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RESEARCH ARTICLE

Self-Care Management of Patients with diabetes: nurses' perspectives

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Abstract

Purpose To explore nurses' experiences of providing education on self- care management to patients with diabetes.

Methods A qualitative phenomenological study using semi-structured interview on all nine certified diabetic nurse educators in the main hospital and health centres in Brunei. Prolonged engagement with participants and data, and member checking were employed to ensure thematic analysis was trustworthy.

Results Three main themes emerged; 1) Factors of effective teaching strategies that emphasizes on assessing patients' knowledge and education level to provide individualised instructional plan, which need to follow latest ministerial guidelines and effective pedagogy; 2) Barriers to provide effective education including psychological, financial, and lack of familial support, 3) Overcoming barriers through parallel health education and counselling, referring to medical social worker and non-governmental organizations, and inclusion of family members and carers in plan of care.

Conclusion Diabetic nurse educator plays a crucial role to ensure patient with diabetes achieved competency and compliance with long term self-care management. Nurses' need to ensure psychological preparedness and patient literacy assessment when designing individualised health education session. While identifying and addressing key barriers for each patient to ensure effectiveness of management plan and improve quality of life. More research are still needed to explore experiences and innovation solutions from nurses in different parts of the world to better inform policymakers and improve organisational and national guidelines for management of patients with diabetes.

Keywords Diabetes · Self- care management · Patient education · Phenomenological study

Abbreviations
DNE Diabetic Nurse Educator

Introduction

Education on self- care management has become gold standard for patients with diabetes [1]. Patients with diabetes require day-to-day knowledge of nutrition, exercise, monitoring, medication to accomplish daily self- care goals [2]. Evidence have shown that those who were well-equipped with self-care knowledge have become more confident to take control of their condition. They reconcile with healthy lifestyle and blood glucose level monitoring, which consequently improve quality of life [3]. Lack of knowledge hinders self- care performance and poor blood glucose control, which leads to development of diabetes complications such as blindness, renal failure, and amputation [2].

Diabetes nurse educator (DNE) plays an important role to equip patients with knowledge and confidence to achieve self-care goals for metabolic control declared in the National Standards for Diabetes Self- Management Education and Support [4]. The seven principles of effective self-care management include healthy diet, exercise, adherence to medication, glucose level monitoring, problem solving, reducing risks and healthy coping [5]. However, effectiveness of health education activities are affected by an individual's acceptance of their disease. In addition, adherence to self-care management could be affected by sociodemographic factors such as patient's education level [6]. Furthermore, delivery strategies is also an essential consideration. Teach

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back technique and use of pictures are recommended strategies for patients with low literacy [7]. Whereas, one to one consultation was reported to be more effective than group-based consultation [8].

Although DNEs have been conducting health education session for patients with diabetes, their perception and experiences have not been properly explored [9]. This is especially important because studies have found perception on self-care behaviours of nurses and patients were significantly different [9–11]. This differences and discrepancies need to be understood and enable knowledge to be imparted to patients effectively. Therefore, the present study aimed to explore diabetic nurse educators' experiences of providing education on self- care management to patient with diabetes.

Methods

Study aim and design

A qualitative phenomenological study to explore nurses' experience of providing health education on self- care management to patient with diabetes.

Settings and sample

All certified diabetic nurse educators (DNEs) from both the largest referral hospital and two main health centres in the Brunei-Muara district were recruited for this study. The eligibility criteria were: 1) certified DNEs with the nursing board of Brunei, 2) experienced in giving health education on self-care management to patient with diabetes. There were only eleven DNEs in the source population. Two of them assisted in pre-testing the study protocol and questions to ensure comprehensibility and smooth running of the session. Pre-testing participants were excluded from the main interview to minimise bias and avoid contamination of data, considering those who were involved in designing the protocol, would likely influence responses from new participants [12, 13]. The remaining nurses agreed to participate voluntarily (100% response rate).

Data collection procedures

Following recruitment and pre-testing, data was collected through semi-structured focus group interview. The questions were asked based on the research questions:

1) How do nurses educate patients with diabetes on self-care management?
2) What strategies are being used to educate patients with diabetes on self- care management?
3) What are the challenges for nurses to educate patients with diabetes on self- care management?

