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CLINICAL MANAGEMENT OF ENDOCRINE DISEASES

People with diabetes do not learn and recall their diabetes foot education: a cohort study

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Abstract

Purpose Diabetes education for those patients at risk of diabetes complications remains a mainstay of diabetes treatment. This study aimed primarily to determine the retention of foot health information 6 months post delivery of education. The secondary aim was to determine the type and delivery method of diabetes-specific foot health information during a podiatry consultation.

Methods This study was a prospective cohort study with two groups: patients with diabetes and their treating podiatrist. Baseline data collection included educational topics and delivery methods discussed during the consultation. The Problem Areas in Diabetes Questionnaire (PAID) and perceived key educational message were collected from each group's perspective at baseline and 6 months afterwards.

Results Three podiatrists and 24 participants with diabetes provided information at the two time points. At baseline, the key messages of 14 (58%) patient participant responses differed from their podiatrists and 15 (63%) differed 6 months later. Education covered up to seven separate topics, including neurological impact of diabetes, vascular supply and general foot care. The majority of consultations ($n = 23$, 96%) covered three or more topics.

Conclusions Education is vital to effective treatment of people with diabetes. Current common approaches used in individual consultations such as verbal explanations appear ineffective in aiding the learning and retention of podiatry-specific diabetes education. This study highlights the need for research investigating more effective methods to deliver key education to this population to aid retention and therefore assist behaviour change.

Keywords Podiatry · Diabetes education · Foot education · Education retention

Abbreviations

BSL	Blood sugar level
IQR	Interquartile range
MoCA	Montreal Cognitive Assessment
PAID	Problem areas in diabetes questionnaire
SD	Standard deviation

Introduction

It is currently estimated that 1 in 11 people are living with diabetes worldwide [1]. Estimates in Australia are that diabetes affects 7% of the adult population [1], and within this 7% an estimated 15% will go on to develop a foot complication or amputation over their lifetime [2]. Diabetes is a growing social, health and economic burden on the global society. Last year alone, 5 million people died from diabetes and its related complications around the world [3]. In

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Australia, diabetic lower limb amputations remain the most common cause of non-traumatic limb amputation with an estimated $26,000 spent per person with an amputation [3].

A key prevention strategy for general and diabetic foot complication is education provided in individual consultations [2]. A Cochrane review noted that of 12 included papers providing diabetes education aimed at preventing diabetic foot ulcers, only 2 articles had robust evidence on the relationship between education and ulcer prevention [4]. This limited evidence is in contrast to findings within another Cochrane review that people with diabetes and their carers should receive evidence-based education in a structured format with regular reviews [5].

There are national guidelines that promote foot care education to aid in prevention of foot complications despite inconsistencies in evidence effectiveness [2]. Effective education should be tailored to individual circumstances, culturally sensitive and aimed at an appropriate literacy level [6]. People with diabetes regularly attend podiatrists for review of their foot health and this makes the setting an ideal point for diabetes education tailored to each individual's foot risk status [7]. Education topics may include diabetes-related neuropathic changes, vascular disease, foot deformity and foot risks [7]. Podiatrists play an important role in educating people with diabetes about their foot health; however, little information is currently available regarding the mode, method and effectiveness of education. Additionally, there is little to guide podiatrists in how much information to provide and what topics to cover.

The primary aim of this study was to document how people with diabetes retained any foot-specific diabetes education provided within a typical podiatry appointment over a 6-month time frame. The secondary aim was to understand podiatrist's education methods and content during a typical podiatry appointment.

Methods

Design

This research was a cohort study approved by the Human Research Ethics Committee of Peninsula Health (LRR/14/PH/14).

Participants and setting

This study was conducted within the podiatry Department of Peninsula Health, VIC, Australia. The Peninsula Health podiatry team consists of 13 podiatrists of varying experience across four hospitals and four community health sites. People who attend the service are triaged according to the Community Health Priority Tool [8], allowing appointments to be allocated according to the presenting complaint and health status. For example, a medium priority is allocated to people who have had a diabetes assessment and a foot/leg problem, which interferes with their ability to work or if they have not previously had diabetes foot assessment [8].

