

## **The Diabetes Educator: Myth and Reality**

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# **The Diabetes Educator: Myth and Reality**

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Doctor of Education

October 2009



## **DECLARATION OF ORIGINALITY**

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Alan Crawford

October, 2009

## **ACKNOWLEDGMENTS**

This study could not have been completed without the support and guidance of my Principal supervisor, Dr. Fiona Bryer, and associate supervisor, Dr. Peter Grimbeek, from the School of Education and Professional Studies, Griffith University.

I wish to thank the staff and patients in the research sites in Brisbane and Singapore who were extremely helpful, supportive, and gracious with their time. Without their participation this study could not have been undertaken in the presenting format.

A special thanks to Mrs Su Naish, my research assistant, for her friendship, time, and effort in formatting this study.

## **DEDICATION**

This study is dedicated to my parents for their life long support and encouragement. Their belief that success would come from perseverance, diligence, and the will to overcome adversity was the driving force behind the completion of this study.

## **ABSTRACT**

This study investigated the current role of the diabetes educator and the historical and professional circumstances in which that role was defined to meet the challenges of a rapidly increasing health problem. Diabetes has been recognised as a chronic disease that requires a lifetime of good management practices. Long-term self management has been linked logically to being well educated and informed about diabetes and its long-term management. Wikblad (1991) considered that information about the disease was not sufficient; people also had to understand how to use that information. The diabetes educator became designated as the appropriate health professional to provide the information in a manner that promoted and encouraged patient participation in the self-management of their illness.

The approach to this study was to consider the role of the diabetes educator in terms of interaction with patients and associated health professionals. It was accomplished by framing four research questions that address the topics of legislation governing scope of practice, training, interaction with other health professionals, and the patient's perception of how the educator assists them in promoting self management of their diabetes. The methodology used to assess the four questions consisted of semi-structured individual interviews with educators and patients in tandem with an observation, re-observation process of assessing the educator-patient interaction. This methodology was used in both Brisbane and Singapore health facilities.

The findings showed little knowledge of legislation, and training equated to each educator having a general nursing qualification. The observation, re-observation process indicated that the educator interacted with their patients by using a routine that seldom varied. Optimal scaling of the research results showed that participants from the Brisbane sites were more

likely to be drinkers and older than the Singapore participants. A fifth research question about culture extracted from interview data showed that the Singapore educators were much more aware of cultural differences in their relationship with patients and knew how to deal with them when required to do so.

The outcome of the study demonstrates a clear need to bridge the gap between actual practice and published standards and requirements of practice determined by diabetes educators' professional associations. The educators in this study were employed and practised on the basis of their nursing qualifications. As the Australian and Singapore diabetes educators associations invite other health professionals to consider employment as diabetes educators, the concept of training and qualification appropriate for the role has to be determined.

The implication from this study is that education of the diabetes educator must be taken to a level beyond that of the current nursing qualification. In order to move practice towards the recommended standards of educating patients for self-management, two concepts need to be considered. First, the education process must produce the best health management outcomes for the patient. Second, diabetes educators must be provided with the skills and level of training beyond that required for general nursing practice. An educational program specific to diabetes educators' education, and the resultant qualification, should become a prerequisite for employment in the hospital and in community diabetes clinics. Although the diabetes educators' professional associations in both Brisbane and Singapore have promoted the need for educators to become involved in research that will benefit patient self-management issues, it has not yet translated into practice.



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## **SYMBOLS**

AADE	American Association of Diabetes Educators
ADEA	Australian Diabetes Educators Association
ADES	Association of Diabetes Educators Singapore
AIHW	Australian Institute of Health and Welfare
EFMA	European Forum of Medical Associations
HBM	Health Belief Model
IDF	International Diabetes Federation
NICE	National Institute for Clinical Excellence
UN	United Nations
WHO	World Health Organisation
WPD	Western Pacific Declaration
WPR	Western Pacific Region
WPRO	Western Pacific Regional Office

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## **Chapter 1.0      INTRODUCTION**

### **1.1      Introduction to the research study**

This study investigates the increasing recognition of two contributors, the diabetes educator and patient education, in combating the serious complications associated with Type 2 diabetes mellitus. In the introductory chapter, diabetes mellitus, its aetiology, pathology and prevalence, will be described to show the serious nature of this disease and provide an estimate of its future impact.

This study concentrates on the role played by diabetes educators in managing their diabetic patients from an educational rather than a medico-clinical perspective and in particular whether they have a significant influence on the diabetic patient by providing the stimulus for developing self-management skills. This study will also focus on (a) the diabetes educator's interaction with patients, other health professionals, and with culture, and (b) patients' responses to the advice given by the educator.

Education of diabetic patients has concentrated on patient well-being and the encouragement of self-management principles, in order to minimise the effects of diabetic complications. Education has become a critical influence, particularly in primary patient care. However compliance screening for individuals at risk of complications has required evidence that confirms the presumed benefits of education (Miller, 1972).

Diabetes has the potential to develop severe complications to patient's wellbeing, but the risk of complications can be reduced by patient involvement in their own health



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management. The literature on health care for people with diabetes has identified these points. Moreover, the literature has also documented the role of the diabetes educator. Furthermore, there have been indications of cultural differences in the incidence of diabetes, health beliefs and the services provided.

## **1.2 Global problem of Diabetes Mellitus**

Diabetes has become one of the major health problems facing the world today. Diabetes Mellitus is a disease affecting the metabolism of carbohydrate. This extremely common complaint can start at any age. Of two types of Diabetes Mellitus, Type 1 generally affects younger age groups and is normally insulin dependent; Type 2 generally affects people in middle to later years and, in many cases, can be controlled by diet. When diabetes develops in middle age, it may be so mild that it is unnoticed for a considerable period of time.

Many cases of Type 2 diabetes are discovered following a urine test for an insurance examination or before a surgical procedure. Diabetes tends to be familial, with the tendency that other members of a family are more likely to develop diabetes at some stage. If obesity is a familial tendency, the contemporary evidence suggests that adverse health conditions such as diabetes are likely to become more prevalent.

The incidence of diabetes has increased rapidly in the last decade. Previously it was confined to more affluent countries. Information supplied by the (World Health Organisation, 1998) clearly demonstrated that diabetes was a major health concern in both the developed and the developing countries. Between 1995 and 2025, the number of

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the adult population affected by diabetes mellitus in developing countries was projected to grow by 170% from 84 to 228 million people (see Table 1.1). By 2025, WHO projected that these countries will account for 76% of all persons with diabetes, as compared with 62% in 1995. In the same period, the developed world will see a 41% increase in diabetes incidence from 51 to 72 million people. World wide, a 122% rise has been projected, from the total of 135 to 300 million people. This more than twofold global increase will occur because of population ageing and population growth, as well as from obesity, unhealthy diets, and a sedentary lifestyle.

Table 1.1: The incidence of diabetes in 1995 and the projected figures for 2025 (World Health Organisation, 1998)

Country	1995 (million)	2025 (million)
India	19	57
China	16	38
USA	14	22
Pakistan	-	15
Indonesia	-	12
Russian Federation	-	12
Brazil	-	11
Egypt	-	9
Japan	-	9

Age has become an important factor in this changing context. The WHO projections of the age structure of the diabetic population have indicated that, if the present trends persist, by 2025, most people with diabetes in developed countries will be aged 65 years or more. However, the majority of diabetic patients in developing countries will be in the 45-64 age groups. In less than 30 years, diabetes will affect people in their productive years of life (World Health Organisation, 1998). The countries concerned, if this trend is

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accurate, will be expected to suffer economically through increased demand on their health systems and the loss or reduction in the number of fully employed members of the workforce. Economic consequences of diabetes related morbidities were a reality in Singapore where recognition was given to the heavy burden placed on society to manage the increasing incidence of diabetes as a major health problem (Wee, Ho, & Li, 2002).

The prevalence of diabetes in adult populations has exceeded 8% in 12 Western Pacific Region countries and areas (see Table 1.2). In 1993, the prevalence of diabetes was 8.2% in urban and 6.7% in rural areas in Malaysia and 8.9% in the adult population of Singapore. In Australian indigenous communities, prevalence rates have exceeded 20%. Preliminary findings from the Australian national diabetes prevalence survey (AUSDIAB) have confirmed that, in people aged 25 years or older, there is one undiagnosed person for every person diagnosed. In many non-Caucasian populations, especially in the younger age groups, the rate of undiagnosed to diagnosed diabetes is even higher. Data from countries including Singapore have supported these observations.

### **1.3 Personal journey**

My association with diabetes educators in a particular cultural-historical context stimulated my interest in developing a research study of the role of the diabetes educator in hospitals and community clinics. I became aware of the need for research on diabetes education and the role of the diabetes educator in treating patients to be undertaken as an important adjunct to general research in diabetes treatment, pharmacology, and wound management, to present a few of the more common research areas. I offer this short resume of my involvement with diabetes and the diabetic patient to inform the reader of

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my journey to this study.

In 1978, I was appointed as the founding head of podiatry at what was then the Queensland Institute of Technology (QIT). Podiatry has long had an association with diabetic patients in the prevention and treatment of lower limb pathologies. From 1978, this association has strengthened within the community, with many graduates being appointed to public health sector positions.

In 1995, I was appointed as a visiting consultant to the Ministry of Health in Singapore to assess and propose measures to combat a very high incidence of diabetes in the population. Subsequently, I was appointed to provide a course of training for diabetes educators in Singapore, to improve their examination of circulatory and neurological systems as they affect the diabetic patient.

From these experiences in clinical training and professional development, the decision was made to research the role of the diabetes educator and his/her interaction with associated health professionals and patients in the hospital and community clinic settings.

## **1.4 Literature review**

### **1.4.1 The Australian diabetes declaration**

Diabetes has affected over 4% of the Australian population of approximately 20 million. It has affected at least 10% of older people and 30% of some Aboriginal communities, 1.5% of whom are scattered unevenly over a large geographical area. A high prevalence has been reported in people from the Pacific Islands, the Middle East, Southern Europe, and some Asian countries. In Australia, diabetes has been identified as the most common

cause of nontraumatic amputation. Although accurate Australian figures are not available, a recent estimate of the national incidence of lower-limb amputation was about 2,888 per annum (Colagiuri, Colagiuri, & Ward, 1998; Ward, Metz, Oddone, & Edelman, 1999).

Table 1.2: Estimated number of diabetes cases by region from 2000-2025

WHO region	N (%)	N (%)
SEAR	32,667 (21)	79,517 (27)
AMR	34,795 (23)	63,526 (21)
WPR	30,343(20)	55,911 (19)
EUR	35,469 (23)	47,761 (16)
EMR	16,706 (11)	42,857 (14)
AFR	3,997 (3)	9,783 (3)

AFR= African Region, AMR=Region of the Americas; EMR=Eastern Mediterranean Region; EUR=European Region, SEAR= South-East Asian Region, WPR=Western Pacific Region; N = estimated number of cases; %= percentage.

Note. <http://www.who.int/ned/dia/databases.htm>

#### **1.4.2 The National diabetes strategy and implementation plan 1998 for Australia**

In Australia, the extent of personal suffering and the high cost attributable to diabetes has been recognised. In 1996, the Australian Health Ministers agreed to include diabetes as the fifth National Health Priority Area. The high cost of diabetes complications at the time when health priorities were being discussed was based on hospitalisation costs for a diabetic foot ulcer i.e., \$12,474 compared to 85% less cost of outpatient treatment of an ulcer by a specialist foot-care team (Connor, 1997).

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In July 1999, the Australian Health Ministers endorsed the National Diabetes Strategy for 2000-2004. However, the National Strategy did not mention education as an entity within the Recommendations, the Priority recommendations, or in the Best Practice priorities.

The Australian National Strategy and Implementation Plan identified five goals, two of which, Goals 1 and 5, had an educational focus. The first goal was to improve the capacity of the health system to deliver, manage, and monitor services for the prevention of diabetes and the care of people with or at risk of diabetes (Colagiuri et al., 1998).

With adequate training, any health professional can apply most aspects of effective routine diabetes care. A system of interdisciplinary, specialist ambulatory care centres was already in place and could be accessed free of charge to the consumer. This model has been supported by Larson (1995). The question of how to optimise diabetes services and outcomes in the Australian context had included cultural, geographical, and social barriers. For an indigenous population with a record of ill health and living conditions equivalent to that found in underdeveloped countries, these barriers have been undesirable.

A rationale for operationalising the goals into a strategic Implementation Plan was included in the framework of the National Strategy. Section 6 of the Plan related to groups with special needs. It described and made recommendations about groups that may be disadvantaged in accessing services for diabetes prevention and care by virtue of cultural grouping, ethnic origin, geographical isolation, or who may have particular age related needs. It encompassed Indigenous Australians, people from non-English speaking backgrounds, people living in rural and remote regions of Australia, children and

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adolescents, and the elderly. The problem areas were identified, and having done so, it was imperative that a sound medical and education program to support this awareness could be implemented (Miller, 1972).

The fifth goal of the implementation plan was aimed to advance knowledge and understanding about the prevention, cure, and care of diabetes through a comprehensive research effort. Definition of this goal supported an increased knowledge about the prevention and care of diabetes. In this definition, it was also recognised that appropriate care levels may currently be available but are not being utilised effectively.

The major issues pertinent to patient education, multi-disciplinary clinics, and specifically to the diabetes educator was defined within the context of goal five.

1. Prevention is defined as promoting patient awareness of the dangers of a sedentary lifestyle and associated poor nutritional habits. Prevention referred to publicising the lifestyle associated with the factors that were recognised as being etiological in the development of diabetes. For example, the publicity associated with diet control, and developing a healthy exercise program to combat obesity.
2. Care encompassed the three levels of primary, secondary, and tertiary, and the relative importance of each. Each level of care is commensurate with the severity of the diabetic manifestation. Primary care referred to those who presented blood sugar levels at a level within a band that suggested the onset of diabetes unless a change in lifestyle was implemented. Secondary care referred to patients diagnosed as being diabetic but who

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were well controlled either by oral medication or by insulin injection. Tertiary care referred to patients who required hospital care due to the onset of complications that generally caused lower limb circulatory or neurological problems resulting in ulceration and possible amputation.

It also encompassed:

- family support and the use of multi-skilled specialist teams (multi-disciplinary clinics);
- the importance of the diabetes educator as being central to the delivery of educational programs designed to initiate or enhance patient understanding of diabetes and to promote patient self care management; and
- education and educational programs specifically designed to assist diabetic patients no matter their cultural, ethnic, religious or linguistic skills. Educational programs would be initiated in an attempt to ensure that primary cases did not, through lack of knowledge or understanding, allow the diabetes to progress to the tertiary level.

Health education seeks to change personal habits and behaviour and thus prevent disease complications by providing relevant education (Naidoo, 1994).

### **1.4.3 Best practice**

The Implementation Plan considered it necessary to develop best practice evidence based clinical management guide lines for the diabetes prevention and care programs. Also included were undergraduate and relevant postgraduate training programs for medical, nursing, and allied health workers throughout Australia (Colagiuri et al., 1998; Ward et al., 1999). The Implementation Plan did not clearly define the content to be provided and



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it failed to address the possible unwillingness of the health professions to participate.

The Vision of the National Diabetes Strategy Plan included the hope that a system of diabetes prevention and care would move from traditional models of professional role delineation between the health disciplines to truly interdisciplinary care. This alternative model identified the task to be done, then defined the level of competency required to perform the task. Finally, it asked who was able, or could be suitably re-skilled to deliver the required level of care.

#### **1.4.4 Process of Diabetes Education**

Diabetes education has been shown to improve metabolic control (Redhead, Hussain, Gedling, & McCulloch, 1993) and reduce mortality (Verlato et al., 1996). Alone or in combination with other interventions, education has had a well demonstrated ability to reduce the number and duration of hospital stays and the likelihood of re-admission especially with regard to amputation (Assal, 1991; Edmonds et al., 1986; Malone et al., 1989; Miller, 1972).

In the total care of the diabetic patient, an important issue is the competence of the health care providers in the (a) examination of the patient for neurological, and for circulatory change, and in (b) treatment of any presenting pathologies before they become difficult to control. Primary care providers have been not only the first line of defence but also the major line of defence for the large majority of patients with diabetes. Most individuals with diabetes have had no access to highly specialised referral centres. Furthermore, diabetes and its associated array of secondary complications, have challenged health care

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professionals to integrate the care of these complex patients to provide a comprehensive treatment environment (Ilfie, 2008). Thus, to meet this challenge, the use of multidisciplinary clinics has become the standard for comprehensive diabetes management.