The session was conducted in a private, conducive venue. The interview was audio-recorded. A total of two focus groups were conducted, considering the small number of eligible participants, however, through member-checking strategy, the researcher return to participants to affirm their responses and emerging, until most of the results were agreed upon.

Data analysis

Audio records were transcribed verbatim, producing 178 pages of text, and analyzed through thematic analysis. Two strategies were employed to ensure credibility and rigour, i.e., prolonged engagement and persistent observation, and member checking (also known as participant validation). For the former, the scripts were read several times to get a sense of the whole context. Common and repetitive concepts were categories and formed sub-themes. Previous literatures guide construction of suitable themes. Relevant quotations from the original transcript was extracted for reporting. For the latter, participants and research team members examine and comment on the excerpts of transcripts and emerging themes until at least 80% of the results were agreed upon.

Ethical consideration

The study protocol was approved by the joint research and ethics committee of Ministry of Health and Institute of Health Sciences, Universiti Brunei Darussalam. Participants have read and understood the study details before agreeing to sign the written consent, including agreement for the session to be audio-taped. No participant-identifying information was collected. Each participants were assigned individual codes.

Findings

Nine diabetic nurse educators participated in this study. Participants demographic characteristics and codes used to denote them are presented in Table 1.

Three emerging themes were identified; 1) Factors of effective teaching strategies; 2) Barriers to provide effective education, 3) Overcoming barriers.

THEME 1: Factors of effective teaching strategies

The respondents reported that nurses need to assess patient's level of education, knowledge and understanding to ensure effective education and patients received the information well. They used teach-back (talk back) method to assess the patient's level of understanding and on what they have learned.

Table 1 Demographic characteristics of participants

Participant's Code name	Age (Years old)	Academic Qualification	Working experience as Diabetic Nurse Educator (Years)
1. PT01HC	40	Diploma in Nursing Diploma in Otorhinolaryngology, Head & Neck Surgery	8
2. PT02DC	39	Diploma in Nursing	8
3. PT03HC	38	Diploma in Nursing	7
4. PT04DC	38	Diploma in Nursing	7
5. PT05DC	35	Diploma in Nursing	8
6. PT06HC	32	Diploma in Nursing	7
7. PT07HC	37	Diploma in Nursing Diploma in Accident and Emergency	13
8. PT08DC	39	Diploma in Nursing	16
9. PT10HC	46	Diploma in Nursing	8

For elderly patients the nurses would usually use simplest term to the session.

"… First thing we do is we asked about their knowledge regarding diabetes, do they know about diabetes, what is diabetes, what's the complication…"(PT05DC, P3)
."…..This is what we call as a talk back session. We ask them back what they have learned asked them back what was the things that we have educated them previously on or the time before that we did this talked back session…." (PT02DC, P4)
"……I adjust adjusting according to their level of education if educating patient who is teachers are more easy if elderly patients so we have to estimate what they understand like make a simplest way.." (PT06HC, P2)

The nurses normally would also justify explanations such as reason they need comply with insulin regimen, using simple terms.

"……make them understand what happened to the body why they need insulin…." (PT08DC, P1)
"…..if they are lacking of understanding that's why we are trying to use the simple way……." (PT06HC, P3)

In delivering the education of self- care management the DNEs ensured essential content of education was included, which covered three important aspects of self- care management which were diet, physical exercises, and medications.

"….we explain that there are 3 parts in managing the diabetes so one is dietary, control the diet, second exercise the hormone metabolism will help you, thirdly is medication…." (PT03HC, P4)

Most nurses included content from Clinical Practice Guideline Diabetes Mellitus that was published by the Ministry of Health in 2007.

"All of us here are using clinical practice guideline diabetes mellitus under MOH that was published in 2007…. we use guideline standard so all are standardised everything that we taught are the same things….." (PT04DC, P7)

However, some of the respondents also used guideline from external sources.

"….Guideline usually we got it from our courses, diabetes slides mostly from there and we also got it from our workshop lecture so we just summarise the topics from there and we make new notes…." (PT03HC, P8).

