

# PROCEEDINGS

## The 4<sup>th</sup> International Conference on Sustainable Innovation (ICoSI) 2020

Cutting Edge Innovations for Sustainable Development Goals

Universitas Muhammadiyah Yogyakarta (Indonesia)

October 13 - 14 2020

<https://icosi.umy.ac.id/>

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

Accordingly, We are proud to announce that this year, the 4<sup>th</sup> 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 4<sup>th</sup> 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



# Analysis of Education and Family Income Factors on Caregiver Burden in Elderly Care at Community Health Center of Perak Timur

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## ABSTRACT

Elderly care is an obligation that must be done as a primary form of family support. One of the supports is to make the family a caregiver of the elderly, but the family does not often carry out this task well due to the factors that exist in the caregiver's self, such as lack of knowledge due to the low level of caregiver education and lack of family income. The purpose of this research was to analyse the relationship between educational factors and income towards caregivers burden in elderly care.

The research design used correlational analysis with a cross-sectional approach. Total population was 340 that the samples were 129 samples taken by cluster random sampling. The samples have met the inclusion and exclusion criteria. The ZBI caregiver burden questionnaire (Zarit Burden Interview) was used collect data. Data analysis used SPSS 16 with chi square test with a value  $\alpha < 0.05$ . The results of research conducted on caregivers at Community Health Centre in Perak Timur showed that the care giver burden was mostly medium burden 58.9%, the caregiver was mostly high school education category and most of the income factor was  $\leq 3,000,000,000$ . The results showed an educational factor value  $\alpha > 0.734$  and an income factor value  $\alpha > 0.148$ , which meant there was no relationship between the factors of education and income with the burden of caregiver in elderly care. There are many other factors that can affect the caregiver's burden such as length of stay, age, gender, family and ethnic relationships. Based on the chi square analysis test, the length of time being treated has a significant relationship with a value of  $\alpha < 0,044$ . Since the average length of elderly care in the area at Community Health Centre of Perak Timur region was more than 2 years. There was no relationship between education and income to the burden of caregivers in caring for the elderly. Therefore, it was hoped that in further research, the research can be carried out on other variable factors such as the length of caring for the elderly, gender and family relationships. The health centre in this case government agencies needed to provide support and assistance to families in elderly care.

**Keyword:** Caregiver Burdens, Elderly Care, family income factors, education factor

## 1. INTRODUCTION

Elderly is someone who has reached the age of 60 years and over, at this age will experience the aging process (2). The process of aging is a scientifically continuous process, which starts from birth and is generally experienced by all living things. Aging is a process of slowly disappearing the ability to repair itself or replace oneself and maintain normal structure and function so that they cannot withstand infection and repair the damage suffered, there will be various disease that often occur in the elderly (14).

Families who live with the elderly have an important role in care (10), the decline in ability and the number of disease that occur in the elderly needs support from the family, the role of the family as caregiver informally is as a motivator, educator, and facilitator for the elderly (8). A family must be an encouragement for the elderly to live the rest of their life well. The family must be able to provide health information, so that the elderly can know which

things to do or not, the family must also be able to guide, help and fulfill all their needs. The family as a caregiver has a big influence on the elderly, but often this role cannot be carried out properly due to various factors that exist outside and within the caregiver. The large burden of family caregivers in elderly care and the increasing number of elderly people in the community are reasons for the need to know the factors that affect the caregiver's burden in elderly care.

Population ageing is a global phenomenon. Virtually every country in the world is experiencing growth in both the size and the proportion of older persons in the population. In 2019, there were 703 million persons aged 65 years or over in the global population. This number is projected to double to 1.5 billion in 2050. Globally, the share of the population aged 65 years or over increased from 6 per cent in 1990 to 9 per cent in 2019. That proportion is projected to rise further to 16 per cent in 2050, when it is expected that one in six people worldwide will be aged 65 years or over. Globally, the number of persons aged 80 years or older nearly tripled between 1990 and 2019,