An integral part of any strategy to reduce diabetes foot problems, a common occurrence in diabetes, has required patients with diabetes to have adequate knowledge to be able to take appropriate action to minimise their risk of developing foot complications (Levin, 1995). Prevention has been the primary focus for the management of these patients. Patient education was essential to help maintain health and prevent the potential adverse effects of diabetes.

#### **1.4.5 The case for an educational approach**

The literature has shown that the emphasis on diabetes has been heavily weighted toward the aetiology and pathology of the disease. There has been much less discussion and orientation toward patient education and patient compliance, and the roles of gender, culture, and race in these issues. In addition, little has been written on the format of patient education and the involvement of health professions in patient education programs. Patient education is a central part of the practice of all health professionals; however standards of practice are still developing (Redman, 2001).

The National Institute for Clinical Excellence in London (National Institute for Clinical Excellence, 2003) produced guidelines on the use of patient education models for diabetes. These guidelines have demonstrated the well intentioned but nebulous

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information that is common to the literature. The relevant two examples illustrate this generalist approach as depicted by the NICE (2003), p.7:

“The aim of education for people with diabetes is to improve their knowledge and skills, enabling them to take control of their own condition and to integrate self-management into their daily lives”.

“There should be provision of educational opportunities that are accessible to the broadest range of people taking into account culture, ethnicity, disability and geographical issues” (2003), p.15.

Further to these statements, the National Institute within the same “guidance on patient education models” stated that:

“the length, content and style of educational options varies greatly between services; some of the educational programmes offered are unstructured, very few have been formally evaluated, and few individuals who deliver education have been formally trained for this purpose” (2003), p.7.

The National Institute supported and promulgated education as a means of improving patient knowledge of diabetes and promoting a self-management ethos but was also critical of the educational process and those who are responsible for conducting the process. The literature referred to education as an entity in its own right, but it may be argued that therapeutic education is more applicable in the case of diabetic care. Therapeutic education is education that results in the person being willing and able to self-manage their disease to the best of their ability using the health care professionals as

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resource. Therapeutic education has been accepted as an essential part of the clinical care of diabetes and has included consideration of the physical, psychological, cultural and spiritual aspect of diabetes care to ensure a holistic approach is adopted (International Diabetes Federation, 2003). In keeping with the literature, this study will refer to education rather than therapeutic education.

The current literature on treatment of the disease has not provided leadership in educational best practice methods or indicated the basis for educational programs for those who wish to become diabetes educators. The literature initially referred to the “nurse” educator but more contemporarily the use of “nurse” as a descriptor has been eliminated on the basis that with appropriate training any health professional could become proficient and adopt the role of a diabetic educator. A cohort of diabetes educators would easily include quite different primary professional qualifications.

The diabetes educator and diabetes education have been discussed in the literature. Yet the role of the educator and the nature of appropriate education have remained poorly defined. The lack of definition of the role of the diabetes educator and their training formed the core of this study.

The provision of information about diabetes, self-care education, and skills training for people with diabetes has long been accepted as a key tool in the successful management of diabetes (Assal, 1991; Thomson & Masson, 1992). The World Health Organisation (1993) confirmed patient education as an essential component in intensive therapy, aimed at optimising diabetes control and outcomes. Essentially, diabetes education was seen to be as important as insulin in the management of diabetes (Jervell, 1996). The regimens

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for diabetic care in different cultures have become more problematic as diabetes mellitus has increased in developing countries. Effective patient self management in many instances depends on the consideration given to cultural, religious, and language differences. A study in Glasgow also confirmed that conducting a culturally-competent educational intervention in patients with Type 2 diabetes can improve their knowledge, attitudes, and practice (Baradaran, Knill-Jones, Wallia, & Rodgers, 2006). Hill (2006) considered communication of information that regarded cultural, religious, and language differences is important to promote effective self-management. The NICE (2003) recommendations supported diabetes education as a means of combating cultural and geographical issues.

#### **1.4.6 Changes in approaches to diabetic treatment to accommodate a changing health care environment**

Physicians, dieticians, podiatrists, nurses, psychologists and medical specialists have contributed to the care of diabetic patients. In practice, no single health care professional harbours all of the resources and skills to provide comprehensive care to the individual with diabetes. Diabetic treatment regimes have changed considerably across recent years. In particular, three major changes have shifted practice from the perspective of patient, setting, and service provider:

- (a) a move from patient passivity to active engagement,
- (b) a move from an informal hospital environment to a primary care focus,  
and
- (c) a move from single doctor involvement in patient care to multi-

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professional teams.

In the traditional approach, the patient was passive and uneducated in the treatment and prevention of disease or the maintenance of health. The aims of this approach were for the patient to follow the physician's orders; the role of the allied health professional was to assist the patient in following the physician's orders. Thus, the final responsibility for health and health care belonged to the physician. Medical dominance in clinical decisions meant that doctors give orders, which other people obey (Bates & Lapsley, 1985). This outdated approach to patient care with little patient involvement was challenged early in the literature (Bates & Lapsley, 1985). Anderson (1982) acknowledged that the model of the passive patient was not working. Chaufan (2000) also acknowledged that diabetes was a condition that demanded a high level of patient participation to prevent or limit a number of possible complications.

Anderson (1982) called for a team approach with the diabetic patient as the central team member. He argued that the person with the diabetes, who lived with the consequences of the condition, should become a member of a health care team as well as being a consumer of the health care program. The team approach to care was also supported by Gadsby (1999). Despite such early innovative opinion, it would appear that a team approach and direct patient involvement was still being discussed almost 20 years later. Dean (2001) supported the Anderson participation model and considered that health practitioners need to understand how the patient feels and reacts to the information supplied by health practitioners.

Patients more involved in their health care may need health professionals who involve

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patients more actively in maintaining a personal involvement in caring for their health with the incentive of leading a relatively normal lifestyle. Renders (2001) stated that, over the past two decades, the responsibility for the care of people with diabetes has been transferred from the hospital to primary care. He also hypothesized that, if regular review of patients is guaranteed, then the standard of primary care can be as good as or better than hospital outpatient care in the short term. In the traditional approach in western societies, the hospital based care was unconcerned with long - term education of the patient.

In the traditional model of care provided by a single doctor, all areas of diabetes care could only be covered superficially, or in a manner not conducive to patient understanding. A study in Vietnam reported that a physician as the sole decision maker belongs in a hierarchical system and does not typically include patient education in his or her remit (Baumann, Blobner, Van Binh, & Thi Lan, 2006). The traditional method of providing copious quantities of literature acknowledges that patients were not exposed to individual health professionals but expected to assimilate, understand, and be motivated sufficiently by the literature, to change their lifestyle to cope with the disease. This method of imparting information was difficult for patients to understand and of little use to patients of a non-English speaking background with additional cultural differences.

A multiprofessional team approach to diabetes care would enable the patient to talk to different health professionals at a time when they may be worried about a specific health issue (e.g., a nutritional or podiatric concern). In a multidisciplinary health care team, diabetes educators can liaise with the patient and the physician, help facilitate patient and

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practitioner adherence, provide patient education, and, if they are trained, even assume some of the responsibilities of the physician (Renders & Griffin, 2001). It is unlikely that all clinics or hospitals would permit diabetes educators to assume responsibilities normally associated with the physician. It could be dependent on the individual willingness of the respective physician to relinquish complete control of the patient's treatment regimen and utilise the expertise of the diabetes educator in developing patient self-care management skills.

#### **1.4.7 The World Health Organization (WHO)**

In 1989, the WHO called on all countries to develop national plans to combat the increasing personal and public health cost of diabetes. Two major diabetes initiatives, the St Vincent Declaration (1989) in Europe and the Declaration of the Americas (1996), provided successful examples for WHO to follow. Each declaration identified various aspects of diabetes in terms of aetiology, pathology, education, and the role of the diabetes educator. These declarations also stimulated discussion related to a similar program for one of the diabetes growth areas of the world, the Western Pacific. The International Diabetes Federation / Western Pacific Region (IDF / WPR) and the World Health Organization / Western Pacific Regional Office (WHO / WPRO) jointly led a "Call to Action" to address the problem of diabetes in the Western Pacific Region.

The Western Pacific Declaration was the outcome of this discussion. The declaration provided information of a general nature for background understanding and, more specifically, acknowledged the importance of diabetes education.



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The WHO Declarations supported the concept of diabetes as a major health problem of global concern. The recommendation of the Declarations was that countries should take action in four areas to reach the stated goals and targets:

- (a) establish national standards in post-basic training and education in diabetes specialist education, validated by the relevant statutory and professional bodies;
- (b) reinforce basic education in diabetes for students;
- (c) ensure that the diabetes educator works in the context of a multi-disciplinary team and;
- (d) support the organisation at national and international level of a special interest group for health professionals working in diabetes care.

#### **1.4.8 The Western Pacific Declaration**

The Western Pacific Declaration on Diabetes and Plan of Action was developed in 2001 (Region, 2001). The geographical regions covered by this declaration included many developing countries. The 30 million people in the Western Pacific Region affected by the disease were predicted to rise to 56 million by 2025. The goals of the Declaration required a government level review of the current health care services, and a preparedness to refocus and integrate health services to meet an identified growth in demand.

The Australian Diabetes Declaration and National Diabetes Strategy have highlighted how the diabetic problem in Australia is similar to the problem as it occurs in the international context. The Western Pacific Declaration provided diabetes information

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relevant to the geographical position of Singapore as well as Australia. The Western Pacific and Australian Declarations also supported the need for people to have access to diabetes education and reinforced the view that educational programming was essential for management of the disease.

In the vision statement of the Western Pacific Declaration for reducing the public and personal burden of diabetes was a mission statement that better health outcomes would require better care and healthier environments for people with or at risk of diabetes. The vision statement included integration of primary and specialist services, links between chronic disease programmes, which included diabetes, and advocacy for the role of specialist involvement at a primary level.

It was proposed that integration of services would promote optimal clinical effectiveness and efficiency and, thus, provide the people of the region with truly “seamless” prevention and care for diabetes related problems. The integration of services was the basis for the introduction of multidisciplinary clinics to treat diabetes. Integration would also provide access to clinical care, diabetes education, and health care supplies appropriate to their age, type, and stage of diabetes, and individual needs as a child or adult, regardless of their geographical, cultural, or socio-economic status.

Three goals in the declaration linked key objectives and strategies:

1. Onset of diabetes in susceptible communities and in individuals.
2. Development and progression of diabetes complications.
3. Capacity of national health systems to deliver and monitor equitable, affordable, and effective services for the prevention and care of diabetes

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and its complications.

Goal one related to better care and healthier environments for people with diabetes. Goals two and three referred to the integration of primary and specialist services to provide clinical effectiveness in total care of the diabetic patient.

The goals provided three areas relevant to the recognition of diabetes as a major health problem and the role integration of services and education played in treatment of the disease:

- (a) obtaining increased recognition of diabetes and priority status as a health issue;
- (b) promoting universal access to appropriate care, education, medication, and supplies for people with diabetes, and
- (c) promoting education about diabetes prevention and care for people with diabetes, health professionals and the community.

#### **1.4.9 Strategies**

Three broad strategies were identified (World Health Organisation., 2002) to underpin all activities aimed at achieving diabetes health improvement. Two of the three strategies have an educational focus that support quality of life and the potential for optimizing good health.

1. Action is based on evidence; there is conclusive evidence that adherence to certain practices and processes of care significantly reduce complications and costs and improve quality of life in people with diabetes. This

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“theory” has been supported by Malone (1989) and Barth (1991).

2. Information and community education; information is vital to achieving optimal outcomes and requires the collection and use of clinical and service data to evaluate the effectiveness of prevention and care activities and guide decisions about policy and resource allocation; an informed health workforce; informed individuals with diabetes; and communities that are educated to optimize their potential for good health.

#### **1.4.10 Objectives of the Diabetes Action Plan**

The plan had two objectives:

1. Improve the quality and effectiveness of clinical diabetes care, particularly at community and district level.
2. Improve the quality and effectiveness of diabetes education (Region, 2001).

The importance of diabetes education and the need for improvement in its effectiveness was included within the concept of improving diabetes care at the primary level.

#### **1.4.11 Key strategies**

The four key strategies of the WPD encompassed the concepts of patient management through education, the enhancement of knowledge for primary health care providers, and education promoting patient participation in self-care management.

- (a) Ongoing clinical care and patient education to prevent the development of complications. This is a concept supported by Mulhauser (1983).

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- (b) Target primary health care providers to enhance their awareness and knowledge of diabetes and its management. This policy was supported by Davidson (1991).
  - (c) Inform, educate and develop enabling mechanisms to assist people with diabetes to participate actively in their health care and seek appropriate and timely diabetes care and education. Patient participation in health care was advocated by Dunn (1982).
  - (d) Emphasize the role of dedicated diabetes centres and institutes in providing clinical leadership and expertise, and acting as a focal point for introducing and coordinating these strategies. The role of specialist centres was central to the Renders (2001) proposal.

#### **1.4.12 Health care provider awareness of patient needs**

Assal (2000) reported that provider awareness of the potential health and social repercussions of diabetes and the needs of people with diabetes for information and support are reported to be poor and that implementation of clinical guidelines was less than optimal. Assal (2000) also claimed that health care providers were not aware of the inadequacies of the care and education they provide.

Referral rates from primary care physicians to diabetes educators and diabetes dieticians have indicated that GPs may not be conscious of the vital role of patient education in optimising the outcomes of diabetes care (Blades & Morgan, 1996; Eigenmann, 1995).

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#### **1.4.13 The health professional**

Health professionals would be required to have a primary health qualification in their respective disciplines, continuing professional education, and skills training in the management of diabetes. Effective management would also require timely monitoring of the patient's general physical status, and their educational and psychological needs.

Within a multi-disciplinary clinical environment, one would consider that it would be beneficial to have one health professional responsible for conducting educational programs into which other health professionals could contribute. The literature would support the diabetes educator as being the health professional of choice (Homko, 1991).

#### **1.4.14 The role of the diabetes educator**

As previously stated, contemporary practice has excluded the term "nurse" educator as other health professionals became actively involved as diabetes educators (Singapore Nursing Board, 2007), p.25. All of the educators who participated in this study were qualified nurses who had undergone additional training to be recognised for practice as a diabetes educator. The scope of practice for nurses was very similar in Brisbane and Singapore as was the additional requirement for employment as a diabetes educator.

In 2007, the Singapore Nursing Board defined the scope of nursing / midwifery practice as referring to the range of activities and clinical decisions in nursing / midwifery practice that each nurse / midwife was trained and authorised by licence to perform independently and the performance of which the nurse / midwife was accountable for. The nurse/ midwife's professional qualifications determined the scope of practice, although it was

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acknowledged that this definition could be expanded to include new skills and responsibilities to keep abreast of innovation in treatment modalities and changes in the health needs of the population.

In this document, one of the seven identified aspects of the nursing practice was directly applicable to nurses working in the role of diabetes educators. The specific practice guidelines addressed health education and collaboration with other health professionals as a specific focus of attention. “Nurses shall conduct health education sessions with clients and home care providers to promote, maintain and restore optimal health and wellbeing” (Singapore Nursing Board, 2007), p.5.

They were also expected to “Develop and maintain collaborative relationships with other health professionals to ensure continuity of care across disciplines” (Singapore Nursing Board, 2007), p.6.

The definition of scope of practice for nurses as defined by the Singapore Nursing Board was similar to the definitions of the Australian Nursing Council; therefore, the employment of nurses with additional training as diabetes educators in both Brisbane and Singapore was more easily understood. It appeared that there was no legislation defining the scope of practice for diabetes educators. The transition from nurse to diabetes educator in both jurisdictions involved an interest in this aspect of practice and participation in some continuing education courses. Therefore, these diabetes educators had not undertaken the credentialed form of training often discussed in the research literature.

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The diabetes educator, therefore, was defined as a clinician, with extended knowledge and skills in diabetes management, patient education, and counselling, communication, management, and research. Members of the diabetes care team expected the diabetes educator to have, and use, extensive knowledge and skills in many areas of diabetes management. The terminological change from the diabetes “nurse” educator to educators with initial health professional training in other related areas enhanced these skills. The Australian Diabetes Educators Association (2003) supported this proposition. However, the Singapore Nursing Board did not make an explicit point of transiting to the term diabetes educator to describe the role in the multidisciplinary team.

