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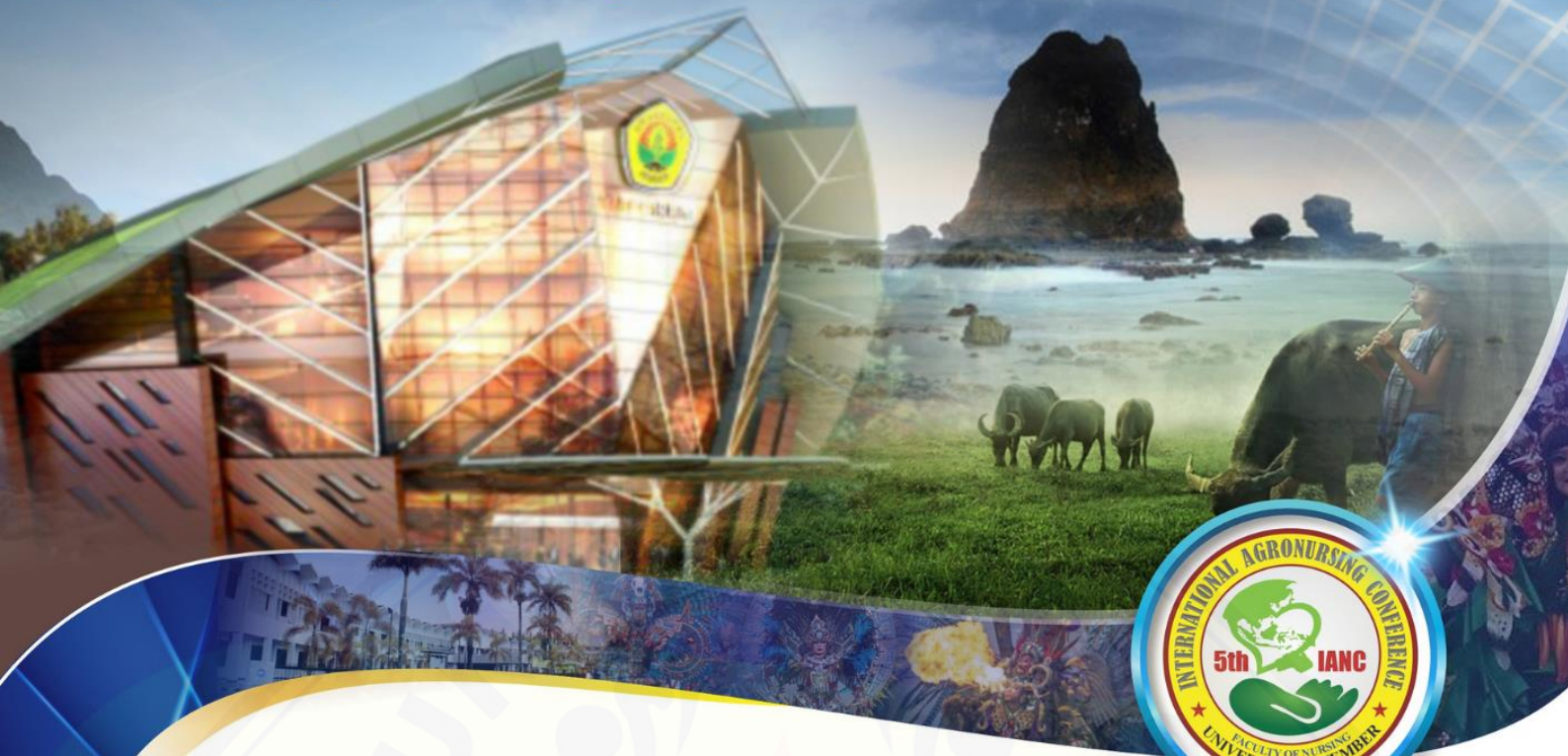

5th International Agronursing Conferences

In Conjunction with 1st International Post Graduate Nursing Student Conference (IPGNSC)

BOOK *Of* ABSTRACTS

Chronic Care Management : Bridging Theory & Practice In Healthcare Services

May, 11th - 12th 2023

Faculty of Nursing
Universitas Jember

Proceeding International Agronursing Conference
No 1, Volume 5, Mei 2023
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5Th International AgroNursing Conference in Conjunction with 1st International Post Graduate Nursing Student Conference (1st IPGNSC) 2023

"Chronic Care Management: Bridging Theory and Practice"

Jember, May 11th – 12th, 2023

PROCEEDING

FACULTY OF NURSING

UNIVERSITY OF JEMBER

REMARK

Bismillahirrohmanirrohim
Assalamualaikum Wr Wb
Good morning and greetings

The Honorable, Rector of University of Jember
The Honorable, All Speakers of the fifth international nursing conference In Conjunction with first International Post Graduate Nursing Student Conference
The Honorable, Guests, all dean of the faculties in University of Jember, Director of hospitals, primary health center, and other guests.
The Honorable, Conference Committee
Dear All oral presenters, poster presenter and Participants of the conference

Alhamdulillahirobbil'alamin, we praise the presence of Allah SWT; because of the blessing, we all can be present here in this auditorium to attend the fifth international nursing conference In Conjunction with first International Post Graduate Nursing Student Conference, Faculty of Nursing. Salawat may always be delegated to the Great Prophet Muhammad SAW.

