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Systematic Review A Systematic Review: The Experience of Patient with Diabetic Foot Ulcers Mohamad Roni Alfaqih¹, Kurnanto Kurnanto¹, Padoli Padoli² ¹Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia ²Nursing Program of Politeknik Kesehatan Kemenkes, Surabaya, Indonesia

ABSTRACT Introduction: **Diabetic foot ulcers** can **have** an **impact on the individual** responses related to the disease process and healing. The response depends on the perception of the disease, its severity, the environmental factors and the level of family support. The response that often occurs is the existence of fear and anxiety which is due to the stress experienced by the individual. The purpose of this study was to explore the experience of patients with diabetic foot ulcers. **Methods:** **This study used the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA)** approach. **The methods used** to arrange **this systematic review** included **(1) the identification of the variables in the literature, (2) the identification of the relevant literature based on the topic and title, (3) obtaining the literature in full-text form and (4) conducting an analysis of the results from the literature.** **The** databases used to identify suitable articles were Scopus, Google Scholar, Pubmed, ProQuest and Ebscohost. Results: Based on the 15 articles reviewed, the results explain that the majority of patients who experience DM with the complication of diabetic ulcers experience stress, depression and anxiety. They also have a financial burden, feel helplessness, blame themselves and feel that there is uncertainty their life. They need support from their family and wider social support. Conclusion: However, from the experience of the patients with diabetic foot ulcers, they must be able to adapt to a limited life. They must also have a good coping style and an adaptive response in order to survive and heal their diabetic ulcers.

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KEYWORDS experience; stress; anxiety; diabetic foot ulcer

CONTACT Kurnanto Kurnanto ? kurnanto@fkp.unair.ac.id ? Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia Cite this as: Alfaqih, M. R., Kurnanto, K., & Padoli, P. (2020). A Systematic Review: The Experience of Patient with Diabetic Foot Ulcers. Jurnal Ners, Special Issues, 120-128. doi:<http://dx.doi.org/10.20473/jn.v15i2.18995>

INTRODUCTION **Diabetic foot ulcers** can **have** an **impact on the individual** responses related to the disease process and healing. The response depends on the perception of the disease, the disease severity and the environmental factors and family support. The response that often occurs is the existence of fear and anxiety which is due to the stress experienced by the individual (Vedhara et al., 2010). The slow process of wound healing in diabetes mellitus patients can increase the risk of wound complications which will have an impact on the duration of wound healing. Complications in the form of diabetic ulcers can have an impact on the individual responses related to the disease process and healing. All of these aspects make the patient feel frustrated, dissatisfied, insecure, fearful, helpless and uncontrolled. Individuals with injuries feel unable to carry out their daily activities, and they often consider themselves unable to play their role in

society (De Almeida, Salomé, Dutra, & Ferreira, 2014). Diabetic ulcer patients require several weeks or even months to heal. Diabetic foot ulcers that cannot be cured are able to become infected, gangrenous, and even lead to amputations. Poor healing in patients with diabetic ulcers will create a burden for the patients including morbidity, distress and the disruption of their functional abilities which will ultimately increase the costs involved due to the 120 | pISSN: 1858-3598 • eISSN: 2502-5791 JURNAL NERS Identification Records identified through Records identified through database database searching in searching in PubMed (n= 123), Ebschost Scopus (n= 58) (n= 314) and Proquest (n= 462) and Google Scholar (n=421) [Records after duplicates removed \(n=1378\)](#) [Screening Records screened \(n=1378\)](#) [Records excluded \(n= 1270\)](#) [Eligibility Full-text articles assessed for eligibility \(n= 124\)](#) [Included Studies included in the quantitive synthesis \(n= 15\)](#) [Full-text articles excluded \(n=109\) with reasons:](#) 1.Not DFU complication (n=68) 2.Not primary prophylaxis (n=20) 3.Incomplete report (n= 5) 4.Less duration of complication (n=12) 5.Wrong study design (n= 4) Figure 1. Article Selection Process prolonged care and treatment. This can trigger increased stress levels in the patients with diabetic ulcers (Vedhara et al., 2010). Each patient builds his experience of the disease which includes both emotional aspects and cognitive aspects, which in turn will determine the coping strategies used. The right coping strategy plays a very important role in the physical and psychological health of the patient(Siersma et al., 2017). Diabetic ulcer injuries often affect quality of life, including marked limitations in the activities of daily living (ADL) due to the pain, edema, fatigue and large dressing that makes simple activities such as changing clothes and bathing frustrating and unable to be done easily. Diabetic ulcers can interfere with an individual's social life, household chores, leisure activities and mobility(Siersma [et al., 2017](#)). A research [study conducted by](#) Meriç et al. [in](#) 2019 about the experience of patients with diabetic foot ulcers explained that most of the patients were afraid of losing their feet and that they had difficulty coping with the situation. The patients expected the health professionals to understand the difficulties that they were experiencing. Another research conducted by Delea et al., 2015 about the management of diabetic foot disease and amputation in the Irish health system explained that they need supportive interactions with the health professionals according to their differing [levels of education and information](#). There was also the financial cost of the foot complications, the geographical disparities in terms of access to services and supplies, their medical card being a lifeline, the responsibilities of the health care system, the wider social circumstances complicating and competing with the illness process, the [importance of emotional support during treatment](#) and [the necessity for early education and information](#) to consider. Diabetic foot ulcers are [a frequent complication of diabetes mellitus with subsequent disturbances in the daily life of the patients. The co-existence of depression and anxiety among diabetic foot patients is a common phenomenon and the role of each of them in perpetuating the other is highlighted in the literature. Our study aimed to determine the prevalence of anxiety and depression and to examine the associated risk factors among diabetic foot patients](#). Depression and anxiety are more common in DM patients with diabetic ulcer complications compared with DM patients without complications. This shows that they experience ineffective psychosocial adaptation(Ahmad, Abujbara, Jaddou, Younes, & Ajlouni, 2018). This is due to the effect of the duration of illness experienced or due to the treatment not healing DM and causing complications. The longer the healing that the diabetes mellitus disease takes and in addition to the duration of the treatment of the ulcer wounds, the more that it will further increase the cost of care, the disruption of the body image, impaired function, the role of the family and depression. The aim of this systematic review was to explore the experience of patients with diabetic