Academic and award bearing training for the diabetes educator should be planned and linked to appropriate academic institutions in collaboration with local diabetes professional teams, to maintain an agreed standard of academic achievement in clinical, practical, and care skills. This recommendation has been supported by Crawford (Crawford, 1996) (unpublished) in the Singapore experience and by other authors including (Felton & Oktay, 1999). A multidisciplinary team approach provides comprehensive diabetes care. Within the team concept, patients and health care providers worked together to provide quality care.

It was conceivable that a health care team would be best equipped to provide comprehensive diabetes care. The diabetes educator can play an important role in the care of the diabetic patient. Valente (1995) considered that individualised instruction and evaluation of patients with diabetes when performed by a diabetes educator has demonstrated a significant improvement in documenting complications in patients with



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diabetes.

Several studies and analyses in the 1990s promoted the view that diabetes educators require both theoretical and clinical skills to be comfortable with the role they play in patient care. Christensen and Lomax (1996) conducted separate surveys of primary care nurses (diabetes educators), who had undertaken additional clinical training in the diagnosis and management of lower limb complications associated with diabetes. The outcome of both surveys supported the concept of the participants being more comfortable and competent in providing care in areas formally not familiar to them (Christensen, Fellows, & Floyd, 1990; Christenson & Lomax, 1996). McDermott (1993) also considered that education is the basis of prevention and that the education is best done by the diabetes educator (McDermott, 1993). For example, the diabetes educator in the Grady Memorial Hospital in Atlanta served as the client's primary contact professional and coordinated ways to meet their needs. The hospital authorities were of the opinion that the diabetes educator "glues together" the system so that it is enabled to function as an organism (Thomas, 1983). Reports by Christenson (1996) and McDermott (1993) supported the increased involvement of the educator in patient care rather than solely a relatively simple didactic approach to education.

In Australia, the Australian Diabetes Educators Association (ADEA) has maintained a credentialing process since the introduction of ADEA accredited diabetes educators' courses in 1986. ADEA believes that self-regulation of professional development will better meet the needs of the profession rather than externally imposed regulation. However, what has to be determined is whether professional regulation of practice is

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supported for employment at both research sites and or whether external regulating agencies are also involved.

The Australian Institute of Health and Welfare (2004) stated categorically that diabetes educators provide a planned, educational process and that this helps people understand the benefits of good self-management and equips them with the necessary knowledge and skills to implement best practice self-management. The assumptions made in this statement formed the criteria examined in this study.

The ADEA Credentialing of Diabetes Educators, which was reviewed in 2003, supported three different pathways for recognition as a diabetes educator:

1. The diabetes educator holds basic professional qualifications in any of the following areas: Nursing, Dietetics, Podiatry, Psychology, Medicine, and Aboriginal Health
2. The diabetes educator has completed a diabetes educator's course accredited by ADEA; or
3. The diabetes educator has undertaken appropriate tertiary study, which, on assessment by ADEA is recognised as meeting all or part of the essential components of the ADEA National Course Curriculum.

The first point, holding a basic qualification, recognises that a number of health professionals can be classed as diabetes educators, but it also demonstrates that each educator will have specific and individual areas of competence in diabetic care. The question then is as to whether this form of credentialing is appropriate. Recognition of the primary qualification without apparently advocating additional training has not specified

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benefits to be derived from this process. For example, without additional training, can a dietician credentialed as a diabetes educator provide more input to patient management than a dietician who is not credentialed? The third point is nebulous in that tertiary study involves all the acceptable qualifications listed in point one. In Japan, a Certified Diabetes Educator qualification is now available for registered nurses and other health professionals involved in diabetes education (Kawaguchi, 2007). Korea has also initiated a diabetes educator certification system from 1999. However, there is also the admission that there is no definite guideline or standard scope about the role of diabetes educators (Lee, Kim, Yoo, & Kang, 2007). Measurement of outcomes is now the function of quality control initiatives.

The legislative review applicable to recognition to practise as a diabetes educator in both sites is important as any differences may affect the outcomes of research questions 2, 3 and 4.

#### **1.4.15 Quality of care**

Health professionals are available to treat and care for the diabetic patient with expectancy that the patient, who cooperates with the care provided, will have a very realistic quality of life. However, quality of care suggests an obligation on the part of the health care providers to review what they do and how appropriate it may be at any given point of time.

The European Forum of Medical Associations (EFMA) recommended a continuous quality of care development policy that “national medical associations should take a

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leading role in quality of care development with the overall aim of benefiting patient care” (World Health Organisation., 1993). Quality of care is, therefore, an ethical, educational, and professional responsibility. Quality of care influenced health outcomes that are the ultimate goal of health care provision (Ginsberg, 1994). Quality of care also influences the effectiveness of the care provided and the cost of treatment (Olsson, Persson, Tollin, Nilsson, & Melander, 1994). Quality of care should also be considered on the level of services provided. If services are very limited and do not encompass the expertise of all appropriate health professionals, then it could be argued that the quality for the services provided is very good but in reality the test for quality is limited to potentially small numbers of participants.

It is a possibility that quality of care in this study can only be measured when treatment encompasses all available levels of expertise associated and recommended for care of the diabetic patient.

### **1.5 The research problem**

The literature has shown that education is considered to be a major contributor to be encouraged in the care of the diabetic patient. However, the literature does not provide the nexus between the concept of the educational process and the delivery to the patient, with an expected outcome of promoting patient self-management of their disease.

### **1.6 The research topic**

As the literature has shown, education is considered an important entity in the care of the diabetic patient. It has been supported by the World Health Organisation and Declarations

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on diabetes around the world. The Australian Diabetes Educators Association has training programs for the credentialing of educators, but they are not enforceable for the employment of diabetes educators. The gap between acknowledgement of the requirement for an educational process and its implementation required investigation.

This study will investigate the role of the diabetic educator to determine if they provide the link between the rhetoric and the recipient of the educational process.

### **1.7 Aims of the research process**

1. The research process will involve a review of the legislation for practice as a diabetes educator in both Singapore and Australia to determine their scope of professional practice.
2. The level of additional training undertaken, in addition to the basic qualification before practicing as a diabetes educator, will also be reviewed.
3. The multidisciplinary health care team, by definition, comprises several health professionals with differing roles to play in caring for the diabetic patient. The interrelationships, and professional contribution the diabetes educator makes within the team, will be investigated.
4. The contribution to the health management of the diabetic patient made by the diabetes educator will be examined through the views expressed by the patients.

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## **1.8 Summary and introduction to the research question**

Chapter one provided information relevant to diabetes as a global health phenomenon with potentially serious consequences for both the health of the diabetic patient and the health funding economies of both the developed and developing countries.

The national and international policy declarations relevant to coping with diabetes supported the concept of the patient as a central member of the health care team with the intention of promoting patient participation in self-care management.

The diabetes educator was recognised as the most appropriate member of the health care team to facilitate patient education, a concept supported by the Australian Diabetes Educators Association (Australian Diabetes Education Association, 2003). Research on the role of the diabetes educator will determine whether that role, where available, does produce a greater understanding in patients for the need to be personally involved in managing their health.

The research process focussed on four main issues relevant to working as a member of the health care team and how patients perceived the input made by the diabetes educator to the promotion of patient self-care management through the educational process. The research questions were based on the process related to legislation governing scope of practice, training of the educator, relationships with other health professionals, and patient perceptions of their input to their health care.

## **1.9 The Research Questions**

1. What are the legislative and policy frameworks that determine a diabetes

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- educator's scope of practice in hospitals and clinics?
2. What training programs do diabetes educators undertake to develop their knowledge and where are the training programs conducted?
  3. How do diabetes educators interact with patients and other health professionals in the health care team?
  4. What are the patient's perceptions of their interaction with the diabetes educator?
  5. A fifth research question is foreshadowed as a possibility given that the cultural milieu associated with the study sites in Brisbane and Singapore may affect participants' ways of discussing and observing diabetes educators work.

Each of the five research questions will be addressed in the following chapter during the observation, interview, and re-observation process. Chapter two will also discuss the methodological approach taken when conducting the research process in both Brisbane and Singapore.

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## **Chapter 2.0      METHODS**

### **2.1      Study objectives**

The main objective of this study was to investigate the role of diabetes educators and to study, in particular, their interaction with patients and other health professionals. The research questions identified a number of important issues that are interlinked to form a much larger picture about the importance of patient education to effective self-management of diabetes and the role of the diabetes educator. The diabetes educator is central to diabetes education programs in the modern health care environment. This study contrasted the regimes for patient care in Australia and Singapore, in two countries with similar health care facilities providing clinical assessment and treatment.

The proposed mixed methodology allowed the role of the diabetes educator to be considered in terms of their interaction with patients and associated health professionals. It was equally important to consider patient reaction to the diabetes educator and patient perception of whether they consider that the education provided enables them to manage their health problem appropriately. Thus, the methodology recognised that a focus on interactions is paramount in investigating the educative approach to treatment.

### **2.2      Methodology**

A case study methodology was used to investigate the role of the diabetes educator and to compare and contrast that role in relationship to workplace environments. The case locations were a hospital and clinic in both Brisbane and Singapore. The case locations, therefore, were four centres where patients and the diabetes educator meet to participate



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in health care management.

The schematic diagram in Figure 2.1 outlines the case study design. The description of the case locations and their personnel set the scene for the research. Everyday interactions within and between these four centres, therefore, provided the ordinary conditions in which to support or refute the research questions about the current role of diabetes educators. The research was conducted initially in the Brisbane hospital and subsequently in the community clinic located in another suburb several kilometres away. The same format was conducted in the Singapore hospital followed by the polyclinic also located in a different suburb.

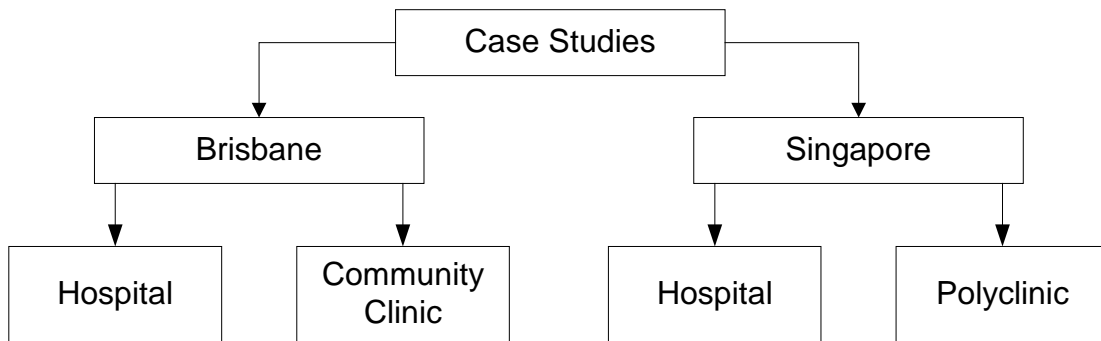


Figure 2.1: Case study design.

### 2.2.1 Qualitative approach

In diabetes treatment, the interactions between the diabetes educators, the patients, and associated health professionals were the source of the practice related issues and tensions to be investigated. There were at least three aspects of the work environment around the diabetes educators that could shape performance of the role. First, compartmentalisation of roles for different professionals involved in treatment programs within and across

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locations was a prospective issue because of the potential for duplicating information given to patients. Second, the hierarchical characteristics of the hospital workplace or community clinics in the case studies were a potential focus of investigation of these interactions. Third, within the context of a hospital or community health clinic, moreover, culture was viewed as an underlying variable able to shape interactions that are productive or inhibiting in respect of treatment.

The rising rates of diabetes and the growing calls for self-management as the focus of diabetic education with the implicit pressures towards a change of role for diabetes educators, indicated the need to study cases of the established practice of the diabetes educator. The research design for this study was based on the most appropriate way to elicit answers to the range and breadth of the four research questions. Qualitative investigation of these cases was focused on everyday practice and routine experiences of the participants using these practices.

Silverman (2001) argued that the particular strength of qualitative research, for both researchers and practitioners, is its ability to focus on actual practice in situ, looking at how social interactions are routinely enacted. The interviewing researcher in the present study, therefore, was responsible for creating a situation where everyone was relaxed, friendly, and comfortable with the situation. The researcher's emphasis for creating the most conducive atmosphere was to ensure that interaction was not posed or stilted but followed the same routine normally enacted. The researcher's participation was as a health professional with knowledge of the research health issue but who was not a member of the health profession being studied. Denzin and Lincoln (1998) also

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considered that observers select a setting that may have a theoretical interest in a particular type of scene.

Marshall and Rossman (1999) argued that the generic process of designing qualitative research entails immersion in the everyday life of the setting chosen for study and that this process also values participants' perspectives on their worlds. The researcher's involvement in various treatment and education programs in both Australia and Singapore enabled the researcher to carry out the immersion and to be accepted as a fellow practitioner. Rossman (1998) identified three requirements for qualitative research:

- (a) close examination of how we represent the participants in the study;
- (b) careful scrutiny of the complex interplay of our own personal biography, power, and status with participants and the written word; and
- (c) vigilance about the dynamics of ethics and politics in our work.

In considering Rossman's three points, this study aimed to ensure that (a) the patient-diabetes educator nexus remained central to the investigation, (b) personal and professional views and experiences of the researcher would not influence outcomes, and (c) ethical considerations and political sensitivities would be addressed. Denzin and Lincoln (1994) also argued that, while the researcher learns from the participants to understand the meaning of their lives, he should maintain a neutral stance. These guiding principles of a qualitative approach were well suited to the present case study, with its underlying mix of cultural, structural, and professional aspects of the role of the diabetes educators.

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### 2.2.2 Qualitative methods

The observation of educator/patient interaction was scheduled to take place in the usual office environment to ensure that participants were comfortable with normal settings for their practice related interactions. Mays and Pope (1997) pointed out that qualitative researchers systematically watch people and events to find out about behaviours and interactions in natural settings. They also considered that observational methods are particularly well suited to the study of the working of organisations and how the people within them perform their functions. They also argued that observation uncovers behaviours or routines of which the participants themselves are unaware.

The researcher observed interaction between the diabetes educator, patients, and associated health professionals who constitute the multidisciplinary health care team. Case study observations were in accord with Denzin and Lincoln's (1998) view of qualitative observation as fundamentally naturalistic; it occurred in the natural context of occurrence among the actors who naturally participated in their interaction and followed the stream of everyday life. In this study, the situation concerned normal everyday occurrences; the actors were the staff, administrators, and patients; the natural context of occurrence became the hospital or clinic; and the situation, actors, and context interacted in a broader cultural milieu. A preliminary observation of the educator / patient interaction was followed by an interview and then by further re-observation. Initial observation, therefore, was viewed as primarily "descriptive." Field notes were used to ensure accuracy in what was being observed, with overall impressions committed to audio tape at the end of the observation sessions. The study used observations and interviews to form a funnel that progressively narrowed and directed attention towards

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elements of the setting that emerged as essential to the outcome of the study.

The three phases of observation, interviews, and re-observation comprised observation of the educator and the health team, structured and semi-structured questions at interview, and a re-observation process to determine any change in procedure that may have resulted from the research process. This system of re-observation was initiated in an attempt to determine whether the educators changed their respective approach to the interactive process after they were more familiar and, consequently, more relaxed with the way the study was being conducted. The re-observation process allowed the participating educator to relax and forget or, at least ignore, the presence of the researcher. The re-observation sessions were arguably the closest to the normal patient/educator interactive environment.

Observations included four key areas of interaction:

- (a) The interpersonal communication skills of the educator in relation to the patients, particularly patients of different cultural and ethnic backgrounds;
- (b) The sequence of clinical examination and whether it was relevant to all patients or whether it was sensitive to the level of patient control of the disease;
- (c) The teaching methodology used by the educator during consultation with patients; and
- (d) The professional relationships between the educator and associated health professionals.

Further to (a), it was noted that diabetes educators in both countries catered for patients from a modern multicultural society. However, the internal mix of cultures in the two

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countries was different.

Further to (b), the clinical examination consisted of a preliminary weight check and brief discussion on diet control, blood sugar levels, and specific medication. This process was adhered to for all patients whatever the severity of their diabetes. A flowchart explaining the clinical examination procedure showed the normal routines involved in checking patient health. Observation of this clinical procedure was part of the broader observation of the initial interaction of the diabetes educator with a patient and when applicable, other health professionals (e.g., a doctor or nutritionist). When applicable adherence to a standard procedure was observed and reconciled with nurse training.

