

Diabetes educators' self-reported experiences, skills and attitudes towards research

Trisha Dunning

Research is integral to the delivery of best practice diabetes education, care and management and a core component of the diabetes educator (DE) role. However, previous studies and anecdotal evidence suggest that although DEs are ideally placed to undertake research, the majority do not participate in research activities. This article describes a study designed to explore the experiences, skills and attitudes of Australian DEs towards research, and to identify the barriers to, and facilitators of, research.

Research is a challenge for all nurses, including diabetes educators (DEs), and their interest in research activities varies. Although the DE role is primarily clinical, research is a core component and a requirement for the Australian Diabetes Educators Association (ADEA; 2001) and the credentialing programme (ADEA, 2000). In Australia, the term 'diabetes educator' describes a number of health professional disciplines. Although the majority are nurses, other health professionals such as dietitians and podiatrists also undertake the role to varying degrees within the scope of their primary discipline.

There is an expectation that nurses will provide clinical leadership, especially in advanced nursing roles such as the DE. Clinical leadership includes a range of research activities, such as being aware of the importance of research to clinical practice, using research findings to provide evidence-based diabetes care, as well as collaborating in and undertaking research. Translating research into clinically

usable forms is part of a cycle of knowledge transformation that includes developing policies and guidelines and monitoring outcomes to achieve best practice. Research can therefore be a change agent.

Literature review

The research–practice gap between undertaking research and incorporating research findings into nursing practice (research utilisation) is well described in the literature (Roycroft-Malone, 2004). Professional nursing bodies such as the International Council of Nurses (ICN) have developed policies and task forces to formulate a worldwide research agenda for nursing (ICN, 1990) but the impact of this initiative is unknown.

Anecdotal comments during research education sessions for DEs suggested that the method of educating nurses about research could be either a barrier to, or facilitator of research utilisation. Most undergraduate nursing courses incorporate research to some degree

Article points

1. Research is a core part of the diabetes educator (DE) role.
2. DEs believe that research is essential to quality care, but most do not actively participate in research.
3. Many DEs indicated that clinicians could conduct research but believed that research was 'best left to the academics.'
4. Barriers to research were similar to those identified in other studies and other areas of nursing, and included lack of confidence, time, funds and resources to support research activities.

Key words

- Research
- Diabetes educators
- Knowledge
- Attitudes
- Skills

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1. Clinicians need to possess strong research knowledge and skills in order to apply research findings in their practice.
2. Factors that affect nurses' ability to utilise research include: their knowledge and skills; the social and historical context in which they work; their own and colleagues' beliefs and attitudes to research; and the philosophy of the employing organisation.
3. Both DEs and patients need to understand and value the contribution that the different research paradigms make to patient care.

(Olade, 2004). However, education alone does not encourage nurses to use or participate in research (Dunning, 2004; Jordan, 2004). Active support from employers, research mentors and role models plays a major role (Byrne and Keefe, 2002; Dunning, 2004).

People with diabetes have a right to expect evidence-based care. Jordan (2004) suggested that consumers will have an increasing influence on, and a role in, research utilisation, and therefore the provision of evidence-based practice. Likewise, a survey of people with diabetes on the Australian National Diabetes Services Scheme (NDSS) register, a Government-sponsored scheme to subsidise the cost of blood glucose test strips, insulin syringes and needles and some insulin pump consumables, found that people were interested in hearing about research findings, receiving research updates and information about research projects that they could be eligible to participate in (Diabetes Australia [DA], 2004).

Consumer involvement in clinical decision-making is already occurring, e.g. consumers are being included on policy-making and guideline development committees and research fundraising committees. In addition, consumers are expected to actively participate in their care, especially when they have a chronic disease such as diabetes. Being informed about relevant research findings enables people to participate in management decisions more effectively and to make relevant, informed self-care decisions (Heater et al, 1988).