foot ulcers(Delea et al., 2015). MATERIALS AND METHODS Strategy for searching studies Articles published in English were searched for on Scopus (medical and nursing subject category), Google Scholar, Pubmed, ProQuest and Ebscohost. The relevant articles were searched for from December 20th 2019 to February 28th 2020. The article search used the keywords "diabetic foot ulcers, experience, stress, anxiety". When searching for the articles, "AND" was also used. [The methods used in arranging this systematic review were \(1\) the identification of the variable in the literature, \(2\) the identification of the relevant literature based on the](#) <http://e-journal.unair.ac.id/JNERS> | 121 M. R. ALFAQIH ET AL. [topic and title, \(3\) obtaining the literature in a full- text form, and \(4\) the analysis of the results from the](#) experience of [the literature](#). Study selection A systematic review research design resulting from the latest articles over the last 10 years was used. [This study used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses \(PRISMA\)](#) approach. All of the studies found related to the experience of patients with diabetic foot ulcers only. The search was focused on the titles, abstracts and keywords. The inclusion criteria in the study were 1) adult humans ≥ 30 years of age diagnosed with diabetic foot ulcers; 2) the duration of ulcers was for more than 3 years and 3) the study design was qualitative research. Studies were excluded if the studies involved diabetes mellitus with the retinopathy complication, which does not have enough strength to use to detect a significant relationship. The publications were limited to between 2009-2020 (Figure.1 Article Selection Process). Ethical issues considered when preparing the manuscript of the systematic reviews were following 1) avoiding redundant or duplicated articles among the publications; 2) avoiding plagiarism; 3) the transparency of the screening of the articles, the process of analysis and the evaluation; 4) ensuring accuracy and 5) flagging suspected plagiarism or fraudulent research. RESULTS Strategy for Searching Studies Diabetic ulcer complications can have an impact on the individual responses related to the disease process and healing. The response depends on the perception of the disease, the severity of the disease and the environmental and support factors. The response that often occurs is the existence of fear and anxiety due to the stress experienced by the No Title, Authors, & Variable Design Time Instrument 1 It is not [a] diabetic foot: it is my foot ((Meriç et al., 2019)) Diabetic foot ulcers, experience Qualitative research Patient interviews 2 The psychosocial responses and coping strategies of diabetes mellitus type 2 patients of the Ambon culture(Rayanti et al., 2016) Psychosocial responses and coping strategies Qualitative and descriptive using the case study approach Observation and in-depth interviews. Main Result Most of the patients were afraid of losing their feet and they had difficulty coping with the situation. The patients expected the health professionals to understand the difficulties they were experiencing. The need to better understand the needs and experiences of the patients. The participants' psychosocial responses included resilience, optimism and social support from their family and close relatives, low self-esteem, and anxiety. To adapt to their condition, the male participants tended to use problem-focused coping while the female participants used emotion-focused coping. The factors that influenced the coping strategies were diabetes severity, the participant's individual characteristics and the environment (culture and social support). They believe in traditional medicine such as the Africa leaf, noni fruit, the kalabasa leaf and the Alifuru leaf, and that the aforementioned traditional cures are able to reduce their blood glucose. [122 | pISSN: 1858-3598 • eISSN: 2502-5791](#) JURNAL NERS in3dividEuxpallo(rSiniegrstmhea eftacatlo.,r2s01F7a)c.tPorhsysthioaltocgoincatrlibstrteess Qualitative: that contribute to the to a delay in seeking interpretative delay in seeking help help and diabetes- Phenomenological with diabetes-related related foot problems Analysis foot problems: a preliminary qualitative