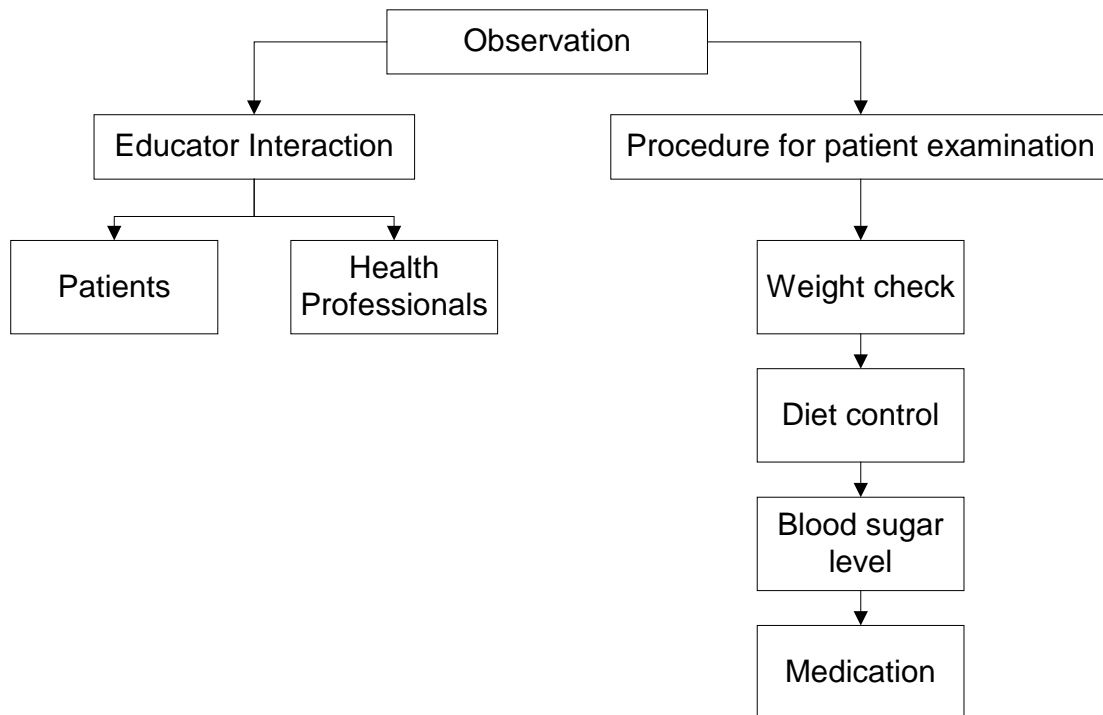


Figure 2.2: Clinical examination procedure.

Further to (c), the consultation between the educator and patient was primarily a conversation based on how the patient felt they were coping with the management of

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their diabetes, and what visual aids would be used to clarify any areas of concern regarding diet control or blood sugar testing results.

### **2.3 Health professionals associated with diabetes educators**

Further to (d), it has been widely accepted in the literature that good diabetes education involves a multi-disciplinary team approach to patient care. As each member of the team has their own professional relationship with both patients and with other members of the team, it was important to ask the diabetes educators how they saw themselves as part of the team, in terms of their professional contribution to patient care, and how they thought they were perceived by the other health professionals.

The association of diabetes educators with other members of the team in direct collaboration, personal contact, and referral was addressed directly in interviewing about the third research question. The expectation was that the diabetes educator would have a closer relationship with one member of the team than another, based on some similarity in patient care. For example, the educator would have a more involved relationship with the podiatrist than the dietician, because there would be more joint discussion and follow-up treatment for foot and lower limb problems. Professional relationships between the diabetes educator and other health professionals in the health care team also referred to how they related on a personal basis and how they interacted when patients were required to be referred from one health professional to another. Observations of these interactions also were addressed to the third research question.

An interviewing method was also consistent with the qualitative Rossman natural

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interactions. The researcher could talk with the participants in a way consistent with normal routine. Denzin and Lincoln (2003) defined the interview as a conversation and have stressed the art of asking questions and listening. Throughout the interview sessions, the researcher used a friendly approach described as a style of “interested listening” (Converse, 1974), which encourages the respondent but does not evaluate the responses. Oakley (1981) considered interviewing to require openness, emotional engagement, and the development of a potentially long-term, trusting relationship between the interviewer and the participant. In terms of the researcher’s relationship with the diabetes educators who took part in this study, the establishment of personal relationships leading to the mutual acceptance of friendship affirmed the general value of this style of open and engaging interviewing.

A semi-structured interview questioning technique provided opportunity to allow growth in the questions posed during exchanges with the participating educator or patient (Breakwell, 1990). Qualitative interviews, being less structured than survey interviews, allowed individuals to expand on their responses to questions. For example, Allan (1991) supported interviewing as it allows secondary questions to be constructed based on initial responses. The use of field notes also allowed the researcher to reconstruct and transcribe the secondary questions to determine relevance to the research question.

From the initial observations and interviews, tentative answers to the research questions were developed. The diabetes educators were then re-observed to determine whether they were relating to patients in accord with the responses they gave to questions in the interview sessions. The re-observation period provided the researcher with an opportunity



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to compare the participant's behaviour in the initial observation, interview, re-observation sessions by comparing the field notes and looking for any changes in the interaction patterns. The initial and subsequent re-observation was conducted with the same diabetes educator in each instance. The patients, however, were different. As the observation, re-observation process was centred on the educator and not on the patient, the involvement of different patients was not an issue. The educators in all four sites appeared more relaxed with the observation format on the second occasion.

The outcome of the three phases of observation, interview, and re-observation were descriptions of interactions and scope of practice from the point of view of the various participants. The interviews were audio taped, unless participants objected, and field notes were used to supplement the taping. Sacks (1992) argued that it was difficult to rely on recollections of conversations and that taping provided the opportunity to transcribe occurrences in their actual sequence. Audio taping in the study not only helped to keep questions and answers in a neat sequential format but also allowed for any comments peripheral to the main question to be included for consideration in data analysis when the tape was transcribed.

The use of notes did not always provide sufficient time to include the amount of data available within a given time frame. The data collected were examined for relevance in responding to the research questions and with a view to determining what is unique, significant, and interesting. From these preliminary examinations, the data that answered research questions were identified.

Figure 2.3 provides a schematic diagram illustrating this process. The same process was

applied to each of the four study sites. There were two parallel strands in Figure 2.3. The right hand column supported the initial process of determining if both hospitals and clinics used documentation of a legislative format to define the scope of practice for diabetes educators. The left column described the progressive process used to conduct the research in each of the four locations. The data derived from the observation and interview process combined with documentary data relevant to the educator’s scope of practice provided the material for analysis for this study.

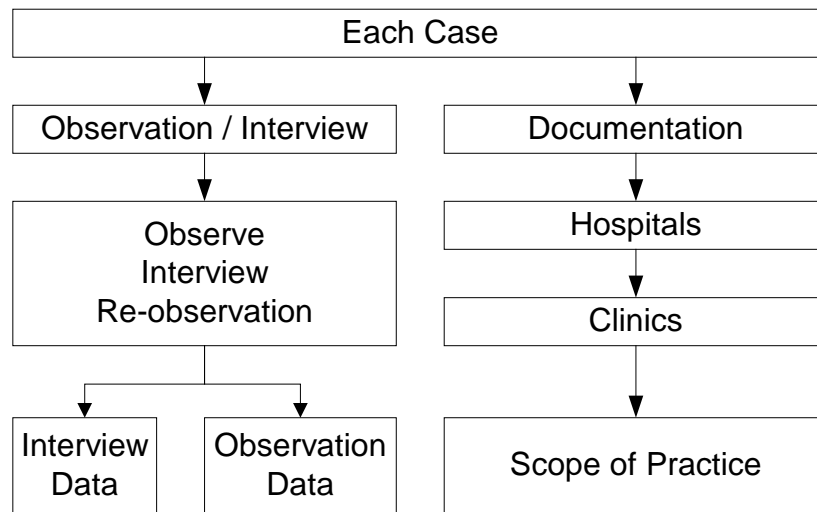


Figure 2.3: The process of analysis.

In this study, documentation referred to the presence or otherwise of legislation or policy guidelines relevant to the role of the diabetes educator. Legislation concerned the concept of making or enacting laws either by a professional body, as per the Singapore Nursing Board, or by government. Policy concerned guidelines applying to a definite course of action adopted from other non legislative considerations. For example, the change from diabetes “nurse “educator to diabetes educator as a means of recognising involvement from other health professionals constituted a policy guideline that addressed the changing

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perception of the role of the diabetes educator.

A flow chart (Figure 2.4) highlighted the interpretation of documentation associated with both Brisbane and Singapore. That is, documentation about diabetes educators might involve either legislation or policy. In both cases, the documentation was relevant to the nurses' scope of practice with additional training in diabetes education.

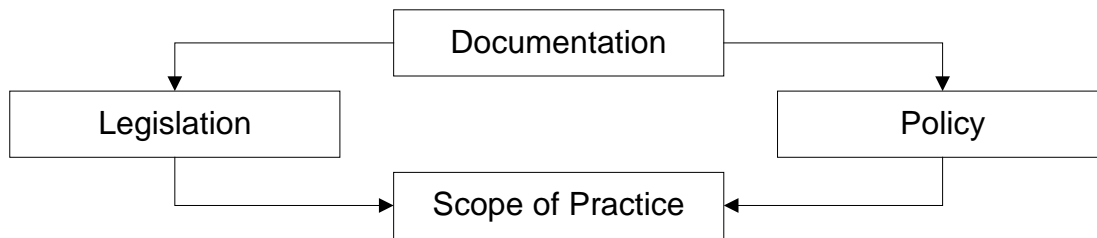


Figure 2.4: The interpretation of documentation.

## 2.4 Data collection procedures

First, ethical clearance was sought and obtained from the study sites in Brisbane and Singapore. Second, data collection was completed using observation, interviewing, and re-observation qualitative methodology. Third, a review of legislative documentation relevant to the diabetes educator's scope of practice, and discussion with hospital and clinic administrators was undertaken in both Brisbane and Singapore.

## 2.5 Study sample

Figure 2.5 presents the composition of the study sample from the research sites, which defined the numbers of participants, both educators and patients. A total of 32 participants from Singapore and Brisbane study sites were recruited for this study. Of the total, 18 were from the Singapore study site, and 14 were from the Brisbane study site.

Participants comprised both patients ( $N = 18$ , 10 from Singapore and 8 from Brisbane) and educators ( $N = 14$ , 8 from Singapore and 6 from Brisbane). Educators worked in either hospitals or clinics. Data from the hospitals and clinics were combined, as the sample size was small for quantitative data analysis (Figure 2.5).

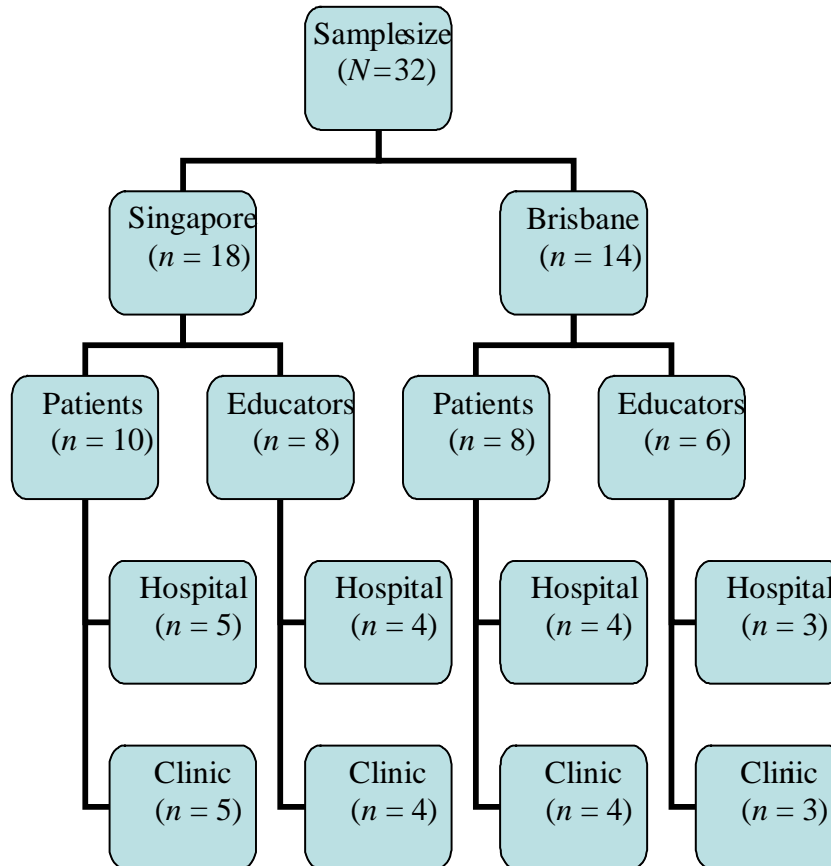


Figure 2.5: Flow chart showing the study sample ( $N = 32$ ) from Singapore and Brisbane case locations.

The current role of the diabetes educator in these locations was that of a communicator with possibly some clinical outlet based on and appropriate to their primary professional qualification in nursing and subject to legislative underpinning.

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The number of observations at each location was determined by the number of diabetes educators employed in the health care team. Generally, the team consisted of a physician, nutritionist, podiatrist, diabetes educator/s, and possibly a psychologist.

Patients came from a cross-section of the patients visiting the hospital or clinic. The patient population in both research sites was multicultural. Patients were chosen to allow a spread across gender, age, background, and severity of presenting symptomology. As the aim of the study was to examine everyday practice, two criteria for selecting all patients were specified.

1. Patients must be Type 2 diabetics.
2. No restrictions were otherwise placed on gender, age, and culture, or duration and severity of their Type 2 diabetes.

## **2.6 Ethical considerations**

An application for ethical clearance for this study was submitted to the Queensland University of Technology Human Research Ethics Committee. Ethical approval was gained in October 2003 on the basis that ethical clearance would also be provided by the four case study locations. Ethical clearance was approved by the Research Ethics Committee of a major hospital in Brisbane in February 2004 for the study to take place within the hospital diabetes department. The hospital required anonymity. Ethical clearance was approved by the Human Research Ethics Committee of another hospital board responsible for administering the community clinic location in Brisbane. This hospital also required anonymity. Ethical approval for research in both the hospital and polyclinic in Singapore was approved by the National Healthcare Group, Domain

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Specific Review Board, in August 2004. Thus, all study sites approved ethical clearance for this study to proceed.

In line with established ethical procedures, participants were told that their participation was voluntary. Written consent was obtained from all the participants prior to interview. The consent form clearly stated that they would be anonymous in terms of this study and would not be discussed by name with any other contact they may have in the hospital or clinic. Finally, participants were informed that they could withdraw from participation at any time during the study.

## **2.7 Study site**

Figure 2.6 presents the two study sites and the process of interaction in both sites.

Two study sites, Brisbane and Singapore, were selected, first, for convenience of access and, second, for first world health care facilities. From each study location, two study sites were chosen: a hospital and a community clinic. The Brisbane clinic was referred to as a community clinic because it was designed to meet the needs of the local community. The polyclinic in Singapore was designed to provide a broad range of medical specialties as a primary care centre and, at the same time, to reduce demands on hospital services. In essence, the function of each clinic was very similar, with the terms “clinic” and “polyclinic” used to distinguish the sites.

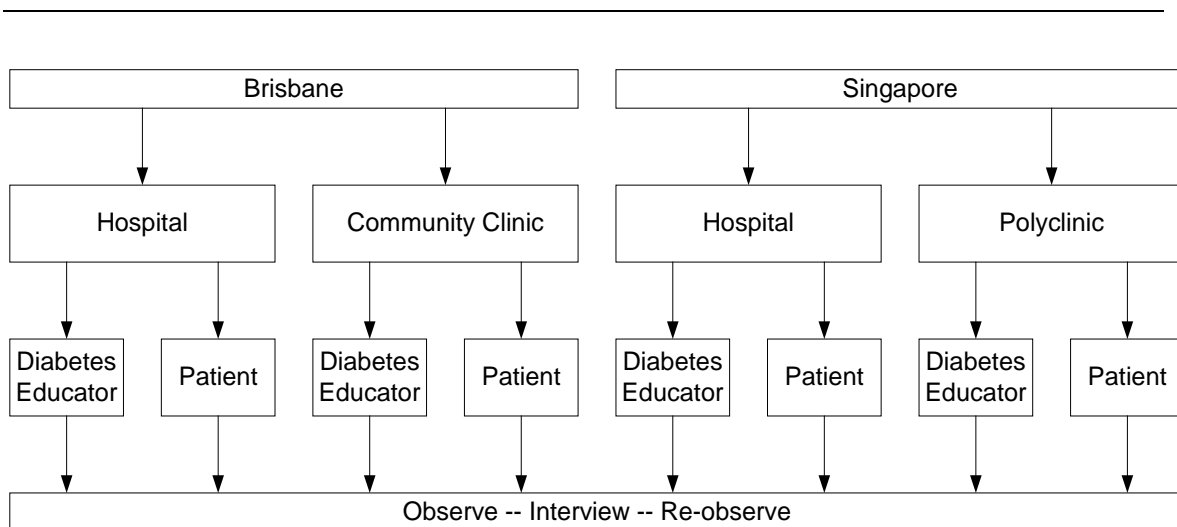


Figure 2.6: Four case study sites.