Ladies and Gentlemen,
As the beginning of this speech, I would like to welcome all of you to the fifth international nursing conference In Conjunction with first International Post Graduate Nursing Student Conference, with the theme " Chronic Care Management: Bridging Theory and Practice". It is an honor to facilitate health professionals from around the world to enhance health sciences.

As a nurse, we can provide holistic care that addresses not just the physical needs of our patients but also their emotional, social, and spiritual needs. By taking the time to listen and understand our patients' unique situations, we can take care to meet their needs best and help them achieve their health goals.

In addition to caring for our patients, it is also important to care for yourself. Nursing can be a demanding and emotionally taxing profession, and it is crucial that we can take steps to prioritize our well-being. This can include things like practicing self-care, seeking support from colleagues or a mental health professional when needed, and taking time off to rest and recharge.

To answer that question, on May eleventh and twelfth of may, twenty twenty-three, we will discuss and enhance this topic with speakers from four countries: Australia, the United Kingdom, Thailand, Taiwan, and Indonesia. Not only that, in the series of international conferences, this time, there will be a guest lecturer in collaboration with community service from Western Sydney University (WSU) Australia. Thanks to Associate Professor Caleb Ferguson and the team who have attended and shared with us. This collaboration can continue and improve the knowledge of the profession we love. We also call the researchers to join not only the conference but also to share their research through oral presentation or poster presentation.

Ladies and Gentlemen

This conference is attended by undergraduate and postgraduate students, lecturer and health care professional from Asia Pacific and Australia. We have more than thousand registrants with two hundred participants able to attend on this room.

This event can be held because of the support and efforts of all parties. Therefore, I would like to thank the Rector of University of Jember, Indonesian National Nurses Association (INNA) and all the committees who have worked hard to carry out this activity.

I sincerely hope that this conference will deliberate and discuss all different facets of this exciting topic and come up with recommendations that will lead to a better and healthier new world.

I wish this conference great success. Aamiinn.

Wassalamualaikum Wr. Wb.

Dean Faculty of Nursing
Ns. Lantin Sulistyorini, M. Kes

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GREETING MESSAGE

Bismillahirrohmanirrohim
Assalamualaikum Wr Wb
Good morning and best wishes

The Honorable, Rector of University of Jember
The Honorable, Dean School of Nursing, University of Jember
The Honorable, All Speaker of the International Nursing Conference
The Honorable, Guests
The Honorable, Conference Committee
Dear All, All Participants of the conference

Thank God we praise the presence of Allah SWT, because of the blessing and grace, we all can be present in this place, in order to attend the International AgroNursing Conference. In Conjunction with first International Post Graduate Nursing Student Conference, Solawat and greetings may still be delegated to the Great Prophet Muhammad SAW.

Ladies and Gentlemen,
As the beginning of this speech, I would like to say welcome to the fifth international nursing conference In Conjunction with first International Post Graduate Nursing Student Conference, with the theme " Chronic Care Management: Bridging Theory and Practice".

Chronic care refers to the ongoing, long-term medical care and support provided to individuals with chronic or long-lasting health conditions such as diabetes, heart disease, arthritis, and asthma, among others. Chronic conditions often require ongoing management and treatment to control symptoms, prevent complications, and improve quality of life.

Chronic care may involve a team of healthcare professionals, including primary care physicians, nurses, specialists, physical therapists, and other healthcare providers, who work together to develop and implement a comprehensive care plan tailored to the individual's needs.

The goal of chronic care is to improve the health and well-being of individuals with chronic conditions by providing ongoing, patient-centered care and support that helps them manage their symptoms, maintain their independence, and prevent complications. What is the latest application of chronic care management, bridging theory and practice?

To answer that question, then for the next two days starting from today on 11-12 May 2023 at Auditorium of Universitas Jember, we will discuss the Chronic Care Management: Bridging Theory and Practice with speakers from 5 countries namely:

1. Assoc. Prof. Caleb Ferguson (Australia).
2. Assoc. Prof. Wasana Ruaisungnoen (Thailand)
3. Dr. Asri Maharani, MMRS, Ph.D (United Kingdom)
4. Assoc. Prof. Chi-Yin Kao (Taiwan)
5. Ns. Muhamad Zulfatul A'la, M.Kep, Ph.D (Indonesia)

Ladies and Gentlemen
This conference is attended by students, health department delegates, academics, hospital and community clinic practitioners with a total of 350 participants.
This event can be held because of the support and efforts of all parties. Therefore, I would like to thank the Rector of University of Jember, Head of School of Nursing- University of Jember, Indonesian National Nurses Association (INNA) or PPNI, Auditorium of Universitas Jember and all the committees who have worked hard to carry out this activity. I also thank to the sponsors who have worked with us so that this event run as expected. Amen.

We as the committee, apologize if there is any inconvenience during this event. Our hope that this activity can increase our knowledge that benefits all of us. Amen.

Before I end my speech, I want to say "when we interpret that today is an ordinary day, then we will come out of this room as an ordinary people, but when we interpret that today is a very extraordinary day, then we will come out of this room as a very wonderful person ".
Finally, please enjoy this conference, May Allah SWT always gives blessings to all of us. Amen

Wassalamualaikum Wr. Wb.

