



PROCEEDINGS

The 4th International Conference on Sustainable Innovation (ICoSI) 2020

Cutting Edge Innovations for Sustainable Development Goals

Universitas Muhammadiyah Yogyakarta (Indonesia)

October 13 - 14 2020

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Focal Conferences



- ✔ (ICPU) The 2nd International Conference on Pharmaceutical Updates
- ✔ (ICOMS) The 6th International Conference on Management Sciences
- ✔ (ICLAS) The 9th International Conference on Law and Society
- ✔ (ICMHS) The 4th International Conference Medical and Health Sciences
- ✔ (ICAF) The 6th International Conference for Accounting and Finance
- ✔ (ILEC) The 2nd International Language and Education Conference
- ✔ (ICONURS) The 2nd International Conference on Nursing
- ✔ (ICITAMEE) The 1st International Conference on Information Technology, Advanced Mechanical and Electrical Engineering
- ✔ (IConARD) International Conference on Agribusiness and Rural Development
- ✔ (ISHERSS) The 2nd International Symposium on Social Humanities Education and Religious Sciences
- ✔ (ICONPO) The 10th International Conference on Public Organization
- ✔ (DREAM) The 5th Dental Research and Exhibition Meeting
- ✔ (ICHA) The 5th International Conference on Hospital Administration
- ✔ (ICOSA) The 3rd International Conference on Sustainable Agriculture





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Preface by the Chairperson of the 4th ICoSI 2020



Dr. Yeni Rosilawati, S.IP. S.E., MM.

Assalamu'alaikum Wr. Wb.

All praise is due to Allah, the Almighty, on whom we depend for sustenance and guidance. Prayers and peace be upon our Prophet, Muhammad SAW, his family and all of his companions.

On behalf of the organizing committee, it is my pleasure and privilege to welcome the honourable guests, distinguished keynote & invited speakers, and all the participants.

With the main theme of “Cutting-Edge Innovations on Sustainable Development Goals (SDGs)”, the 4th International Conference on Sustainable Innovation (ICoSI) 2020 serves as a forum to facilitate scholars, policy makers, practitioners, and other interested parties at all levels from Indonesia and abroad to present their novel ideas, promote cutting-edge research, and to expand collaboration network. The conference has about 1373 participants participating from more than 8 countries 4 continents all over the world, making this conference a truly international conference in spirit.

This multidisciplinary conference was first held in 2012 and has undertaken various changes and adopted to the current technological trends of our education system. From having this conference with just 175 participants back in 2012 we have come a long way in making the conference a huge success with more than 1373 participants participating in this two-day conference.

Formerly, this conference consisted of only 9 (nine) focal conferences. This year, there are 14 focal conferences from various disciplines, namely: 1) The 2nd International Conference on Pharmaceutical Updates (ICPU), 2) The 6th International Conference on Management Sciences

(ICoMS), 3) The 9th International Conference on Law and Society (ICLAS), 4) The 4th International Conference Medical and Health Sciences (ICMHS), 5) The 6th International Conference for Accounting and Finance (ICAF), 6) The 2nd International Language and Education Conference (ILEC), 7) The 2nd International Conference on Nursing (ICONURS), 8) The International Conference on Information Technology, Advanced Mechanical and Electrical Engineering (ICITAMEE), 9) The 2nd International Conference of Agribusiness and Rural Development (IConARD), 10) The 10th International Conference on Public Organization (ICONPO), 11) The 2nd International Symposium on Social Humanities Education and Religious Sciences (ISHERSS), 12) The 5th Dental Research and Exhibition Meeting (DREAM), 13) The International Conference on Hospital Administration (ICHA), and 14) The 3rd International Conference on Sustainable Agriculture (ICoSA).

Accordingly, We are proud to announce that this year, the 4th ICoSI 2020 breaks the Museum Rekor-Dunia Indonesia (MURI) record as the Virtual Multidisciplinary Conference with the Largest Number of Area of Fields in Indonesia

In addition, this year, this conference holds special value since this is the first conference in the history of our university where the entire conference is taking place remotely on a digital platform through the use of advance technologies due to the Covid-19 Pandemic.