Research utilisation

Research utilisation is a complex process: clinicians need to possess strong research knowledge and skills, including the ability to critically analyse and understand published research, in order to be able to apply the findings generally in their particular practice context and to individual patients.

A number of factors affect nurses' ability to utilise research besides their knowledge and skills; these include the social and historical context in which they work, their own and colleagues' beliefs and attitudes about research, and the philosophy of the employing

organisation (Roycroft-Malone, 2004).

Furthermore, everybody concerned needs to understand and value the contribution that the different research paradigms make to patient care. Controlled trials provide evidence of safety and benefit (the science of care) and qualitative studies provide important information about the social and human aspects that affect whether and how research will be utilised (the art of care). Together they constitute the yin and yang of research. Evaluation studies provide information about the outcomes of using research to guide practice. Considered together, the research paradigms provide a holistic picture of research development and utilisation.

Research is therefore integral to the delivery of best practice diabetes education, care and management. The document *Information and Education for People with Diabetes: A Best Practice Strategy* (DA, 2004) identified a need for more research in diabetes education. DEs are ideally placed to undertake such research, particularly since it has been shown that patients who receive evidence-based nursing care achieve better outcomes (Heater et al, 1988).

Research and the role of the DE

The DE role is complex and changing. For example, DE advanced practice roles such as nurse practitioner are emerging in Australia and DEs performing these roles are expected to demonstrate a strong research and leadership focus before the relevant regulatory authority endorses them. 'Participating in research' refers to a range of activities underpinned by an awareness that research is important (research awareness). These research activities include:

- reading, critiquing, and understanding research
- using relevant research findings in clinical practice (evidence-based practice)
- evaluating the outcome/impact of research once the findings are applied in the clinical setting
- undertaking or collaborating in research.

These research activities can be viewed as levels of research competence. While research is a core component of the DE role, the extent to which research should be taught is not

clearly articulated in the Graduate Certificate of Diabetes Education, the basic postgraduate requirement for DE practice in Australia. It seems logical to extend the knowledge and skills acquired in undergraduate education. There appears to be strong support for including research as a core component of nursing programmes generally (Parahoo, 2000).

DEs express various concerns about research activities and cite barriers such as lack of time, resources and opportunity, not understanding the research process, and difficulties in understanding how research and clinical practice can be integrated (Dunning, 2004). Similar barriers have been reported by other researchers and have not changed in years (Micevski et al, 2004).

Llahana et al (2003) examined the educational preparation of diabetes specialist nurses (DSNs) in the UK and found that their research skills developed only after they had completed a Master's degree. Cradock (2004) suggested that research training helps DEs to become critical thinkers, which in turn helps them to apply a research-based approach to the care they provide. Likewise, Watkinson (1999) maintained that DEs must develop research skills in order to be capable of evaluating the effectiveness of the care they provide. Very few Australian DEs have Master's degrees and even fewer have doctoral degrees, although a significant number have accessed a research advisory scheme offered through the ADEA (Dunning, 2004).

Nurses in other practice areas are also ambivalent about research (Funk et al, 1991; Retsas, 2000; Bryar et al, 2002) although nurses, particularly specialty nurses, appear to be increasingly interested in participating in research activities (Rutledge et al, 1998; Yates et al, 2002). However, Llahana et al (2001) found that UK DSNs (n=341) spent very little time on research activities (mean 4.21%). The reasons for low research activity were not reported. Some of the nurses' ambivalence towards research might reflect organisational reluctance to accord a high priority to nursing research (Retsas, 2000; Bryar et al, 2002) and the difficulty in attracting research funding.

The change in nurses' attitudes towards research is not surprising in the light of increasing public awareness of and interest in research, increasing access to research information through the media and the internet, and the fact that the public often ask nurses about research. In addition, collaboration between researchers and clinicians is critical to successful nursing research in the future (Kearney et al, 2000).

With that background, a study was devised to explore the experiences, skills and attitudes of Australian DEs towards research.