Within this research, there were two paired groups of participants: podiatrists and patients of the service. Only the podiatrists working within the department who assessed and treated adults with diabetes were eligible to participate. Patients attending the service were eligible to participate if they were over the age of 18, had a diagnosis of diabetes (type 1 or 2) and had a consultation with one of the participating podiatrists. Patient participants were ineligible to participate if they screened for a potential cognitive impairment on the Montreal Cognitive Assessment (MoCA) as <26 or were unable to read English.

Demographic measures

Podiatrist participant demographic information included recency of practice, areas of practice (acute hospitals, community setting and private setting), level of education (undergraduate degree or postgraduate degree) and seniority within the podiatry department.

Patient participant demographic data included age, gender, years since diabetes diagnosis, year level the participant left school, MoCA score and PAID score. The MoCA questionnaire measured the baseline cognitive function of the patient participants as a screener into the study. Patient participants were required to score ≥26 to participate. A score below this was potentially indicative of cognitive decline [9]. Demographic data were collected at the time of the initial appointment. The PAID questionnaire was used as a secondary outcome measure to ascertain the participant's emotional response to their diabetes. The PAID has 20 questions on a Likert scale relating to negative emotions in relation to diabetes self-care. The PAID questionnaire is often used in conjunction with a participant's blood sugar levels (BSLs) indicating their category of stress [10]. A low response score (≤10) can indicate that a participant is in denial regarding their diabetes care. A high score (≥40) may indicate burnout in relation to the participant's diabetes care [10].

Outcome measures

The primary outcome measure at 6 months was patient participant–podiatrist concordance in response to the question "What was the key message from the consultation?" This question was asked (verbally) of both participant pairs, by the principal researcher (J.Y.), following the consultation, and of the patient participant, 6 months after the consultation. A single researcher (J.Y.) recorded the responses verbatim. The study's principal researcher (Rater

1) and a podiatrist who was not involved in the study (Rater 2) separately examined these responses. The paired responses were classified as being in "full agreement", "partial agreement" or "no agreement".

Lastly, the mode and method of educational subjects covered during a consultation were collated. One researcher (J.Y.) sat in on each consultation and recorded each broad topic heading relating to diabetes foot care. Broad topic headings included vascular, footwear, wound care, general foot care, neurological and follow-up information and additional topics were added if they arose. The education method utilised by the podiatrist was categorised as (1) written only, (2) verbal only, (3) written and verbal, and (4) others.

Procedure

Podiatrists were recruited via an email to the entire department by the author external to the department (C.W.). All participants provided written informed consent to participate. No formal education or training in education was provided to the podiatrists who consented to participate. Prior to all appointments with participating podiatrists and patients, podiatrists were reminded not to modify their usual practice of diabetes education during consultations. Eligible patient participants from the podiatry patient appointment schedule were sequentially approached and screened against the study inclusion criteria. The PAID questionnaire was then completed at this time point. During each podiatry appointment, the primary researcher (J.Y.) silently observed and recorded the frequency and category of educational topics covered, and method of delivery. A data collection sheet (Patient Participant Checklist—Appendix 1) was used to identify educational content and delivery method. At the conclusion of the appointment, the patient was asked, without the podiatrist present, "What was the key message from the consultation?" The podiatrist was also asked to answer this question without the patient present. Each response was recorded verbatim.

Six months following the appointment, each participant was contacted by telephone and asked "What was the key message from the consultation?", this was followed again by the PAID questionnaire.