I would take this opportunity to express my highest respect to the Rector of Universitas Muhammadiyah Yogyakarta, Dr. Gunawan Budiyanto who gave approval and ensured the maximal support from all the faculty members of Universitas Muhammadiyah Yogyakarta (UMY) that made this event a big success. In addition, my appreciation goes to all the support teams who have provided their valuable support and advice from planning, designing and executing the program.

Let me conclude my speech by encouraging the delegates to participate with an increasing number in all the activities and discussions through the digital platforms for the next two days. I wish everyone a successful, safe, and fruitful conference.

Thank you!

Wassalamu'alaikum Wr. Wb.

Yogyakarta, Indonesia, 14 October 2020



Welcoming Remarks by the Rector of Universitas Muhammadiyah Yogyakarta



Assoc. Prof. Dr. Gunawan Budiyanto

Innovation is the beginning of the development of technology, and technology is a development machine that is expected to provide benefits to humans and provide the smallest possible impact on environmental quality. In the concept of sustainable development, development must improve the quality of human life without causing ecological damage and maintain the carrying capacity of natural resources.

International Conference on Sustainable Innovation (ICoSI) is an international conference which is an annual conference held by the University of Muhammadiyah Yogyakarta (UMY), Indonesia. In 2020 this raises the issue of "Cutting-Edge Innovations on Sustainable Development Goals." Therefore, on behalf of all UMY academics, I would like to congratulate you on joining the conference, hoping that during the Covid-19 Pandemic, we can still provide suggestions and frameworks for achieving sustainable development goals.

About The 4th International Conference on Sustainable Innovation (ICoSI) 2020

Cutting Edge Innovations for Sustainable Development Goals

The 2030 Agenda for Sustainable Development is enacted by the United Nations as a shared blueprint for peace and prosperity for people and the planet, now and into the future. It consists of strategies to improve health and education, reduce inequality, and spur economic growth while also conserving natures by 2030.

This year, however, at the first one-third of its timeline, the SDG Reports shows that the outbreak of COVID-19 did hinder the achievement, or at least decelerate the progress of achieving the 17 goals. In fact, according to the report, “some number of people suffering from food insecurity was on the rise and dramatic levels of inequality persisted in all regions. Change was still not happening at the speed or scale required”, accordingly.

Therefore, in this event of pandemic, the quantity and quality of research, innovation, and more importantly multi-disciplinary collaboration are indispensable. Furthermore, there needs to be clear ends of those works. That is how those research are applicable and benefits directly to the society. That is how those research is incorporated as the drivers of policy making, and used practically in the society. Hence, the stakeholders especially the triple helix of higher education institution, government, and industry must be re-comprehended and supported to reach the common goal of the SGD.

International Conference on Sustainable Innovation (ICoSI) has been essentially attempting to strengthen this regard since its first establishment. One of the goals of ICoSI is to provide primarily a platform where scholars, practitioners, and government could grasp the development and trends of research. Hopefully, meeting these actors altogether would result in stronger collaboration, sophisticated and advantageous research, and brighter ideas for further research. Based on these reasoning, this year, the 4th ICoSI 2020 UMY is themed ‘Cutting-edge Innovations for Sustainable Development Goals’.

Improving from last year conference which brought nine focal conference, this year ICoSI 2020 UMY brings 14 disciplines, from social sciences, natural sciences, and humanities. ICoSI 2020 received as much as 1005 papers. The paper works submitted in ICoSI 2020 UMY will be published in Atlantis Proceedings, IOP Proceedings, National/International Journals, and ICoSI ISBN-indexed Proceedings.

Nevertheless, ICoSI believes that publication is only the beginning of research dissemination. The publications will enhance the chance of the research known by wider audience, and then used, applied, and incorporated at either system, institutional, or personal level of human lives.