Chairperson

Dr. Ns. Rondhianto, M.Kep.

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Key Note Speakers		Associate Professor Caleb Ferguson RN PhD. Wasana Ruaisungnoen, PhD RN dr. Asri Maharani, MMRS, Ph.D Ns. Muhamad Zulfatul A'la, S.Kep., M.Kep., Ph.D

Conference Schedule
5th International Agronursing Conference (5th IANC) in conjunction with
1st International Post Graduate Nursing Student Conference (1st IPGNSC)
"Chronic Care Management: Bridging Theory and Practice
in Healthcare Services"
Jember, May 11-12th, 2023

FIRST DAY (07.00 – 16.00)

Time (WIB) GMT + 7	AGENDA
REGISTRATION	
07.00 – 08.00	Registration – Log in Zoom Meeting
OPENING CEREMONY	
08.00 – 09.00	Opening Ceremony Report Speech **Dr. Ns. Rondhianto, M.Kep.** (The Chairman Committee) Welcome Speech: 1. **Ns. Lantin Sulistyorini, S.Kep., M.Kes.** (Dean Faculty of Nursing, Universitas Jember, Indonesia) 2. **Dr. Ir. Iwan Taruna, M.Eng., IPU** (Rector Universitas Jember, Indonesia)
09.00 – 09.15	Coffee Break
PLENARY SESSION I	
09.15 – 10.15 *(ICT)*	***PLENARY I (Offline) -- (45 + 15 mins Q&A)*** **SPEAKER I** **Assoc. Prof. Caleb Ferguson** (Western Sydney University, Australia)
PLENARY SESSION II	
10.15 – 11.15 *(AEDT)*	***PLENARY I (Online) -- (45 + 15 mins Q&A)*** **SPEAKER II** **Assoc. Prof. Dr. Wasana Ruaisungnoen** (Khon Kaen University, Thailand)
11.15 – 12.30	Lunch & Pray

PLENARY SESSION III	
12.30 – 13.30 *(BST)*	***PLENARY III (Online) -- (45 + 15 mins Q&A)*** **SPEAKER IV** **Dr. Asri Maharani, MMRS., Ph.D.** (The University of Manchester, United Kingdom)
14.00 – 14.30	Coffee Break & Break out Room
ORAL PRESENTATION AND POSTER EXHIBITIONS DAY-1	
14.30 – 16.00 (15 mins/ presenters)	**ORAL PRESENTATION** *6 presenters/room (48 presenters/8 rooms)*

SECOND DAY (07.00 – 13.00)

Time (WIB) GMT + 7	Agenda
REGISTRATION	
07.00 – 08.00	Registration – Log in Zoom Meeting
PLENARY SESSION IV	
08.00 – 09.00 *(JST)*	***PLENARY IV (Online) -- (45 + 15 mins Q&A)*** **SPEAKER IV** **Assoc. Prof. Chi-Yin Kao** (National Cheng Kung University, Taiwan)
PLENARY SESSION V	
09.00 – 10.00 *(WIB)*	***PLENARY IV (Offline) -- (45 + 15 mins Q&A)*** **SPEAKER V** **Ns. Muhamad Zulfatul 'Ala, M.Kep., Ph.D.** Faculty of Nursing, Universitas Jember, Indonesia
10.00 – 10.15	Coffee Break & Break out Room
ORAL PRESENTATION AND POSTER EXHIBITIONS DAY-2	
10.15 – 11.00 (15 mins/ presenters)	**ORAL PRESENTATION** *3 presenters/room (24 presenters/8 rooms)*
CLOSING	
11.00 – 11.15	Back to the main hall
11.15 – 11.30	Closing by MC
11.30 – 13.00	Lunch, Pray, & Certificate Distribution

LIST OF KEY NOTE SPEAKERS

LIST OF ORAL PRESENTATION

LIST OF POSTER PRESENTATION

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RECALIBRATING CHRONIC DISEASE MANAGEMENT FOR THE DIGITAL REVOLUTION

Associate Professor Caleb Ferguson RN PhD.
Associate Professor Chronic & Complex Care,
University of Wollongong & Western Sydney, Australia

We live in an era of increasing chronic disease and multimorbidity. Stroke, atrial fibrillation (AF), heart failure and dementia are increasingly common and burdensome chronic diseases, all associated with increased death and disability, and reduced quality of life. Informal caregivers play a fundamental role in providing ongoing care at home and in the community for these patients. Home based care and virtual care capabilities, including consumer ready wearables, are increasing in their availability and sophistication. It is critical to consider how these impact nursing assessment and care delivery, in the context of increasing chronic disease. There is the potential to revolutionise how vital signs are measured and used in clinical practice, for example. Further, there is potential to disrupt 'nursing work'. Dr Ferguson will provide deep insight into the digital revolution in the context of chronic disease management.