Aims of the study

The aims of the study were to:

1. Describe DEs' self-reported:
 - involvement in research activities
 - knowledge of research and skills required to participate in research
 - beliefs about research
2. Identify the factors that influence DEs' ability to participate in research
3. Elicit suggestions of how the ADEA could support DEs to become research active.

Method

A one-shot cross-sectional survey was carried out in August 2005 using anonymous self-completed questionnaires. The questionnaires were distributed using a two-pronged approach:

1. Inserted in the ADEA journal distributed to all ADEA members on the membership list at the time of the study (n=1190) with a covering letter inviting DEs to complete the questionnaire and mail or fax responses to the researcher.
2. As a loose insert in the conference satchel at the ADEA annual conference (n=403), with a covering letter explaining the purpose of the study and a request to either complete the questionnaire and place it in a designated box at the conference information centre, or mail or fax it to the researcher after the conference. The ADEA president asked DEs to complete the questionnaire during the annual general meeting held during the conference.

The two-pronged approach was an attempt to increase the response rate, which had been

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1. DEs and nurses in other practice areas are ambivalent about research.
2. A study in 2001 found that UK DSNs spent very little time on research activities (mean 4.2%).
3. Some of the nurses' ambivalence towards research might reflect organisational reluctance to accord a high priority to nursing research and difficulty in attracting funding.
4. Nurses' attitudes towards research are changing in light of increasing public awareness of and interest in research, increasing access to research information through the media and the internet, and the fact that the public often ask nurses about research.

Table 1. Demographic data of respondents, not all of whom provided all information.

Demographic characteristic	% of respondents (n = 118)	
Gender	92.3 % females	
Age range (years)	31–40	19.7
	41–50	42.7
	51–60	23.1
Professional category	Nurses	89.7
	Dietitians	6.8
	Podiatrists	0.9
	Pharmacists	0.9

Table 2. Response rate by state/territory of respondents*.

State/territory	Response rate (% of respondents; n=118)
Victoria	35.9
New South Wales	25.6
Western Australia	14.5
Queensland	10.3
South Australia	9.4
Tasmania	3.4
Australian Capital Territory	0.9
Northern Territory	0

*The proportion of responses from each state/territory approximately reflects the proportion of members in each state/territory, except New South Wales, which has the most members, followed by Victoria

low in other studies in the same population, usually around 10 % (Dunning, 2004). The two-pronged approach meant that some DEs received the questionnaire twice; however, they were coded so that duplicates could be discarded.

Questionnaires

Permission to use the Research Utilisation Scale (RUS; Funk et al, 1991) was obtained as part of a larger multi-hospital study into nurses' perceptions of the barriers and facilitators to using research, which is continuing. The RUS is a 29-item questionnaire with established psychometric properties (test–retest reliability 0.68–0.83), which has been widely used in nursing settings. It was modified for the current study to ensure that the language was relevant to Australian DEs, and a question was added to elicit information about how the ADEA could support DEs to participate in research.

The revised questionnaire was pilot tested

to ensure face and content validity on a small sample of DEs (n=10), who were subsequently excluded from the main study. The ADEA Board of Management gave permission for the questionnaires to be distributed by mail and at the annual conference.

The questionnaire consisted of four domains: research activities; attitudes and beliefs about research; participation in research; and using research findings. The response format consisted of Likert scales and yes/no options. Standard demographic data were collected to determine whether there were any relationships between the demographic variables and DEs' research attitudes and beliefs.

Statistical analysis

Descriptive statistics, including means, standard deviation and frequency counts, were used to analyse the demographic data collected. Content analysis was undertaken for the open questions using the framework method (Ritchie and Spencer, 1994), which consists of a five-step process involving familiarisation, identifying a thematic framework, indexing, charting and mapping and interpreting the findings. The number of occurrences of a particular category gives an indicator of the relative importance of the behaviour or activity described.