Data analysis

Patient participant demographic data were described in terms of means (SD), frequencies (%) and median (IQR). Initial comparisons were made between the PAID scores using STATA [11] to determine if there were differences in patient emotional response to their diabetes and this potentially had an impact on their diabetes. Comparisons were made between the patient participant's baseline response and the podiatrist's baseline response, the patient's 6-month recall response and the podiatrist baseline response and the patient baseline and 6-month recall responses. A weighted kappa [12] was calculated with Stata 13 [11] to determine the level of agreement between the paired responses. A weighted kappa was used to determine the level of agreement within the ranges. The weighted kappa indicates slight agreement ranging between 0 and 0.20, fair agreement ranging between 0.21 and 0.40, moderate agreement ranging between 0.41 and 0.60, substantial agreement ranging between 0.61 and 0.80, and almost perfect agreement ranging between 0.81 and 1 [11]. Two raters reviewed the patient and podiatrist participant responses, but the proportion of responses falling into each category was calculated along with the binomial 95% confidence interval. A post hoc power analysis identified that a sample size of 24 participants provided a 95% confidence interval of +/–0.21 for the proportion of subjects within a particular agreement category (e.g., full agreement, partial agreement and no agreement), if the proportion within a particular category was 0.50. To minimise podiatrist bias, three podiatrists were recruited and each podiatrist paired with eight patient participants to achieve the target sample size.

Results

There were three podiatrists recruited to the study. The podiatrists had a varying background of work from private practice, community health and acute hospital settings. They had between 1 and 11 years of experience and a mean (SD) age of 31 (4.58) years. There were 59 potential patient participants who approached to take part in the study. Three cancelled their appointments due to illness, 14 declined to be involved and 18 did not meet the required MoCA score minimum. Data were collected from 24 patient participants at both baseline and 100% follow-up at 6 months.

Table 1 displays the patient participant demographic data. The mean (SD) age of the participants was 61 (10.8) years, while the range of school completion was year 7 through to an undergraduate university degree. The mean (SD) school year completion was year 10.3 (1.3). The number of podiatry consultations per 12 months ranged from 1 to 2 appointments ($n = 4$) to over 10 ($n = 10$). PAID scores collected at the time of the appointment and at 6 months fell into three categories of response: denial (baseline $n = 7$, 6 months $n = 10$), acceptance (baseline $n = 12$, 6 months $n = 10$) and burnout (baseline $n = 5$, 6 months $n = 4$), respectively, in relation to diabetes self-care. Over the 6-month time frame, the number of participants within the denial group increased, whereas both the acceptance and burnout categories decreased.

Initially, the themed and collated responses from the question "What was the key message from the consultation?" were compared by two podiatrists (data collector

Table 1 Patient demographics and PAID scores

Patient demographics	Baseline data mean (SD) or *n* (%)	6-month follow-up data *n* (%)
Age	61.0 (10.8)	
Gender (male)	15 (63%)	
Type of diabetes (type 2)	23 (96%)	
Years duration	15.1 (12.1)	
Treatment type		
Insulin	5 (21%)	
Oral hypoglycaemic medication	5 (21%)	
Oral hypoglycaemic medication + insulin	11 (46%)	
Diet only	3 (12%)	
Years of completed schooling	10.3 (1.3)	
Podiatry consultations in the past 12 months		
1–2 consultations	4 (17%)	
3–5 consultations	7 (29%)	
6–10 consultations	3 (12%)	
10+ consultations	10 (42%)	
PAID score categories		
Denial (0–10)	10 (42%)	13 (54%)
Accepting (11–39)	12 (50%)	10 (42%)
Burnout (40–60)	2 (8%)	1 (4%)

podiatrist: Rater 1, and independent podiatrist: Rater 2) at each time point. This comparison was to determine the level of agreement between the two podiatrist raters, thus ensuring the accuracy of data for patient/podiatrist agreement. Podiatrists rated the comparison comments as "no agreement between podiatrist and patient", "partial agreement between podiatrist and patient" and "full agreement between podiatrist and patient" (Table 2). The agreement (weighted kappa) between Rater 1 and Rater 2 was Kw = 0.78 for the baseline comparison of patient–podiatrist dyad responses (substantial agreement), Kw = 0.85 for the comparison of 6-month patient recall–podiatrist baseline dyad (almost perfect agreement) and Kw = 0.76 for the comparison of patient baseline–patient 6-month recall dyad (substantial agreement). It is important to note that this level of agreement is between the raters and not the agreement between patient and podiatrist dyad response.

