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1.	Development and Validation of a Questionnaire on Eating Behaviour for School Children and its Correlation with Nutritional Status.....	1
	<i>A. Aysha Fathima, T.H. Hema, A.J. Hemamalini</i>	
2.	Are the Kerala Model of Community-based Palliative Care Operations Sustainable? Evidence from the Field	7
	<i>Abdul Azeer E.P., G. Anbuselvi</i>	
3.	Occupational Varicella outbreak at a Tertiary Care Hospital: An Insight.....	12
	<i>Abhishek Mishra, C.M. Singh, Bined Ku Pati, Barkha Rani Beek, Hari Krishnan Ashokan</i>	
4.	An Exploratory Study To Identify Factors Affecting Non Compliance To Dots Therapy Among Tb Patients At Selected Dots Centre Vadodara	18
	<i>Akash S. Patel, Miss. Varsha Hun, Mr. Adithya S.</i>	
5.	Assessment of Cognitive Impairment among Elderly in the Selected Rural Community, Kancheepuram District, Tamil Nadu.....	24
	<i>Akhila K., Divya R., Preethiamushya M., Aravindhan B., Regina J.S. Sivarimuthu</i>	
6.	Safety and Tolerability of Two Different Formulations of Mycophenolate (Mycophenolate Mofetil and Mycophenolate Sodium) among Patient with Connective Tissue Disease Associated Interstitial Lung Disease (CTD-ILD) in a Tertiary Care Hospital.....	27
	<i>Amrui Kumar Mehapatra, Pratima Singh</i>	
7.	Assessment of Awareness of Parents on Importance of Dental Care in Pediatric Patients in Ethnic Tamil Population	32
	<i>Anandhi D., R. Bharanidharan, Lakshmy Jayan, Ramya R., K. Rajkumar, R. Hemalatha</i>	
8.	Study of Total Time Taken for OPD Billing Process in a Multi-Specialty Hospital.....	37
	<i>Anil Pandit, Savita Prashar</i>	
9.	Sleep Quality and Glycemic Control among Patients with Type II Diabetes Mellitus.....	46
	<i>Anju Babu, Sabitha V.Janardhanan, Sreevidhya R., Sruthy K.S.</i>	
10.	A Comprehensive Break Even Analysis of MRI and CT Unit of a Tertiary Care Hospital in Sikkim.....	52
	<i>Ankit Singh, Priya Ravi, Saniya Joseph</i>	

XXVI

341. Risk Factors and the Pattern of Injuries of Road Traffic Accidents in Holy City of Karbala/Iraq	1849
<i>Mohammed Aqeel Abbas Alalawi, Saad Ibrahim Al-Ghabban, Alaa Abdul-Rahman Habeeb</i>	
342. Alpha-Fetoprotein for Prediction of Placenta Accreta in Women with Complete Placenta Previa Centralis: A Prospective Study	1854
<i>Mohammed Hany Mosbeh, Mohammed Abdallah Mohammed, Mo'men Mohamed Hassan, Ahmed Rabie Abd El-Raheim, Heba Reda Mohammed</i>	
343. Health Promoting Schoolin Surabaya, Indonesia: The Six Elements Implementation	1860
<i>Muji Sulistyowati, Kuntoro, Oedajo Soedarham, Budi Prasetyo</i>	
344. Evaluation Context and Input of National Health Insurance in Ternate City	1865
<i>Muliana Muliana, Fauzi Almari</i>	
345. The Effectiveness Comparison of Type of Treatments in Decreasing of Total Dissolved Solid (TDS) and Total Suspended Solid (TSS) in Household Wastewater	1870
<i>Mulyadi Mulyadi</i>	
346. Environmental Health Risk Analysis of Carbon Monoxide Exposure among High Activity Communities Along "X" Street, Yogyakarta	1876
<i>Muqfrah, Ahmad Faizal Ranghuti, Lyva Merintan Bahagiana</i>	
347. The Effect of Work Satisfaction on the Quality of Health Services (Literature Review)	1882
<i>Mutmainah Indriyati, Syafrizal Syarif</i>	
348. Respiratory Symptoms of Housewives Exposed to SO ₂ From Steel Industry in West Cikarang, Indonesia	1887
<i>Nada Amirah, Agustin Kusumayati, Suqud</i>	
349. Efficacy of Endoscopic Transanal Versus Transorbital Surgical Approaches in the Repair of Orbital Blow-Out Fractures (Randomized Clinical Trial)	1893
<i>Nahla M. Awad, Reem H. Hossameidin, Samer N. AbdelGabar, Ibrahim E. Shindy</i>	
350. Relationships of Workloads, Working Conditions and Dual Role Conflict with Nursing Stress	1899
<i>Nasrah Nasrah, Sulistyani Sulistyani, Elen V. Purba</i>	
351. Intention of Diabetic Foot Ulcer Prevention Model Based on Social Support and Personal Agency Perspectives	1904
<i>NasrunPakqya, Kusnanto, Hari Basuki Notobroto, Rika Subarniati Triyoga</i>	
352. The Development of Diabetic Foot Ulcer Prevention Model Based on Psychosocial Perspectives, Attitude, Intention, Coping Mechanisms	1910
<i>NasrunPakqya, Kusnanto, Hari Basuki Notobroto, Rika Subarniati Triyoga</i>	
353. Association of Syphilis and HIV among Indirect Female Sex Worker in Indonesia: Secondary Data Analysis of Integrated Behaviour Biological Survey in 2015	1917
<i>Neneng Aini, Mondastri Korib Sudaryo, Syafrizal Syarif</i>	
354. The Knowledge of the Use of the Contraceptive Method among Married Men with Fertility Age 15- 54 Years (Analysis of IDHS 2017 Data)	1922
<i>Nofla Caecilia Lae, Sudjanto Kamso</i>	