study using Interpretative Phenomenological Analysis (Chithambo & Forbes, 2015) In-depth interviews 4 Management of diabetic foot disease and amputation in the Irish health system: a qualitative study of patients' attitudes and experiences with health services (Delea et al., 2015) Management, diabetic foot disease, amputation/ Qualitative In-depth interviews 5 Premorbid risk perception, lifestyle, adherence and coping strategies of people with diabetes mellitus: A phenomenological study in the Brong Ahafo Region of Ghana ((Tabong et al., 2018)) Premorbid risk perception, lifestyle, and the coping strategies of people with diabetes mellitus: A phenomenological study Qualitative In-depth interviews and NVivo 11 6 Conditions for success in introducing telemedicine in diabetes foot care: a qualitative inquiry (Kolltveit et al., 2017) Conditions, telemedicine, diabetes foot care Qualitative In-depth interviews The level of prior foot care information, awareness of the foot problem, the ability to perform footcare behaviors, ulcer presentation and risk perception, competing priorities, the use of self- management strategies for the foot problem, the presence of specific help- seeking triggers, comorbid conditions and concurrent illness and delayed secondary referral Need for supportive interaction with health professionals, different levels of education and information, financial cost of foot complications, geographical disparities in terms of access to services and supplies, medical card as a lifeline, 5 responsibilities of the health care system, wider social circumstances complicating and competing with the illness process, the importance of emotional support during treatment and the necessity of early education and information The respondents believed that diabetes was a condition for the aged and rich. This served as a premorbid risk attenuator. The majority of them engaged in diabetes-related high risk behaviors such as a lack of exercise, a sedentary lifestyle and unhealthy eating despite their foreknowledge about the role of lifestyle in diabetes pathogenesis. We also found that the patients used moringa, noni, prekese and garlic concurrently with orthodox medications User-friendly technology and training, a telemedicine champion, committed and responsible leaders, effective communication channels at the organizational level http://e-journal.unair.ac.id/JNERS_1.123 M. R. ALFAQIH ET AL. is a 7sysPteamtieanttics' reEsxppoerniseencteo thPeasttiernetsss'orEsxtpheartiefnacceil,itaQteualitative: an of therapeutic therapeutic footwear, interpretative footwear whilst neuropathic diabetic phenomenological living at risk of foot ulceration analysis (IPA) neuropathic diabetic foot ulceration: an interpretative phenomenological analysis (IPA) (Paton et al., 2014) 8 Does Physiological Physiological Stress, Qualitative Stress Slowdown Wound Healing, Wound Healing in Diabetes Patients With Diabetes?(Razjouyan et al., 2017) In-depth interviews In-depth interviews 9 Burden of Illness of Burden of Illness, Qualitative In-depth Diabetic Peripheral Diabetic Peripheral interviews, Neuropathic Pain: Neuropathic Pain observation The self-perception dilemma, adherence response, reflective adaption, reality appraisal This study confirms an association between stress/vagal tone and wound healing in patients with DFUs. In particular, it highlights the importance of vagal tone (relaxation) when expediting wound healing. It also demonstrates the feasibility of assessing physiological stress responses using wearable technology in an outpatient clinic during routine clinic visits. Physical functioning, daily life, social/psychological A Qualitative Study (Brod, Pohlman, Blum, Ramasamy, & Carson, 2015) 10 The experiences of Experiences, diabetes, Qualitative In-depth Physical experiences, people lower limb interviews changes in lifestyle, coping with diabetes- amputation, Hospital strategies, related lower limb psychological/emotional amputation at the experiences, economic Komfo Anokye experiences Teaching Hospital (KATH) in Ghana (Amoah et al., 2018) 11 Patients' perception Patients' perception, Qualitative In-depth Technology of using telehealth telehealth, type 2 interviews considerations, service for type 2 diabetes diabetes, perceptions,