Preliminary meetings with the diabetes educators in both sites were held prior to commencing the study.

### 2.7.1 Study Site 1: Brisbane

The hospital in Brisbane was chosen as a study site for a variety of reasons. It had a reputation as an excellent teaching hospital. The cohort of diabetes educators employed by the hospital was large enough to suggest that a good cross-section of professional perspectives and patient management techniques would be available. Because the hospital employed a large number of educators, the inference was that they were required to meet the demands of a large patient population, who would potentially be available for conducting the study.

The Brisbane community clinic was chosen for two major reasons.

1. There was a clear emphasis on a multi-disciplinary approach to diabetic patient care, which was in keeping with contemporary literature on the

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care of the diabetic patient.

2. The number of diabetes educators employed in the clinic was small; however, the number of patients attending the clinic suggested that an interesting cross-section of patient perspectives may be forthcoming when patient interviews were conducted.

### **2.7.2 Study Site 2: Singapore**

Both study sites in Singapore were chosen for two basic reasons: To investigate:

- (a) The role of the diabetes educator as a member of the health care team in a hospital and polyclinic and to consider whether a legislative process determining scope of practice was similar to that of their peers in Brisbane.
- (b) The effects of a multi-cultural diabetic patient group consulted by a multi-cultural group of diabetes educators.

### **2.8 Study period**

The data collection for both the hospital and community clinic in Brisbane began in September 2004 and was completed in December 2004. Due to financial and time constraints, the study in the Singapore hospital was undertaken in a one-week period, from the 24th to 28th January, 2005. Similarly, data collection in the Singapore polyclinic was undertaken in the period 31st January to 4th February, 2005. Although the time differences in the study period meant that the process was more intensive in Singapore than in Brisbane, the differences affected the researcher rather than the Singapore participants.



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## **2.9 Brisbane hospital**

An information sheet and consent form provided for each educator clearly stated that non-participation in the study would not adversely affect their employment. All four diabetes educators employed in the hospital agreed to participate in the study. Patient suitability was narrowed down based on the selected criterion of Type 2 diabetes. Its relation to the second criterion, patient willingness to participate became an additional selection factor based on not affording the time, other appointments to keep, and, in a small number of cases, lack of interest.

## **2.10 Brisbane community health clinic**

Research at the second study site followed the same pattern previously undertaken at the Brisbane hospital and was carried out within the same time frame. The clinic employed two diabetes educators, although only one was in a full-time position. The most notable features of the clinic were the difference in size by comparison with the hospital clinic, the smaller volume of patients, and the more relaxed appearance of the patients in the personal atmosphere prevailing within the entire clinic.

Space was a problem when both educators were present, as only one office was available. On occasion, both educators could be in the one office at the same time, although one would be carrying out administrative duties while the other consulted the patient. Neither educator was comfortable with that situation, as privacy was compromised. Moreover, as the clinic did not employ an endocrinologist, the educator had no option other than to call a visiting specialist when seeking specialised medical advice. Referral to the endocrinologist was not a regular occurrence but provided an example of a gap in major

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personnel in the multidisciplinary team approach.

### **2.11 Singapore hospital**

A large hospital, a member of the National Healthcare Group (NHG), was chosen for the study. The short period of available time, 5 days in January 2005, required significant planning prior to the visit and the full cooperation of the diabetes department manager and the diabetes educators involved.

Four diabetes educators were employed in the hospital, which was consistent with the number employed in the Brisbane hospital. The educator/patient consultation process was very similar to the process in Brisbane, although the use of visual aids was more common. Individual interview offices were available and provided privacy and confidentiality. The process of observation and interviewing was conducted in exactly the same format as in Brisbane. The educators were very supportive of the research, as they felt the outcomes could support their position in the health care team. The major problem encountered was waiting for the opportunity to observe and interview an English speaking patient. Patient access to the hospital clinic for patients was relatively easy, as public transport was very efficient and as car parking was also available.

### **2.12 Singapore polyclinic**

The polyclinic chosen for the study was a member of the National Healthcare Group (NHG) and employed four educators. By comparison to the community clinic in Brisbane, it was extremely busy. The use of open plan offices compromised personal privacy and confidentiality. This office arrangement could lead to reservations about

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some patient responses to the educator's questions, especially when questions became very personal. Patients arriving at the clinic knew they had an appointment on the day specified but not a specific time. Hence, patients were seen based on the time they arrived at the clinic and registered at the reception office. It also meant that the educators worked until all patients had been consulted.

### **2.13 Legislative documentation**

Prior to any contact with the diabetes educators or patients, each of the four study locations was contacted with a request for information of a legislative nature that would determine the scope of practice relevant to the employment of a diabetes educator. It was important to establish whether there was a clearly defined scope of practice for diabetes educators. Moreover, it was important to establish whether the scope of practice was the same in all locations. Differences in the scope of practice would have the potential of introducing additional factors to be considered when analysing how the educator is assimilated within the multidisciplinary health care team. Legislative documentation was also sourced using professional associations, government agencies, hospital or clinic authorities, and the internet.

The inquiries resulted in the understanding that none of the four locations had any documentation relevant to the scope of practice for diabetes educators. All of the educators had nursing qualifications, in addition to those required to work as a diabetes educator. The educators attended continuing education programs to develop their expertise in diabetes education. It appeared, therefore, that the prevailing view in each study site was that the diabetes educator would work within the professional and ethical

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boundaries of the nursing profession.

Further discussion on legislation, scope of practice, and diabetes educators associations that have advocated scope and standards of practice was addressed in later chapters.

#### **2.14 Discussions with hospital administrators**

In order to clarify diabetes educators' scope of practice, discussions were held with hospital administrators responsible for the relevant diabetes units. The community clinic and polyclinic were governed by their respective hospital affiliations and, therefore, were subject to the decisions of the hospital administrators. For this reason, interviews of hospital and government officers were conducted in both Brisbane and Singapore to ascertain the operational context of diabetes education.

#### **2.15 The study trial session (pre-testing)**

To ensure that the study could progress in the stipulated format of observation, interview, and re-observation, a trial session was undertaken in August 2004 in the designated Brisbane hospital with the educators who later participated in the study. The trial outcome clearly demonstrated the need for researcher flexibility and availability when the diabetes educators were consulting with patients, and also acceptance that patient appointments were not always adhered to, that patients were not all Type 2 diabetics, and some patients were unwilling to participate. The study design trialled in the Brisbane hospital was used in the hospitals and community clinics in both Brisbane and Singapore. The researcher was a non-communicative participant during the observation and re-observation sessions. During the educator and patient interviews, the structured and non-

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structured questions were based on eliciting information relevant to answering the research questions.

## **2.16 Interviews**

Interviews were conducted with the diabetes educators and patients to determine the interrelationship of both and how the relationship affects patient self-management.

A set of three questions for patients was derived from initial observations.

1. How does the patient perceive the role of the diabetes educator?
2. How does the patient react to advice from the diabetes educator?
3. Why does the patient react this way?

Interviewing in the designated hospital and clinic environments necessitated contact with patients, diabetes educators, and administration staff. The availability of staff and suitable patients determined the timing of interviews, observation, and re-observation with diabetes educators and patients in each site. Semi-structured interviews provided greater breadth and went hand-in-hand with participant observations (Lofland, 1971). The number of interviews depended on the number of diabetes educators employed in each site with a role to play in caring for the diabetic patient. Each interview was allocated a one-hour time allocation because the trial session indicated that, on average, one hour would be sufficient time to allow, within the overall time available in each site, to complete the various patient/educator interactions. Although the diabetic patients varied in terms of the severity, longevity, and complications of the disease, the emphasis was on the interaction of the educator/patient relationship rather than the severity of the patient's

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diabetes.

The diabetes educators interviewed patients in an office environment devoid of medical instruments or equipment that might be considered disquieting to patients. Patients who attended the clinic appeared at ease with the consultation environment. The presence of the researcher, whose role had been explained to the patient prior to obtaining their consent to sit in on the consultation, did not appear to affect the willingness of the patient to discuss how they were managing their diabetes regime. In all observations, the educator led the discussion and followed a very similar format on each occasion. Any change from what appeared to be the normal pattern was based on questions or concerns raised by the patient.

### **2.17 Interviews with diabetes educators**

Interviews conducted with the diabetes educators tended to be more structured than those with patients, as a degree of professional knowledge and insight was required. Interviews were framed to clarify whether the educators were aware of the regulations governing their scope of practice and the extent to which the regulations impinged on the skills they possess, beyond the guidelines contained in the appropriate legislation. The interview also included discussion on the key episodes previously described to determine how the educator (a) values each interaction, (b) acknowledges its relevance, and (c) perceives their level of personal involvement to be.

### **2.18 Interviews with diabetic patients**

Semi-structured questions were used in the patient interviews. Patients tended to want to

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diverge more from the question and embellish their responses, generally with personal experiences. Britten (1997) argued that participants can embellish their responses and that the concepts and variables that emerge may be different from those that might have been predicted at the outset. Participants were allowed a certain amount of leeway so as not to stifle their willingness to participate. However, the researcher ensured that the patient eventually returned to the question with some relevant response whether positive or negative.

The patient interview concentrated on the patient's views of the key issues in terms of satisfaction that they were receiving advice they clearly understood, had a good rapport with the diabetes educator, and were referred to the appropriate health professional for any additional examination when the situation warrants additional intervention. Patient responses were coded as positive if they felt that patient self-management and related health outcomes had improved and as negative if they felt that key episodes did not fulfill their purpose.

## **2.19 Data analysis**

The data collected through the methodological process was prepared in tabular form for comparison between each research site and between each research location. The results obtained from patients and educators at each of the locations, including an insight into the demographics of all participants in the study, are reported in the Results chapter. The information gathered from the observation, interview, and re-observation process was considered suitable for a thematic approach to interpretation. The process of thematic coding was chosen in accord with the view that coding was used to organize data, themes,

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and ideas to form topics. The process involved detailed description of the topics and their context, with use of examples from the original transcripts (Polgar & Thomas, 2000).

Analysis of data was carried out using a process of identifying responses from the educators and patients that related directly to the research questions and identifying responses that were identifiable across each of the research sites. The responses formed the foundation from which topics could be identified. Analysis was also based on the views developed by the researcher about how the material fitted together and about the relationships it encompassed. This process was supported by Allan (1991), for researching issues in the social sciences. This form of analysis was a mix of subjective impressions gained by observing the inter-relationships of the research participants and objective examination of recordings and policy documentation.

Data analysis identified responses or observations that related directly to the research questions. Information obtained from the semi-structured questions during both the educator and patient interviews was analysed based on its relevance to the research questions and the contribution made to the role of the educator. For example, patients' responses to the question relating to how diabetes educators were trained varied from the opinion that training consisted of the normal nursing training with an added personal interest in diabetes, to hospital, college, and university level training.



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## Chapter 3.0 RESULTS

In this chapter, results were reported based on three distinct methodologies:

- (a) Quantitative analysis of personal characteristics using SPSS Frequencies and SPSS Optimal Scaling, with the output represented as a two-dimensional graph;
- (b) Quantitative analysis of participant responses using manual classifications of responses, with the output presented in summary tables of ranked percentages; and
- (c) Qualitative analysis of participant responses using automated text analysis software (Leximancer), with the output summarised in concept tables and two-dimensional figures.

Methodology (a) was utilised in an initial section that details the personal characteristics of participants, both patients and educators. The findings of this section were drawn together by an Optimal Scaling representation of the spatial clustering of characteristics. This analysis revealed features differentiating the dimensions of patients and educators in Brisbane and Singapore.

Methodology (b) was utilised in a major section summarising participant responses to common items related to one of four research questions. These topics canvassed knowledge of relevant topics concerning legislation, educator training, interactions between educators and other health professionals, and interactions between educators and their patients. Structured and semi-structured interviews with patients and educators in

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Singapore and Brisbane providing these data allowed inspections of patterns of agreement with topics within the research questions.

Methodology (c) was utilised to summarise participant responses in relation to a fifth research question by using automated text analysis to examine communalities and differences in relation to participant role (patient, educator) and regional setting (Singapore, Brisbane). Concepts arising from the interview data and interpersonal relationships enhanced findings from the first two methodologies. It was notable that educators in both settings displayed considerable similarities.

The cumulative effect of outcomes based on five research questions and three methodologies was to provide a more in-depth analysis than would be available from any of these three in isolation.

### **3.1 Outcomes from quantitative analysis of personal characteristics**

#### **3.1.1 Patients**

As outlined in the previous chapter, of the 32 participants, 56% ( $n = 18$ ) were patients, the majority of whom (61%,  $n = 11$ ) were male. Of the 18, eight were located in Brisbane and another 10 in Singapore. The 18 patients ranged in age from 25 to 60 years of age, with an average age of 47 ( $SD = 9.3$ ) and with a majority of 67% ( $n = 12$ ) reporting they were married.

In terms of ethnicity, patients predominantly identified themselves as Chinese (39%,  $n = 7$ ) or Indian (17%,  $n = 3$ ) or Australian (17%,  $n = 3$ ), with two others identified as Malay, and the remaining three identified as Vietnamese, Greek, and Arabic. When asked to

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report the number of medical visits per year, these 18 patients reported a range that varied between 0.3 (less than one) and 12 visits per year, with an average of 2.6 visits per year ( $SD = 2.7$ ).

Of the 18 patients, the largest group (56%,  $n = 10$ ) reported that they completed secondary qualifications, with another five reporting tertiary qualifications, and the remaining three only primary qualifications. Almost 40% of the 18 patients ( $n = 7$ ) stated that they were smokers, and a majority (67%,  $n = 12$ ) that they were drinkers.

### **3.1.2 Educators**

Of the 32 participants, 44% ( $n = 14$ ) were educators, all female. These participants ranged in age from 28 to 55 years of age, with an average age of 42 ( $SD = 6.9$ ). Of the 14, a slight majority (57%,  $n = 8$ ) reported that they were married, and all 14 reported having completed tertiary qualifications.

In terms of ethnicity, educators predominantly identified themselves as Chinese (50%,  $n = 7$ ) or Australian (43%,  $n = 6$ ), with one other educator identified as Malay. None of the 14 educators stated that they were smokers, and a minority (43%,  $n = 6$ ) reported that they were drinkers.

### **3.1.3 Comparative summary of demography for patients versus educators**

Figure 3.1 summarised the array of personal characteristics in the Optimal Scaling output. SPSS Optimal Scaling was used to map the demographic features of patients and educators within the confines of a two-dimensional spatial map. This mapping had the advantage of identifying not only patient versus educator differences but also site related

differences. As indicated in Figure 3.1, demographic response categories for site (Brisbane vs. Singapore) were located in opposing quadrants (upper left, lower right). Likewise, demographic response categories for participant role were located in opposing quadrants (lower left, upper right).