Intention of Diabetic Foot Ulcer Prevention Model Based on Social Support and Personal Agency Perspectives

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Abstract

Context: A diabetic foot ulcer is one of the complications occurred on diabetes mellitus patients. The incident rate of diabetic foot ulcer improves each year significantly. The research was to arrange the intention of diabetic foot ulcer prevention modal based on social support and personal agency perspectives. This study was included in a cross-sectional study using a questionnaire and a simple random sampling technique on 10 health centers (puskesmas). The research instrument for social support consisted of family's support and friend's support, personal agency consisted of perceived control and self-efficacy, and intention consisted of diet intention, consuming medicine intention, physical activity intention, and foot/blood sugar controlling intention. The data analysis applied SEM-PLS software. The diabetes mellitus patients who did not have ulcer were 329. There was correlation between social support and personal agency of diabetic foot ulcer prevention by having Coefficient value for 0,68, and T value for 16,27, there was correlation between personal agency and intention to prevent the diabetic foot ulcer by having coefficient value for 0,57 and T value for 2,96, and there was correlation between social support and intention to prevent the diabetic foot ulcer by having coefficient value for -0,27 and T value for 2,08. The social support contributed highly to the intention through a personal agency, and the social support contributed directly to intention in preventing the diabetic foot ulcer. It is suggested that diabetes patients should get supports from family and friends to improve the perceived control and self-efficacy hence the intention of diabetic foot ulcer prevention can be improved.

Keywords: Social Support, Personal Agency, Intention, Diabetes

Introduction

A diabetic foot ulcer is one of the dead causes in the world, and it can attack whoever the individual is. Diabetes triggers morbidity such as blindness, kidney failure, and non-traumatic amputations⁽¹⁾WHO predicts that the increase of Diabetes Mellitus sufferers in Indonesia reached 8,4 million in 2000 and will be about 21,3 million in 2030⁽²⁾. In 1990, Indonesia was in the 16th place for diabetes, while it was ranked 6th in 2010 and changed to the 5th place in 2015.

Amputation is done every day for diabetes mellitus patients in the world ⁽³⁾Data from ⁽⁴⁾. Riskesdas revealed that Indonesia was ranked 10th for the world's highest

foot amputation number. Besides treatment and healthy lifestyle, the patients' behavior is one of the determining factors of the success in preventing the diabetic foot ulcer so that it can decrease the amputation incident rate. The effect of amputation that is occurred in patients with diabetic foot ulcer can cause longer treatment periods, the higher treatment costs, and the more decrease the patients' life qualities. The effect of a diabetic foot ulcer is strongly perceived by the patients, thus, the roles and supports of family are really helpful. The support can be instrumental such as the provision of facilities that can support the patients' activities and the companion during treatment periods in health center, and also material and transportation to the treatment place. Good support from

the family improves the intention of diabetic foot ulcer prevention. This study aims at arranging the intention model of the diabetic foot ulcer prevention behavior based on the perspective of social support and personal agency in city of Gorontalo.