COMPLEMENTARY APPROACH IN CHRONIC CARE MANAGEMENT

Wasana Ruaisungnoen, PhD RN
Faculty of Nursing, Khon Kaen University, Thailand

Complementary and alternative approach (CAA) is commonly used by those suffering from chronic illnesses. Patients with chronic conditions often experience long-term intricated symptoms, either physical or psychological, that only standard therapy may not be able to fully manage. Complementary and alternative medicine (CAM) refers to a wide range of healthcare approaches that are not mainstream treatment and have not been fully integrated into the dominant healthcare system [1]. The complementary method is used in conjunction with standard medical treatment, whereas the alternative approach is employed in place of it. The term integrative treatment is frequently used in the literature, defining a medical approach that combines standard treatment with CAM methods proven to be safe and effective [2]. Both CAM and integrative methods often emphasize the importance of body-mind interaction and holistic aspect of healthcare.

The roles of CAA in managing chronic illnesses can include symptom control, cognitive and behavioral therapy, and mood and emotional problem management [3]. A substantial amount of evidence supports the effectiveness of a complementary strategy in chronic illness care. People with various chronic conditions including hypertension, heart disease, cancer, diabetes mellitus, chronic respiratory disease, and osteoarthritis have been found to benefit from CAA. Chronic pain, dyspnea, fatigue, dyslipidemia, anxiety, depression, and insomnia are some of the frequent problems that CAA has been used to treat. Lifestyle modification, herbal and dietary supplements, meditation, yoga, Tai Chi, acupuncture, massage therapy, reflexology, and biofeedback are common strategies found in the literature pertaining to CAA in chronic illness [2-3]. Although evidence supports the CAA's effectiveness with the fact that majority of the approaches is safe, patients' misconduct may have negative impacts on their health and well-being.

The presentation will cover the nature of chronic condition in relation to the roles of CAA. Subsequently, the definitions of CAM and integrative therapy in comparison to conventional treatment in chronic care will be revealed. In addition, the categories and types of CAA, the major outcomes, and patients' perception and utilization will be presented. Lastly, CAA with its effectiveness in hypertension and diabetes mellitus, two of the most common chronic illnesses, will be discussed.

REFERENCES

1. World Health Organization. WHO traditional medicine strategy 2014–2023. Geneva: World Health Organization; 2013.
2. National Cancer Institute. Complementary and Alternative Medicine (National Institute of Health, March 21, 2022), https://www.cancer.gov/about-cancer/treatment/cam.
3. Edwards E. The Role of Complementary, Alternative, and Integrative Medicine in Personalized Health Care. Neuropsychopharmacol 37, 293–295 (2012). https://doi.org/10.1038/npp.2011.92

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APPLICATION OF SMARTHEALTH, A MULTIFACETED MOBILE TECHNOLOGY- ENABLED PRIMARY CARE INTERVENTION, TO ENHANCE CARDIOVASCULAR DISEASE RISK MANAGEMENT IN RURAL INDONESIA

dr. Asri Maharani, MMRS, Ph.D.
Manchester Metropolitan University, United Kindom

Cardiovascular diseases (CVD) are the leading cause of death in Indonesia. However, less than one-third of Indonesians with moderate to high cardiovascular risk were not receiving appropriate treatment. This study aimed to evaluate the impact of SMARThealth (Systematic Medical Appraisal Referral and Treatment), a mobile technology–supported, multifaceted primary healthcare intervention on CVD care provision in Indonesia. This study was a quasi-experimental study involving 6579 high-risk individuals aged 40 years and older in four intervention and four control villages in Malang district, Indonesia, conducted between 2016 and 2018. We found that 30% (3494 of 11647) and 28% (3085 of 10988) of respondents in the intervention and control villages, respectively, had high CVD risk. After the intervention, the proportion of individuals with high CVD risk taking the BP lowering therapy was higher in the intervention villages (56.8%) than in the control villages (15.7%). The mean systolic blood pressure reduction from baseline was 17.2 (0.4) mmHg among high-risk participants in the intervention villages and 9.2 (0.4) mmHg among those in the control villages (adjusted mean difference, −8.3 mm Hg; 95%CI, −10.1 to −6.6mmHg). We further found that despite the higher primary care and pharmaceutical costs among individuals who received the intervention, they were projected to experience fewer major CVD events and incur lower hospitalization expenditures. In conclusion, multifaceted mobile technology–supported primary healthcare intervention was associated with greater use of preventive CVD medication and lower BP levels among high-risk individuals in this rural Indonesian population. Relative to usual care, the intervention was a cost-effective means to improve the management of CVD in the population.

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HEALTH SYSTEM STRENGTHENING THROUGH COMMUNITY VOLUNTEERING SYSTEM QUALITY ENHANCEMENT

Ns. Muhamad Zulfatul A'la, S.Kep., M.Kep., Ph.D
Faculty of Nursing, Universitas Jember, Jember, Indonesia

Health system strengthening (HSS) is one of the essential strategies for improving health outcomes. Improving the quality of health financing, developing human resources, health information, service delivery and leadership can increase a country's cost-effectiveness in providing health services to the public. Strengthening the health system can be done from several approaches or one of the components of the health system from the WHO framework. WHO formulates six building blocks in a health system framework that can be used in various country conditions. The building blocks are service delivery; health workforce; information; medical products, vaccines, and technologies; financing; and leadership and governance (stewardship). Several interventions have been carried out to strengthen health systems worldwide: health insurance, service integration, decentralization, contracting, hospital autonomy and routine health information systems. This intervention still needs other developments and innovations so that the cost-effectiveness of health services can be more optimal.