management: a management empowerment phenomenological study(Lee, Greenfield, & Pappas, 2018) 12 Coping style and Coping style, Observational and In-depth For this prospective depression influence depression influence, mechanistic interviews observational study, we the healing of healing, diabetic evidence recruited 93 (68 men; diabetic foot ulcers mean age 60 years) foot ulcers(Vedhara patients with neuropathic et al., 2010) or neuroischaemic diabetic foot ulcers from specialist podiatry clinics in secondary care. The clinical and demographic determinants of healing, psychological distress, coping, salivary cortisol, MMP2 and MMP9 were assessed at baseline. [124 | pISSN: 1858-3598 • eISSN: 2502-5791](#) JURNAL NERS The ulcers were assessed at baseline and at 6, 12 and 24 weeks post-baseline. The primary outcome was ulcer status at 24 weeks, i.e. healed vs not healed. Results: After controlling for the clinical and demographic determinants of healing, ulcer healing at 24 weeks was predicted by confrontation coping but not by depression or anxiety. The patients with unhealed ulcers exhibited greater confrontational coping. 13 Patients' experiences of support for learning to live with diabetes to promote health and well-being: A lifeworld phenomenological study(Johansson, Österberg, Leksell, & Berglund, 2016) 14 When a diabetic foot ulcer results in amputation: A qualitative study of the lived experience of 15 patients(Foster & Lauver, 2014) Patients' experiences, support for learning, diabetes, promotion, health, well-being Qualitative In-depth Responsibility creating interviews curiosity and willpower, openness enabling support, technology verifying their bodily feelings, a permissive climate providing for participation and exchanging experiences with others Financial burden, powerlessness, social support, placing blame, and uncertainty. 15 An exploratory phenomenological study exploring the experiences of people with systemic disease who have undergone lower limb amputation and its impact on their psychological well- being(Washington & Williams, 2016) adaptation when meeting challenges. Autonomic responses involved in the modulation of physiological stress include the activation of the sympathetic and parasympathetic nervous system which work together to keep the body in a state of homeostasis(De Almeida et al., 2014). During tense events, the sympathetic nervous system dominates, producing fight-or-flight responses. However, the body cannot maintain this state for a long time. The parasympathetic system returns the physiological condition of the body to a rested and normal state. Although sympathetic physiological responses are very important to protect the body and adapt to stressors, prolonged exposure to stress, which is referred to as episodic acute stress, can have adverse effects on psychological and physiological health and Qualitative: an In-depth Being pre-conditioned, explanatory interviews adapting to a restricted model life, ability to adapt, need for support versus independence and relationships with others it can also affect the wound healing process(Razjouyan et al., 2017). Wound healing is a complex and fragile process. Stress can interfere or lead to the formation of chronic wounds that do not heal in DFU patients. Stress interferes with the healing process of wounds, mainly by mediating the hypothalamic-pituitary-adrenal and sympathetic-adrenal medullary axis and psychological responses, encouraging unhealthy behaviors such as a sedentary lifestyle, smoking and so on. Several studies have confirmed the relationship between delayed wound healing and stress by measuring the physiological stress conditions(Razjouyan et al., 2017). The participants' psychosocial responses included resilience, optimism and social support from their <http://e-journal.unair.ac.id/JNERS | 125> M. R. ALFAQIH ET AL. family and close relatives, low self-esteem and anxiety. To adapt to their condition, the male participants tended to use problem-focused coping while the female participants used emotion-focused coping. The factors that influenced coping strategies the most was the diabetes severity, the participant's individual characteristics and the environment (cultural and social support). They believe in traditional

medicine such as the Africa leaf, noni fruit, kalabasa leaf and Alifuru leaf and that the aforementioned traditional cures are able to reduce their blood glucose (Rayanti, Wariunsora, Soegijono, Kristen, & Wacana, 2016). From this study, it is illustrated that the individual response when experiencing diabetic foot ulcers are also influenced by gender, culture and their beliefs. Patient Perception Diabetes mellitus patients vary in their perception of their quality of life and in the coping styles used when dealing with daily stress. Coping in DM patients is a continuous process and it is a major factor influencing a patient's assessment of the disease, the ability to perform adaptive tasks and the ability to learn and use skills to overcome the problems of the disease. Cognitive evaluation or an evaluation of the meaning / significance of chronic illness is important and it is an influential part of the patient's adjustment to the disease (Vedhara et al., 2010). The self-perception dilemma is about resolving the balance of risk experienced by people with diabetes and neuropathy day to day, such as between choosing to wear footwear to look and feel normal and choosing footwear to protect their feet from foot ulceration (Paton, Roberts, Bruce, & Marsden, 2014). Reflective adaptive refers to the modification and individualization of a set of values about footwear usage created in the minds of people with diabetes and neuropathy. Adherence response; this refers to the realignment of footwear choice with personal values to reinforce the decision not to change behavior or to bring about increased footwear adherence with or without appearance management. Reality appraisal refers to a here and now appraisal of the personal benefits of footwear choice on their emotional and physical well-being with additional considerations related to the preservation of therapeutic footwear. The conclusion is that for some people living at risk of diabetic neuropathic foot ulceration, the decision whether or not to wear therapeutic footwear is driven by the individual 'here and now' risks and benefits, of footwear choice on their emotional and physical well-being in a given social context (Paton et al., 2014). From the 15 studies as the evidence base, the majority of the research designs were qualitative with 14 of them using a phenomenological approach. This explains the description of the coping mechanisms, anxiety and the psychological responses of the diabetic ulcer patients. From the results of the several studies analyzed, the majority of the patients who have DM with the complication of diabetic ulcers experience stress, depression, and anxiety. However, one of the 15 studies on coping styles and depression affecting the healing of diabetic ulcers stated that the healing of diabetic ulcers is determined by the coping mechanisms involved and not because of anxiety and depression. This proves that the individual coping mechanism also determines the compliance process concerning the treatment of diabetic ulcers. **DISCUSSION** Most of the patients were afraid of losing their feet and they had difficulty in coping with the situation. The patients expected the health professionals to understand the difficulties that they were experiencing. They should better understand the needs and experiences of the patients they are treating. The review of the literature shows that the literature itself has mostly focused on medical issues such as the causes and management of DFUs rather than the patient experience of having a DFU. However, as having a DFU directly affects a patient's QoL and their psychosocial condition, treatment should be tailored to the patient, based on their level of acceptance of the disease and adherence to the treatment. A research study conducted by Tabong et al. in 2018 explained that the respondents believed that diabetes was a condition for the aged and rich. This served as a premorbid risk attenuator. The majority of them engaged in diabetes-related high risk behaviors such as a lack of exercise, a sedentary lifestyle and unhealthy eating despite their foreknowledge about the role of lifestyle in diabetes pathogenesis. We also found that the patients used moringa, noni, prekese, and garlic concurrently with orthodox medications. Diabetic patients had a low premorbid perception