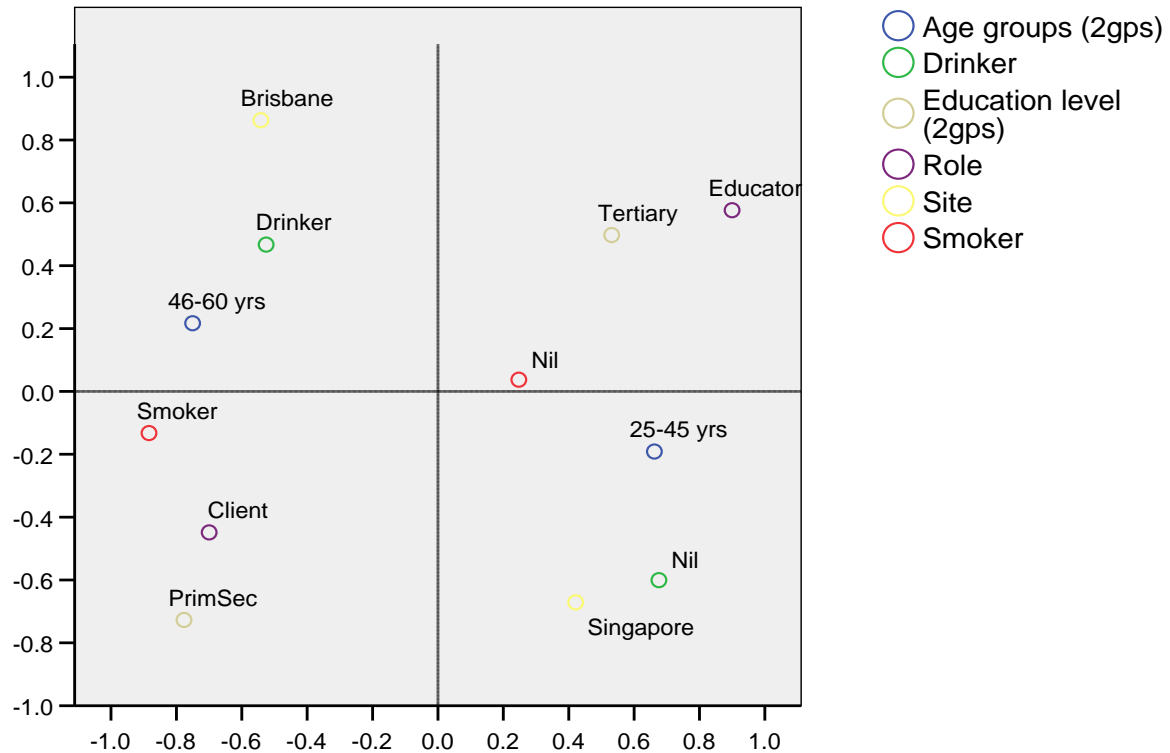


Figure 3.1: SPSS Optimal Scaling of selected demographic characteristics.

Based on these clusters of response categories, regardless of their role, participants from the Brisbane site were more likely to be drinkers and older (46-60 yrs), whereas participants from the Singapore site were likely to be non-drinkers and younger (25-45 yrs). That stated, regardless of locality, and as outlined in previous sections, patients were more likely to be smokers and to report only primary or secondary levels of education,

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whereas educators are likely to be non-smokers with tertiary levels of education.

### **3.2 Five Research Questions**

The first research question examined the extent to which patients and educators understood the legislation governing scope of practice. The question was important based on the concept that legislation would determine the input and extent of treatment appropriate for practice as a diabetes educator. Through association with the diabetes educator, patients would also become familiar with the parameters in which the educator had to confine their professional interaction.

Patient understanding of the legislative parameters for the educator's scope of practice appeared to depend on whether the patient was aware that health professionals have a code of practice and / or the length of time the patient has had an association with the educator. Over time, it appeared that the patient became aware of what the educator can provide in terms of health care through conversation about the patient's expectations and the educator's responses to those expectations.

The second research question examined the training programs undertaken by diabetes educators in each location. Patients were asked about the extent to which they were aware of the training undertaken by educators as health professionals. The level of training required for employment in the hospitals and clinics, and the significance of training as a credentialed educator, was discussed with the educators.

The third research question examined the level of understanding that patients had of interactions among health professionals. Because patients with diabetes are required to

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meet with and discuss their health situation with a number of different specialists, it was of interest to determine whether patients attending a hospital or clinic understand that health professionals communicate with each other and might have occasion to jointly discuss a patient as an important part of their health management. Educators' views of their interaction were also pertinent and flowed from their understanding of the scope of their practice and level of training.

The fourth research question examined patients' perception of the diabetes educator as a member of the health care team. The importance of this perception was that the educator plays a crucial role in determining the approach of patients to managing their diabetes. The focus of this question was whether patients believed that the educator did make a difference in promoting and encouraging health care management. The educators were convinced that their intervention enhanced the ability of the patients to manage their diabetes.

The fifth research question examined the extent to which patients and educators differ or exhibit communalities across sites set in culturally distinct milieu. Information about site related differences in educator knowledge and attitudes (especially cultural awareness) arose naturally from re-analysis of responses across the preceding four research questions.

### **3.3 Outcomes from categorisation of interview responses**

In the following section, educator and patient responses related to the first four research questions were reported via a series of tables listing the percentage of patients or

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educators (depending on the table) in Singapore or Brisbane providing particular responses to one of these four research questions. That is, the tables reported a set of responses on each research question together with the percentage and number of those responses for Singapore and Brisbane separately.

Presentation of these tables was organised to assist inspection of the data. Responses to topics within each research question, for all participants, were ordered from higher percentages to lower ones, in order to provide a basis for inspection of patterns of agreement on subsets of items and inconsistency in response to particular items, within and across research questions. Also, bolding of data was used to highlight characteristic trends. It was intended to mark the presence or absence of a consensus, among participants, indicated by response frequencies at or over 80% and at or below 20%, but, as responses to many topics often fell between these percentages, bolding of the highest percentage in each row was added. Moreover, these visual aids of ordering and bolding percentages could be used to inspect consistency of response patterns across item categories in a systematic way (viz., presence or absence of internal validity of item categories indicated by homogeneity or heterogeneity of responses).

### **3.3.1 Research Question 1: Legislation policy and practice**

Patients and educators from Brisbane and Singapore were asked to talk about their knowledge of legislation policy and practice, their understanding of the role of the educator, and the scope of practice permitted by the legislation. As indicated in Table 3.1, responses by patients and educators at the two study sites were categorised under nine topics. Questions extended from an awareness of legislative policy, through knowledge

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about the role of the educator, scope of practice, training required to practice, and knowledge about restrictions in the scope of practice. Responses also included knowledge about attitudes towards the educator, support from medical hierarchy, knowledge about the extent of duplication of information, and knowledge about changes that were required to relevant legislation.

Responses by patients and educators in relation to these nine topics could be quantified in a number of ways. That is, participant responses were summarised at a global level and a more local level. First, responses under the nine topics were ordered from highest to lowest percentage for the total sample. Overall, the average and range of percentages (i.e., 35%, 60% to 20%) indicated relatively poor grasp of this research question and considerable inconsistency in responses to particular item topics for this question.

At a global level, participants were most likely to evince awareness of legislative policy and least likely to allude to the scope of the practice. In fact, with the exception of awareness of legislative policy, fewer than half of the participants responded to any of the other eight topics, with less than 13% alluding to scope of practice and with only 35% commenting on average across the nine topics.

At a more local level, Brisbane educators were most likely to respond, with an average response rate of over 50%<sup>1</sup>. They were most likely to indicate an awareness of legislative

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<sup>1</sup>These averages approximated but were not identical to the averages based on percent of Total score because of rounding up errors.



policy, changes required to relevant legislation<sup>2</sup>, the extent of duplication of information, the training required for practice, attitudes towards the educator and the role of the educator. Brisbane patients clearly indicated an awareness of the scope of practice, the training required to practise, restrictions to the scope of practice (37%), attitudes towards the educator 50% and the extent of support from the (medical) hierarchy (50%).

Table 3.1: Responses related to legislation topics

Legislators	Singapore patients	Brisbane patients	Singapore educators	Brisbane educators	% Total
Topics n = 9	(n = 10)	(n = 8)	(n = 8)	(n = 6)	(n =32)
Awareness of legislation policy	40 (4)	62 (5)	62 (5)	<b>83 (5)</b>	59.38%
Training required to practice	30 (3)	<b>50 (4)</b>	37 (3)	<b>50 (3)</b>	40.63%
Support from hierarchy	30 (3)	<b>50 (4)</b>	<b>50 (4)</b>	33 (2)	40.63%
Attitude towards educator	30 (3)	<b>50 (4)</b>	25 (2)	<b>50 (3)</b>	37.50%
Knowledge of role of the educator	30 (3)	25 (2)	25 (2)	<b>50 (3)</b>	31.25%
Duplication of information	-	-	62 (5)	<b>67 (4)</b>	28.13%
Any changes in legislation required	-	50 (4)	-	<b>83 (5)</b>	28.13%
Restricted scope of practice	(-)	<b>37 (3)</b>	<b>37 (3)</b>	33 (2)	25.00%
Knowledge of scope of practice	(-)	<b>37 (3)</b>	25 (2)	33 (2)	21.88%
Average response rate (%)	17.78	40.11	35.89	<b>53.56</b>	34.72%

Ordered as % of total responses to 9 topics.

Singapore educators clearly indicated knowledge about the duplication of information and the extent of support from the (medical) hierarchy. Singapore patients gave low or zero responses across the nine topics relative to other participants.

<sup>2</sup>These top rankings were shared in some cases with Brisbane patients.

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In sum, comments came from 50% or more of the 32 participants in only one of the nine topics of responses to questions about knowledge of the legislation governing the activities of diabetes educators, with a low average response rate of about 35% per topic. However, Brisbane participants, regardless of whether they were educators or patients, were more likely than either Singaporean educators or patients to mention these nine topics as aspects of knowledge.

### **3.3.2 Research Question 2: The training of diabetes educators**

As a group, participant responses in relation to questions about the training of diabetes educators were characterised in terms of seven topics. Table 3.2 presents data about knowledge of training, understanding of patient's problems, diabetes education as a career, requiring additional training, knowledge of educator's qualifications, qualification compared to other professionals, and involvement in treatment. Overall, 46% (range = 66-19%) of responses to diabetes educator training demonstrated that patients and educators considered that educators' knowledge to work as diabetes educators the level of training was sufficient. However, only 28% of the 32 participants considered diabetes educators to be as well qualified as other health professionals.

Table 3.2: Responses related to training topics

Training Topics n = 7	Singapore patients (n = 10)	Brisbane patients (n = 8)	Singapore educators (n = 8)	Brisbane educators (n = 6)	% Total (n=32)
Enough knowledge of training	70 (7)	50 (4)	62 (5)	<b>83 (5)</b>	65.63%
Understanding of the patient's problems	50 (5)	37 (3)	<b>75 (6)</b>	67 (4)	56.25%
Attitude towards educator as a career	<b>60 (6)</b>	50 (4)	50 (4)	50 (3)	53.13%
Additional training required	50 (5)	50 (4)	50 (4)	<b>67 (4)</b>	53.13%
Knowledge of the educator's qualifications	30 (3)	37 (3)	50 (4)	<b>67 (4)</b>	43.75%
Equally qualified with other professionals in the team	20 (2)	25 (2)	<b>37 (3)</b>	33 (2)	28.13%
Educators had sufficient involvement in patient care	20 (2)	<b>12 (1)</b>	<b>25 (2)</b>	<b>17 (1)</b>	18.75%
Average response rate (%)	42.86	37.29	49.86	<b>54.86</b>	45.54%

Ordered as % of total responses to 7 topics.

Again, participant responses were characterised at global and local levels. At a global level, participants were most likely to allude to knowledge of diabetes educator training, with almost two-thirds mentioning it and with more than 50% of participants also mentioning the diabetes educator's understanding of patient's problems and diabetes education as a career. More than 50% considered additional training to be required. Less than 20% of participants responded to the role of the educator in patient care. Finally, on average, slightly less than half (46% of the 32 participants) commented across the seven topics.

At a more local level, Brisbane and Singapore educators were most likely to record the highest ratings. Brisbane educators, with an average of 55% commenting across the seven

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categories, were proportionally most likely to comment on knowledge of training. They also tended to discuss understanding patient problems, additional training being required, and knowledge of the diabetes educator's qualifications. Singapore educators most frequently alluded to the diabetes educator's understanding of patient problems, and half of them commented positively about their training, career prospects, and need for further training.

Brisbane patients provided relatively low levels of response across the seven topics. Singapore patients tended to be more positive about general topics (1-4). Singapore patients more frequently mentioned adequacy of diabetes training as an educator career requirement.

In sum, comments came from 50% or more of the 32 participants in four of the topics concerning aspects of the training of diabetes educators. Educators as a group were far more likely than patients to mention these topics, with around half or more of these providing comments across the seven topics. Curiously enough, Brisbane patients were least likely to provide comments, with less than 40% on average commenting across the seven topics. There was also an apparent reluctance of older Australians, the Brisbane participants, to endorse training.

### **3.3.3 Research Question 3: The interaction between educators and other health professionals**

As indicated in Table 3.3, participants responded to questions about the interaction between educators and other health professionals in terms of nine topics. In order, they comprised a positive attitude to the educator, an awareness of their professional

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relationship, required improvements, different levels of knowledge, the relative amount of time spent with patients by other health professionals, the attitude towards the repetition of work, the relative quality of the educator's explanation when compared to other health professionals, the relative amount of time spent with the patient by the diabetes educator compared with other health professionals, and the level of interaction with patients compared to other health professionals.

Overall, 75% of the 32 participants had a positive attitude to the interaction between the diabetes educator and other associated health professionals. Five of the six Brisbane educators, (83%), believed that they provided a better explanation of diabetes care to their patients than other health professionals. With regard to patients' perception of the educators' knowledge of diabetes, the Singaporean patients (60%) were more supportive than the Brisbane patients (37%).

At a more global level, more than 50% of participants responded to seven of the nine topics, with 75% alluding to the positive attitude to the place of the educators in their teams. More than 50% also alluded to an awareness of professional relationships, required improvements, different levels of knowledge, the educator's attitude to repetition of work, and the educator providing better explanations than other health professionals. At least 50% responded to even the two lowest ranked topics, taking more time than other professionals and interacting more with patients than other professionals. Finally, a healthy 58% of participants on average commented across the nine topics showing a consistency in knowledge about the nine topics.

At a more local level, Brisbane educators were more likely than others to provide

responses across the board, with 74% on average responding across the nine topics, and with the highest frequency of responses in relation to seven of the nine topics. Brisbane educators were most likely to allude to the positive attitude to educators, different levels of knowledge, less time being spent by other professionals, the educator’s attitude to repetition of work, the educator providing better explanations, taking more time, and interacting more with patients than other professionals. Thus, Brisbane educators showed a strong sense of professional identity within the team.

Table 3.3: Responses related to professional interaction topics

Relationships Topics n = 9	Singapore patients (n = 10)	Brisbane patients (n = 8)	Singapore educators (n = 8)	Brisbane educators (n = 6)	% Total (n=32)
Positive attitude towards educator	80 (8)	62 (5)	75 (6)	<b>83 (5)</b>	75.00%
Awareness of professional relationships	60 (6)	62 (5)	<b>75 (6)</b>	67 (4)	65.63%
Any improvement required	60 (6)	<b>75 (6)</b>	50 (4)	50 (3)	59.38%
Knowledge (Different areas of expertise)	60 (6)	37 (3)	62 (5)	<b>67 (4)</b>	56.25%
Less time spent by other health professional	40 (4)	50 (4)	62 (5)	<b>83 (5)</b>	56.25%
Attitude towards repetition of work	40 (4)	62 (5)	62 (5)	<b>67 (4)</b>	56.25%
Explain better than other professionals	30 (3)	37 (3)	75 (6)	<b>83 (5)</b>	53.13%
Take more time than other professionals	30 (3)	25 (2)	75 (6)	<b>83 (5)</b>	50.00%
Interact more than other professionals	30 (3)	25 (2)	75 (6)	<b>83 (5)</b>	50.00%
Average response rate (%)	47.78	48.3	67.89	<b>74.00%</b>	57.99%

(Ordered as % of total responses to 9 topics).

Although all participants made 58% of comments, there was a large gap between the

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educators and the patients in a number of topics, particularly in the perception of educator/patient interaction. Singapore educators were a little more likely than others to refer to the educator's awareness of professional relationships, but most participants recognised the relationships among their medical team. Brisbane patients were more likely than the three other groups to refer to improvements that might be required. Singapore patients tended to express a positive attitude towards their educator, but otherwise, like Brisbane participants did not allude to teamwork and educator interactions positively.

In sum, comments came from 50% or more of the 32 participants across all nine topics about the interactions between diabetes educators and other health professionals. Educators were most likely to comment, and patients were less likely to do so, with less than 50% of the Singapore and Brisbane patients on average commenting positively. Thus, patients held less clear views about the position of diabetes educators relative to other team members.

#### **3.3.4 Research Question 4: The interaction between patients and diabetes educators**

As indicated in Table 3.4, participants showed some agreement about direct interactions between patients and diabetes educators in terms of 15 topics, including knowledge of self-care and attitudes to the educator's participation, role of education, and other professionals. Participants also agreed about the patient's role in controlling diabetes, the inspiration and encouragement of health professionals, knowledge gained during visits, and the educator's role in increasing the patient's knowledge. Singapore patients

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commented about the need to increase their confidence, and the frequency of visits to the hospital and polyclinic. The frequency of visits was determined by the severity of the diabetes and by whether the patient was developing a positive self-management program. Patients from both sites also commented in terms of the repetition of information, the educator's role in controlling diabetes, and, the availability of and access to psychologists.

