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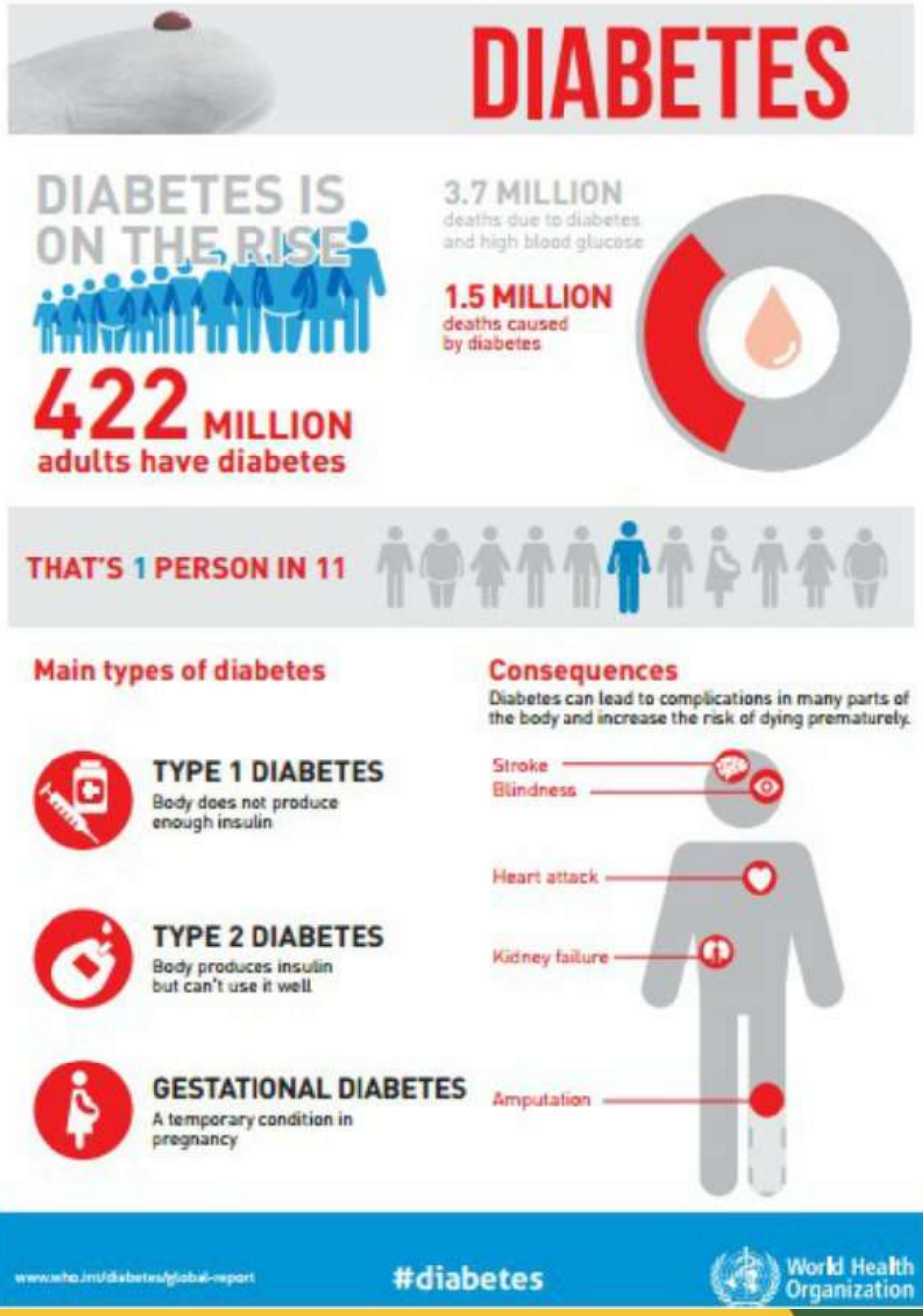
The Effect of the Foot Care Education Program on Knowledge and Self-Efficacy among Family of Diabetes Mellitus Patients

Yanuar Primanda, MNS, Puput Bayu Putra, S.Kep., Ns, Sitti Rahma Soleman, S.Kep., Ns, Wiwi Melianita Arba, S.Kep., Ns

School of Nursing, Faculty of Medicine and Health Sciences

Universitas Muhammadiyah Yogyakarta, Indonesia

PRESENTED AT INTERNATIONAL SUMMIT ON KNOWLEDGE ADVANCEMENT (ISKA 2017): INTERNATIONAL CONFERENCE ON HEALTH, PHARMACY AND MEDICINE (ICHPM2017)


DIABETES
DIABETES IS ON THE RISE
422 MILLION
adults have diabetes
3.7 MILLION
deaths due to diabetes and high blood glucose
1.5 MILLION
deaths caused by diabetes
THAT'S 1 PERSON IN 11
Main types of diabetes
TYPE 1 DIABETES
Body does not produce enough insulin
TYPE 2 DIABETES
Body produces insulin but can't use it well
GESTATIONAL DIABETES
A temporary condition in pregnancy
Consequences
Diabetes can lead to complications in many parts of the body and increase the risk of dying prematurely.
Stroke
Blindness
Heart attack
Kidney failure
Amputation
www.who.int/diabetes/global-report
#diabetes
World Health Organization

Introduction

- Diabetic Foot Care (DFU) is a major cause of morbidity and mortalitiy (ADA, 2017)
- The prevalence of DFU is increasing (Zhang, Jing, Tang, Zhu, & Bi, 2017)
  - Global prevalence of DFU is 6,3%
  - Prevalence of DFU in Asia is 5,5%