They also provided demonstration and practical session on insulin injection technique to ensure patients were able to conduct the injection technique safely at home and to ensure the patient compliance well to the insulin injection.

"Besides demonstration we asked them to hands on based on what we have shown the technique if they can perform it correctly then they are safe to be injected at home…" (PT04DC, P12)

In addition, they utilised pictures, drawing and provided leaflet in the session. Pictures were used to show complications of the disease. Leaflet was distributed on insulin technique. Showing pictures throughout the session helped patient visualise rather than explanation alone.

"Usually we use some drawing and we also give them leaflet by showing the complications of diabetes through this pictures and also leaflet of insulin technique guidance…" (PT02DC, P2)

Majority of the respondents reported importance of updating their knowledge through reading, attend lectures and taking the exam to ensure they are capable of delivering effective education to the patients.

"First we are exposed to many materials that required us to read a lot, attend lectures and we got exam and also practical so to see whether we are capable doing or not and to see what we taught patient is effective or not and we keep taking examination and attend many lectures" (PT04DC, P7)
".....I update my knowledge through reading the latest one, sometimes what I've learned before was not sufficient for example about exercises.....". (PT01HC, P7)

THEME 2: Barriers to provide effective education

Psychological barrier

Majority of the respondents reported that lack of acceptance and denial were the most common psychological barriers that hindered nurses in delivering effective education to the participants.

"...so my experience in educating patients with diabetes usually newly diagnosed diabetes they cannot accept being diagnosed as a diabetes...." (PT03HC, P1)
"....challenges that we have faced is the patient itself because most of the patients sometimes when they are diagnosed with diabetes they are in denial stage...." (PT05DC, P1)

Financial barrier

They also stated that patients were having difficulty to purchase healthy food, which was more expensive than fast food. Advising them to comply to diet modification became quite difficult.

"..... financial problem as we know healthy food is quite costly and expensive so if we advised them to take Jacob crackers, this kind of fruits these foods are quite costly to them so it difficult....." (PT05DC, P7)

Lack of familial support

Most patients had poor support from family members, particularly on diet compliance, because they were used to unhealthy lifestyle.

"....family who have diabetic in their family members are having difficulties to support the one who has diabetes because they are get used to their unhealthy lifestyle..... (PT05DC, P1)
"...our diabetic patient is really difficult as in Brunei we get used with all these culture that eat too much....." (PTO5DC, P7)

THEME 3: Overcoming barriers

Psychological support

Majority of nurses would provide counselling and motivation activities to encourage them to make changes within themselves in performing the self- care management such as monitoring the blood sugar intake.

"..... I give motivation to them that you don't be sad even though you have been diagnosed diabetes yes you are labeled as diabetic but you can prevent through blood sugar target.." (PT07HC, P13)
".....we advise them to build motivation what makes you motivate..." (PT07HC, P15)

Family and financial support

The participants worked closely with medical social workers for patients with financial and transport problem. The nurses also garnered support from family as part of their diabetes management.

"*..we consult with the MSW (Medical Social Worker) to help those who has problem with financial and transport at least to settle these matters for them....." (PT05DC, P7).*
"The thing is regarding diabetes, family member need to be involve that is important...." (PT04DC, P13)

Discussion

This study explored nurses' experiences of providing health education on self- care management to patients with diabetes. Several interesting points were uncovered. First of all, nurses'

perceived that lack of psychological readiness was the main inhibiting factor for patients' acceptance of their condition and thus compliance with self-care management. Similar studies have also revealed that patients who were in denial stage had led to poor lifestyle changes, particularly dietary modification [14–16]. MacDonald et al. [17] therefore recommended that health education and counselling should be conducted in parallel and consistently throughout management of patient with diabetes. Extensive experience is required to be flexible and respond accordingly to patients' psychological issue and mood. Consequently, national guideline for diabetic nurse educators need to be revised, taking also into account that nurses in the present study perceived that ministerial guidelines for content of health education was outdated. Hence, it is important for certified DNEs to be both updated and stay current with content of health education as well as competent in recognising patient's emotional and psychosocial needs. The provision of psychological support by active listening and being empathetic at the beginning and during subsequent sessions have shown to convince them to change their lifestyle [16]. Furthermore, the involvement of family members or carers during the health education session have helped motivate the patient and deal with self-care and psychological preparedness [18].