Overall, 51%, of the participants responded to the 15 topics. The Brisbane educators (83%) believed that they increased the patients' awareness of diabetes, whereas only 37% of patients believed likewise. From a patient perspective the Singaporean patients (80%), strongly believed that educators increased their knowledge of self-care whereas the Brisbane patients (50%) were less forthcoming. Interestingly, the Brisbane educators believed that they increased the patients understanding of diabetes as a disease, whereas the Singapore patients believed that the Singapore educators increased their understanding of how to care for their diabetes. The Singapore and Brisbane educators (62% and 67% respectively) were more closely aligned in their attitude towards increasing patient knowledge of self-care.

Recommendations in the literature that made proposals to foster self-management were not observed. The Australian Diabetes Educators Association (ADEA), in its Strategic Plan 2000-2005, aimed to have an increase in identifiable diabetes education services available to isolated groups. The strategy to be employed was (a) promotion of liaison with migrant health and multi-cultural languages, policies, and programs and (b) development of complete educators packages for culturally diverse people. Efforts to



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develop or introduce such packages were not witnessed in the present study. These diabetes educators, however, worked as individuals and, overall, appeared to go through similar procedures with their patients at each case site. Strategies to encourage behaviour change were not apparent.

Process Standard 3 of the National Standards for Diabetes Education programs, published and produced by the Australian Diabetes Educators Association in 2001 (Australian Diabetes Educators Association, 2001), discussed the implementation of diabetic education as being central to people with diabetes. It was stated that the diabetes educator, therefore, would facilitate learning, behaviour change, and patient self-management. In effect, this expectation was not met.

Data analysis relevant to the two Brisbane settings did not reflect the Process Standard 3 implementation plan about educational processes:

- (a) relevant principles of teaching and learning;
- (b) strategies to develop problem solving skills and self-efficacy; and
- (c) appropriate instructional methods and materials with respect to cultural security, age, language, reading level and special educational needs.

Table 3.4: Responses related to patient-educator interaction topics

Patient-educator interactions Topics n = 15	Singapore patients (n = 10)	Brisbane patients (n = 8)	Singapore educators (n = 8)	Brisbane educators (n = 6)	% Total (n=32)
Knowledge of self-care	<b>80 (8)</b>	50 (4)	62 (5)	67 (4)	65.63%
Attitude to educator participation	50 (5)	62 (5)	62 (5)	<b>83 (5)</b>	62.50%
Attitude to role of educator	40 (4)	62 (5)	<b>75 (6)</b>	67 (4)	59.38%
Attitude to other professionals	40 (4)	62 (5)	62 (5)	<b>83 (5)</b>	59.38%
Patient's role in controlling diabetes	50 (5)	50 (4)	62 (5)	<b>67 (4)</b>	56.25%
Educator and other health professionals as inspiring and encouraging patients	50 (5)	62 (5)	50 (4)	<b>67 (4)</b>	56.25%
Knowledge gained during visits	30 (3)	50 (4)	<b>75 (6)</b>	67 (4)	53.13%
Educator increasing patient's knowledge of diabetes	30 (3)	37 (3)	75 (6)	<b>83 (5)</b>	53.13%
Need to increase confidence	50 (5)	37 (3)	62 (5)	<b>67 (4)</b>	53.13%
Prefer to visit more often	50 (5)	<b>62 (5)</b>	37 (3)	50 (3)	50.00%
Frequency of visits is sufficient	40 (4)	37 (3)	<b>75 (6)</b>	50 (3)	50.00%
Repetition of information	50 (5)	37 (3)	<b>62 (5)</b>	50 (3)	50.00%
Educator's role in controlling diabetes	40 (4)	<b>50 (4)</b>	25 (2)	<b>50 (3)</b>	40.63%
Additional changes required	40 (4)	<b>75 (6)</b>	-	-	31.25%
Psychologist access and availability	<b>60 (6)</b>	25 (2)	-	-	25.00%
Average response rate (%)	46.67	50.53	52.27	<b>56.73</b>	51.04

(Ordered as % of total responses to 15 topics).

At a more global level, participants were most likely to comment about their knowledge of self-care and least likely to comment about whether additional changes were required, with more than 50% of participants commenting on nine of the 15 topics. However, 51% responded on average across 10 of the 15 topics, with only 10% difference between the four groups.

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At a more local level, Brisbane educators were slightly more likely than others to provide comments proportional to their numbers, with an average of 57% commenting across the 15 topics. They were most likely to comment on attitudes to educator participation and attitudes to other professionals. They were also most likely to comment on the patient's role in controlling diabetes and on educators and other health professionals as inspiring and encouraging patients. They were also most likely to comment on educators' increasing patient knowledge of diabetes, on the need to increase patient confidence, and on the educator's role in controlling diabetes.

Singapore educators were slightly less likely to provide comments proportional to their number. An average of over 52% commented across the 15 categories. The highest levels of comments proportional to their number concerned attitudes to the role of the educator, knowledge gained during visits, sufficient numbers of visits, and the repetition of information. Brisbane patients were equally likely to comment. About 51% on average commented across the 15 topics. The topics that they spoke about most frequently concerned needing additional changes being required and preferring to visit the educator more often. Finally, half of the Singapore patients (47%) commented across the 15 categories. The most frequent comments proportional to their number were made in relation to knowledge of self-care and access to a psychologist. These patients tended to believe that access to a psychologist, particularly at the time of initial diagnosis of diabetes, would have been beneficial in preparing them for future treatment and management. Whereas 60% of Singapore patients expressed this view, only 25% of Brisbane patients and none of the educators supported the availability of psychological assistance.

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In sum, comments came from 50% or more of the 32 participants across all 15 topics on various aspects of the interactions between patients and diabetes educators. Across the first 11 topics, the Brisbane educators had a higher response rate, (8/11) than the Singapore educators. Across the same topics the Brisbane patients had a higher response rate of (7/11). These figures may represent a more confident, self-assuredness from the Brisbane educators, especially in their response to the educators' participation with their patients and their belief that they increased the patient's knowledge of diabetes care.

The Brisbane patients were more supportive of the role of the educator and how the educator encourages them in managing their diabetes. The higher response rates from the Brisbane sites may reflect the cultural differences expressed by a Singapore educator who believed that Brisbane patients may be more demanding of health services and Singapore patients more receptive to what was made available to them.

### **3.3.5 Research Question 5: The effect of site (cultural differences) and role on the attitudes and knowledge of patients and diabetes educators**

Educators in the Singapore hospitals were culturally aware and knew when patient attitudes or beliefs could potentially become an issue. They were also aware that patients of one ethnic /cultural group preferred to talk to educators of the same ethnic/cultural background. The educators at the Singapore polyclinic made no such observation.

In order to garner a further overview of participant responses, patient and educator interview responses were analysed as a block using the automated text analysis software, Leximancer. The software builds a thesaurus based on document content, uses neural net methods to identify a corpus of frequently used concepts (see ranked concept list), and

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maps the extent to which these concepts co-occur with related terms throughout the entered data set (see concept maps). In reporting results, concepts have been italicised to distinguish them from text (see below).























The result of this computation was displayed both in terms of a ranked concept list (see below) and via two-dimensional spatial representations (see below). The user can set the percentage of concepts on display, rotate the display to optimise the arrangement of concepts, require that the software “learn” (i.e., recompute the distances between concepts based on the outcomes of previous computations), and explore the family of associations with any one concept, including their placement in the source text.

As indicated in Table 3.5, concepts such as *patient*, *educator*, and *diabetes* were relatively frequent<sup>3</sup>. Concepts such as *diet*, *hospital*, and *clinic* were also relatively infrequent. Concepts of the middle rank addressed *training*, *health*, *time*, *care*, and *doctor*. There were several decisions to be made about what aspect of the analysis was made available for display.

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<sup>3</sup> The relative frequency of concepts is computed via a neural network algorithm and reflects the relevance of specific concepts as opposed to frequency as computed by a simple word count. For instance, although an equal number of files containing notes on Singaporean and Brisbane based patients and educators were included in the combined data set, it seems clear from the ranked concepts list that notes related to Singaporean patients proved to be marginally more relevant in analytic terms.

Table 3.5: Ranked concept list

Concept	Absolute Count	Relative Count	
Singpats	306	100%	
Patient	152	49.6%	
Educator	114	37.2%	
Singstff	93	30.3%	
Diabetes	79	25.8%	
Brpats	77	25.1%	
Brstff	52	16.9%	
Training	42	13.7%	
Health	39	12.7%	
Time	34	11.1%	
Care	33	10.7%	
Doctor	32	10.4%	
Nurses	24	7.8%	
Blood	24	7.8%	
Diet	23	7.5%	
Information	21	6.8%	
Hospital	20	6.5%	
Work	19	6.2%	
Problem	18	5.8%	
Clinic	18	5.8%	
Change	18	5.8%	
Months	16	5.2%	

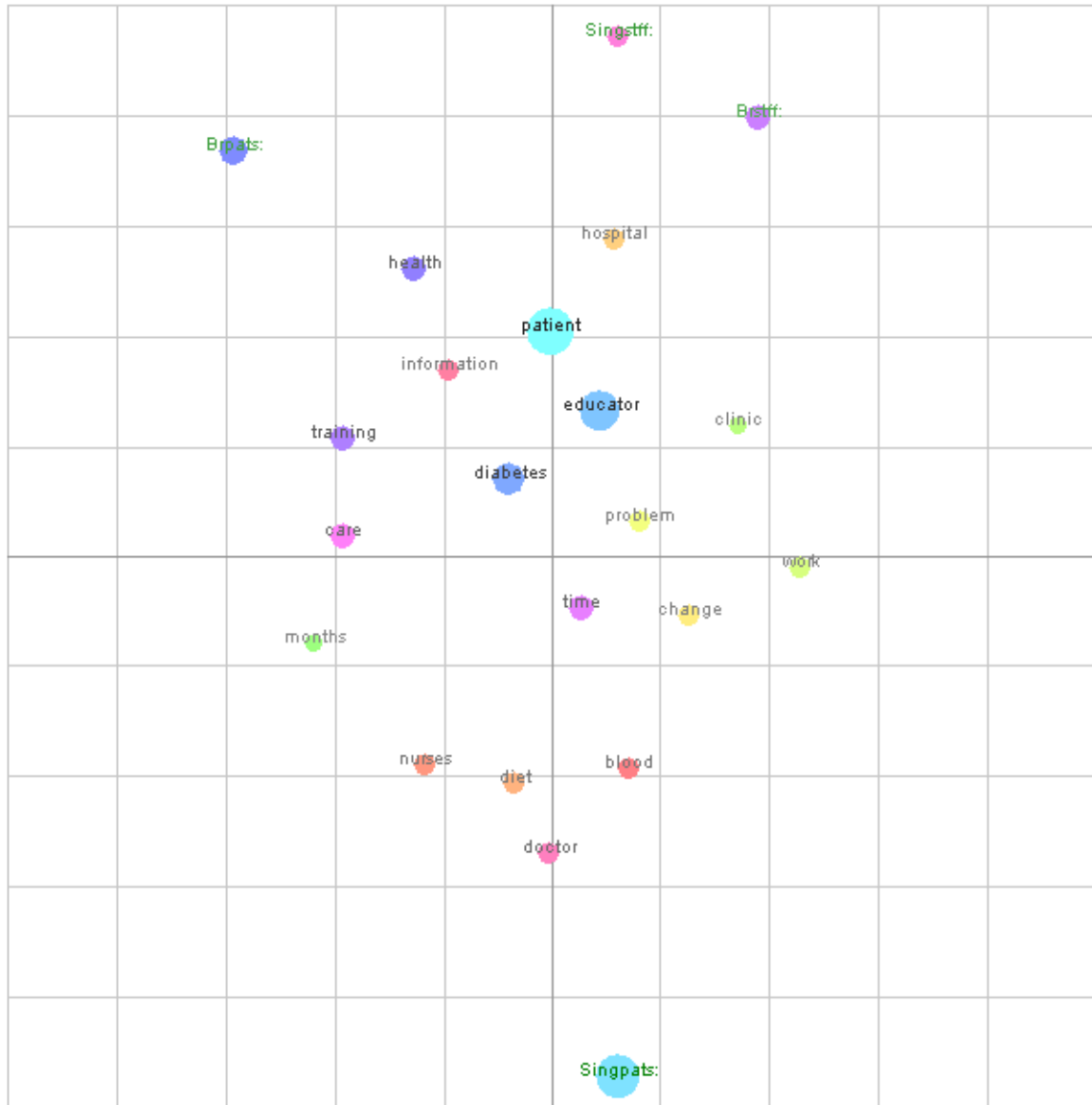


Figure 3.2: Concept map of all utterances, showing 100% of concepts.

The concept map in Figure 3.2 indicated the spatial proximity of *Singstff:* and *Brstff:* in the upper right quadrant after aligning the frequent concept, *patient*, along the vertical axis, with *educator* and *diabetes* as strong centrally placed concepts in those interview data.

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It also indicated the relative proximity of *Brpats* in the upper right quadrant. The utterances of *Singpats*, in contrast, were located at the very bottom of the lower right quadrant indicating that the concept was the least likely to occur with those of the other participants. That is, the language of Singapore patients distinguished them strongly both from their own staff and also from Brisbane staff and patients. Concepts of a medical nature were the cluster of concepts closest to the Singapore patients. Visual inspection showed a richer and more health-oriented array of concepts (e.g., *health*, *training*, and *care*) in the upper quadrants, together with *hospital* and *clinic*, and *diabetes*, *educator*, and *patient* concepts.



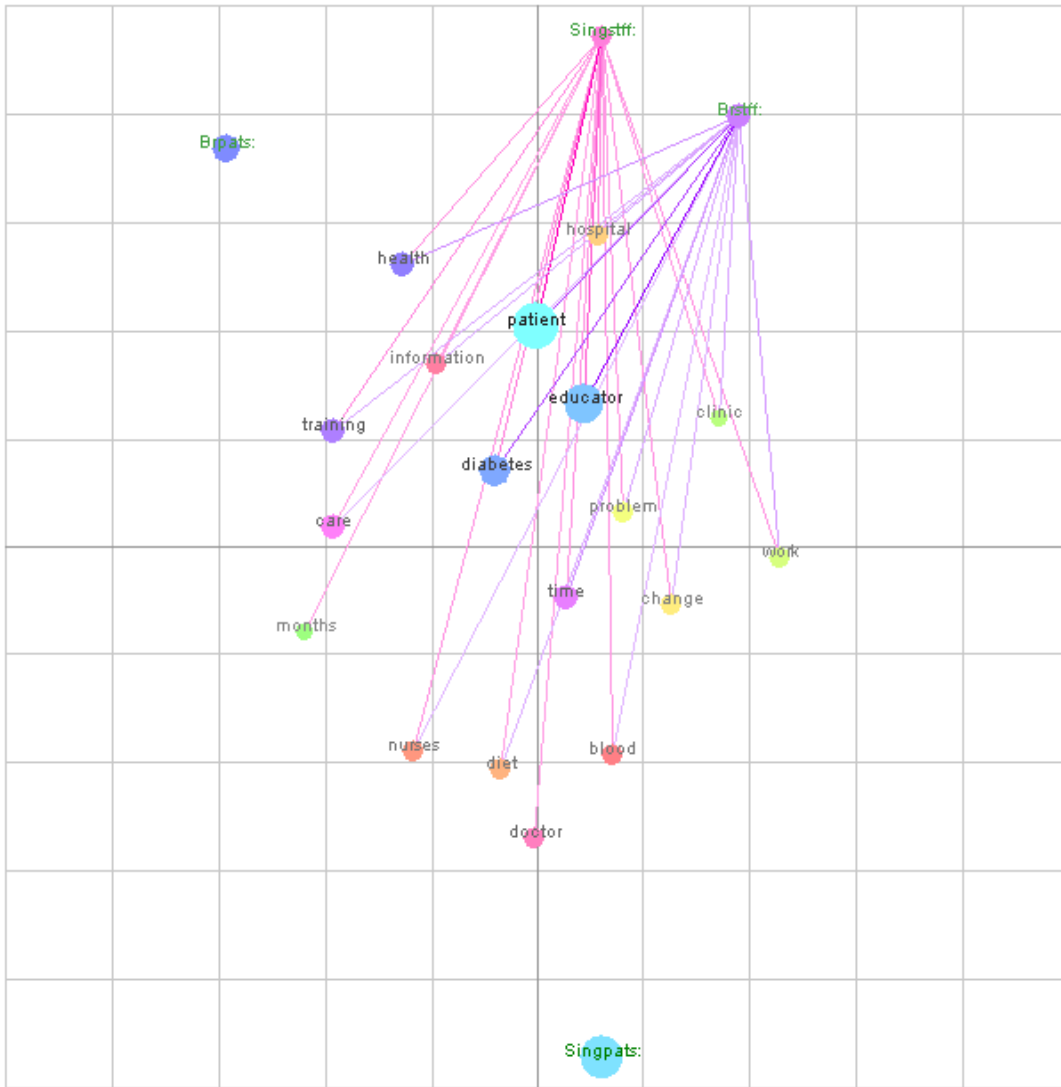


Figure 3.3: Concept map with staff related links

The software allowed the strength of links between concepts to be made visible. As shown in Figure 3.3, the lines connecting Brisbane and Singapore staff to various concepts overlapped closely in relation to the array of shared concepts. Co-occurrence between *Singstff:* and *Brstff:* were expressed in their shared association with other major concepts (signified by larger and darker dots) and with other concepts related to these concepts. These links revealed those similarities in what educators discussed.