Results

Response rate and demographic data

Completed questionnaires were received from 118 DEs, which represents 10% of the total ADEA membership. No duplicate questionnaires were received but three DEs returned uncompleted questionnaires at the conference, stating that they had already responded. The demographic data are summarised in *Table 1*. *Table 2* shows the response rate by state/territory.

Research activities

The responses indicate a high level of research awareness but limited research activity. DEs were asked to indicate the frequency with which they read a range of diabetes journals per year (*Table 3*). Only 31.6% actually subscribed to any professional health journals, including

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2. The responses indicate a high level of research awareness but limited research activity.

diabetes journals. Some regularly received research updates online, primarily through pharmaceutical company sponsored services. The specific research activities asked about included attending research interest groups, undertaking research in various capacities, presenting research findings, mentoring and publication. The majority of respondents had not engaged in any of these activities (Table 4).

Research beliefs

Generally, DEs viewed research into diabetes education as essential (76%) and indicated that research could help to improve diabetes care (77.8%). However, 42% felt that patient care was more important than engaging in research, and 63% of these felt that intuition and experience were more important than research and saw research and clinical practice as separate issues. Less than half (40%) felt that clinicians were capable of conducting research, and 52% indicated that research 'is best left to the academics'.

Likewise, respondents were ambivalent about the extent to which research should be included in diabetes education certificate courses. Forty-seven per cent felt that only information about how to read and critique research papers should be included, which is currently the case; 56.4% felt that information about research methods and how to conduct research was important and should be part of the curriculum, but only 30% felt that students should be required to actually undertake a research project and report the results.

Research skills and knowledge

Table 5 shows respondents' self-reported research skills and knowledge. More than half (53.8%), indicated that they would like to learn more about research. Most DEs acquired their knowledge and skills from a combination of methods and places: only 4.3% had undertaken a Master's programme, 6% had undertaken a research subject as part of another course, and 8.5% had attended a research workshop organised by the ADEA.

Some of the factors that influenced participation in research are shown in Table 6.

Table 3. Frequency with which respondents read diabetes and non-diabetes journals*.

Type of journal	Frequency/year	% of respondents (n=118)
Diabetes education	>10	36
Clinical diabetes research	>10	36.8
Laboratory diabetes research	2.5	29
Non-diabetes related**	2.5	31.6

*Some DEs reported reading more than one type of journal.

**These included general nursing, nutrition and general medical journals.

Table 4. Self-reported research activities of respondents.

Research activity	% of respondents who had never undertaken the activity (n=118)
<i>General activities</i>	
Attended a research interest group meeting	65.8
Presented research findings	93.2
<i>'Research active' activities</i>	
Developed a research proposal	74.4
Been a principal researcher	70.1
Been a co-researcher	82
Been a research mentor	87.2
<i>Publications</i>	
Wrote a peer-reviewed article	93.2
Co-authored a peer-reviewed article	90.6
Co-authored a non-peer reviewed article	90.6

Table 5. Self-reported research skills and knowledge of respondents*.

Knowledge and skills to carry out a research project	% of respondents (n=118)
Have research knowledge	53
Have research skills	53
Have the confidence	53
Find it difficult to turn ideas into a research project	60
Can distinguish quality research from inadequate research	48.7

*It is not known whether the diabetes educators' perceptions reflect actual skills and knowledge

Table 6. Factors influencing diabetes educators' participation in research*.

Factor	% of respondents (n=118)
Lack of support	50
Limited or no access to research advice/mentor	53
Lack of resources	53
Lack of skills	44.4
Clinical workload (lack of time)	48.7
Not interested	10

*Most respondents cited more than one factor

Page points

1. Education forms the basis of the DE's role, hence DEs are the ideal professional group to undertake research to demonstrate the value of the role and their contribution to management.
2. Results showed that DEs believe they have the relevant skills and knowledge to conduct research, but only rarely engage in research.
3. The most significant barrier appears to be the time required to undertake research, which was seen as competing with the high demands of clinical practice, which DEs indicated took priority over research.
4. Most DEs focused on 'doing' research rather than taking a broader view that encompasses reading and utilising research findings in clinical practice.
5. This has not changed from previous studies despite the ADEA's efforts to foster research.