There was a poor agreement between the responses of each participant groups at the time of the appointment and at 6 months following the appointment. This included a high discrepancy of responses within the patient participant group at the two different time points. Responses had "no agreement" at the time of the appointment in 58% ($n = 14$) of the patient participant responses, this increased to 62.5% ($n = 15$) at the 6-month time point. Partial agreement was noted in 17% ($n = 4$) and 25% ($n = 6$) of cases at the time of the appointment and at 6 months following the appointment. Only 25% ($n = 6$) of responses between the patient participant and podiatrist had full agreement at the time of the consultation decreasing to 12.5% ($n = 3$) agreement at 6 months. Comparison of patient participant's

Table 2 Frequency of classifications of each rater of (1) patient and podiatrist responses at baseline, (2) patient recall responses at 6 months and podiatrist responses at baseline, and (3) patient responses at baseline and patient recall responses at 6 months

	Podiatrist vs. patient (baseline) Rater 1 *n*, proportion, (95% CI)	Podiatrist vs. patient (baseline) Rater 2 *n*, proportion, (95% CI)	Podiatrist vs. patient at 6 months Rater 1 *n*, proportion, (95% CI)	Podiatrist vs. patient at 6 months Rater 2 *n*, proportion, (95% CI)	Patient vs. patient at 6 months Rater 1 *n*, proportion, (95% CI)	Patient vs. patient at 6 months Rater 2 *n*, proportion, (95% CI)
Full agreement	6, 0.25, (0.10, 0.47)	3, 0.13, (0.03, 0.32)	3, 0.13, (0.03, 0.32)	3, 0.13, (0.03, 0.32)	6, 0.25, (0.10, 0.47)	5, 0.21, (0.09, 0.40)
Partial agreement	4, 0.17, (0.05, 0.37)	8, 0.33, (0.16, 0.55)	6, 0.25, (0.10, 0.47)	6, 0.25, (0.10, 0.47)	3, 0.13, (0.03, 0.32)	3, 0.13, (0.03, 0.32)
No agreement	14, 0.58, (0.37, 0.78)	13, 0.54, (0.33, 0.74)	15, 0.62, (0.43, 0.79)	15, 0.62, (0.43, 0.79)	15, 0.62, (0.43, 0.79)	16, 0.66, (0.47, 0.82)

responses to the question "What was the key message from the consultation?" at each time point highlighted a large discrepancy between the podiatrist and patient participant.

Both the method and number of educational content topics within a single consultation varied. The podiatrists focused on key message themes of daily foot inspections and blood glucose level monitoring within their education, while the patient participant group focused on themes such as wound treatments, footwear and daily inspections at baseline. This changed to focusing on daily foot inspections and noting that they were unable to recall what the key message of the appointment was at the 6-month time point (Table 3).

It was noted by one patient participant that they recalled another healthcare provider education rather than that of the study's participating podiatrist "No I was instructed by the Diabetes Educator to change needles from the 4 size to the 8 size needle, so I changed my insulin administration". Further to this, some participants could not recall the educational messages from the appointment when asked 6 months later "No I don't remember", "It escapes my mind".

There were up to six topics covered in each consultation between the podiatrist and patient participant (Fig. 1). The topics included wound care, neuropathic complications, vascular complications, general foot care and follow-up care. The podiatrists covered up to six topics during one consultation. Most commonly, four topics were covered during the consultations ($n = 10$), followed by three ($n = 6$) and five topics ($n = 5$). All diabetes-related foot education was delivered verbally. Two patient participants were provided with additional personalised handwritten education. No other form of educational method was utilised despite the podiatrists having access to a department developed, current, diabetes and foot care-specific trifold handout within the consultation space.

Discussion

Responses of the patient participants highlighted that many patient participants do not recall the key information that their podiatrists believed was emphasised during the consultation. This may be a result of many patient participants not truly understanding, valuing or finding the podiatrist desired educational message individually applicable. Many factors may have contributed to this such as the number of subjects covered during a consultation, how the information was provided and different appointment priorities between the two participant groups.