of the risk and they engaged in diabetes-related risky behaviors. Diabetic patients face challenges adhering to lifestyle changes and they use both biomedical and local remedies in the management of their condition. Psychosocial support is necessary to enhance their level of coping with this condition. Another research conducted by Paton et al. in 2014 spoke about the patients' experience of therapeutic footwear whilst living at risk of neuropathic diabetic foot ulceration. They explained that there are several perceptions such as the self-perception dilemma, adherence response, reflective adaptation and reality appraisal (Paton et al., 2014). Besides that, another study conducted by Chithambo in 2015 about exploring the factors that contribute to a delay in seeking help with diabetes-related foot problems said that the level of prior foot care information, the ability to perform foot care behaviors, ulcer presentation and risk perception competing for priority, the use of self-management strategies for the foot problem, the presence of specific help-seeking triggering comorbid conditions and concurrent illness and delayed secondary referrals all played a part (Chithambo & Forbes, 2015). [126 | pISSN: 1858-3598 • eISSN: 2502-5791 Management of diabetic foot disease and amputation in the Irish health system: a qualitative study of patients' attitudes and experiences with health services \(Delea et al., 2015\)](#) Management, diabetic foot disease, amputation/ Qualitative In-depth interviews 5 Premorbid risk perception, lifestyle, adherence and coping strategies of people with diabetes mellitus: A phenomenological study in the Brong Ahafo Region of Ghana ((Tabong et al., 2018)) Premorbid risk perception, lifestyle, and the coping strategies of people with diabetes mellitus: A phenomenological study Qualitative In-depth interviews and NVivo 11 6 Conditions for success in introducing telemedicine in diabetes foot care: a qualitative inquiry (Kolltveit et al., 2017) Conditions, telemedicine, diabetes foot care Qualitative In-depth interviews The [level of prior foot care information, awareness of the foot problem, the ability to perform](#) footcare behaviors, [ulcer presentation and risk perception, competing priorities, the use of self- management strategies for the foot problem, the presence of specific help- seeking triggers, comorbid conditions and concurrent illness and delayed secondary referral](#) Need for supportive interaction with health professionals, different levels of education and information, financial cost of foot complications, geographical disparities in terms of access to services and supplies, medical card as a lifeline, 5 [responsibilities of the health care system](#), wider social circumstances complicating and competing with the illness process, the [importance of emotional support during treatment](#) and the necessity of early education and information The respondents believed that diabetes was a condition for the aged and rich. This served as a premorbid risk attenuator. The majority of them engaged in diabetes-related high risk behaviors such as a lack of exercise, a sedentary lifestyle and unhealthy eating despite their foreknowledge about the role of lifestyle in diabetes pathogenesis. We also found that the patients used moringa, noni, prekese and garlic concurrently with orthodox medications User-friendly technology and training, a telemedicine champion, committed and responsible leaders, effective communication channels at the organizational level <http://e-journal.unair.ac.id/JNERS> | 123 M. R. ALFAQIH ET AL. is a7sysPteamtieanttics' reEsxppeemiseencteo thPeasttiernetsss'orEsxtpheartiefnacceil,itaQteualitative: an of therapeutic footwear, interpretative footwear whilst neuropathic diabetic phenomenological [living at risk of foot ulceration analysis \(IPA\)](#) neuropathic diabetic foot ulceration: an interpretative phenomenological analysis (IPA) (Paton et al., 2014) 8 Does Physiological Physiological Stress, Qualitative Stress Slowdown Wound Healing, [Wound Healing in Diabetes Patients With Diabetes?](#) (Razjouyan et al., 2017) In-depth interviews In-depth interviews 9 Burden of Illness of Burden of Illness, Qualitative In-depth Diabetic Peripheral Diabetic Peripheral

