Analysis of Personal Data Visualisation Reviews on Mobile Health Apps

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Yasmeen Anjeer Alshehhi

Yasmeen anjeer alshehhi received a Master's degree in project management from Sydney University, Australia, in 2013. She is currently a doctoral student majoring in data visualisation at the School of Information Technology, Deakin University.

Her research interests lie in data visualisation, m-health apps and business intelligence.

Aims and contribution of our paper

In our paper, we aimed at :

Identifying the key challenges and problems that end-users face with regard to mobile data visualisations for mHealth apps

Contributions of our study are threefold :

1. We analysed 217 apps in terms of the included charts and tasks in each app
2. We analysed more than 8000 users' comments to identify the users' challenges
3. We suggested data visualisation framework is needed to ensure the best practice of data visualisation in m-health apps.

Gaps in m-health data visualisation

Lack of guidelines that suits non-expert users and mobile devices

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Diversity of m-health data visualisation audiences

Research method

- Query Google App Store [Keywords: "health tracking apps“ & "health tracker apps“], returned 500 apps from the API
- 217 unique apps

- Retrieve reviews for 217 apps
- Filter the data visualisation related reviews; 8,406 reviews are relevant

- Group app reviews according to the associated star rating.
- Map each app review to a corresponding cluster of issues

Findings 1:
RQ1: What are the common visualisation tasks and charts that have been adopted in mHealth apps?

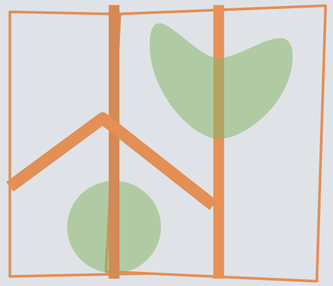
Most of the charts are read-only charts.

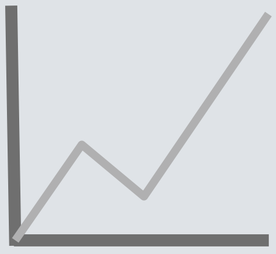
2 apps included chart functionality.
Example: comparison

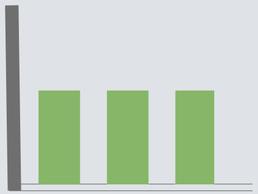
"but is terrible for comparing your results to previous results, everyone wants to see how they progress on all the fields"

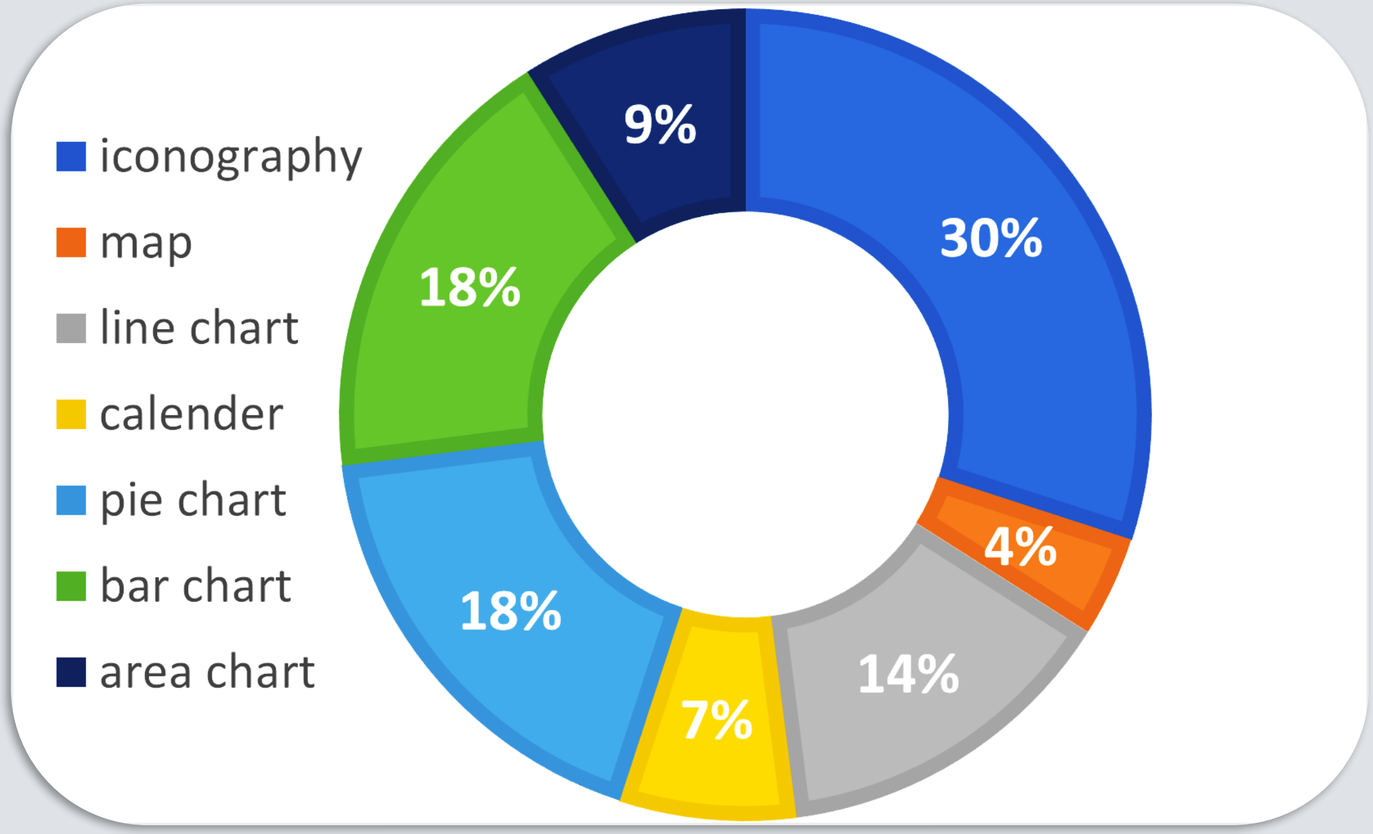
"you can't view plots from X date to Y date"

Findings 1.2:
RQ1: What are the common visualisation tasks and charts that have been adopted in mHealth apps?