growing from 54 million to 143 million; it is projected to triple again between 2019 and 2050 to reach 426 million. Between 1990 and 2019, the number of persons aged 80 or over doubled in all regions except Europe and Northern America and tripled in four of eight regions. Between 2019 and 2050, the number of persons aged 80 years or over is projected to show the largest percentage increases in Eastern and South-Eastern Asia and in Northern Africa and Western Asia (13). In almost five decades, the percentage of Indonesian elderly has doubled (1971-2017), namely to 8.97 percent (23.4 million), where female elderly is about one percent more than male elderly (9.47). percent versus 8.48 percent). In addition, the Indonesian elderly is dominated by the 60-69 year old group (young elderly) whose percentage reaches 5.65 percent of the Indonesian population, the rest is filled by the 70-79 year old age group (middle elderly) and 80+ (old elderly). In 2019 the number of elderly people in East Java reached 13.06% and Surabaya 8.84% (1).

The increasing population of the elderly creates more problems in Indonesia. This is related to the changes that occur due to the aging process where the elderly has decreased various functions of the body's organs. It can cause them to not function optimally that has an impact on the quality of life of the elderly. This condition requires support from various parties, especially families as caregivers who are able to care for the elderly and meet their needs, both physically and psychosocial.

A preliminary study conducted at Community Health Centre in Perak Timur of Surabaya in November 2019 that obtained data in July. The total number of elderly people in posyandu (Integrated service post) was 1465 out of 21 posyandu, while elderly diseases that often occurred / complained by elderly people in the last 3 months at Community Health Centre in Perak Timur were, Rheumatism, OA, Arthritis, ARI and Myalgia. Based on the results of interviews with 10 caregivers who care for the elderly at Community Health Centre in Perak Timur of Surabaya, 2 of them do not experience the burden when caring for the elderly then 1 of the caregiver experiences a light burden, then 4 other caregivers experience a moderate burden and 3 caregivers say a heavy burden when caring for the elderly at home.

As a caregiver a lot of pressure and burdens, both caused by the elderly and the conditions experienced by the caregiver itself. Difficulties and inability of the caregiver to overcome and resolve problems that arise in carrying out their duties as a caregiver can become a burden and pressure. Emotional conditions that are usually marked by extreme sadness, feelings of meaninglessness and guilt, withdrawal from others, sleeplessness, changes in appetite, sexual desire and interest in activities that are usually carried out (12). The occurrence of disturbances in this emotional condition certainly has a negative effect on the daily functioning of the caregiver.

The amount of caregiver burden in providing care for the elderly is influenced by several factors. According to Morimoto, Schreiner, and Asano (2003), the factors that influence caregiver burden are age, gender, relationship with clients, and education; client's chronic disease; the

level of functional dependence of the client, namely Activity Daily Living (ADL) and Instrumental Activity Daily Living (IADL), the length of time the caregiver takes care of the client; and caregiver chronic disease (6). Michon, et al. (2005) also suggested that the burden is determined by the strength of the relationship between client and caregiver. Client variables are the need to manage psychosocial behavior and symptoms, while the caregiver variables are satisfaction in caring, demographic characteristics, and social roles. Caring expenses, among others, are related to; physical problems, including fatigue, sleep disturbances, chronic conditions (hypertension, arthritis); psychological problems include feelings of anxiety, worry, pessimism, shame, guilt, impaired self-esteem, and depression; social problems include limitations in relationships with other people, limitations in social activities and free time; financial problems include limited costs and financial resources (3). Sansoni, Vellone and Piras (2004) in their research stated that the level of caregiver education affects the level of depression they experience when caring for elderly people with Alzheimer's disease, where caregivers with a high level of education will have a lower incidence of depression (9).

The effects of the impact experienced by the caregiver as a result of caring for the elderly needs to be prepared early in the face of changing situations they experience. However, to be able to determine what needs the caregiver needs, it is important to know the challenges and obstacles that the caregiver experiences in caring for the elderly in the community. The caregiver's needs can be met and the forms of support or care needed for the elderly can be developed caregiver.

Based on the background description above, the researcher is interested in conducting research on the relationship between education and income factors on the caregiver's burden in elderly care. With this research, it is hoped that the needs and forms of support that can be provided to the caregiver can be identified.