interviews, Neuropathic Pain: Neuropathic Pain observation The self-perception dilemma, adherence response, reflective adaption, reality appraisal [This study confirms an association between stress/vagal tone and wound healing in patients with DFUs. In particular, it highlights the importance of vagal tone \(relaxation\) when expediting wound healing. It also demonstrates the feasibility of assessing physiological stress responses using wearable technology in an outpatient clinic during routine clinic visits.](#) Physical functioning, daily life, social/psychological A Qualitative Study(Brod, Pohlman, Blum, Ramasamy, & Carson, 2015) 10 The experiences of Experiences, diabetes, Qualitative In-depth Physical experiences, people lower limb interviews changes in lifestyle, coping with diabetes- amputation, Hospital strategies, related lower limb psychological/emotional amputation at the experiences, economic Komfo Anokye experiences Teaching Hospital (KATH) in Ghana(Amoah et al., 2018) 11 Patients' perception Patients' perception, Qualitative In-depth Technology of using telehealth telehealth, type 2 interviews considerations, service for type 2 diabetes diabetes, perceptions, management: a management empowerment phenomenological study(Lee, Greenfield, & Pappas, 2018) 12 Coping style and Coping style, Observational and In-depth For this prospective depression influence depression influence, mechanistic interviews observational study, we the healing of healing, diabetic evidence [recruited 93 \(68 men; diabetic foot ulcers mean age 60 years\) foot ulcers\(Vedhara patients with neuropathic et al., 2010\) or neuroischaemic diabetic foot ulcers from specialist podiatry clinics in secondary care.](#) The [clinical and demographic determinants of healing, psychological distress, coping, salivary cortisol, MMP2 and MMP9 were assessed at baseline.](#) 124 | pISSN: 1858-3598 • eISSN: 2502-5791 JURNAL NERS The [ulcers were assessed at baseline and at 6, 12 and 24 weeks post-baseline. The primary outcome was ulcer status at 24 weeks, i.e. healed vs not healed. Results: After controlling for the clinical and demographic determinants of healing, ulcer healing at 24 weeks was predicted by confrontation coping but not by depression or anxiety.](#) The [patients with unhealed ulcers exhibited greater confrontational coping.](#) 13 Patients' experiences of support for learning to live with diabetes to promote health and well-being: A lifeworld phenomenological study(Johansson, Österberg, Leksell, & Berglund, 2016) 14 When a diabetic foot ulcer results in amputation: A qualitative study of the lived experience of 15 patients(Foster & Lauver, 2014) Patients' experiences, support for learning, diabetes, promotion, health, well-being Qualitative In-depth Responsibility creating interviews curiosity and willpower, openness enabling support, technology verifying their bodily feelings, a permissive climate providing for participation and exchanging experiences with others Financial burden, powerlessness, social support, placing blame, and uncertainty. 15 [An exploratory phenomenological study exploring the experiences of people with systemic disease who have undergone lower limb amputation and its impact on their psychological well-being\(Washington & Williams, 2016\)](#) adaptation when meeting challenges. [Autonomic responses involved in the modulation of physiological stress include the activation of the sympathetic and parasympathetic nervous system which work together to keep the body in a state of homeostasis\(De Almeida et al., 2014\).](#) During tense events, the sympathetic nervous system dominates, producing [fight-or-flight responses.](#) However, [the body cannot maintain this state for a long time. The parasympathetic system returns the physiological condition of the body to a rested and normal state.](#) Although sympathetic physiological responses are very important [to protect the body and adapt to stressors, prolonged exposure to stress, which is referred to as episodic acute stress, can have adverse effects on psychological and physiological health and](#) Qualitative: an In-depth Being pre-conditioned, explanatory interviews adapting to a restricted model life, ability to adapt, need for support versus independence and relationships with others it can also

