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Correspondence



The use of careFiji app for contact tracing during the COVID-19 pandemic: Digital gap and challenges faced in Fiji

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ABSTRACT

Globally, digital contact tracing initiatives has been used as a tool to combat the COVID-19 pandemic. The Fijian Government and Ministry of Health are promoting the use of the “careFiji” app to help in contact tracing. This paper will discuss the rollout of the careFiji app which helps in combating COVID-19 in Fiji, and the challenges caused by the digital gap that has surfaced during the pandemic.

1. Background

The article by Munzert et al. [1] provides details regarding the use of digital contact tracing (DCT) during the COVID-19 pandemic and its effectiveness in tracking the spread of this virus. Globally, governments have rolled out DCT initiatives to aid in tracing the primary and secondary contacts of a COVID-19 positive case. It was evident that the strategies like lockdowns, the use of PPE (i.e., facemask, hand gloves, and face shield), and social distancing worked well [2,3]. Hence, a system like DCT combined with strategies like lockdowns can be very helpful in controlling this pandemic, as mobile apps can record and report encounters between people who may have interacted with an infected person, which can be used to halt the spread of the illness.

The first case of COVID-19 in Pacific Island Countries was detected in the first quarter of 2020. Fiji confirmed the first positive case of COVID-19 on March 19th, 2020 and a second wave is currently impacting the Fijian citizens since April 2021 [3–5].

2. What we know about COVID-19 pandemic in Fiji

- Second wave of COVID-19 started on 18th, April 2021,
- The government has promoted the use of careFiji app and encouraged proper hand hygiene practices,
- New laws have been passed to impose fines for individuals who fail to use PPE (i.e., facemasks) when moving out of the house and do not follow 2-meter social distancing as well as those who engage in social gatherings.
- The government has been actively working to vaccinate the population since early 2021.

In this research, we highlight the challenges that were faced during the rolling out of careFiji app in a developing nation such as Fiji where only 49.9% of Fijians access the internet daily [6]. CareFiji app is designed to run on android and iOS operating systems. It is a lightweight app that uses the Bluetooth Low Energy technology to log encounters between two devices that can be used for contact tracing if an individual was in close proximity with a positive case of COVID-19. An update of

the app in June, 2021 added the QR code scanner which people can use to check-in and checkout at a location. A snapshot of the updated app is given in Fig. 1.

3. Benefits of careFiji app

The careFiji app which was initially released in 2020 to track the transmission of the SARS-CoV-2 virus has been very beneficial for Fiji. Some of the advantages of having the careFiji app are:

- Saves time as people can avoid filling in details manually when visiting malls, supermarkets and going to work by using the QR code scanner in the app to check-in and out of the location.
- Collects close proximity data about the encounters with other people which helps in contact tracing.
- Helps the Ministry of Health (MoH) by providing the mobile number of app users which is used to send warnings through SMS to individuals if they have come in close proximity of a suspected or confirmed case of COVID-19.

While installing the careFiji app the following privacy safeguards are ensured.

- The only personal information collected is the mobile number,
- No one can see the information stored in your phone,
- Only after your consent, can the MoH and medical services access your information,
- Information collected will solely be used for COVID-19 contract tracing,
- Location information is not collected.

4. Challenges caused with careFiji app

Despite of benefits associated with CareFiji app there are some common challenges faced in the rollout of this app.