Material and Method

This was a cross-sectional study that had been conducted from December 1st, 2018 to May 31st, 2019 on respondents suffering from the diabetes mellitus. The samples were 329 respondents out of 1516 population. They were diabetes mellitus sufferers who did not have foot ulcer aged 18 years and over, and had been selected by simple random sampling technique. The variables consisted of social support (X1) which was everything around the individuals that influenced the behaviors of them in preventing the diabetic foot ulcer. The social support (X1) itself comprised of family's support (X1.1), and friend's support (X1.2). The question items included assessment support, instrumental support, informational support, and emotional support.

Other than social support (X1), the personal agency was another independent variable (X2). It was the individual's self-ability to prevent diabetic foot ulcer consisting of a perceived variable (X2.1) and self-efficacy (X2.2). The last was the dependent variable namely intention (Y), the strong desire of the individuals themselves to prevent the diabetic foot ulcer involving the dieting intention (Y.1), physical activities intention (Y.2), consuming medicines intention (Y.3), and foot and blood sugar controlling intention (Y.4). The questionnaire had been ethically tested at Airlangga University of Surabaya, and it had owned its validity and reliability tests. Data analysis was completed by SEM PLS (Partial Least Square) software.

Findings: The research result at Table 1 shows that the diabetes patients for elderly category aged 52 - 65 years are 214 (64,3%), female category consisted of 240 respondents (72,9%), respondents who are Senior High School graduates achieve 223 (67,8%), and those who do not have job (housewives and retired employees) are 215 (65,3%).

Table 1: Respondents' Characteristics, 2019

Characteristics	Classification	Frequency	Percentage	Mean ± SD Min - Max
Age	Late Adult (35- 45 years)	30	9,0	Mean: 57,29 SD: 8,88 Min: 35 Max: 84
	Early Elderly (46 - 55 years)	42	12,6	
	Late Elderly (56 - 65 years)	214	64,3	
	Elderly > 65 years	23	6,9	
Sex	Male	89	27,1	
	Female	240	72,9	
Job	Unemployment	215	65,3	
	Farmer	61	18,6	
	Private Employee	30	9,1	
	Civil Servant	23	7,0	

Table 2 reveals that respondents who have family's support in less category are 71 respondents (21,3%) and those who receive support from friends in less category are 95 (28,4%), and there are 174 respondents (52,9%) who receive social support in a sufficient category.

Table 2: Social Support, Personal Agency and Intention to Prevent Diabetic Foot Ulcer Variable

Variable	Indicator	Category	Total	Percentage	Mean ± SD Min - Max
Social support	Family's Support	Less	71	21,3	44,65 ± 13,32 30 - 60
		Sufficient	116	34,7	
		Good	141	42,2	
	Friend's Support	Less	95	28,4	44,61 ± 14,06 25 - 64
		Sufficient	107	32	
		Good	127	38	

Variable	Indicator	Category	Total	Percentage	Mean \pm SD Min - Max
Overall Social Support Score		Less	43	14,6	89,93 \pm 17,68 37 - 128
		Sufficient	174	52,9	
		Good	107	32,5	
Personal agency	Perceived control	Less	157	47,7	18,89 \pm 6,04 7 - 34
		Good	172	52,3	
	Self efficacy	Less	175	53,2	13,44 \pm 1,80 8 - 16
		Good	154	46,8	
Overall Personal Agency score		Less	168	51,3	32,38 \pm 6,08 19 - 46
		Good	161	48,9	
Intention	Dieting	Less	119	36,2	10,04 \pm 1,33 6 - 12
		Good	210	63,8	
	Physical activities	Less	121	36,8	6,73 \pm 0,92 4 - 8
		Good	208	63,2	
	Consuming medicines	Less	119	36,2	6,72 \pm 0,87 4 - 8
		Good	210	63,8	
	Foot and blood sugar controlling	Less	119	36,2	6,76 \pm 0,90 3 - 8
		Good	210	63,8	
Overall Intention Score		Less	160	48,6	30,27 \pm 2,34 21 - 36
		Good	169	51,4	