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TRACK ECONOMICS, LAW, EDUCATION, SOCIAL, AND HUMANITIES



The Role of Family Support to Medication, Diet and Activity of Diabetic Patients

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ABSTRACT

Diabetes mellitus patients often have difficulty in self care perform, especially in term of medication, diet, or activities. Good family support was needed to help patients achieved self-care adherence. The aims of this study were determined the role of family support to medication, diet and activity of type 2 diabetes mellitus patients. Observational studies with cross sectional techniques were used in this study. As many as 68 respondent involved in this study were taken using purposive with inclusion criteria such as patient who over 25 years, was diagnosed with type 2 diabetes mellitus at least one year, outpatients registered, and was willing to be a respondent. The number of samples was taken by purposive sampling technique as much as 68 respondents. This study was used chi Pearson correlation analysis. This study was showed average of respondent ages are 61 years, had 33 score of family support, had 22 score of medication adherence, and had 40 score of diet and activity adherence. Statistical analysis of this study was showed that only family support has a correlation with diet and activity adherence (p value 0.000; CI 95%). It is necessary to provide knowledge and motivation to families in order to increase support for diabetes mellitus patients in perform their self care, especially in terms of medication, diet and activity.

Keywords: *adherence, diet and activity, family support, medication, type 2 diabetes mellitus*

1. INTRODUCTION

Medication, diet, and activity are activities that diabetes mellitus patients should do. Diabetes mellitus patient adherence to medication, diet, and activities were needed to achieve optimal glycemic control [1], [2]. Adherence of diabetes mellitus patient to these three components can increase or decrease due to many factors such as internal factors including knowledge, motivation, self-efficacy, and external factors. External factors that can influence diabetes patients to comply with medication, diet, and activities to achieve their glycemic control, one of which is the support they get from their families [3]–[5].

The family is the functional unit of society. The family has social, nursing, economic and health care provision functions [6]. A person can behave healthy and sick from his family. Each family can define illness differently depending on the process in the family. When a member of the family is sick, it has an impact on the role of the family and the support given to the family member [6].

Diabetes mellitus is a chronic disease that requires continuous medication, diet and activity not only in months but also year [7]. Chronic diseases such as diabetes mellitus require complex treatment because individuals diagnosed with diabetes mellitus need treatment that involves several specialists according to their health conditions. This has an impact, of course, on patients and also their families because they have to spend more time and money in treatment than acute illnesses [6]. Another impact that must be related to the patient and other families is the emotional, psychological

impact of the illness [8], [9].

The results of previous studies indicate that one of the external factors that support blood glucose control is support from family [5], [10], [11]. Patients with diabetes mellitus need to be given continuous motivational support and enthusiasm in order to accept their disease and comply with treatment. Motivation from the family is an important external support because the family is the patient's closest environment and the family has a role in health care. Positive family support has a positive influence on glycemic control and control of diabetes mellitus patients [3]–[5], [11].

2. METHOD

2.1. Participants

This study using cross-sectional study. Samples using a purposive technique with inclusion criteria having been diagnosed with diabetes mellitus at least one year, aged over 25 years, registered as outpatients, and residing in Serang district. The number of samples was are 68 people.

2.2. Data Collection and Research Instrument

Data collection using instruments that had been tested for validity and reliability on 20 participants with a Cronbach's Alpha value > 0.468 for medication adherence instruments, diet and activity instruments, and family support instruments. Respondents filled out the instruments

after agreeing to participate in this research. There is no element of coercion of the respondent's participation in the research. Respondents have the right to stop whenever the respondent wants if the data collection process in this study causes inconvenience.

2.3 Data Analysis

Data analysis applying univariate analysis which presented in mean, median, SD, and min-max. While Pearson correlation statistical test applying in the bivariate analysis to find the correlation between family support as independent variable to adherence to medication, diet, and

Table 1. Demographic, Patient Adherence, and Family Support

| Variable | Mean | Median | SD | Min-Max |
|-----------------------------|-------|--------|------|---------|
| Age | 60.90 | 59.00 | 7.18 | 50-78 |
| Medication adherence | 32.47 | 33.00 | 7.31 | 19-49 |
| Diet and activity adherence | 21.75 | 22.00 | 4.05 | 12-30 |

activity as dependent variable.