## 2. RESEARCH METHOD

The research design used a correlational analysis with a cross-sectional approach, by linking the variables of education and income factors to the burden of caregivers in caring for the elderly. The total population was 340 elderly who were treated by caregivers with a total sample of 129 which were taken by cluster random sampling and had met the inclusion and exclusion criteria. The independent variables were education and income factors while the dependent variable was caregiver burden. The ZBI caregiver burden questionnaire was used collect data (Zarit Caregiver Burden Interview from Hebert, Bravo and Preville, 2000) by Yossie (15). The process of collecting data with Data analysis used SPSS 16 with chi square test with a value  $\alpha < 0.05$ . The process of collecting data, the researched conducted a license to conduct research at Puskesmas Perak Timur Surabaya. Before the research, the researcher asked for a permit letter from the Muhammadiyah University of Surabaya, then submitted a permit to the head of the Surabaya Bankesbangpol and a

recommendation letter from the Surabaya Health Office for data collection. Further data collection by visiting the respondents one by one to their house. The researcher provided an explanation of the aims and objectives of the study and submitted a request for permission (informed consent) to the respondent, then conducted an interview using the instrument that had been prepared.

### 3. RESULT AND DISCUSSION

Table 1. Characteristics of Caregiver Respondents

Characteristics	Total	Percentage
<b>EMPLOYMENT</b>		
Government Employees	8	6.2
Self-employed	45	34.9
Pension	11	8.5
Private employees	21	16.3
Housewives	35	27.1
Not working	9	7
<b>AGE CAREGIVER</b>		
12-25 years	4	3.1
26-45 years	54	41.9
46-60 years	71	55
<b>SEX</b>		
Female	83	64.3
Male	46	35.7
<b>LONG OF CARING</b>		
< 2 years	11	8.5
≥ 2 years	118	91.5
<b>FAMILY INCOME</b>		
<3,000,000	80	62
≥3,000,000	49	38
<b>EDUCATION</b>		
Junior High School	33	25.6
Senior High School	81	62.8
Higher Education	15	11.6

Based on table 1.above showed the characteristics of caregiver respondents based on work, most are self-employed 34.9% (45 people), and a small proportion of civil servants 6.2% (8 people). Characteristics of respondents based on age were mostly 46-60 years old, 55% (71 people) and a small proportion of 12-25 years 3.1% (4 people). Characteristics of respondents based on gender showed that most of the sex was female 64.3% (83 people) and a small proportion of men 35.7% (46 people). Characteristics of respondents based on length of care mostly ≥ 2 years 91.5% (118 people) and a small proportion <2 years 8.5% (11 people). Characteristics of respondents based on income were mostly <3,000,000 62% (80 people) and a small proportion ≥ 3,000,000 38% (49 people). Characteristics of respondents based on education most of senior high school 62.8% (81 people) and a small

proportion of universities 11.6% (15 people).

Table 2.Characteristics of Elderly

Characteristics	Total	Percentage
<b>ELDERLY AGE</b>		
61-64	9	7
65-68	29	22,5
69-72	21	16,35
73-76	18	14
77-80	33	25
81-84	15	11.6
85-88	4	3.1

Based on table 2 The characteristics of the elderly showed that most of them are 77-80 years old, 25.6% (33 people) and a small proportion of them aged 85-88 years 3.1% (4 people).

Table 3. Caregiver Burden

Criteria	Total	Percentage
No burden	6	4.7
Light burden	32	24.8
Medium burden	76	58.9
Heavy burden	15	11.56
	129	

Based on table 3.above showed that the burden of caregivers mostly had medium burden criteria of 58.9% (76 people) and a small proportion had criteria no burden 4.7% (6 people).

Table 4. Relationship between factors of caregiver

Income	Caregiver Burden			
	No Burden	Light Burden	Medium Burden	Heavy Burden
< 3.000.000	5 (3,8%)	19 (14,7%)	47 (36,4%)	9 (6,9%)
≥ 3.000.000	1 (0,7%)	13 (10%)	29 (22,4%)	6 (4,6%)
	6	32	76	15

$P = 0,734 > \alpha = 0,05$

Based on table 4. above showed the above relationship Income and caregiver expense factors were found mostly with income categories <3,000,000 with moderate caregiver expenses as much as 36.4% (47 people) and a small portion of income ≥ 3,000,000 with caregiver expenses in the no-burden category as much as 0.7% (1 person). Based on the chi square analysis test showed the value  $P = 0.734 > \alpha = 0.05$ , which meant that there was no relationship between income and caregiver expenses.