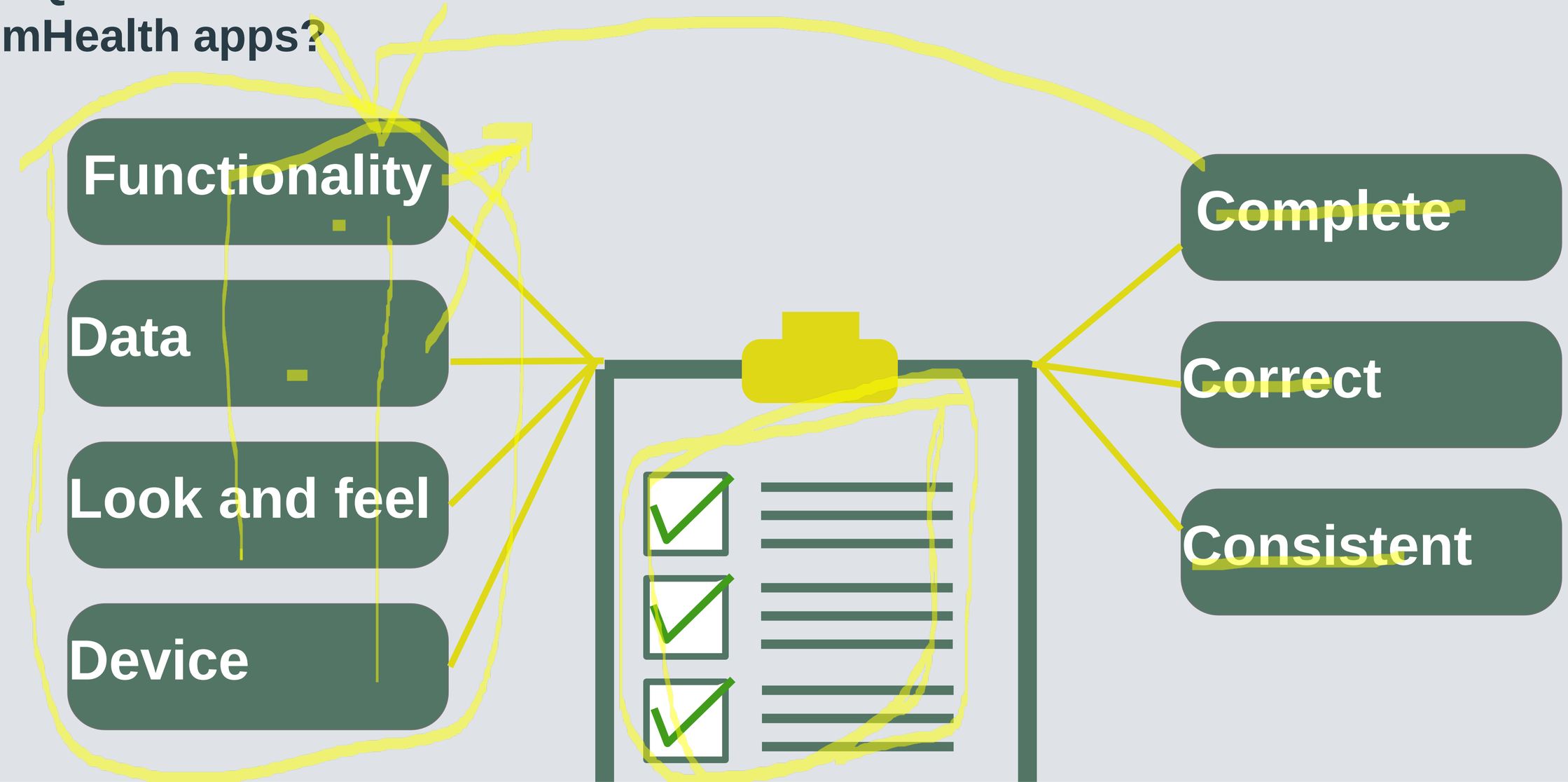
Findings 2:
RQ2: What are the top data visualisation issues in health tracking apps?

- Functionality
- Data
- Look and feel
- Device

TABLE I
SUMMARY OF APP REVIEWS' ISSUES

Issues	Count	Percentage
1: Missing graphs and functionalities	948	34 %
2: Displaying the wrong charts	22	0.7%
3: Charts are mixed up	60	2%
4: Missing the chart type	224	8%
5: Chart scaling, layout and font size	404	14%
6: Zooming problem and graphs lines are mixed	128	4%
7: Missing graph information	202	7%
8: Not accurate info charts units	98	3%
9:Not showing information correctly	32	11%
10: Missing the ability of phone rotating	10	0.3%
11: Scale is not suiting screen size	4	0.1%
12: Different OS & different functionalities	36	1.2%
13: Two colour menus confusing	154	5.5%
14: Visualisation is meaningless	74	2.6%
15: Low quality of graphs charts	94	3.3%
16: Missing Tooltips	20	0.7%
17: Screen size problems	36	1.2%
18:No consistency in showing graphs	4	0.1%

Findings 3:
RQ3: What are critical user concerns on mobile data visualisations in mHealth apps?



Recommendations

It is recommended to have a framework that aids in developing and designing data visualisation for mobile apps

It is recommended to add data visualisation feedback in the app review as it is a central part of health tracking.

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