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Kaboha, Nathalie (ed.); Bani Hani, Jasem (ed.); Seigneur, Jean-Marc (ed.); Choukou, Mohamed-Amine (ed.)

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The Role of Technology in Senior Co-Caregiving Support

A Scoping Review of Senior Care Mobile Applications

Nathalie Kaboha

College of Rehabilitation Sciences, University of Manitoba,
Winnipeg (MB), Canada
kabohan@myumanitoba.ca

Jean-Marc Seigneur

University of Geneva, Switzerland
Jean-Marc.Seigneur@unige.ch

Jasem Bani Hani

College of Rehabilitation Sciences, University of Manitoba,
Winnipeg (MB), Canada
banihanj@myumanitoba.ca

Mohamed-Amine Choukou

College of Rehabilitation Sciences, University of Manitoba,
Winnipeg (MB), Canada
amine.choukou@umanitoba.ca

ABSTRACT

This study aims to understand digital technology's role in augmenting efficiency in caring for an aging population. More specifically, we looked for mobile applications (apps) that support the activities of multiple family members who share the task of attending to a senior loved one. We screened a total of 4300 apps in the Google Play store. Although we found a plethora of apps about seniors' care, only a small number of them focused on caregiving, reflecting the need for more technological support in co-caregiving.

CCS CONCEPTS

• **Applied Computing**; • **Life and medical sciences, Health Informatics**;

KEYWORDS

Co-Caregiving, Applications, Mobile, Seniors

ACM Reference Format:

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1 BACKGROUND

Elderly persons who necessitate caregiving rely on family members to varying degrees for organizing or providing the needed care. (This practice is referred to in this paper as senior care, and those receiving senior care are referred to as care recipients). In the U.S., 55.8 % of people over the age of 80 need daily senior care, and the majority of senior care is often expected to be provided or organized by family members [1]. When senior care is provided or managed by family members, it usually is done by more than one person. Literature indicates that in 74% of families where adult

children provided senior care, at least two siblings were involved in sharing this task [2]. Indeed, an adult child is more likely to engage naturally in senior care if another sibling is involved [3]. In this paper, we have named the phenomena of multiple family members participating in senior care *co-caregiving*.

Today in the U.S., 60% of adult children who are actively involved in senior care also work at a paying job [4]. This burden has given rise to the need for efficient, time-saving ways to organize co-caregiving, and many businesses specialize in aiding with these tasks. With increasing smartphone efficiency and accessibility, apps that cater to seniors and senior care providers are not challenging to find and use. While most of these apps are designed for organizations that sell services for seniors or book senior care services, some are also designed to include the needs of family members who engage in co-caregiving.

2 METHODS

We reviewed 4300 apps in the Google Play store to identify the apps dedicated to co-caregiving for seniors. To be included, apps must meet the following *co-caregiving* criteria: (i) Co-caregiving properties that allow multiple family members to log into the same account and view activities pertaining to the care of the care recipient. Once they have met that criteria, they must also meet one of the following 3 criteria: (i) designed primarily for senior care or readily adaptable to senior care, (ii) the app allows professional service booking for senior care or communication with a professional caregiver, (iii) the services offered (if any), are available in the U.S. or Canada. Apps that were not designed to allow for co-caregiving were excluded, and each app had to additionally display the properties of at least one other of the three aforementioned inclusion criteria.

There were 19 keywords terms used, and 6 of the keywords that are most readily associated with seniors were paired with more general, organizational terms. For example, the keywords *seniors* and *geriatric* were paired with the words *organizing*, *scheduling*, *transport*, *planner*, *scheduler*, and *appointment*.

In total, we screened 4,300 apps in the Google Play store for three days in a row in February 2021 using keywords related to senior care, healthcare, and caregiving. The first 50 apps that each keyword term produced were screened both in the free app and paid app categories in the Google Play store, and the description of each app was read. Apps that were duplicates or games were

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excluded. The app descriptions, year of the latest update and the number of installs were also recorded.

3 RESULTS

We found 180 apps that directly cater to senior persons or providers of senior care (including apps for professional caregivers). All of the apps found were last updated between 0-3 years by the day we screened them. Of these 180 senior-related apps, 11 of them were designed to facilitate co-caregiving (such as creating shared schedules, storing important paperwork, and assigning tasks), and fit into at least one of the four aforementioned inclusion criteria. We noted that 9 of these 11 co-caregiver apps were designed for senior care, (e.g. reporting on visits to senior care recipients) and seven apps allowed for either direct senior care service booking or communication with a professional caregiver through the app. Lastly, six of the apps were related to professional senior care services in Canada or the U.S. (such as Alberta and California). Of those, two apps were available in Canada, and four were available in the U.S.

4 DISCUSSIONS AND RECOMMENDATIONS

While there is a large amount of academic literature and several studies on care for older adults and family caregivers, a very small amount of this information pertains to digital platforms for senior care caregivers, such as apps. To our knowledge, no study has been done that showcases the role we found that technology plays in supporting co-caregiving. The recent updates of all senior-related apps point to an increased reliance on digital technology in the senior and senior care sector. Aging populations will only prolong and further raise the demand for multiple family members to participate in senior care [5]. With families increasingly spread across the world and most family caregivers engaged in other occupations and social activities in addition to caring for aging loved ones, the phenomena of co-caregiving will arguably continue to expand. This

study revealed that co-caregiving apps contribute to augmenting the family role in caring for seniors and enable continuity of careers and social participation [6]. However, apps that specifically cater to senior care organizers and providers should pay attention to the need for co-caregiving functions as retrieved in the 11 retained apps in our study, such as the ability for multiple caregivers to log into the same account, retrieve and add information about a care recipient for all caregivers to see, add updates, and schedule tasks.

5 CONCLUSION

It was not difficult to find many apps primarily designed for use by seniors or their caregivers in the Google Play store. However, conducting this exact search in the Apple App Store proved to be more challenging. It is primarily set up for searching via a mobile device (desktop searches produce results largely unrelated to keyword terms), making large-scale screening and data import inefficient. Of the Google Play store apps that we screened and narrowed down according to function, only 14% met our co-caregiving criteria. These results draw attention to the shortage of digital support for persons engaging in co-caregiving and an opportunity for senior care app creators to develop.

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