Table 2. Correlation between Family Support to Medication Adherence, Diet and Activity Adherence

| Variable | Pearson Correlation | P Value | N |
|-----------------------------|---------------------|---------|----|
| Medication adherence | 0.165 | 0.178 | 68 |
| Diet and activity adherence | 0.473 | 0.000 | 68 |

3. FINDINGS

Age is one of the factors that influence a person's acceptance of a disease condition. The researcher found that the mean score of the medication adherence variable is poor. The maximum score of the questionnaire is 32, while the mean score of the respondents is 21.75. This means that the

compliance with the respondents' medication tends to be low.

The data normality test shows a normal distribution of data on age, family support, medication adherence, and dietary and activity adherence. Table 1 presents demographic data, patient adherence, and family support in mean, median, SD, and min-max values. The study results display that age average of respondents were 61 years old, have family support score of 33 (max score 64), had medication adherence score of 22 (max score 32), also have dietary and activity compliance score of 40 (max score 80).

Pearson correlation test results is list in Table 2, reveal a significant correlation between family support to diet and activity adherence (p value 0.000; 95% CI). But there is no significant correlation between family support and age (p value 0.065; CI 95 %) or medication adherence (p value 0.178; 95% CI).

4. DISCUSSION

4.1. Demographic

The results of the questionnaire analysis implies that the most respondents who does not comply with medication was taking medication according to schedule. The reason given was forgetting or not remembering the schedule for taking medicine. But there are also those who argue that they are uncomfortable in adhering to treatment. The last reason put forward may be related to the age of the respondents who had not reached 35 years of age when diagnosed with diabetes mellitus. This is evidenced by the number of respondents who do not adhere to treatment are under the age of 35.

The results of previous studies indicates that age can be related to compliance with self-care such as diet and medication [10]. Age less than 40 years is known to not comply with self-care due to busyness or being of productive age. In addition, at that age, patients generally do not feel any significant symptoms other than hyperglycemia, because comorbidities have not occurred yet. Except in patients with onset diabetes at a young age or genetic factors that increase the risk of comorbidities earlier, adherence to self-care is better [7].

4.2. Family support and medication adherence

Adherence to medication is very important in controlling blood sugar levels in patients. The results of the correlation test on family support with medication adherence shows an insignificant correlation. The maximum value of medication compliance is 30, while the mean value of the respondents is 21.75. That is, the level of medication adherence tends to be low.

The findings in this study are the majority of diabetic patients adhered to medication if clinical symptoms was developed due to hyperglycemia. They tend to adhere to taking the medicine when the effects of hyperglycemia are felt, for example weakness, nausea, lack of energy, and drowsiness, which disturbs their daily activities. However, if their blood glucose levels are stable, they do not take the

medicine and they do not even continue control to the health care center or hospital.

When complications arise due to diabetes, patients often have to take several types of drugs at once. The results of our analysis show that taking a lot of drugs at the same time makes the patient uncomfortable and tired, moreover it takes a long time. Most of the patients states a history of diabetes mellitus more than 5 years, which made them saturated with adhering to medication. At the time when they were diagnosed with diabetes, they said they were still diligent and obedient to taking medication. But over time they admit to feeling bored when it's time to take medicine. And little by little as time went by, they began to disobey their medication.

Poor adherence to medication and a lack of understanding of the treatment instructions are the main obstacles to the treatment of type 2 diabetes mellitus. Lack of adherence to medication and lifestyle can contribute significantly to increasing the burden of this disease. Adequate support provided by the family helps patients achieve adherence, one of which is in medication [12]. The analysis implies patients need their families to adhere to treatment. Not only to help remind them when to take medication, but they need more mental support to continue adhering to medication. They need encouragement from their families when they are not enthusiastic about continuing the medication. And they also state they need their family when they have to go to the health center to get medicine.

Those with low blood sugar scores were more likely to adhere to the recommended diabetes diet and take medications as directed by their doctor compared to those with high blood sugar [13]. Poor blood sugar control was significantly associated with duration of diagnosis and disease progression. Diabetes is a progressive disease and when glucose levels increase, more drugs are needed to control it, thus increasing the number of drugs taken and this can lead to an increase in their non-adherence which eventually becomes an obstacle to diabetes treatment [14].

