# Assistance of Android-Based Diabetes Mellitus Risk Early Detection Model Application

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## Abstract

Diabetes Mellitus (DM) cases increased year by year. Reported in 2019 there were 463 million to 537 million people sufferer DM in 2021. Several cases of DM patients who have experienced complications of diabetic foot ulcers have been found in Sungai Ambangah village. This should be a concern, not only in taking action on patients who have experienced complications because preventive measures must also be a priority to be carried out so that no more people experience DM. Therefore, to increase awareness of the importance of improving lifestyle in order to avoid DM disease, early detection is needed. One of them can be by utilizing an Android application (Si Manis)
**Keywords:** Diabetes Mellitus, Android, Early Detection

## INTRODUCTION

DM cases in the world are still very high, where an increase is reported, in 2019 there were 463 million to 537 million people in 2021 (Ogurtsova et al., 2022). Meanwhile, people with Diabetes Mellitus (DM) in Indonesia were reported in 2019 as many as 10.7 million to 19.5 million people. The increase in DM cases in Indonesia puts it in the 5th highest ranking in the world. DM sufferers in West Kalimantan have increased from 1.1% in 2013 to 1.6% in 2018 (Kemenkes, 2018). Especially in the Kubu Raya area, 2,249 cases of DM were reported (Pratama et al., 2021). One of the areas of Kubu Raya is Kumpai Besar Sungai Ambangah Village, which is inhabited by the majority of ethnic Chinese, some of whose residents have also experienced DM. This, of course, needs to be done to prevent it from developing (Pratama et al., 2022).

Seeing this phenomenon, it is necessary to take early prevention in order to avoid DM disease which can cause various health complications and lead to death. The increase in digital technology is also in line with various innovations in the health sector. One of the innovations in the health sector is DM risk assessment with an android application. The android application is named "SI SWEET". The application can provide an idea, whether a person has a risk of developing DM or not. In people who are declared at risk of experiencing DM, the results of the examination become one of the considerations, to take precautions so as not to get DM disease by improving lifestyle, regulating diet, adequate rest and exercise.

## METHOD

The method consisted four steps, namely: 1) Field survey: ear information about locations, 2) Preparation facilities and infrastructure that will support this activity. The preparation is about the place and location that we will use for the activity. Other facilities will be prepared in stages taking into account the level of need. 3) Implementation of action activities. 4) evaluation of program.

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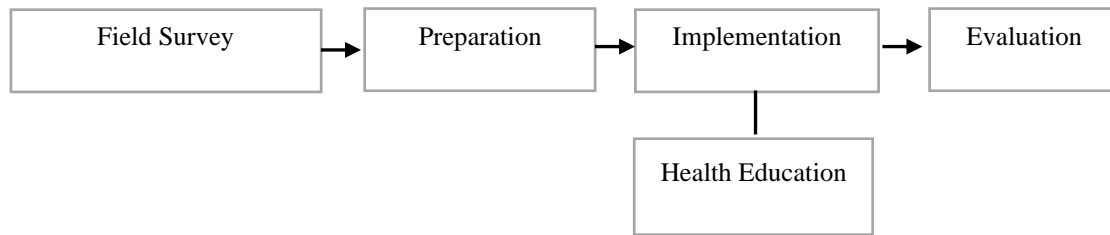
**Figure 1**. Community service activities

## RESULTS

The activity lasted approximately 100 minutes, with high enthusiasm from the community. After that the team asked participants to download the SI Manis application, which was one of the early detection applications for DM risk and then explained how to use the application from the beginning until the results came out. End of the activity, an evaluation of the participant's ability to use the android application was carried out, an interpretation result was obtained which showed what the percentage of DM risk was to the user.

**Tabel 1**. Performance in the use of DM Early Detection Application

| Grade | Score | | Total (n=40) | |
|---|---|---|---|---|
| | Poin | % | n | % |
| Good | 15-20 | > 75 | 20 | 50,00 |
| Satisfying | 10-40 | 50-70 | 15 | 37,50 |
| Poor | < 9 | < 45 | 5 | 12,50 |

## DISCUSSION

The lack of health facilities and personnel in Kumpai Besar Sungai Ambangah Village which is not proportional to the population allows the community to be less exposed, especially people with type 2 DM and their families related to the risk of DM disease. This was evidenced by the presence of patients who have suffered from the disease and some have experienced complications of diabetic foot ulcers. It is necessary to try to reduce the number of DM sufferers by doing prevention, by checking the risk of suffering from DM with one of them using the android-based application.

## CONCLUSIONS AND RECOMMENDATIONS

Based on the presentation of all activities to the residents of Sungai Ambangah, it can be concluded that a number of the output targets that have been achieved include: (1) There was good cooperation from the organizers and partners, (2) Participants were able to actively participate (3) the majority of participants have good performance.

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## REFERENCES

Agus Wijanarka, A. W., & Setyowati, S. T (2021) Penggunaan Aplikasi "Dedi-DM"(Deteksi Dini Diabetes Mellitus) Untuk Skrining Risiko Terjadinya Penyakit Diabetes Mellitus. *Repository*.

International Diabetes Federation (2021). Diabetes Atlas 10th. Di akses 20 Januari 2022

Kementerian Kesehatan RI. Laporan Provinsi Kalimantan Barat Riskesdas 2018.

https://www.wartaperawat.com/prodi-m-kep-fik-umj-kenalkan-inovasi-simanis-peduli-masyarakat-berisiko-dm/

Kemenkes, R. I. (2018). Hasil riset kesehatan dasar tahun 2018. *Kementrian Kesehatan RI*, *53*(9), 1689–1699.

Ogurtsova, K., Guariguata, L., Barengo, N. C., Ruiz, P. L.-D., Sacre, J. W., Karuranga, S., Sun, H., Boyko, E. J., & Magliano, D. J. (2022). IDF diabetes Atlas: Global estimates of undiagnosed diabetes in adults for 2021. *Diabetes Research and Clinical Practice*, *183*, 109118.

Pratama, K., Amrullah, S., Pradika, J., Jiu, C. K., Wuriani, W., Usman, U., Lukita, Y., & Putra, G. J. (2022). Utilization of Herbs as Therapy in the Treatment of Diabetic Foot Ulcers. *ABDIMAS: Jurnal Pengabdian Masyarakat*, *5*(1), 2055–2058.

Pratama, K., Pradika, J., Jiu, C. K., Putra, G. J., Wuriani, W., Usman, U., Gusmiah, T., & Lukita, Y. (2021). Care Giver Competency in Prevention Risk of Diabetic Foot Ulcer in Diabetes Mellitus Patients. *ABDIMAS: Jurnal Pengabdian Masyarakat*, *4*(2), 1140–1144.