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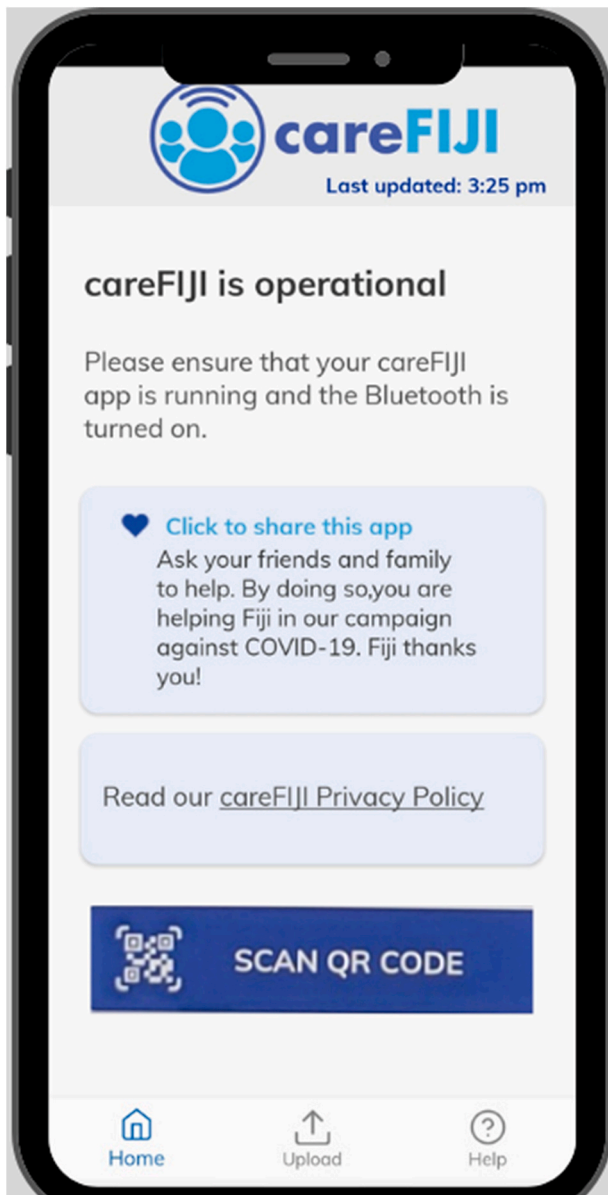


Fig. 1. Snapshot of careFiji app [6].

- **Incompatible Devices** In Fiji the older generation and low-income families use simple mobile phones that are not capable of installing or running apps such as careFiji.
- **Insufficient digital literacy:** careFiji app requires basic knowledge about android and iOS operating systems that the older generation may lack, thus, a wider technological gap is created.
- **Issues installing on low end devices:** majority of the population use low-end devices that cause issues when installing new apps like careFiji due to insufficient storage space.
- **Poor adaptation of the app:** There have been challenges in urging the people to install the app which creates a risky environment when going outside as no information will be recorded regarding your close proximate. The world health organization (WHO) announced safety measures to curb the virus from spreading. The most common recommendation is maintaining a distance of 2 meters whereby those who have not installed careFiji are required to queue up and manually register themselves before entering to facilities such as supermarkets, hence this is more risky as the stationery (pen) that would be used to manually register comes in contact with various individuals from various backgrounds.

- **QR scanner failures:** The QR scanner feature requires an internet connection to work and fails if the connection is unstable. There are also issues where the app crashes while trying to scan the code. People also find it difficult to continuously scan codes when moving between multiple stores.

To increase the download of the app, companies such as Vodafone Fiji Limited have stepped in by reducing the price of some smartphones making them affordable for low-income earners. The service providers such as Digicel Fiji Limited and Vodafone Fiji Limited have agreed to reimburse 100MB of mobile data to individuals that download the app, which is 10 times more than the 10MB required to download the careFiji app [7]. The Fijian government has encouraged the download of the app to ensure that all citizens remain safe as it will aid in contact tracing if a person has a close encounter with COVID-19 positive case helping reduce further spread of the virus.

5. Technical limitations of DCT

To detect the devices in the range, these tracking apps require location access permission on smartphones, so that the careFiji app can work with Bluetooth technology to gather close contact information if in case of an encounter with a positive case of COVID-19. The following are some of the limitations of the app, which are based on the COVID-19 patients' contact tracing.

- **Installation of app:** It will be hard to track and monitor any suspected patient unless the tracking software is loaded.
- **Privacy concerns:** Practically all tracking apps require location service to be turned on to detect devices within range. It forces users to turn on Bluetooth and location access for apps like careFiji. This is an issue as third-party apps such as Facebook, Snapchat, Viber, and WhatsApp will be able to access the location data as well.
- **Power consumption:** One downside of this app is that it uses more power due to Bluetooth and location service being enabled all time. This can be an issue for low-end devices with smaller battery capacities.
- **Literacy:** It is vital to be literate to utilize DCT apps effectively. It creates a hurdle for a huge number of users to adopt such apps.

This study highlights some of the potential benefits, challenges, and technical limitations associated with careFiji app. The use of DCT is a millstone in combating COVID-19, hence, even though it has challenges and limitations the use of apps like careFiji has played a vital role in the contact tracing efforts by the MoH and should be promoted to allow widespread adoption.

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Shivnay S. Chand was lead author on this letter.

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No conflicts of interest.

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