Secondly, nurses' perceived that financial problem was also one of the main barrier to self-care compliance. Some patients could not afford to buy healthy foods, which are normally more expensive. Several studies have shown that financial constraints have led to poor adherence to treatment regimen and self-care management in the UK and US, respectively [18, 19]. In Brunei, patients who have financial and transport difficulties would be referred to the department of medical and social services in the Ministry of Health. In Canada, non-profit organisations, social workers and industry conducting compassionate relief programs would help address their financial burden and help them to get access to their services [15].

The present study also uncovered that nurses used different teaching techniques and strategies for the patients. Education session based on patients' preferences and individualised teaching plan while maintaining standard content, were found to be more effective [20]. Several teaching strategies and teaching aids were also more helpful in diabetes education such as hands-on demonstration and practical, and provide pictures, leaflets and drawings. Nurses could then help patients visualise, practice and assess competency, particularly on insulin injection, and as a result, increase understanding and ability for self-care and reduce diabetes complications in the long run [21].

Finally and equally important, is the assessment of patients' literacy level. The present study revealed that nurses emphasized importance of determining patients' knowledge and education level when designing the session. This is essential when considering health education on diabetes self-care are laden with complex and multidimensional instructional plan to address deficits in any of the cognitive, affective and psychomotor domain [14]. To further ensure effectiveness of behaviour change, it is also essential to identify ways to modify health beliefs, enhance self-efficacy, and change cultural norms regarding behavioral change, while having support from family members and carers to initiate and sustain beneficial behaviours [22, 23].

Study limitations

This qualitative study provide rich description of nurses' experience on self-care education. Although all diabetic nurse educators were recruited, the results is not generalizable to other settings due to small sample size, different societal norms and local cultural practices. The experiences may reflect the experiences of younger nurses. Future studies exploring experiences of nurses from different countries and societies could extract valuable insights to understand better on more effective ways to self-care education to patients with diabetes.

Implications to practice

The present findings could strengthen existing educational programme for diabetes self-care management. It also engages DNEs to actively think about improving current practices through constant knowledge update, providing individualised session plan, as well as, employing innovative strategies to promote active participation from patients and family members.

Conclusion and recommendation

To conclude, diabetic nurse educator plays a crucial role to ensure patient with diabetes achieved competency and compliance with long term self-care management. Nurses' need to ensure psychological preparedness and patient literacy assessment when designing individualised health education session. While identifying and addressing key barriers for each patient to ensure effectiveness of management plan and improve quality of life. More research are still needed to explore experiences and innovation solutions from nurses in different parts of the world to better inform policymakers and improve organisational and national guidelines for management of patients with diabetes.

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Compliance with ethical standards

Conflict of interest None.

Ethical approval The Joint Research Ethics Committee of Pengiran Anak Puteri Rashidah Sa'adatul Bolkiah, Institute of Health Sciences Research Ethics Committee (IHSREC), Universiti Brunei Darussalam and the Medical and Health Research Ethics Committee (MHREC) of the Brunei Ministry of Health approved this study [(UBD/IHS/B3/8).