Barriers can be prevented through ongoing support from various sources, especially families [15]–[17]. The family can exhibit several roles in the diabetes treatment process, such as specific family behavior at several stages of decision making, and the attitude of a stakeholder towards treatment decisions [6]. The family's contribution to decision making is often seen indirectly as supportive and facilitative behavior rather than giving opinions and preferences openly, besides that the family helps and facilitates decision making through gathering information, strengthening the patient's understanding of information, and acting as a source of information for patient [6], [18], [19]. It is also necessary to have adequate information on treatment that is known to the family so that it can provide positive support in accordance with the patient's recommended treatment [20].

4.3. Family support and diet and activity adherence

The results showed a significant relationship between

family support and dietary adherence to diabetes patients with Pearson correlation 0.473. However, other studies show that there is no significant relationship between family support and a diabetic diet, Sushant pointed out that patients who receive support from their families are no better at controlling diabetes than patients without their family support.

The analysis due to a lack of individual and family knowledge about healthy lifestyles and dietary interventions for metabolic disease management. The researcher was asked respondents why they are not follows the diet, and most of them answered because they are not known much about it. The patients were said that they did received information about the disease while diagnosed at the beginning, so that the information obtained was forgotten. They finally find out for themselves the diets for diabetes disease through media such as television or from the experiences of friends or neighbors who have both been diagnosed with diabetes mellitus.

The results of data verification with health center officers showed that outpatient diabetes patients were categorized as non-communicable diseases and had a routine service schedule 1 day a week. Health services for diabetes mellitus patients coincide with services for other non-communicable diseases, for example hypertension. They said there was no specific schedule for diabetes mellitus education because diabetes patient health services were carried out simultaneously with hypertensive patients. Only patients who inquired specifically about their condition were provided with information, or when a diabetic patient was found to have consistently high blood glucose levels would receive education.

This condition according to the finding is a condition that contributes to the low knowledge of diabetes mellitus patients and their families. They don't get the information they should receive if they don't question it. In addition, information obtained from unauthorized sources will mislead them such as when adjusting their diet.

This study also points the maximum value of dietary compliance of respondents was 52. Meanwhile, the average value of dietary adherence was 39.78. It can be seen that the dietary compliance of the respondents is good enough. However, patients and families need adequate and continuous information so that they are steady in managing the diet for their diabetes mellitus family member. Because families can provide the best support if they have good knowledge about it.

Family is an important source of social support in the care of diabetic patients [5], [19], [21], but many family members do not have adequate knowledge and awareness about diabetes management in this case related to their diet and activity as well as their role in caring for their family, patients who get family support experience a significant decrease in blood sugar than who controls independently. This is in line with previous studies on family involvement in the management of type 2 diabetes [22]–[24].

Failure to implement a diet can occur for several reasons, can occur due to one's inability to carry out a diet to a diet that is not the same as the patient's recommended diet and family food [5], [19], [21], [25]. Inflexible diet plans

often do not fit into their daily life schedule which is the cause of failure in diet adherence. It is necessary to recommend a more flexible diet according to the individual's daily schedule and also the individual's ability to carry out the diet, with this strategy the individual will not feel boredom and difficulty while running a diabetes diet [15], [17], [26], [27].

A study states that spouse involvement was found to be the strongest support in providing family support. Yet another study found that diabetics strive to stay healthy for their families. Their roles and responsibilities as parents keep them going for the sake of their children [5], [16], [19].

5. CONCLUSION

This study was concluded that diabetes mellitus patient compliance with diet and activity as well as medication requires support from family as the closest environment to the patient. Families should have good knowledge and behaviors that support diabetes mellitus patient compliance in carrying out self-care at home. Family involvement in diabetes mellitus patient compliance with self-care has an impact on the patient's glycemic control.

ETHIC

This study has pays attention to ethical principles and had received approval from Serang District Health Office. Before getting approval, the researcher first was presented the research plan. This study does not have a conflict of interest. Each respondent has the right to choose whether to be involved in the research or not and has the right to pull out from the research if he does not hold with to continue his involvement.

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