Understanding education recall is important as it enables practitioners to provide ongoing appropriate and effective diabetes-related education, in turn possibly decreasing diabetes-related complications. At the time of the appointment, minimal full agreement between the podiatrist and patient was a surprisingly low finding. There is some evidence to suggest that motivational interviewing can improve diabetes-related educational outcomes [13]. It has been suggested that diabetes self-management education and support may reduce diabetes-related mortality [14]. Importantly, written education has some knowledge gain and its benefit was rarely utilised throughout this study [15]. As highlighted in current research, the need for education to be relevant, consistent, repeated and simple is required for this population [16].

Education recall is impacted by multiple factors, including low literacy levels, mild or moderate cognitive impairment and competing priorities of the patient. Recall may also be impacted by multiple messages from health practitioners regarding diabetes care and treatment. It is unclear if the multiple number of topics covered confused patients understanding and recall of key educational messages or if this volume of information diluted the key message for the patient. Additional reporting of other health professionals key messages highlights the impact that multiple avenues of education to one patient may result in message overload confusing the content of both foot-related and general diabetes care. This has been previously highlighted within other research and recommendations, given that not all topics of diabetes education should be covered in a session with patients due to the numerous and complex nature, but it is unknown how many topics should be covered [17].

Recall may also be directly related to the type of education modality. Education with structure and specific topics have been reported to be more effective and of greater use in diabetes complication prevention [18]. This places greater onus on the clinician to develop a set format of discussion or education points to cover within the consultation with a patient. Not having this set structure may also have been the reason that there was less recall for patients within the present study. Often, education with structure is undertaken within group formats, leaving the consultation time for more individualised education [19]. Regardless of the education structure, there is acknowledgement of the need to understand and improve engagement between clinicians and people with diabetes to reduce complications [20]. There is no consensus on how best to do this at this time.

A high number of ineligible participants was an interesting finding and indicated that many of these patients may not be a typical representation of the patient population attending diabetes complication clinics. This is further supported by current research into cognition and diabetes, finding that those with type 2 diabetes are at a much higher risk of developing cognition-related diseases such as dementia and often have a faster rate of cognitive decline during ageing [21]. Cognitive defects may require careful

Table 3 Examples of main message responses

Podiatrist response after consultation	Patient participant response after consultation	Patient response at 6 months
Daily foot inspections, assess the feet for any new wounds. Treat any new wounds with an antiseptic—contact the podiatrist if any new wounds are detected. Wound re-dressing instructions, keep the padding dry, change in 4/7 and then every 2/7. Also discuss regarding BSL monitoring	Wound care instructions	I have watched my diet that was the predominant message from a few days ago and from 6 months ago
Check the feet daily, notify the podiatrist if any concerns arise before review appointment	To quit smoking and to have follow-up heart test	Give up smoking
How to manage high and low episodes of hyperglycaemia and who to contact. Check the feet regularly for areas of pressure identified as redness or callus and who to notify	Do not wear slippers	Not all he was doing was fitting me up with shoes
Maintaining good BSLs. Have a wife to check the feet and who to notify if any concerns. How to manage the changes in BSLs	What to do with my shoes (the patient was asked to modify footwear via a shoe repairer). Knowing what my temperatures are (Pt has been diagnosed with Charcot's)	Of course the blood sugar level was one of the big ones
Start checking and writing down sugar levels three times daily. See the dietician. Check the feet every day and if any problems develop make podiatry appointment	Keeping an eye on my blood sugar levels	Taking my sugar levels is very important
Keep blood sugar under control. Buy a mirror to check the feet daily. Leave the feet felt on and dry until podiatry, but if it gets wet, remove and don't try to dry	To look after the whole foot. To keep my blood flow to the feet	It was to use the file after a bath and heel balm stuff
Daily foot inspections for foot injuries. Avoid barefoot, beware of heat sources (e.g., hot water/heaters). First aid/antiseptic treatment for any foot wounds/cuts/blisters	The vascular test is ok	I don't know the instructions on foot care
Daily foot inspections for new wounds. Treat any wounds with antiseptic call for podiatry review for any new wounds. Avoid direct heat sources (higher BSLs/HBA1C will contribute to more rapid circulation/nerve damage)	Go back to the orthotics	Pay $9 before you leave. Check your feet
Re-commence orthotics gradually—cease use if new symptoms develop	It's good news, it's good to keep your feet as well as possible	To look after your feet, check your feet and get regular checkups
Daily visual foot inspections with a mirror for any new wounds/ pressure areas	Constant examination of the feet	No I have forgotten the whole lot. It was probably take care of your feet
Daily foot inspections—visually inspect the feet for any new lesions each day—discuss appropriate management	To check your feet every night	Check your feet daily
Maintenance of BSLs to prevent complications. Daily moisturising of feet. Keep the dressings dry and clean	The wound care, not putting any weight on the wound	That I need to keep my diabetes down (numbers) and something about blood flow
Maintenance of BSLs; who to see if concerned about infection	Keep dressing on, that was different from what the local nurse said and to keep it dry because I was having showers	Maintain my health through my medicines, eat healthy and exercise
File your foot every 3rd day and moisturise with 25% urea cream. Check your feet daily, ask your GP about your diabetes health	About the amputation—it scared the shit out of me	I have to be aware of my feet with diabetes and my diet and exercise