affect the wound healing process(Razjouyan et al., 2017). [Wound healing is a complex and fragile process. Stress can interfere or lead to the formation of chronic wounds that do not heal in DFU patients. Stress interferes with the healing process of wounds, mainly by mediating the hypothalamic-pituitary-adrenal and sympathetic-adrenal medullary axis and psychological responses, encouraging unhealthy behaviors such as a sedentary lifestyle, smoking and so on. Several studies have confirmed the relationship between delayed wound healing and stress by measuring the physiological stress conditions\(Razjouyan et al., 2017\).](#) The participants' psychosocial responses included resilience, optimism and social support from their <http://e-journal.unair.ac.id/JNERS> | 125 M. R. ALFAQIH ET AL. family and close relatives, low self-esteem and anxiety. To adapt to their condition, the male participants tended to use problem-focused coping while the female participants used emotion-focused coping. The factors that influenced coping strategies the most was the diabetes severity, the participant's individual characteristics and the environment (cultural and social support). They believe in traditional medicine such as the Africa leaf, noni fruit, kalabasa leaf and Alifuru leaf and that the aforementioned traditional cures are able to reduce their blood glucose(Rayanti, Wariunsora, Soegijono, Kristen, & Wacana, 2016). From this study, it is illustrated that the individual response when experiencing diabetic foot ulcers are also influenced by gender, culture and their beliefs. Patient Perception Diabetes mellitus patients vary in their perception of their quality of life and in the coping styles used when dealing with daily stress. Coping in DM patients is a continuous process and it is a major factor influencing a patient's assessment of the disease, the ability to perform adaptive tasks and the ability to learn and use skills to overcome the problems of the disease. Cognitive evaluation or an evaluation of the meaning / significance of chronic illness is important and it is an influential part of the patient's adjustment to the disease(Vedhara et al., 2010). The [self-perception dilemma](#) is about [resolving the balance of risk experienced by people with diabetes and neuropathy day to day](#), such as [between choosing to wear footwear to look and feel normal and choosing footwear to protect their feet from foot ulceration](#)(Paton, Roberts, Bruce, & Marsden, 2014). Reflective adaptive refers to the [modification and individualization of a set of values about footwear usage created in the minds of people with diabetes and neuropathy. Adherence response](#); this refers to [the realignment of footwear choice with personal values to reinforce the decision not to change behavior or to bring about increased footwear adherence with or without appearance management. Reality appraisal](#) refers to [a here and now appraisal of the personal benefits of footwear choice on their emotional and physical well-being with additional considerations related to the preservation of therapeutic footwear. The conclusion](#) is that [for some people living at risk of diabetic neuropathic foot ulceration, the decision whether or not to wear therapeutic footwear is driven by the individual 'here and now' risks and benefits, of footwear choice on their emotional and physical well-being in a given social context](#)(Paton et al., 2014). From the 15 studies as the evidence base, the majority of the research designs were qualitative with 14 of them using a phenomenological approach. This explains the description of the coping mechanisms, anxiety and the psychological responses of the diabetic ulcer patients. From the results of the several studies analyzed, the majority of the patients who have DM with the complication of diabetic ulcers experience stress, depression, and anxiety. However, one of the 15 studies on coping styles and depression affecting the healing of diabetic ulcers stated that the healing of diabetic ulcers is determined by the coping mechanisms involved and not because of anxiety and depression. This proves that the individual coping mechanism also determines the compliance process concerning the treatment of diabetic ulcers. DISCUSSION Most of the patients were afraid of losing their feet and they had difficulty in coping with the

situation. The patients expected the health professionals to understand the difficulties that they were experiencing. They should better understand the needs and experiences of the patients they are treating. The review of the literature shows that the literature itself has mostly focused on medical issues such as the causes and management of DFUs rather than the patient experience of having a DFU. However, as having a DFU directly affects a patient's QoL and their psychosocial condition, treatment should be tailored to the patient, based on their level of acceptance of the disease and adherence to the treatment. A research study conducted by Tabong et al. in 2018 explained that the respondents believed that diabetes was a condition for the aged and rich. This served as a premorbid risk attenuator. The majority of them engaged in diabetes-related high risk behaviors such as a lack of exercise, a sedentary lifestyle and unhealthy eating despite their foreknowledge about the role of lifestyle in diabetes pathogenesis. We also found that the patients used moringa, noni, prekese, and garlic concurrently with orthodox medications. Diabetic patients had a low premorbid perception of the risk and they engaged in diabetes-related risky behaviors. Diabetic patients face challenges adhering to lifestyle changes and they use both biomedical and local remedies in the management of their condition. Psychosocial support is necessary to enhance their level of coping with this condition. Another research conducted by Paton et al. in 2014 spoke about the [patients' experience of therapeutic footwear whilst living at risk of neuropathic diabetic foot ulceration](#). They explained that there are several perceptions such as the self-perception dilemma, adherence response, reflective adaption and reality appraisal (Paton et al., 2014). Besides that, another study conducted by Chithambo in 2015 about exploring the factors that contribute to a [delay in seeking help with diabetes-related foot problems](#) said that [the level of prior foot care information, the ability to perform foot care behaviors, ulcer presentation and risk perception competing](#) for priority, [the use of self-management strategies for the foot problem, the presence of specific help-seeking](#) triggering [comorbid conditions and concurrent illness and delayed secondary](#) referrals all played a part (Chithambo & Forbes, 2015). 126 | pISSN: 1858-3598 • eISSN: 2502-5791 JURNAL NERS Limitation of the Study [This study is subject to some limitations. Because the systematic review process integrates the interpretations of the findings of different researchers, it relies heavily on the quality of the researchers' interpretations. Thus the limitations of the systematic review are affected by the characteristics of the original studies. Similarly, common speech is used to describe the experience](#) connected to the diabetic foot ulcers. Without a standard language to articulate the experience of diabetic foot ulcers, the contrasts between the similar experiences in and throughout the study lack accuracy. CONCLUSION From the results of the studies analyzed, the majority of patients who have DM with the complication of diabetic ulcers experience stress, depression and anxiety. They need support from their family and social support. They also have a financial burden and feel helplessness, blame, and uncertainty in their life. However, one of the 15 studies on coping styles and depression affecting the healing of diabetic ulcers stated that the healing of diabetic ulcers is determined by coping confrontation or coping mechanisms, not anxiety and/or depression. This proves that the individual coping mechanism also determines the compliance process regarding the treatment of diabetic ulcers. The patients with diabetic foot ulcers must be able to adapt to a limited life. They must also have a good coping style and adaptive response to survive and heal their diabetic ulcers. By knowing some of the experiences of patients with diabetic foot ulcers, it is expected that all health workers and nurses should provide comprehensive nursing care not only from the biological aspect but also from the physiological, social, cultural and spiritual aspects as well. Providing comprehensive services to the patients with diabetic foot ulcers not only can improve their quality of