Sixty per cent indicated that they often had ideas for research projects but had difficulty in turning the idea into a research proposal and lacked the confidence to seek help from a colleague; this is reflected in the fact that 41% indicated that they knew about the ADEA Research Advisory Scheme (RAS) but only 2.6% had actually accessed the scheme for research advice and only 8.5% had attended an ADEA research workshop. Despite these doubts, 48.7% indicated that they were able to determine the quality of research.

ADEA's role in supporting research

Respondents were asked to indicate how the ADEA could support members to be more research active. Only 15% responded to this question. Of these, 26.5% indicated that the ADEA should continue to offer a combination of the RAS and research workshops, and 11.1% suggested that an online research chat room could be developed.

Discussion

The findings of the current study were similar to those of other researchers that suggested that DEs' attitudes to research reflect their level of research experience (Llahana et al, 2003; Kang and Kim, 2005). DEs are aware of the importance of research but actual engagement in research activities is low.

DEs need more specific information about how to integrate research findings into diabetes education practice to satisfy patient expectations. *Information and Education for People with Diabetes: A Best Practice Strategy* (DA, 2004) identified the need for more research in diabetes education, particularly with regard to assessing the long-term outcomes of education interventions, cost benefit, and the impact on quality of life outcomes. As part of the process for developing the strategy, diabetes service providers were surveyed to determine current practice. The findings indicated that service providers felt there was a general lack of definitive evidence that diabetes education 'works' and the best strategies to use to continue education across the care continuum.

Education forms the basis of the DE's role,

hence DEs are the ideal professional group to undertake research to demonstrate the value of the role and their contribution to management. The current study indicates that DEs believe they have the relevant skills and knowledge to conduct research, but only rarely engage in research because of a number of barriers such as lack of time and resources. These barriers have been identified in the same sampling population in other studies (Dunning, 2004) and in other nurse samples (Funk et al, 1991; Bryar et al, 2002; Micevski et al, 2004).

The most significant barrier appears to be the time required to undertake research, which was seen as competing with the high demands of clinical practice, which DEs indicated took priority over research.

Most DEs did not consider the process of research to encompass a wide range of activities such as its utilisation and providing evidence-based care, rather they only considered 'doing research'. This has not changed from previous studies despite the ADEA's efforts to foster research. Fewer than half the respondents in the current study read research articles regularly, although 49% indicated that they could distinguish quality research from less rigorous research. Significantly, most did not subscribe to any journals, which means they either do not read journals or they rely on colleagues to subscribe to and share journals, online information, internet access or libraries.

Interestingly, obtaining ethics approval did not emerge as a barrier to undertaking research. Anecdotally, DEs feel that obtaining ethics approval is difficult and the forms are complex. One reason for ethics not being cited as a barrier could be that very few respondents had actually undertaken research and did not have personal experience of the process of applying for ethics approval.

Although research is a core component of the DE role and engagement in research is necessary to achieve and maintain credentialed status, the points required in the research category are lower than in the other role components; this may inadvertently suggest that clinical practice is more important than research rather than a key part of clinical care. The inequity will be

addressed when the credentialing process is next reviewed.

The strong focus on evidence-based care means that research and clinical practice are inextricably linked. Importantly, in the author's experience, the DE is often the point at which a great deal of research evidence enters practice, i.e. DEs implement research findings. This suggests that both the DE and research are change agents. In addition, DEs may be required to interpret the implications of diabetes research for colleagues and, importantly, for people with diabetes to help them identify how specific research findings apply to their individual situations and how they could be applied in day-to-day self-care to improve health outcomes.