Table 2 shows that almost all perceived control in a high category are 172 respondents (52,3%), respondents who have a low category of self-efficacy are 175 (53,2%), and the total of personal agency is in less category for 168 respondents (51,1%). Then, 210 respondents (63,8%) are in high category of dieting

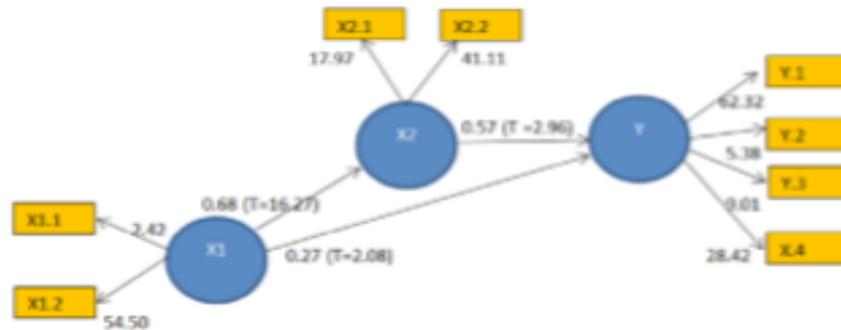
intention, 208 respondents (63,2%) are in high category of physical activities intention, 210 respondents (63,8%) are in high category of consuming medicine intention, and 210 respondents (63,8%) are in high category of foot/blood sugar controlling intention.

Table 3: Cross Loadings with Convergent Validity and Reliability Result

Construct and Indicator	Loading (λ)	T-statistics	Chronbach's Alpha	Information
Social support	X1.1	0.968	0.96	Valid & Reliable
	X1.2	0.971		
Personal agency	X2.1	0.954	0.85	Valid & Reliable
	X2.2	0.762		
Intention	Y.1	0.989	0.97	Valid & Reliable
	Y.2	0.987		
	Y.3	0.989		
	Y.4	0.83		

Table 3 reveals that there is no loading factor for less than 0,5 and T-statistical value is less than 1,96, hence all variables are considered significant and all latent

constructs are reliable and marked with the Chronbach's Alpha score which is higher than 0,6.



X1 = Social Support, X2 = Personal Agency, Y = Intention
 Picture 1; Statistical T Value of Structural Model

Discussion

Picture 1 reveals that there is direct correlation between social support with personal agency of diabetic foot ulcer prevention for 0,68 unit with T-statistical value for 16,27 (T_{count} is higher than $T_{table}(1,96)$), there was a direct correlation between personal agency and intention of diabetic foot ulcer prevention for 0,57 unit with T-statistical value for 2,96, and there was direct correlation between social support and intention of diabetic foot ulcer for -0,27 unit with T-statistical value for 2,08.

The social support comprises assessment support, instrumental support, informational support, and emotional support. The research result at picture 1 reveals that there is correlation between social support with the personal agency of diabetic foot ulcer prevention. It is found out that the informational and instrumental supports are required by the patients. The supports can be in the form of discussion among the family members about diabetic foot ulcer prevention and treatment to give when there is an indication of wound to occur and preparing appropriate meals for the diabetes patients. The positive impact felt by the respondents is the improvement of personal agency or individual ability to observe the symptoms of diabetic foot ulcer, and the patients become more confident to do the diabetic foot ulcer prevention.

Family support is required in this phase to assist the patient in preventing potential injury. Diabetic foot ulcer symptoms consisting of less to nothing sensation, dry skin, paralysis in foot area, and callus can be found⁽⁵⁾.

Diabetic foot ulcer is one of the sensory nerve defects which can cause the decrease of pain sensation at half to all part of foot area⁽⁶⁾. Normally, people who get injured require 2 to 5 days for the inflammation phase till the wound healing process⁽⁷⁾.

One of the family support categories experienced less by the respondents is assessment. The support is in the form of dieting support. The family, basically, suggests the patient do a diet, yet there is not any limitation for foods supply, for example, the food containing many calories. Therefore, the respondents are not maximal in running their diet. The research conducted by May beary S.L and Lindsay S., exposes that the behavior of the people around the patients who support the diabetes patient treatment program will increase the obedience of the patients in taking treatment⁽⁸⁾.

The research result at picture 1 shows that there is a correlation between personal agency and intention of diabetic foot ulcer prevention. The questionnaire result shows that the respondents are difficult to do physical activities 3 times a week based on the programs of the health center. It is because the respondents are not capable of doing that especially for those who have activities as the housewives. Respondents think that their tasks as housewives are more important than doing exercise. Respondents believe that doing activities as housewives can fulfill the need for physical activities for diabetes sufferers.