In supporting HSS, we conduct literature reviews and empirical research regarding community volunteering systems. The community volunteering system could be one of the strategies in HSS. In that case, service delivery can be optimized, budgeting for health can be optimized, information systems can run optimally, and leadership will also be optimal. Volunteering and volunteers are part of the health system. Volunteering in the health context is defined as an activity given free of charge, which benefits from prolonged processes through formal organizations.

Cancer is the condition we chose in an empirical study related to the community volunteering system because cancer is a complex condition with a high mortality rate. Moreover, a phenomenon in our research setting is the urgent need to help people with cancer in the community by optimizing the volunteering system, which needs to be explored more deeply. This research was conducted in Jember, Indonesia, from June 2022 to May 2023. This research approach uses a qualitative approach and ethnographic methods. Researchers believed that the phenomenon of the community volunteering system is complex and requires a multi-perspective lens to see the problem. This study involved 63 informants using observation methods, in-depth interviews and focus group discussions. This study concluded that there are six subsystems in the community volunteering system. There are PwC conditions, health budgeting, healthcare service delivery, volunteer organization management, community systems, and healthcare innovation. In a further study, researchers recommend seeing the effect of optimizing six subsystems of the community volunteering system in improving the quality of health services and cost-effectiveness for cancer patients and other conditions.

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RISK FAKTORS FOR DIABETIK FOOT IN FARMERS WITH DIABETES MELLITUS

Laili Nur Azizah[1*], Indriana Noor Istiqomah[1]
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ABSTRACT

Background: Diabetes mellitus (DM) is a progressive chronic disease that requires constant medical supervision and patient education for self-care. Diabetes is associated with an increased risk of neuropathy which causes loss of touch and perception of pain. High agricultural work area (in some places) and constant risk of injury (animal bites, injuries from farming tools, not wearing footwear/shoes, feet exposed to sunlight). Farmers experiences who have to prepare planting media starting from the process of preparing the soil to plowing the land (either using a hoe, cow or tractor, and barefoot). Examination of the feet is necessary to prevent foot ulcers from occurring. The purpose of this study is to identify risk faktors for diabetik foot in farmers with diabetes mellitus in Lumajang. **Methods:** The research method is quantitative descriptive research. The population of this study were 141 farmers with purposive sampling technique. The data collection technique used was observation, using the 2009 Diabetes Care Program of Nova Scotia (DCPNS) foot risk assessment form. Includes skin assessment, assessment of the bone structure of the foot, assessment of blood vessels, sensation, and movement of the foot. **Results:** The results found that the majority of respondents were female and in the early elderly age category. While the results of observations of risk faktors for diabetik foot, almost half of the respondents have a high risk of diabetik foot. **Conclusions:** This study concluded that several actions need to prevent an increased risk of diabetik foot. Therefore it is necessary to have an integrated diabetik ulcer prevention management strategy, sharing consultations and optimizing effective resources to get quality care.

Keywords: Risk faktors, diabetik foot, farmers

INTRODUCTION

Diabetes mellitus (DM) is a disease that requires ongoing treatment, especially glucose control, to prevent or slow complications (Fitriyanti,, M. E., et al., 2019). In 2017, the number of DM sufferers worldwide was 425 million people and is predicted to increase to 629 million people in 2045. Indonesia is the sixth country with the highest number of DM sufferers, namely 10.3 million people (International Diabetes Federation, 2017). . Type 2 diabetes as a risk factor for diabetic peripheral neuropathy in 2018 showed an increase in DM sufferers from 6.9% in 2013 to 8.5% or 10.9%. in 2018 (Simanjuntak, G. V., & Simamora, M., 2020).

One of the chronic complications that cause major problems for people with diabetes mellitus is diabetic foot (Kurdi, 2019). The International Diabetic Foot Working Group states that one in six people in the world who suffer from

diabetes mellitus experience foot problems, and every year 4 million people worldwide experience foot ulcers which can lead to amputation. (Tini, T., et al, 2019).

Diabetes is associated with an increased risk of peripheral sensory neuropathy, peripheral vascular disease, and foot deformities. This combination can lead to the formation of foot ulcers, which requires complex multimodal management, including extensive local wound care, weight relief, revascularization, and optimization of glycemic control. Despite intensive treatment, only 60% of all diabetic foot ulcers heal within one year of onset, and more than 10% of diabetics subsequently require lower extremity amputation (Robert M. Stoekenbroek et al., 2017). A person with neuropathy is 20 times more likely to fall than someone with uncontrolled diabetes. The results showed that peripheral diabetic neuropathy is the most important predictor of fall risk. (Reeves, N. D., et al, 2021). With the increasing prevalence and frequency of diabetes, neuropathy is influencing medical care in many care providers, but to date there is no sufficiently effective therapy. (Braffett, B. H., et al, 2020).