The majority of DEs felt that research could help to improve diabetes care; however, 63% felt that intuition and clinical experience were more important and viewed research and clinical practice as separate entities. This finding is a cause for concern, particularly in modern care with its strong focus on evidence-based care and research utilisation. It is difficult to explain this finding and it is inconsistent with the expectations of people with diabetes, who want to know about research findings and how they could affect their care (DA, 2004). People with diabetes are likely to show increasing interest in research as they become involved in policy development (Jordan, 2004). They already play a key role in raising funds for research through bodies such as DA and the Juvenile Diabetes Foundation and have a right to expect to be kept informed about how the money is spent and the implications of the findings.

Mentoring can have a positive effect on scholarly productivity such as undertaking research and publications (Ostmore, 1986). However, mentoring through the ADEA RAS has only had a mild, if any, effect on these parameters, as evidenced by the small numbers accessing the scheme and attending research workshops. Dunning (2004) reported on a 4-year follow-up of RAS attendees and found that the RAS co-ordinator received between 0.5 and one request for research advice per week, and that only two participants from the original

2000 workshop were completing coursework Master's programmes, which is low compared with the number of attendees.

The limited effect of mentoring has also been demonstrated in Australian academics (Roberts, 1997). The strength of mentoring and previous positive mentoring experiences affect productivity. It is possible that personal associations may be more effective than distant mentoring, such as occurred in the RAS.

Interestingly, 52% of DEs in the current study felt that research was 'best left to the academics'. It is not clear which academics were being referred to: DE academics or academics generally. If the reference was to DE academics there would be very little diabetes education research, in Australia at least, because >95% of DEs are employed as clinicians and not academics.

It was reassuring that DEs felt that 'clinicians were capable of undertaking research' if some of the barriers such as time and inadequate resources and support from management could be addressed. There was a trend for DEs with higher qualifications to be more research active but the number of DEs in this category was too small to estimate whether the effect was significant. No significant relationship was found between DEs' self-reported research activities and their beliefs and any other demographic variable.

Limitations of the study

The low response rate (10%) to the questionnaire could indicate that the results do not reflect the research activities or attitudes of all ADEA members. However, the findings are consistent with anecdotal data obtained during research workshops held for ADEA members and previous research in the same population (Dunning, 2004). In addition, the demographic profile of respondents reflects the demographic characteristics of ADEA members. Non-responders may have different beliefs and attitudes and undertake different research activities from those of respondents, but there was no way to verify any similarities or differences.

The two-pronged approach to the distribution

Page points

1. The DE is often the point at which a great deal of research evidence enters practice, i.e. through implementation of research findings.
2. Thus both the DE and research are change agents.
3. DEs may be required to explain the implications of diabetes research, not only for colleagues but also for people with diabetes to identify how specific research findings could be applied to self-care to improve health outcomes.
4. People with diabetes are likely to show increasing interest in research as they become involved in policy development.
5. They already play a key role in raising funds for research and have a right to be kept informed about how the money is spent and the implications of the findings.

'The majority of DEs who responded to the survey did not actively participate in research activities, although they believe that research is important and can improve DEs' clinical practice and patient outcomes.'

of the questionnaire meant that it was possible that some DEs may have responded twice. However, coding the questionnaires enabled duplicate responses to be checked. No duplicates were received. The demographic profile of the DEs in the current study and the data emerging about barriers to DEs undertaking research are similar to those obtained in other studies in the same population, which increases the likelihood that they are transferable to and reflect the opinions of the sampling population.

Conclusions

The majority of DEs who responded to the survey did not actively participate in research activities, although they believe that research is important and can improve DEs' clinical practice and patient outcomes. Barriers to undertaking research included insufficient time, lack of resources and skills and lack of confidence.

DEs believed that clinicians could undertake research but a significant number felt that research was the responsibility of academics. Respondents had a narrow view of research which focused primarily on 'doing' research rather than defining critical review of research and implementing research findings in clinical care as research activities.

The ADEA RAS and workshops were considered the most effective ways of encouraging DEs to become more research aware and research active. ■

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