Medical Apps for Android and iOS: Differences and Similarities

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Abstract. Google Play and Apple's App Store dominate the mobile health app market. We analyzed the metadata and descriptive texts of apps in the medical category using semi-automated retrospective app store analysis (SARASA) and compared the store offerings in terms of their number, descriptive texts, user ratings, medical device status, diseases, and conditions (both keyword-based). Relatively speaking, the store listings for the selected items were comparable.

Keywords. mHealth, mobile apps, Google Play, App Store, mobile health

1. Introduction

Healthcare professionals need relevant information about the applications to be in a position to make informed usage decisions [1]. Previous analyses showed that manufacturers often only provide inadequate information via meta-data [2] or within the app description texts. This article examines the discoverability of health app descriptions and metadata for Google Play Store and Apple's App Store, highlighting similarities and differences between the two major providers of health and medical apps.

2. Methods

R- and Python-based scripts were utilized to obtain data for both Google Play and the Apple App Store. Data parsing, processing, and visualization were done in R (version 4.2.2) and Python (version 3.10). We applied data filters to eliminate incomplete app data and duplicates. The stores were compared concerning their number, descriptive texts,

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user ratings, medical device status, diseases, and conditions. Descriptive statistics: percentages, ranges, median values, and interquartile ranges (IQR) were calculated.

3. Results

For Apple's US App Store, from the metadata for the original lists of 35,098 apps collected between Dec. 05, 2022, and Dec. 10, 2022, we identified 25,682 apps with English language store descriptions. For Google Play, we were able to download data for 11,365 apps with English descriptions. The median of the average user ratings assigned to the apps in the medical category was 4.10 (IQR: 3.50, 4.50) for the Android platform and 4.56 (IQR: 3.44, 5.0) for Apple. Ratings were missing in 8,388 (74%) of the apps in Google Play and 9,484 (42%) of the apps in Apple's App Store.

There were 1,896 apps in Google Play and 3,744 apps in Apple's App Store that matched one or more of the terms: blood pressure, cancer, cardio, corona, covid, depression, diabetes, heart, infection, stroke, and tumor. The proportions of apps matching any of the keywords were largely similar (16.7% matched on Google Play, respectively 16.6% on Apple's App Store). However, there were notable differences regarding a subset of the keywords. We found more apps in the "cardio" (3.9% vs. 2.8%), "diabetes" (4.2% vs. 2.7%), and "infection" contexts (3.2% vs. 2.6%) in the Google Play Store. Apps matching "heart" were more common on Apple's platform (5.5% vs. 3.2%).

Assessing the medical device status showed that only a negligible proportion of apps provided information in a readily identifiable manner. For the disease-related apps matching any of the terms, there were 188/3,744 (5%) on Apple's App Store and 80/1,896 (4.2%) on Google play that mentioned any of the medical device-related terms (either acknowledging or negating device status) in the description.

4. Conclusion

Overall, the two major app repositories do not differ much in the samples we acquired, relatively speaking, regarding average user ratings, the average length of descriptive text, and medical device status information. Currently, there is no easy and cost-effective way to analyze the full range of a large app repository ad-hoc. There is also no defined app evaluation methodology according to recent reviews [3]. Healthcare professionals, who rely on valid information about the apps, are disadvantaged by this situation. It would be helpful if store operators were more transparent about their offers, for example, by establishing gateways or store listings reporting the necessary aspects.

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