References

1. Ghannadi S, Amouzegar A, Amiri P, Karbalaeifar R, Tahmasebinejad Z, Kazempour-Ardebili S (2016) Evaluating the effect of knowledge, attitude, and practice on self-Management in Type 2 diabetic patients on dialysis. J Diabetes Res. Hindawi Publishing Corporation
2. Shrivastava SRBL, Shrivastava PS, Ramasamy J. Role of self-care in management of diabetes mellitus. J Diabetes Metab Disord. 2013;12:1–5.
3. Polikandrioti M. The role of education in diabetes mellitus type 2 management. Heal Sci J. 2010;4:201–2.
4. Funnell MM, Brown TL, Childs BP, Haas LB, Hosey GM, Jensen B, et al. National standards for diabetes self-management education. Diabetes Care. 2011;34:S89–96.
5. Powers MA, Bardsley J, Cypress M, Duker P, Funnell MM, Hess Fischl A, et al. Diabetes self-management education and support in type 2 diabetes: a joint position statement of the American DPowers, M. a., Bardsley, J., Cypress, M., Duker, P., Funnell, M. M., Hess Fischl, a., … Vivian, E. (2015). Diabetes self-management education an. Diabetes Care. 2015;38:1372–82.
6. Lawrenson R, Joshy G, Eerens Y, Johnstone W (2010) How do newly diagnosed patients with type 2 diabetes in the Waikato get their diabetes education? J. Prim. Health Care. p. 303–10
7. Ramaswamy G, Roy G, Chinnakali P, Radhakrishnan S, Thekkur P, Selvaraj K. Self-care practices among diabetes patients registered in a chronic disease clinic in Puducherry. South India J Soc Heal Diabetes. 2016;04:025–9.
8. American Diabetes Association. Standards of Medical Care in Diabetes-2013. J Clin Appl Res Educ. 2015;38(supple):s1–94.
9. Hailu FB, Hjortdahl P, Moen A. Nurse-led diabetes self-management education improves clinical parameters in Ethiopia. Front Public Heal. 2018;6:1–11.
10. Vivienne Wu S-F, Tung H-H, Liang S-Y, Lee M-C, Yu N-C (2014) Differences in the perceptions of self-care, health education barriers and educational needs between diabetes patients and nurses. Contemp nurse [internet]. Routledge; 2014;46:187–96. Available from: https://doi.org/10.5172/conu.2014.46.2.187
11. Sugiharto S, Stephenson M, Hsu Y-Y, Fajriyah NN. Diabetes self-management education training for community health center nurses in Indonesia: a best practice implementation project. JBI Evid Synth LWW. 2017;15:2390–7.
12. Leavy P (2014) The Oxford handbook of qualitative research. Oxford University Press, USA
13. SAGE Publications I. (2016) Pretesting and Pilot Testing 101. 101–19.
14. Gazmararian JA, Ziemer DC, Barnes C. Perception of barriers to self-care management among diabetic patients. Diabetes Educ. 2009;35:778–88.
15. Jones L, Crabb S, Turnbull D, Oxlad M. Barriers and facilitators to effective type 2 diabetes management in a rural context: a qualitative study with diabetic patients and health professionals. J Health Psychol. 2014;19:441–53.
16. Brundisini F, Vanstone M, Hulan D, DeJean D, Giacomini M. Type 2 diabetes patients' and providers' differing perspectives on medication nonadherence: a qualitative meta-synthesis. BMC Health Serv Res. 2015;15:516.
17. Macdonald L, Stubbe M, Tester R, Vernall S, Dowell T, Dew K, et al. Nurse-patient communication in primary care diabetes management: an exploratory study. BMC Nurs. 2013;12:1.
18. Laroche H, Parker E, Reyes J, Muller B, Tripp-Reimer T. Factors influencing diabetes self-management among medically underserved patients with type II diabetes. Glob Qual Nurs Res. 2017;4:233339361771309.
19. Rushforth B, McCrorie C, Glidewell L, Midgley E, Foy R. Barriers to effective management of type 2 diabetes in primary care: qualitative systematic review. Br J Gen Pract. 2016;66:e114–27.
20. Friedman AJ, Cosby R, Boyko S, Turnbull G. A Quality Initiative of the Effective Teaching Strategies and Methods of Delivery for Patient Education Effective Teaching Strategies and Methods of Delivery for Patient Education : Guideline Recommendations. Evidence-Based Ser 20–2 Rev. 2017;26:12–21.
21. Fan L, Sidani S (2017) Preferences of Persons with Type 2 Diabetes for Diabetes Self-Management Education Interventions : An Exploration. Health (Irvine Calif). 1567–88
22. Peek ME, Ferguson MJ, Roberson TP, Chin MH. NIH Public Access. 2014;15:40S–50S.
23. Hood KK, Hilliard M, Piatt G, Ievers-Landis CE. Effective strategies for encouraging behavior change in people with diabetes. Diabetes Manag. 2015;5:499–510.