The lack of personal Agency, according to the health workers, is initiate by patients having many activities at home. The respondents' ages are in late elderly category

for 56 - 65 years. Their household activities should be adjusted with their ability, hence, the patients should focus only on diabetic foot ulcer prevention and other complications. The nurses, in this case, are having crucial roles in improving the personal agency. According to Hsieh Y. L., et al. the health officers are responsible in improving the patients' intention to follow the diabetes complication treatment because a high personal agency will improve the intention of diabetic foot ulcer prevention⁽⁹⁾.

Hence, the health officers and the family can do an orientation to patients about how to prevent any injury when doing activities and how to do foot treatment. If it is well-oriented, it will improve the diabetes patients' intention, hence they will obediently conduct the treatment program. It is strengthened by Pakaya which states that orienting the patients to rules and treatments will improve the intention and obedience of patients in following the treatment⁽¹⁰⁾. It is also supported by Pinidiyapathirage J., et al., that personal agency in self-efficacy is one of the important predictors to improve diabetes patients' intention in doing physical activities⁽¹¹⁾.

Table 2 shows that the family's support which is in a low category is 21,3%. The lack of family's support, in terms of instrumental support, strongly influences the behavior of diabetic foot ulcer prevention. The instrumental support is performed by helping the patient to do physical activities; the family can accompany the patient to visit the health center. By doing that, the patient will be more enthusiastic to follow the treatment. The study conducted by Lengerke V., K. en L., states that supports from all parties, including family, will improve the intention of patients to prevent the diabetic foot ulcer⁽¹²⁾.

The questionnaire result shows that social support from friends strongly helps the individual to visit the health center. The result is supported by Shuhaide N, M, H., et al., that social support has a significant correlation with blood sugar controlling behavior⁽¹³⁾. Social support is a heterogenic concept in which it can help o improve the mental health in terms of intention and physical health in preventing he diabetic foot ulcer⁽¹⁴⁾. The intention is also influenced by attitude, perceived norms, and personal agency⁽¹⁵⁾.

According to Ajzen and Fishbein, to do an intention, there should be mutual cooperation with ones who support the intention itself, because intention is

determined by the environment or situational⁽¹⁶⁾. Faries D. M., has stated that there is often a gap between intention of an individual with the expected result in which the respondents who have intention are difficult to realize it in behavior⁽¹⁷⁾.

Conclusion

The developing model of intention to prevent the diabetic foot ulcer is influenced by supports from family and friends in order to improve the intention through personal agency variable. It is suggested that there should be further research related to knowledge and motivation in improving the intention to prevent diabetic foot ulcer.

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The Development of Diabetic Foot Ulcer Prevention Model Based on Psychosocial Perspectives, Attitude, Intention, Coping Mechanisms

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Abstract

Context: Objective: Foot ulcer is one of the diabetic complications that causes death in the world. Preventive behavior can be used to prevent diabetic foot ulcers. Therefore, this study aims at developing a model of diabetic foot ulcer prevention based on psychosocial, attitude, intention and coping mechanisms. The study used a cross-sectional study design to look at the relationship between variables using simple random sampling in 329 respondents, ages 18-85 years, who made an inspection visit at a health care center. The research instrument consisted of psychosocial variables namely knowledge and stress, attitude, intention, coping mechanisms, and foot ulcer prevention. Furthermore, the data were analyzed using SEM-PLS software. Results shows most of the respondents were in the youth category ages 18 - 65 years. Analysis of shows that there is a psychosocial influence on attitude $T = 10,92$, there is an effect of attitude on intention $T = 2,43$, there is an influence of intention on coping mechanisms $T = 8,28$, there is an influence of intention on Foot ulcer prevention $T = 2,57$, there is an influence of coping mechanisms on foot injury prevention $T = 5,02$. Knowledge, stress, attitude, intention and coping mechanisms contribute to prevent diabetes foot injuries. The Conclusions Knowledge, stress and attitude variables contributed the most indirectly to diabetes foot injury prevention. Contributions are directly affected by coping mechanisms and intentions.