Table 5. Relationship between Educational Factors and Caregiver

Education	Caregiver Burden			
	No Burden	Light Burden	Medium Burden	Heavy Burden
Junior High school	2 (1,5%)	12 (9,3%)	14(10,8%)	5 (3,8%)
Senior High School	4 (3,1%)	14(10,8%)	55(42,6%)	8 (6,2%)
Higher Education	0 (0%)	6 (4,6%)	7 (5,4%)	2 (1,5%)
	6	32	76	15

P = 0,148 > α = 0,05

Based on table 5. above showed the relationship of the factors of education and caregiver burden were found in the high school education category and the caregiver burden was moderate as much as 42.6% (55 people) and a small proportion with tertiary education and no caregiver burden as much as 0% (0 people). Based on the chi square analysis test, it showed the value of  $P = 0.148 > \alpha = 0.05$ , which meant there was no relationship between educational factors and caregiver burden.

Caregiver burden was a negative assessment and feelings of stress resulting from caring for someone who was sick physically, emotionally, socially, and financially. This burden can be experienced by family caregivers as caregivers (7). The results showed that the sick elderly needed more help and care. When doing family caregiver care that you can experience high stress. In accordance with research (4) which stated that the older someone who had physical limitations can add to the challenges for the caregiver and of course can increase the risk of burdening the caregiver. Increasing age can cause psychological decline, thereby increasing the need for nurture. The results of this research indicated the increasing age of the elderly that the more they needed full care from a caregiver in meeting the needs of the elderly. This can cause a moderate to heavy burden on the caregiver due to physical changes that were occurred in the elderly. They got the needs that must be given and also the treatment that must be done.

Based on the results of research conducted on caregivers at Community Health Centre in Perak Timur. It showed that caregiver burden had no relationship between education level and income. A High level of education will increase knowledge and raise one's awareness in meeting health needs. High income or income is also expected to make it easier to fulfill health service facilities for the elderly. The results of the research on caregiver burden in elderly care show that caregivers have a high level of education and sufficient income, but the burden of caring for the elderly will create a situation that makes the caregiver stressful and research shows that the care carried out on the elderly is mostly carried out over a long period of time more than 2 years and most of them have a high level of load, and the results of the chi-square test on the factor of length of care and caregiver burden showed a significant relationship ( $p = 0.044 < \alpha = 0.05$ ). In line with Siti Maryam's (2012) research, it shows that there is no significant relationship between family characteristics,

namely age, gender, marital status, education, occupation, income, and family relationships with family burdens who care for the elderly but health status, ability to care for, and satisfaction in caring was significantly related to the burden of family caring for the elderly ( $p = 0,009; p = 0,041; p = 0,021; \alpha = 0,05$ ) (11).

Moreover, it can be understood that the educational status of a person can affect knowledge and information. The difference in the results of this research with previous studies that were because the length of treatment performed on the elderly exceeds 2 years and the elderly who were treated are elderly people. Therefore, the length of treatment became a heavy burden for the caregiver. According to research Henrikson, 2013 (5) stated that the length of a person's illness can be worsen the condition and experienced additional symptoms, loss of physical function, and required more treatment. As the disease develops, the caregiver's burden can be higher. The results showed that the sick elderly needed more help and care. When doing family caregiver care, you can experience high stress.

#### 4. CONCLUSION

The results of research conducted on caregivers at Community Health Centre in Perak Timur showed that the care giver burden was in the category of no burden 4.7%, 24.8% light burden, 58.9% medium burden, 11.65% heavy burden. Based on the results of research conducted at Community Health Center in Perak Timur, it can be concluded that the caregiver was mostly high school education category and most of the outreach was  $\leq 3,000,000,000$ . There was no relationship between education and income to the burden of caregivers in caring for the elderly. Therefore, it was hoped that in further research, the research can be carried out on other variable factors such as the length of caring for the elderly, gender and family relationships.

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