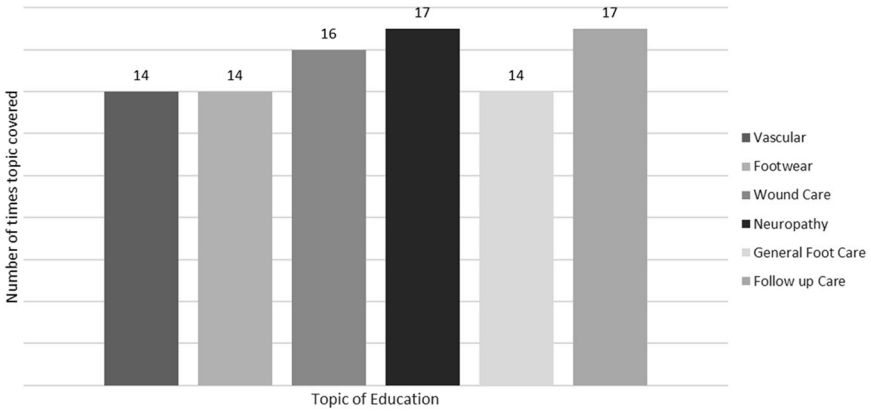

Fig. 1 Educational content covered by podiatrists

consideration when developing educational content and delivery methods to those patients with diabetes for the population not represented within this research [21].

There were some changes between PAID scores that may have impacted on the findings; however, due to the method of data collection, this was not able to be fully analysed. It is unclear what caused the shift in scores, whether other social factors, diabetes complications or work-related stresses impacted. It is, however, known that depression rates among people diagnosed with diabetes increase when compared to those not diagnosed with diabetes [21]. Patients with diabetes and depression may exhibit poor self-care traits, poor health engagement and poor adherence to medication in relation to their diabetes [21]. Supporting those patients with a high level of possible diabetes distress is vital in increasing diabetes self-care strategies [22]. Incorporating family members and support people into the diabetes educational framework or the use of targeted educational material may be beneficial [22]. These PAID results highlight competing priorities for patients in relation to why they may or may not recall educational material aimed at their diabetes self-care.

Diabetes education studies often have outcomes focused on self-care and complications of diabetes [23–25]; however, recall and application of education plays a vital role in ongoing self-care of patients with diabetes. It is important to highlight in this study that many patients did not recall, or possibly learn, the podiatrist desired education at the time of the consultation. This highlights the importance of creating an educational method that responds to a patient's needs and ongoing targeted education may increase the recall of education for patients with diabetes [15]. Culturally sensitive and literacy-level appropriate education is also advised in the long-term recall and self-care strategies of diabetes education [16]. Education should also be aimed at keeping it simple and encouraging the practitioner to check the patients understanding of the provided education throughout the consultation [16]. Targeted education methods such as written and verbal methods, as this not only allows for low literacy but also aims to incorporate strategies to educate those with other health complications such as depression [16]. Partnering in key goals the patient and if possible their carer has shown increased positive outcomes of diabetes self-care; however, it is unclear if this results in long-term benefits [25].