Keywords: Psychosocial, Attitude, Intention, Coping Mechanisms, ulcer

Introduction

Diabetes mellitus (DM) is a non-communicable disease because of abnormalities of insulin secretion in beta cells, insulin action, or both.¹ Indonesia is one of the countries with the highest number of diabetic ranked 5th in the world.² Research conducted by Hena M. Shows that prevention of diabetic complications can be prevented by increasing behavior from subjective attitude to norms perceived control of behavior, knowledge and behavioral intentions.³ This study aims to develop a model of diabetic foot ulcer prevention based on psychosocial, attitude, intention, and coping mechanisms.

Material and Method

The study used a cross-sectional study design on 329

respondents from January 2019 to May 2019. Diabetic patients were selected using simple random sampling with the criteria for patients having ever / never diabetic foot ulcers at the age of 18-85 years.⁴ The research variable was psychosocial that is consist of respondent's knowledge of diabetes and patient' stress that refers to the DDS (distress scale),⁵ coping mechanisms refers to problem management and emotional regulation, attitude, intention, and Foot ulcer prevention. The research instrument was tested by a questionnaire and the result showed that it is valid and reliable.

Findings: Table 1 shows that the majority of respondents were young people aged 18 - 65 years, the majority were female (72,9%), most were high school education (67,8%), most were married (99,39%).

Table 1: Respondents' Characteristics diabetic patients

Characteristics	Classification	Frequency	Percentage	Mean \pm SD Min - Max
Age :	Youths (18- 65 years)	306	93	Mean: 37,29
	Middle-aged adults (66 - 79 years)	19	5,8	SD : 1,88
	Elderly (80 - 99 years)	4	1,2	Min : 35
Sex	Male	89	27,1	
	Female	240	72,9	
Education Level	Higher Education	37	11,3	
	Senior High School	223	67,8	
	Elementary School/ Junior High School	34	10,3	
	Non-students	13	4,6	
Marital status	Married	327	99,39	
	Single	2	0,61	

Table 2 shows that knowledge about DM is in most good category (39,4%), most did not experience the stress of 254 respondents (77,2%) and severe stress (1,4%). The experiential attitude was mostly in good category (33,5%), the instrumental attitude was mostly in poor category (34,1%), total attitude score was in most categories (56,5%). The intention scores were

mostly high (31,4%), coping mechanisms for problem management indicators were mostly non-adaptive categories (52,6%), Emotional regulation indicators were mostly non-adaptive categories(37,1%), total preventing diabetic foot complications were mostly in the good category (32,9%).

Table 2: Psychosocial, attitude, intention, coping mechanisms and Foot ulcer prevention for diabetic foot complications

Variable	Indicator	Category	Total	Percentage	Mean \pm SD Min - Max
Psychosocial	Knowledge of DM	Low	3	0,9	93,26 \pm 10,98 39 - 100
		Moderate	32	9,7	
		Good	294	89,4	
	Stress	Not stress	254	77,2	13,64 \pm 3,72 9 - 32
		Low	40	12,2	
		Moderate	31	9,2	
		High	4	1,4	
Attitude	Experiential attitude	Low	133	46,5	11,82 \pm 1,66 6 - 18
		Good	176	53,5	
	Instrumental attitude	Low	178	54,1	13,39 \pm 1,80 8 - 16
		Good	131	45,9	
Overall attitude score		Low	186	56,5	25,22 \pm 3,02 18 - 32
		Good	143	43,5	
Intention	Dietary	Low	119	36,2	10,04 \pm 1,33 6 - 12
		High	210	63,8	
	Physical Activity	Low	121	36,8	6,73 \pm 0,92 4 - 8
		High	208	63,2	

	Taking Medication	Low High	119 210	36,2 63,8	6,72 \pm 0,87 4 - 8
	Blood glucose monitoring	Low High	119 210	36,2 63,8	6,76 \pm 0,90 3 - 8
Overall intention score		Low High	160 169	48,6 51,4	30,27 \pm 1,84 21 - 36
Coping mechanisms	Problem management	Non-adaptive	173	52,6	26,60 \pm 3,64
		Adaptive	156	47,4	16,32
	Emotional regulation	Non-adaptive	188	57,1	36,30 \pm 4,72
		Adaptive	141	42,9	22 - 44
Foot ulcer prevention	Diet	Low	176	53,5	6,17 \pm 1,23
		Good	153	46,5	3 - 8
	Physical Activity	Low	164	49,8	12,76 \pm 2,31
		Good	165	50,2	4 - 16
	Taking medication	Low	178	54,1	7,10 \pm 0,99
		Good	151	45,9	4 - 8
	Blood glucose monitoring	Low	175	53,2	6,18 \pm 1,22
		Good	154	46,8	3 - 8
Overall Foot ulcer prevention score		Low Good	155 174	47,1 52,9	32,37 \pm 3,75 18 - 40

