smartphone applications (apps) available, and the number will only continue to grow. Therefore, it is important that these apps are user-friendly and provide accurate and reliable information that can be easily understood by the lay person.

In 1999, Charnock, et al.¹ developed an instrument for judging the quality of written consumer health information on treatment choices, which was titled DISCERN. Their evaluation tool consisted of 16 questions that examined the content of consumer health information. However, their tool did not assess health literacy. Additionally, DISCERN only evaluated consumer health information published in books, various news articles, and pamphlets. Therefore, it may not be applicable to consumer health information that is delivered via the internet or smartphone apps.

The purpose of this project is to identify and rank the best consumer health and drug information smartphone apps based on a set of criteria.

Methods

- This study was not submitted to an institutional review board for approval prior to commencement as no human subjects were involved in the research.
- A five-point system was developed to evaluate consumer health and drug information smartphone apps in 5 main areas. Each area was then made up of 5 objectives as follows:

Credibility	Accuracy	Evidence-Based	Health Literacy ²	Ease-of-Use
Suitable credentials	Most recent information	Evidence-based recommendation	No medical jargon	Fits to screen
Authors/publishers listed	Peer-reviewed articles	Recommendation targets specific audience	Length of sentences/paragraphs	Set-up/organization
Advertisements	Recent/reputable guidelines	States when to seek professional help	States for consumer	Navigation
Type of organization	Frequent updates	Opinions marked	Visual aids	Search option
Disclaimer	References cited	Neutral tone	Easy-to-read font	Main menu

- A score of 0, 0.5, or 1 was awarded for each objective. Not applicable (N/A) was an option when a score of zero was not appropriate. The scores from each section were used to calculate an overall score. N/A was not used to calculate the final average.
- The top 200 free and paid health and fitness apps on the iPhone (I) and Android (A) smartphones were reviewed. Any app that contained information about health conditions, drugs, and/or treatment was evaluated. Fitness apps and apps that tracked certain activities or progress (such as cigarette use) were excluded.

Results

- Of the 800 health and fitness apps screened, 18 met the criteria for evaluation.
- 2 Android apps were not evaluated due to malfunction

Free App	Score
WebMD® (I & A)	4.06
iTriage® (I & A)	4.00
My Baby (I)	3.75
My Pregnancy (I)	3.63
Everyday Health™ (I)	3.48
Group Health™ (I & A)	3.45
I'm Expecting (I & A)	3.42
Sprout Lite™(I)	3.33
What to Expect- Baby (I & A)	3.02
Easy Home Remedies (I)	2.78
Natural Home Remedies (I)	2.23

Paid App	Score
Emergency First Aid and Treatment Guide (I & A)	4.38
Pregnancy Companion™ (I)	3.93
Pocket First Aid and CPR (I & A)	3.25
Sprout™ (I)	3.33
GotoAid (A)	3.00

Figure 1 shows how the apps scored in each section. For example, 5 apps had a score of 4 to 5 in the ease-of-use section. It also shows that the majority of the apps evaluated had an overall score of 2 to 3.9.

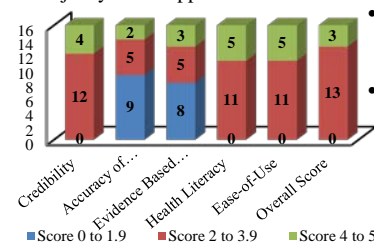


Figure 1: Breakdown of the scores in each section and overall score.

Figure 2 shows the number of N/A's that were assigned in each section for all of the apps evaluated.

- Many of the apps did not make specific recommendations, which resulted in an N/A in 3 of the 5 objectives under the evidence-based medicine section.
- If the app did not utilize guidelines or references were not cited, N/A was marked in the guidelines and peer-reviewed literature in the accuracy of information section.

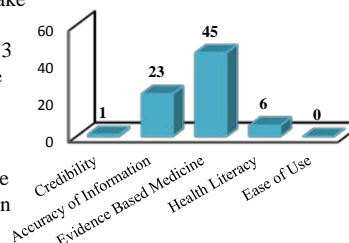


Figure 2: Number of N/A's scored in each section for all of the apps evaluated.

Conclusions

- There are a limited number of consumer health and drug information smartphone apps that met the criteria for evaluation. Of the 16 apps evaluated, only 3 received an overall score of 4 or greater on a 5-point scale- Emergency First Aid and Treatment Guide, WebMD® and iTriage®.
- The majority of apps received a score of 2 to 3.9 in the 5 sections and overall average, which leaves room for improvement. Areas of improvement include:
 - Clearly listing the authors of the information provided
 - Citing any references used
 - Providing a clear definition in layman's terms directly preceding or following a medical term rather than having to navigate to a different page
 - Explicitly stating that the information provided is for the consumer
 - Decreasing the number of maneuvers needed to navigate through the information
- There were several objectives in the 5-point system that were not applicable. Revisions to the evaluation may be necessary to better assess consumer health and drug information smartphone apps in the future, such as:
 - Combining peer-reviewed articles and reputable guidelines as one objective
 - Broadening the objective of neutral tone to include treatment information in addition to recommendations
 - Combining evidence-based recommendations and recommendations for target audience as one objective
 - Providing more specific guidelines for determining if the information provided is the most recent

References

- Charnock D, Shepperd S, Needham G, Gann R. DISCERN: an instrument for judging the quality of written consumer health information on treatment choices. *J Epidemiol Community Health*. 1999; 53: 105-111.
- Weiss BD. Health literacy and patient safety: Help patients understand. *Manual for Clinicians*. 2nd edition. American Medical Association Foundation and American Medical Association; 2007:30-36.

Disclosures:

Authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.