The use of educational methods such as the Patient Empowerment Programme (PEP) have highlighted the benefits of providing education in a manner that is conducive to the patients' needs and empowering the patient to contribute to their behaviours in relation to their diabetes [20]. Therapeutic patient education has also been shown to decrease complications and mortality in relation to diabetes [17, 20]. This meta-analysis highlighted the ability of therapeutic patient education to improve outcomes such as quality of life, diabetes knowledge and clinical outcomes [17].

The limitations to this study include the small sample size of both patients and podiatrists. A small sample size was used in this exploratory study due to little previous research in relation to podiatry-specific individual diabetes education. Patient participants were not asked how they would like to receive their education, and this may have changed the outcomes if the patient received education in a way that was agreeable to them. The method of education was limited with no use of visual or activity-based learning, and only two participants received personalised written material. This is despite readily available appropriate diabetes-related foot care brochures. The education provided to patients in this study was individual education only, but group education was not evaluated. It is possible that group education may improve knowledge outcomes for those patients with diabetes when compared to individual education [26]. The participating podiatrists were not asked if they noted any barriers to providing the education that they would deem appropriate. The podiatrists may have preferred to limit their education to one topic at a time, have a longer appointment time to convey their educational content or have access to other forms of educational methods such as visual devices. The podiatrists who volunteered to be a part of the research did not receive any specific education or training. It is possible that they may have received different education during their undergraduate

degree; however, this was not factored into the design. It is thought that pre-empting the specifics of education techniques may have influenced the outcomes, with some techniques potentially impacting recall than others. Instead, a pragmatic approach was taken to reflect real-life practice. The patient participants within this study were often seen by multiple health providers in relation to their diabetes. This may have impacted on their ability to recall diabetes education depending on when they last received education. Education from multiple sources may also confuse patients as to which is the key message in relation to their diabetes care.

The article only followed patients for a short 6-month time frame after one 1-h podiatry appointment containing diabetes education. This may not have been enough time for the patient participants to understand the, often complex, educational message from the podiatrist. As this study did not account for behavioural change within the patient these outcomes are unknown. In conjunction with the complexity of the educational message, incorporation of educational techniques such as the PEP [20] was not utilised within this study.

Future directions of research within this area are needed to determine the content amount and delivery methods for education retention among patients with diabetes. This lends itself to education of health professionals and practice change in how to improve patient outcomes.

Conclusion

Diabetes continues to be a social and economic burden on society. Education remains a vital component of diabetes care and treatment to provide patients with the tools for self-care. This study has highlighted how many patients within this population are not learning or retaining the education provided at podiatry consultations over a 6-month period. The message being delivered to this population group may be confused among multiple messages in a single consultation, or among multiple messages from multiple healthcare providers. There is a need for guidelines for podiatry-specific diabetes education which have an outcome focus on decreasing the risk of diabetes foot complications.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval This research was approved by the Human Research Ethics committee of Peninsula Health (LRR/14/PH/14).

Appendix 1

Patient Participant Checklist

Identifier No.

DOB:

Male Female

Diabetes Type: 1 2 Years Duration....

Lever of Formal education:
Yr 10 Yr 11 Yr 12 Bachel

Handouts Provided:
PH diabetes Handout ☐ Foot care group han

Number of podiatry consults in the past 2 years:
1 - 2 3 - 5 6 - 10 More

Content group of oral education given:
Vascular complications ☐ N

Footwear ☐ Ge

Wound care/first aid ☐ Fo

Referrals:
Diabetes Education ☐ Endocrinologist ☐

Dietician ☐ Other……

Most important information from podiatrist:

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