Table 3 shows that the psychosocial construct variables, attitude, intention, coping mechanisms, and preventive measures averaged above 0,5, T values above 1,96, Chronbach's Alpha scores > 0,6 are valid and reliable.⁵

Table 3: Cross Loadings with Convergent Validity and Reliability Result

Construct	Indicator	Loading (λ)	T-statistics	Chronbach's Alpha	Information
Psychosocial	Knowledge	0,96	40,48	0,96	Valid & Reliable
	Stress	0,97	93,73		
Attitude	Experiential attitude	0,96	106,11	0,96	Valid & Reliable
	Instrument attitude	0,96	55,51		
Intention	Diet	0,98	62,32	0,97	Valid & Reliable
	Physical Activity	0,98	5,38		
	Taking medication	0,98	62,32		
	Monitoring	0,83	27,28		
Coping mechanisms	Problem management	0,93	24,41	0,92	Valid & Reliable
	Emotional regulation	0,90	40,37		
Foot complications prevention	Diet treatment	0,90	28,83	0,89	Valid & Reliable
	Physical Activity Action	0,71	41,89		
	Taking medication Action	0,75	9,01		
	Monitoring Action	0,86	28,42		



Figure 1: X1 = Psychosocial, X2 = Attitude, X3 = Intention, X4 = Coping Mechanisms, Y = foot complications prevention.

Discussion

1. **Psychosocial influence on attitude:** Figure 1 shows that there is a direct psychosocial influence on the attitude of patients in Gorontalo. Respondents reported the cause of the patient's stress because they had suffered complications to the foot and had an amputation of the toe. This condition causes patients to often think of their illness, which can trigger stress. Respondents report that stress not only affects the lives of individuals but can also trigger an increase in blood sugar. The results of research conducted by Tomayaku M. and Adam L that stress can increase blood sugar levels in diabetic patients. These results indicate that there is a significant relationship with stress with an increase in blood sugar levels.⁴

Respondents reported an increase in knowledge and attitude since attending counseling on diabetic foot complications prevention. Research conducted by Khunkaew S. that low knowledge can reduce the attitude of diabetic patients towards patient blood sugar control.⁷ This is reinforced by research conducted by Abbasi Y. F., et al. That knowledge has a significant relationship with increasing patient attitudes.⁸ Diabetic patients report an increased knowledge can change the attitude of patients in

preventing diabetic foot ulcers. This is indicated by positive changes in terms of experiential attitude in which patients report happy doing physical activity every day.

2. **Effect of attitude on intention:** Figure 2 shows the influence of attitude towards the intention to prevent diabetic foot ulcers. The results showed respondents reported rarely doing physical activity. Some respondents also reported that the implementation of the diet was not carried out to the maximum, did not carry out the diet continuously, and carried out the diet only at certain times. Respondents also reported having the habit of consuming sweet foods and drinks in the morning and evening. Nevertheless, the patient's attitude towards taking medicine is quite good, where the patient does not feel bored by taking diabetes medication every day. Diabetes medication is always taken every month in accordance with the stock of drugs given by the health center. According to Ajsan, I., & Fishbein, M. Behavioral intentions of someone in behavior are closely related to individual attitudes and normative beliefs about the behavior in question. If attitudes and beliefs are good, it will increase individual intentions in behavior.⁹ This was confirmed by Lestarina W.N. that a positive attitude towards treatment has a significant relationship to the patient's blood sugar control. A positive

attitude that adheres to treatment will increase the intention to frequently control diabetes treatment.¹⁰ This is in line with research conducted by Abbasi F.Y. that there is a significant relationship between attitude and practice for diabetes prevention.⁸ A positive attitude of patients towards the prevention of diabetic foot complications can increase patient intention. Research conducted by Putri M. shows that there is a significant relationship between attitude and the intention of the elderly with diabetes in visiting health services.¹¹ This result shows that attitude gives the biggest contribution to increasing intention to prevent diabetic foot ulcers.