Introduction...cont

- Require comprehensive management → multidisciplinary approach and active family involvement
- DFU prevention is the best management option

(Schreml & Berneburg, 2017)

Introduction...cont

- Family's Role in DFU Prevention
  - Support, help, facilitate, and care the patient
  - Ruquire
    - Adequate knowledge and skill
    - Good attitude
    - Good understanding the strategies to alter family routines
    - Positively coping with the emotional problems
    - Self-efficacy

(Baig, Benitez, Quinn, & Burnet, 2015)

Introduction...cont

- However, the the family's knowledge related to diabetes management including foot care is still substandard (Hu, Amirehsani, Wallace, &Letvak, 2013; Chiwanga & Njalekela, 2015; Seid and Tsige, 2015; Solan, et al, 2016)
- The family's lack of knowledge → the barrier to patient's self-management → diabetic foot care (Hu, Amirehsani, Wallace, &Letvak, 2013)

Introduction...cont

- Family's self-efficacy also influences patient's diabetes healthy behavior
- Where the family members have good self-efficacy in performing suggested health behaviors, the patient improves his/her self-efficacy and healthy behavior (Noser, Patton, Van Allen, Nelson, & Clements, 2017)

Introduction...cont

- One of DFU prevention strategy is health education (ADA, 2017)
- Intervention that increase the foot care knowledge and foot care practices can prevent and improve DFU (Bonner, Foster & Spears-Lanoix, 2016

Research Objective

- To examine the effect of the foot care education program on knowledge and self-efficacy of the family who cares the diabetes mellitus patient

Research Design

- One group pre-post test quasi experiment study
- Inclusion criteria
  - Family as a caregiver of patients in PKU Muhammadiyah Gamping Yogyakarta Hospital
  - Minimum age 18 years
- Sample
  - 26 respondents

Experimental Detais

- Diabetic foot care educational program
  - Individual
  - 30 – 60 minutes
  - 1 meeting
  - Method: discussion, demonstration and practice
  - Media: video, booklet and diabetic foot care package

Instruments

- The Diabetic Foot Care Knowledge Questionnaire (DFCKQ)
  - 26 items multiple choice questions
  - Possible score 0 – 26
  - Higher score = better diabetic foot care knowledge
- The Family Foot Care Confidence Scale (FFCCS)
  - 12 items question with 4 Likert scale
  - Possible score 0 – 36
  - Higher score = higher self-efficacy

Data Analysis

- Paired t test ($p < 0,05$)
- Normality test by using Saphiro Wilk ($p > 0,05$)

Research Ethics

- Approval from the Ethic Commission of Faculty of Medicine and Health Sciences Universitas Muhammadiyah Yogyakarta
- Informed consent
- Confidentiality
- Anonimity
- Right to self determination

Results and Discussion

Table 1. Age and Duration of Caring the Patient (N=26)

Characteristics	Mean	SD
Age (Min = 19 year, Max = 60 year)	40,96	11,72
Duration of Caring the Patient (Min = 1 year, Max = 10 year)	2,69	2,89

Results and Discussion... cont

Table 2. Characteristic Demography of the Family (N=26)

Characteristics	Frequency	Percentage
Gender		
Male	10	38,5
Female	16	61,5
Education Level		
No schooling to junior high school	11	42,3
High school	10	38,5
College/University	5	19,2
Occupation		
Retired/Homemaker	15	57,7
Governmental and nongovernmental staff	11	42,3
Relationship with the patient		
Spouse	10	38,5
Child	10	38,5
Other	6	23,1
Experience with previous diabetic foot care education		
Yes	4	15,4
No	22	85,6
Accompany the patient during check up		
Yes	16	61,5
No	10	38,5

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Results and Discussion... cont

Table 3. The Comparison of the Knowledge Scores Before and After the Intervention (N=26)

Variable	Mean	SD	Mean Difference	SD	*t*	*p*-value
Knowledge Pre-test	16,61	0,55	-4,74	3.19	-7,55	0,00
Knowledge Post-test	21,35	0,49				

Results and Discussion... cont

- The program significantly increase the family's knowledge → characteristic of the program (individual, discussion, demontration, practice, media)
- Education intervention improve the understanding and adherence to certain health behavior (Dorresteijn, Kriegsman, Assendelf, & Valk, 2012)
- Effective foot care interventions that include foot care knowledge and foot care practices can improve and prevent lower extremity complication associated with diabetes mellitus especially type 2 (Bonner, Foster, & Spears-Lanoix, 2016)

Results and Discussion... cont

- The education media plays the significant role in increasing knowledge → the use of proper education media during education session is recommended (Devchand, Nicols, Gallivan, Tiktin, Krause-Steinrauf, Larkin, Tuncer, 2017)

Results and Discussion... cont

Table 4. The Comparison of the Self-Efficacy Scores Before and After the Intervention (N=26)

Variable	Mean	SD	Mean Difference	SD	*t*	*p*-value
Self-Efficacy Pre-test	22,19	0,84	-6,04	0,03	-10,17	0,00
Self-Efficacy Post-test	28,23	0,55				

Results and Discussion... cont

- The program significantly increase the family's self-efficacy → education program as the source of family's self efficacy
- Demonstration and practice → mastery experience
- Positive reinforcement → verbal persuasion
- Mastery experience and verbal persuasion are the sources of self-efficacy (Bandura, 1997)

Results and Discussion... cont

- Education program can significantly increase not only knowledge; but also self-efficacy (Fan, Sidani, Cooper-Brathwaite, & Metcalfe, 2013)
- Family's self-efficacy indirectly correlate with patient's metabolic control and health management behavios (Herge, Streisand, Chen, Holmes, Kumar, & Mackey, 2012)

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