life, but it can also improve their coping style and adaptive response. Future researchers are expected to make this systematic review study a reference when examining the prevention of depression and anxiety in DM patients with complications. CONFLICT OF INTEREST No Conflicts of interest have been declared. ACKNOWLEDGEMENT The authors of this study would like to thank the Faculty of Nursing and the Master's of Nursing Study Program, for providing the opportunity to present this study. REFERENCES Ahmad, A., Abujbara, M., Jaddou, H., Younes, N. A., & Ajlouni, K. (2018). Anxiety and Depression Among Adult Patients With Diabetic Foot: Prevalence and Associated Factors. *Journal of Clinical Medicine Research*, 10(5), 411–418. <https://doi.org/10.14740/jocmr3352w> Amoah, V. M. K., Anokye, R., Acheampong, E., Dadson, H. R., Osei, M., & Nadutey, A. (2018). The experiences of people with diabetes-related lower limb amputation at the Komfo Anokye Teaching Hospital (KATH) in Ghana. *BMC Research Notes*, 11(1), 1–5. <https://doi.org/10.1186/s13104-018-3176-1> Brod, M., Pohlman, B., Blum, S. I., Ramasamy, A., & Carson, R. (2015). Burden of Illness of Diabetic Peripheral Neuropathic Pain: A Qualitative Study. *Patient*, 8(4), 339–348. <https://doi.org/10.1007/s40271-014-0093-9> Chithambo, T., & Forbes, A. (2015). Exploring factors that contribute to delay in seeking help with diabetes related foot problems: a preliminary qualitative study using Interpretative Phenomenological Analysis. *International Diabetes Nursing*, 12(1), 20–26. <https://doi.org/10.1179/2057331615Z.0000000006> De Almeida, S. A., Salomé, G. M., Dutra, R. A. A., & Ferreira, L. M. (2014). Feelings of powerlessness in individuals with either venous or diabetic foot ulcers. *Journal of Tissue Viability*, 23(3), 109–114. <https://doi.org/10.1016/j.jtv.2014.04.005> Delea, S., Buckley, C., Hanrahan, A., McGreal, G., Desmond, D., & McHugh, S. (2015). Management of diabetic foot disease and amputation in the Irish health system: A qualitative study of patients' attitudes and experiences with health services. *BMC Health Services Research*, 15(1), 1– 10. <https://doi.org/10.1186/s12913-015-0926-9> Foster, D., & Lauver, L. S. (2014). When a diabetic foot ulcer results in amputation: A qualitative study of the lived experience of 15 patients. *Ostomy Wound Management*, 60(11), 16–22. Johansson, K., Österberg, S. A., Leksell, J., & Berglund, M. (2016). Patients' experiences of support for learning to live with diabetes to promote health and well-being: A lifeworld phenomenological study. *International Journal of Qualitative Studies on Health and Well-Being*, 11(June 2017). <https://doi.org/10.3402/qhw.v11.31330> Kolltveit, B. C. H., Gjengedal, E., Graue, M., Iversen, M. M., Thorne, S., & Kirkevold, M. (2017). Conditions for success in introducing telemedicine in diabetes foot care: A qualitative inquiry. *BMC Nursing*, 16(1), 1–10. <https://doi.org/10.1186/s12912-017-0201-y> Lee, P. A., Greenfield, G., & Pappas, Y. (2018). Patients' perception of using telehealth for type 2 diabetes management: A phenomenological study. *BMC Health Services Research*, 18(1), 1–9. <https://doi.org/10.1186/s12913-018-3353-x> Meriç, M., Ergün, G., Meriç, C., Demirci, İ., & Azal, Ö. (2019). It is not diabetic foot: it is my foot. *Journal of Wound Care*, 28(1), 30–37. <http://e-journal.unair.ac.id/JNERS> | 127 M. R. ALFAQIH ET AL. <https://doi.org/10.12968/jowc.2019.28.1.30> Paton, J. S., Roberts, A., Bruce, G. K., & Marsden, J. (2014). Patients' Experience of therapeutic footwear whilst living at risk of neuropathic diabetic foot ulceration: An interpretative phenomenological analysis (IPA). *Journal of Foot and Ankle Research*, 7(1), 1–9. <https://doi.org/10.1186/1757-1146-7-16> Rayanti, R. E., Wariunsora, N. S., Soegijono, S. P., Kristen, U., & Wacana, S. (2016). The psychosocial responses and coping strategies of diabetes mellitus type 2 patients of the Ambon culture dengan budaya Ambon. 389–399. Razjouyan, J., Grewal, G. S., Talal, T. K., Armstrong, D. G., Mills, J. L., & Najafi, B. (2017). Does Physiological Stress Slow Down Wound Healing in

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