3. Effect of intention on coping mechanisms:

Table 3 shows the loading factor no less than 0.6. Figure 1 shows that there is a significant effect on the coping mechanisms of the patient. According to Pimidiyapathirage J., et al., Intention is one of the strong predictors to improve patient coping.¹² Patient participation in the form of patient visits in health care facilities is one of the benchmarks evaluating the increase in patient intention to prevent diabetic foot complications.¹³ Obstacles in visiting health facilities, including monitoring are the lack of patient intentions.¹³ Some patients report a lack of intention in monitoring foot hygiene and blood sugar monitoring. According to patients, the intention to maintain foot hygiene is already there, but the implementation has not been maximized. This shows the intention to prevent diabetic foot complications has not reached the stage of action. According to Faries DM, many things can be done to realize intentions in action including increasing attitude, perceived norm, personal agency, self-efficacy.¹⁴ According to him in realizing a diabetes prevention behavior is difficult to realize, especially related to diet, physical activity, taking medication and monitoring blood sugar.¹⁴ The intention has a close relationship with improving coping mechanisms. A good coping mechanisms from an individual can control an unpleasant situation and increase the intention to run a diabetes treatment program. With a good coping mechanisms, it will be able to control situations that can cause stress.¹⁵ If individual stress has occurred it can cause a lack of individual intention to prevent diabetic foot ulcers.

4. Effect of intention on Foot ulcer prevention:

Figure 3 shows the influence of intention on the patient's actions to prevent diabetic foot ulcers.

Some patients report having strong intention in wound monitoring, and blood glucose monitoring as it is quite high. This is demonstrated by participating in activities related to diabetes in-service facilities. Respondents reported that in addition to being carried out in service facilities once a month, patients also performed physical activities at home once a week. Some respondents reported experiencing obstacles in carrying out routine blood sugar checks as a result of less cost. This reason is one of the causes of the decrease in the intention of some respondents in taking action to prevent diabetic foot complications. The intention to carry out a diet is reportedly done well in the form of maintaining a daily diet with reference to 3J, namely the amount, hours and types of food. Research conducted by Braver D.N.R. et al. that a change in a patient diet-related to food intake, fruit fat and fruit intake is strongly influenced by the patient's intention to take precautionary measures. If patient's intentions are good, it will produce a preventative measure for diabetic foot ulcers.¹⁴ This study is strengthened by Lestarina WN which shows there is a significant influence on the intention with adherence and injured preventive in the form of periodic blood sugar control.¹⁰ To produce good intentions, several elements that are very influential are needed, including the main factors are knowledge and skills to conduct a behavior. The second factor is that there are no obstacles to taking action.¹⁷ Barriers can be from around individuals including families, barriers to distant service areas. With these obstacles, family support is needed to increase the patient's intention to prevent diabetic foot ulcers.

5. Effects of coping mechanisms on diabetic foot complications prevention:

The results of Figure 1 show that there is an effect of coping mechanisms on diabetic foot ulcer prevention. Some respondents pointed out coping mechanisms in adaptive problem management. The adaptive response is indicated by examining a doctor or health care facility when experiencing signs of foot abnormalities. This shows the level of awareness of the complications is quite high. According to Okafor S.E., the importance of coping for individuals can improve behavior more adaptive to stress. The results of his study showed that good coping tended to show fewer depressive symptoms and increase positive behavior.¹⁸ The results revealed that not all patients know the danger of diabetic foot ulcers, which lead to amputation. Some patients do not understand

that diabetic foot ulcers can be prevented by taking care of the feet. According to Pranoto A. Infection of wounds resulting from poor treatment causes gangrene in wounds caused by bacteria and aerobic clostridium. The degree of infection starts from first degree without infection to fourth-degree with severe infection accompanied by sepsis.¹⁹ This is supported by research conducted by Amelia R. that good and correct treatment behavior in the feet can reduce the incidence of diabetic foot ulcers.²⁰

Conclusion

Knowledge, stress and attitude variables contributed the most indirectly to diabetes foot injury prevention. Contributions are directly affected by coping mechanisms and intentions.

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Ethical Clearance: This study has been approved by the Ethics Commission of the Faculty of Nursing Airlangga University (number 1173-KEPK) with an explanation of informed consent given to respondents.

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