The results of a previous survey of several farmers in Lumajang District indicated a high level of agricultural work (in some areas) and a constant risk of injury (animal bites, injuries from farming tools, neglected shoes, feet exposed to the sun). This is experienced by farmers who have to prepare plant substrates starting from cultivating the land to plowing the land (either with hoes, cows or tractors and barefoot). Based on these problems, it is necessary to conduct research to identify risk factors for diabetic ulcers in farmers with DM. The purpose of this study was to identify risk factors for diabetic foot in farmers with diabetes mellitus in Lumajang District, Lumajang Regency.

METHODS

The research was conducted through quantitative analytical research. Participants were 141 farmers in the Rogotrunan health center area, with purposive sampling. The data collection technique used observation, using the Diabetic Care Program of Nova Scotia (DCPNS) foot risk assessment instrument. The variables studied included skin assessment, assessment of the bone structure of the foot, assessment of blood vessels, sensation, and movement of the foot. Data were analyzed using bivariate (Chi Square) and multivariate (Double Regression) analysis. This research has received ethical approval from KEPK Faculty of Dentistry, University of Jember No 332/UN25.8/KEPK/DL/2019.

RESULTS

Table 1 Age Distribution respondens

Age (Year)	f	%
15-25	0	0
26-35	8	5,6
36-45	15	10,6
46-55	68	48,2
56-65	39	27,6
>65	11	7,8

Source: research data

The results showed that respondents were in the age range of 36-65 years, with the highest number being in the age group 46-55 years of 48.8%.

Table 2 Sex Distribution respondens

Sex	f	%
Male	57	40
Female	84	60

Source: research data

The results showed that the distribution of female respondents was more than half of the total respondents (60%).

Table 3 Risk Factors Diabetic Foot (N=141)

Variable	Yes		No		P value	OR (95% CI)
	f	%	f	%		
Disorders of skin and nail conditions	82	58	59	41	0,015	2,343
Structur disorders	33	39	108	76	0,023	1,251
Vascular disorders	12	8	129	91	0,047	1,016
Mobility	30	21	111	78	0.048	1,243
Disturbance of sensation	57	40	84	59	0,021	2,485

Source: research data

Bivariate analysis was performed to determine the existence of a relationship. All of the five variables have a p value <0.05, which means there is a relationship. Bivariate test results that have a p value <0.25 are included in the multivariate test, while variables that have a p>0.25 are not included in the multivariate analysis.

Table 4 Multivariate Test Analysis Results

Variable	β	P Wald	OR	95% CI
Disorders of skin and nail conditions	1,021	5,291	22,623	1,352-8,470
Structur disorders	1,110	2,012	2,019	0,124-0,802
Disturbance of sensation	1,088	2,939	3,222	0,295-0,682
Constant	-0,712	2,166	0,156	

Source: research data

The results of the multivariate analysis showed that the variables of skin and nail conditions had the highest risk of developing diabetic foot in patients with Diabetes Mellitus. This is indicated by the variable skin and nail disorders having the lowest p value or the highest Wald value.

DISCUSSION

Age

The results showed that the respondents with the highest number were in the age group of 46-55 years as much as 48.2%. These respondents aged from 40 years, at which age insulin production began to decline and muscle cell function also decreased. This is related to the increased fat content in the muscles, which makes it difficult for glucose to be used for energy. Type 2 diabetes is a type of diabetes that commonly occurs in people over 40 years old (Syamsiyah, N. (2022).

Sex

The results showed that the majority of respondents, 60%, were women. Women have a higher risk of developing diabetes because women have the potential to experience a greater increase in body mass index than men, putting them at greater risk of obesity. This condition also coincides with hormonal processes, menstrual cycle syndromes and postmenopause, which cause redistribution of body fat, leading to insulin resistance. (Suprihatin, W., & Purwanti, O. S., 2021)

In this study several risk factors for the occurrence of diabetic foot. Among them are conditions of skin and nail disorders, structural abnormalities, vascular disorders, mobility and sensation disturbances. From the data table 3, it was found that the p values for the variables were conditions of skin and nail disorders, structural abnormalities, vascular abnormalities, mobility and sensation disturbances respectively (0.011; 0.023; 0.047; 0.048; 0.021) which means that there is a relationship between the five variables with the risk of developing diabetic foot.

Disorders of skin and nail conditions

The results of the relationship analysis showed that 58% of the respondents had skin and toenail disorders. P value was obtained 0.011 which means there is a significant relationship between skin and nail disorders and diabetic feet. From the results of the analysis, it was also obtained an OR value of 2.343, which means that people with diabetes mellitus who have abnormal skin and nail conditions are at risk of having a 2.343 greater chance of experiencing diabetic feet compared to people with diabetes without skin and foot conditions. Damage

to the sensory nerves causes the sufferer to not realize if his leg is hit or injured by a sharp object. Damage to the autonomic nerves causes inhibition of sweat and sebum production, resulting in dry and cracked skin. This allows bacteria to enter the skin and cause inflammation (Djamaludin, D., et al, 2019). Nail or fungal infections are common in people with diabetes and usually affect the toenails. White/yellow/green discoloration and thickening of the nail tips gradually spreads across thick and brittle nails. Crooked nails can be sharp or broken and can extend to other toes (Nistiandani, A., et al, 2023).

Structure disorders

The results of the relationship analysis showed that 39% of respondents had foot structural abnormalities. The P value was obtained 0.023, which means that there is a significant relationship between skin and nail disorders and diabetic feet. From the analysis results, it was also obtained an OR value of 1.251, which means that people with diabetes mellitus who have foot structural abnormalities are at risk of having a 1.251 greater chance of experiencing diabetic feet compared to people with diabetes mellitus without skin and foot conditions. Foot deformity is a risk factor for diabetic foot ulcers. Structural deformities of the foot can cause plantar ulcers. Common deformities of the diabetic foot, such as hallux valgus and hammer toe. Types of internal body deformities, namely calluses or thickening of the skin that appear on parts that are exposed to constant pressure, warts, flat feet (Susanti, 2021). Deformity results in difficulty in mobilizing (Susanti, D. and Amita, D. (2021). Foot deformities are caused by increased pressure on the feet and, when combined with neuropathy, increase the risk of leg complications in the form of diabetic ulcers. (Ariyani, I., & Widiyanto, B., 2023).

Vascular abnormalities

The results of the relationship analysis showed that 8% of respondents had leg vascular abnormalities. The P value was obtained 0.047 which means that there is a significant relationship between skin and nail disorders and diabetic feet. From the analysis results, it was also obtained an OR value of 1.016, which means that people with diabetes mellitus who have foot structural abnormalities are at risk of having a 1.016 greater chance of experiencing diabetic feet compared to people with diabetes mellitus without skin and foot conditions. Peripheral arterial disease is caused by ischemia so that the feet become red and dry which often coincides with neuropathy (Ariyani, I., & Widiyanto, B., 2023). Elevated blood sugar can increase the risk of foot ulcers. This is due to reduced ability of blood vessels to contract and relax, reducing blood flow to the tissues in the legs. This condition is a favorable environment for the growth of anaerobic pathogens because the plasma of DM sufferers is not properly regulated, has high viscosity, slows blood circulation and lowers oxygen levels. (Wulandari, N. . A., Waluyo, A., and Irawati, D., 2019).

Mobility

The results of the relationship analysis showed that 21% of respondents had foot structural abnormalities. P value obtained 0.048 which means there is a significant relationship between skin and nail disorders with diabetic feet. From the results of the analysis, it was also obtained an OR value of 1.243 meaning that people with diabetes mellitus who have foot structural abnormalities are at risk of having a 1.243 greater chance of experiencing diabetic feet compared to people with diabetes mellitus without skin and foot conditions. Exercise or physical exercise is an effective diabetes treatment for reducing insulin resistance and blood sugar. If you exercise three times a week,

your blood sugar can drop immediately (Heart, Y., et al, 2023). In addition, active leg ROM exercise is a form of physical exercise that is useful for facilitating and facilitating blood flow to the cells, especially in the legs. In addition to contracting the leg muscles, active ROM exercises prevent the formation of blood clots, improve nerve function, increase the protective value of the feet and prevent neuropathy. (Putriyani, N., et al, 2020).

Disturbance of sensation

The results of the relationship analysis showed that 40% of the respondents had foot structural abnormalities. The P value was obtained 0.021, which means that there is a significant relationship between skin and nail disorders and diabetic feet. From the analysis results, it was also obtained an OR value of 2.485, which means that people with diabetes mellitus who have foot structural abnormalities are at risk of having a 2.485 greater chance of experiencing diabetic feet compared to people with diabetes mellitus without skin and foot conditions. Foot sensation plays an important role in the risk of developing diabetic foot. Sensory feedback from the feet during walking is important for activating the muscles to stabilize the lower leg and control balance. Reduced or absent peripheral sensation in the feet alters gait biomechanics, affects balance and increases the risk of falls. (Reeves, N.D., et al, 2021).

From table 4, the results of multivariate analysis using the regression test show that the variable of skin and nail conditions disorder has an OR value of 22.623, meaning DM sufferers who have abnormal skin and nail conditions (such as dryness, sweating, maceration, fissures, corns, callus, not warm, swelling, inflammation, discharge, pain, cracked skin, ulcers, thick nails, discolored nails, deformed nails, non-growing nails, and numbness of the feet) are 3.391 times more likely to have diabetic feet than DM sufferers who do not have skin disorders and toe nails. The OR value for the variable structural abnormalities is 2.019, meaning that DM sufferers who have foot structural abnormalities (such as hammer toe, claw toe, overlapping toes, bunions, deformities, and amputation) are 2.019 times more likely to experience diabetic feet than DM patients who do not. have a structural deformity. Meanwhile, the sensation disorder variable has an OR value of 3.222, meaning that DM sufferers have impaired sensation in the legs (such as reduced/no sensation, pain, numbness, tingling, holes, itching, feeling of tightness in the legs, feeling of heaviness in the legs, and cramps). 3.222 times greater risk of experiencing diabetic foot than DM sufferers who do not have impaired sensation in the feet.

Based on the explanation above, DM farmer are at risk of developing diabetic ulcers, which require complex multimodal treatment and of course require costs and management which is quite time consuming. Therefore, several steps must be taken and prepared to prevent an increased risk of diabetic foot. Therefore, it is necessary to develop an integrated strategy for diabetic ulcer prevention, share consultations and optimize effective measures to ensure quality care. For example routine foot examinations in DM farmer, foot care (eg cutting nails, cleaning and drying feet, using appropriate footwear, foot exercises), as well as monitoring blood sugar control and exercise. (Azizah, L.N, et al, 2023).

CONCLUSIONS

The results of this study found that of the 5 (five) risk variables for diabetic foot, there were 3 (three) variables that increased the risk of developing diabetic foot, namely: disorders of skin and nail conditions, structural abnormalities and disturbances of sensation. It is hoped that

future researchers will continue this research using other methods and develop more rapid detection aspects using more complete applications for the prevention of diabetic ulcers.

REFERENCES

Ariyani, I., & Widiyanto, B. (2023). Pengaruh Perawatan Kaki Dengan Senam Kaki Terhadap Risiko Ulkus Kaki Diabetik Pada Pasien Diabetes Mellitus Tipe Ii (Di RSUD Abepura Kota Jayapura). *Indonesian Nursing Journal of Education and Clinic*, *3*(1), 24-30.

Braffett, B. H., Gubitosi-Klug, R. A., Albers, J. W., Feldman, E. L., Martin, C. L., White, N. H., ... & DCCT/EDIC Research Group. (2020). Risk factors for diabetic peripheral neuropathy and cardiovascular autonomic neuropathy in the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications (DCCT/EDIC) study. *Diabetes*, *69*(5), 1000-1010.

Djamaludin, D., Setiawati, S. and Yulendasari, R. (2019). Pengaruh Latihan Range of Motion (Rom) Ankle terhadap Pencegahan Terjadinya Neuropati dan Angiopati pada Klien Diabetes Melitus, Holistik Jurnal Kesehatan, 13(3), 263– 269. doi: 10.33024/hjk.v13i3.1941

Fitriyanti, M. E., Febriawati, H., & Yanti, L. (2019). Pengalaman Penderita Diabetes Mellitus dalam Pencegahan Ulkus Diabetik. *Jurnal Keperawatan Muhammadiyah Bengkulu*, *7*(2), 99-105.

Hati, Y., Muchsin, R., & Lestari, A. (2023). Efektifitas Active Assistive Range Of Motion Terhadap Penurunan Kgd Pada Pasien Diabetes Mellitus Tipe II. *Jurnal Keperawatan Priority*, *6*(1), 87-93.

Kurdi, F., & Priyanti, R. P. (2019). Manajemen Ulkus Kaki Diabetikum: Efektifitas Foot Exercise Terhadap Risiko Dfu (Diabetic Foot Ulcers) Pasien Diabetes Mellitus Di Al Hijrah Wound Care Center. Jurnal Ilmiah PANNMED Vol, 14(2).

Nistiandani, A., Hakam, M., Sutawardana, J. H., Widayati, N., Siswoyo, S., & Kurniawan, F. A. (2023). Identifikasi Risiko Terjadinya Ulkus Diabetik Berbasis Diabetic Foot Screening pada Pasien DM Tipe 2. *JI-KES (Jurnal Ilmu Kesehatan)*, *6*(2), 162-170.

Reeves, N. D., Orlando, G., & Brown, S. J. (2021). Sensory-motor mechanisms increasing falls risk in diabetic peripheral neuropathy. *Medicina*, *57*(5), 457.

Simanjuntak, G. V., & Simamora, M. (2020). Lama menderita diabetes mellitus tipe 2 sebagai faktor risiko neuropati perifer diabetik. *Holistik Jurnal Kesehatan*, *14*(1), 96-100.

Syamsiyah, N. (2022). *Berdamai dengan diabetes*. Bumi Medika.

Suprihatin, W., & Purwanti, O. S. (2021). Gambaran Risiko Ulkus Kaki Pada Penderita Diabetes Mellitus Di Wilayah Solo Raya. Prosiding Seminar Nasional Keperawatan Universitas Muhammadiyah Surakarta 2021 (Profesi Ners XXIII).

Susanti, D. and Amita, D. (2021). Faktor yang Berhubungan dengan Deformitas Kaki pada Penyandang Diabetes Melitus Tipe 2, Jurnal Keperawatan Silampari, 4(2), 654–662. doi: 10.31539/jks.v4i2.1716.

Tini, T., Setiadi, R., & Noorma, N. (2019). Mengurangi Resiko Kaki Diabetik pada Pasien Diabetes Melitus Tipe 2. *Jurnal Citra Keperawatan*, *7*(1), 10-15.

Wulandari, N. A., Waluyo, A., & Irawati, D. (2019). Pengalaman Penderita Diabetes Melitus Tipe 2 dalam Melakukan Tindakan Pencegahan Terjadinya Luka pada Kaki. *Jurnal Keperawatan Silampari*, *2*(2), 176-188.

Putriyani, N., Mulyaningsih, M., & Hartutik, S. (2020). Range of Motion (ROM) Aktif Kaki Meningkatkan Sensitivitas Kaki pada Penderita Diabetes Melitus. *ASJN (Aisyiyah Surakarta Journal of Nursing)*, *1*(1), 21-24.

Robert M. Stoekenbroek, et all, (2017), *How Common are Foot Problems among Individual with Diabetes? Diabetic Foot Ulcer in the Dutch Population*, Diabetologia, July 2017, Volume 60, Issue 7, pp 1271-1275,

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