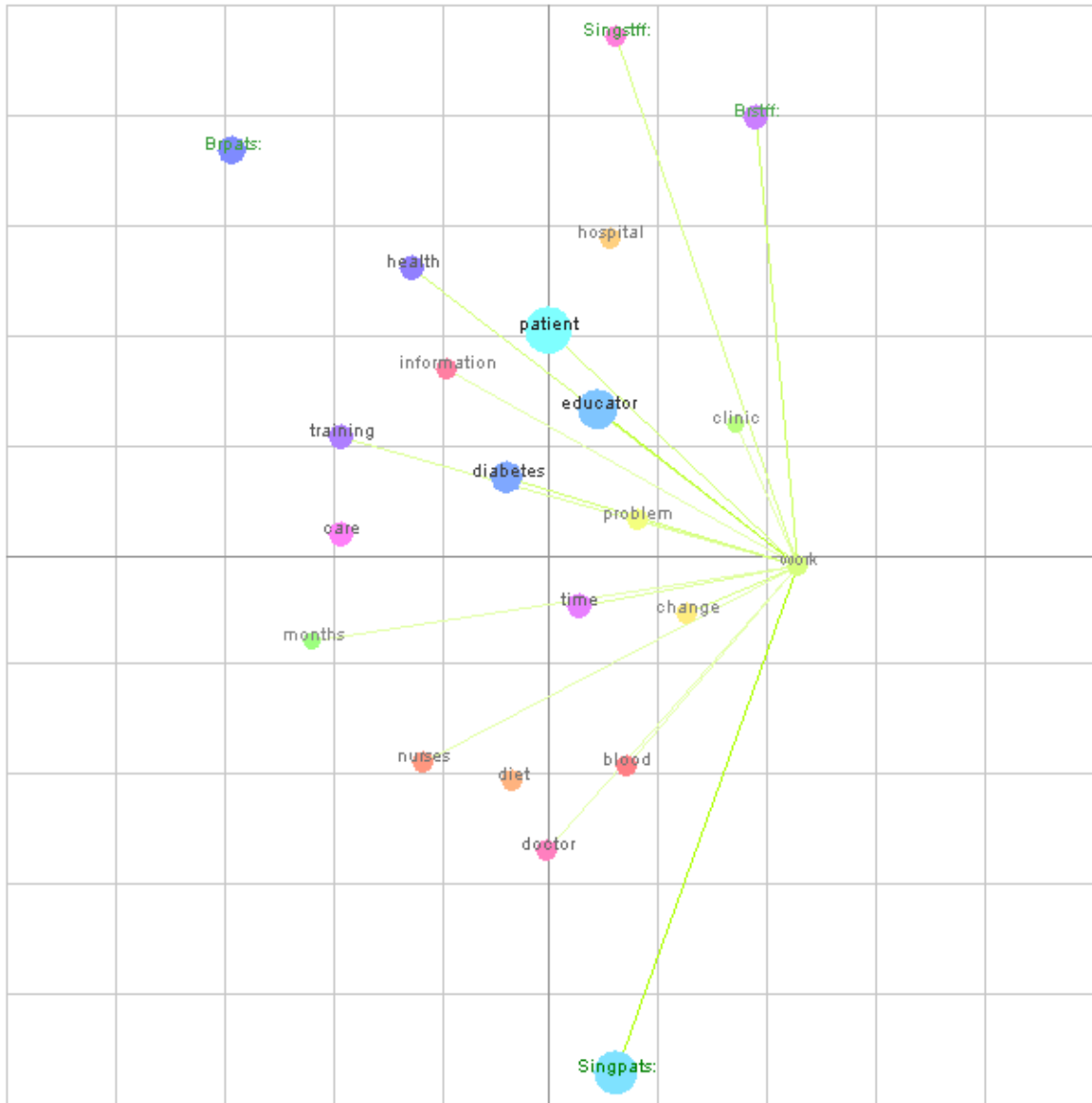


Figure 3.4: Concept map with links from the concept, *work*.

Figure 3.4 shows links between the concept, *work*, and an array of concepts as well as tags for Singapore and Brisbane. It suggested that one difference between Brisbane and Singapore patients was that, while Singapore patients share the perspective of *work* as an intermediary in managing one's health, Brisbane patients do not.

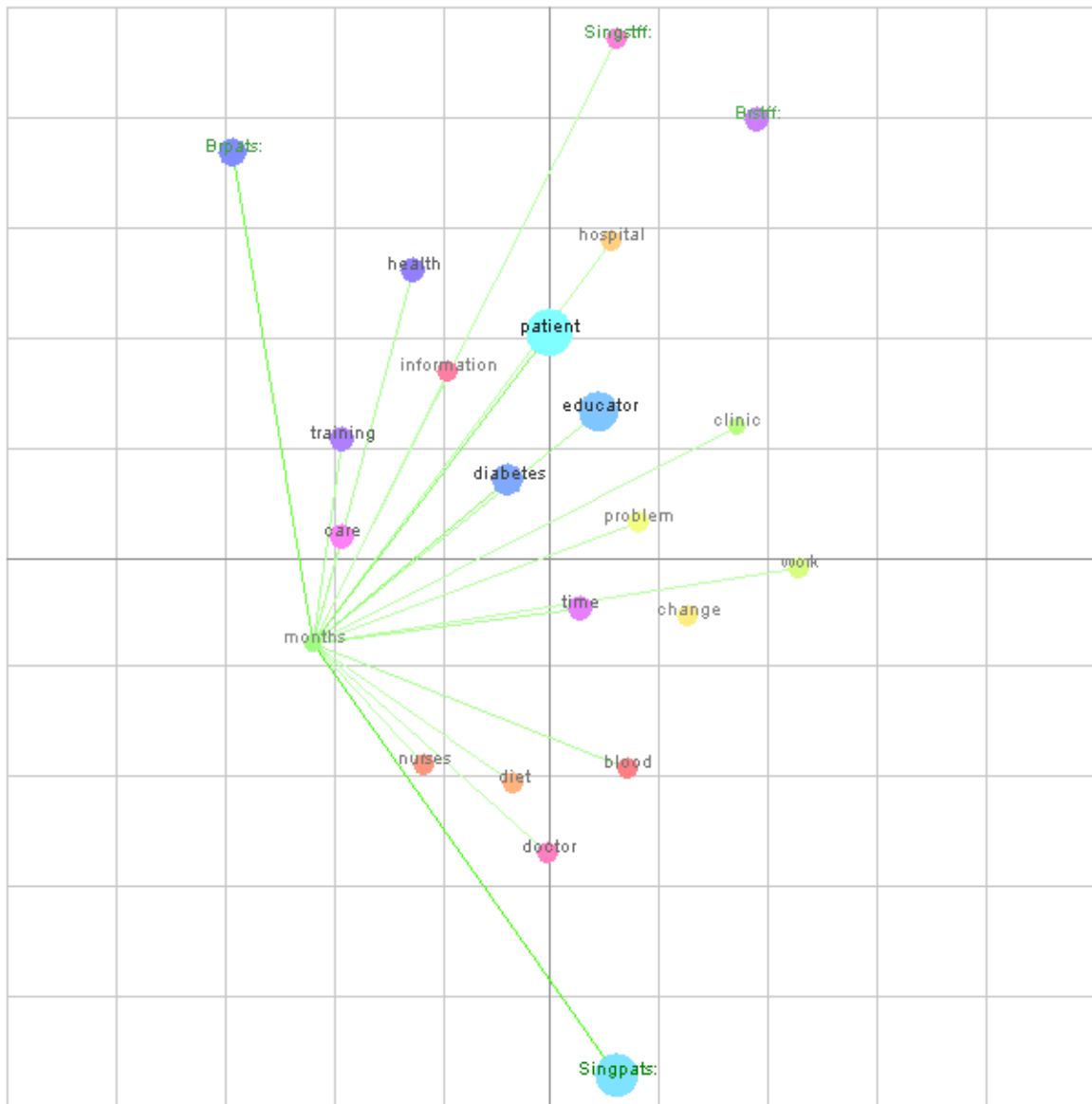


Figure 3.5: Concept map with links from the concept, *months*.

Figure 3.5 examines links between the concept, *months*, and other concepts and tags. It suggested that one difference between Brisbane versus Singapore staff was that the latter, in common with Brisbane and Singapore patients, stress the importance of the number of months between medical visits. The relevance of the number of months between visits depended both on the severity of the diabetes and the capability or otherwise of the

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patients to manage their health. The Brisbane educators were less concerned about the interval between visits based on their view that patients were well screened in terms of severity and could always request an appointment if they felt a need to do so.

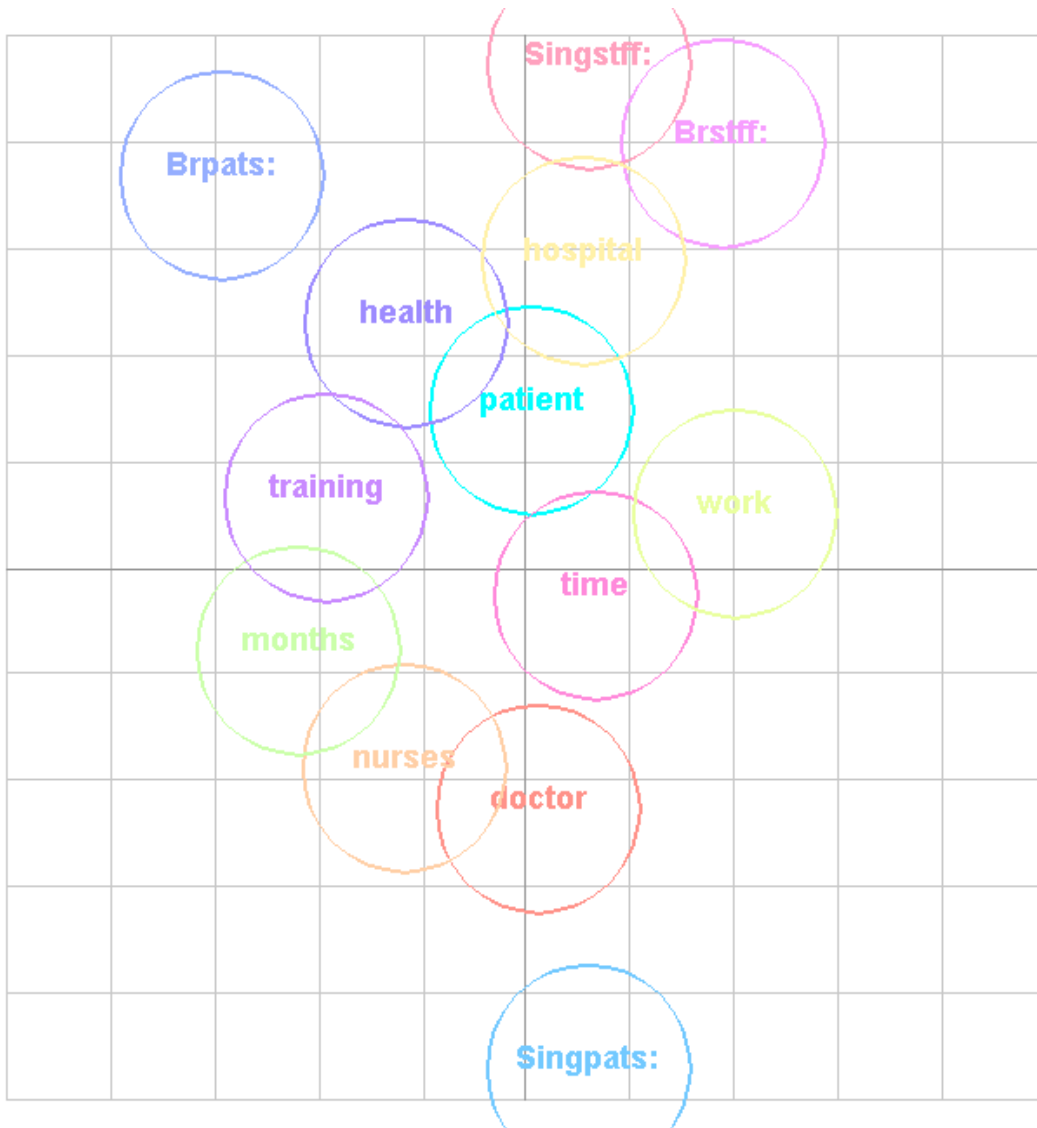


Figure 3.6: Thematic map (concepts suppressed) of all utterances.

Another way to highlight similarities and differences between Brisbane and Singaporean staff and patients was to add thematic circles. References to themes rather than concepts in text were distinguished by the use of capitalised labels rather than italicised labels.

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Figure 3.6 shows these thematic circles without the content of concepts. That is, the concepts and their co-occurrences with other concepts were still present but hidden from view, and inspection of the thematic circles overlaying these hidden clusters revealed that Health, Training, and the Patient are closely related clusters of concepts, under the “umbrella” of satellite themes involving three of the four subgroups. Moreover, the strongest theme in this map was Health. However, the Doctor, Nurses, and Time themes have revealed the second major clusters of concepts were under the umbrella of satellite theme Singpats. Moreover, the strongest theme in this half of the map was Doctor. Thus, this thematic clustering confirmed that the Singapore patients’ perception of their treatment and the role of the diabetes educator within this treatment was medicalised. In contrast, the other subgroups shared a perception that valued the improved health of the patient and the role of the trained educator in that treatment.

Using spatial proximity as a guide, the thematic circles suggested that educators at Singapore and Brisbane are both likely to talk about diabetes and the diabetes patient in the context of work in a hospital. In contrast, it was clear that Singaporean patients are likely to talk about diabetes and the diabetes patient in the context of the relative qualifications and knowledge of the nurses and doctors they know. The interval between visits (months, time) were themes shared by all participants, but Singapore patients were particularly concerned with opportunities to see these two kinds of medical staff. Other participants, including Singapore educators, were concerned about time for patient visits and training to improve patient results. Finally, it appeared that Brisbane patients talk about diabetes and the patient in the context of health professionals (Health), the quality of their training (Training), and the extent to which training was in a hospital (Hospital).

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In summary, this text analysis collated material from interviews with Brisbane staff and patients, and with Singapore staff and patients. The most interesting point to emerge was that concepts associated with being diabetes educators from Brisbane and Singapore clustered relatively close together. From this array, one might conclude that these two shared common perspectives. Brisbane patients also were relatively close to these two groups of educators in their associations with concepts. Thus, they could also be said to share that perspective. However, Singapore patients were at the opposite extreme of this discourse about diabetes health, clustered with specific concepts that, by implication, represented a distinct perspective to the other three subsets of participants.

### **3.4 Summary of findings**

#### **3.4.1 Summary focused on tabular categories per se**

In response to Research Question 1, the Brisbane educators (83%) and patients (62%) were more convinced that legislative policy in relation to the diabetes educator's scope of practice existed. The Singaporean educators and patients were not as convinced, which may reflect cultural differences whereby the Singaporeans had never considered it either necessary or appropriate to question the legalities of the educator's role in patient care. The same percentage of Brisbane educators (83%), moreover, also considered that changes to what they knew of the legislative process required action, whereas there was no response from the Singapore educators. In terms of scope of practice, the Singapore patients made no comment, which again may have been a more "grateful" opinion of what was provided for them, or culturally, did not consider it was their prerogative to query. The following flowchart (Figure 3.7) demonstrates the awareness of legislation

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governing practice in Brisbane and Singapore.

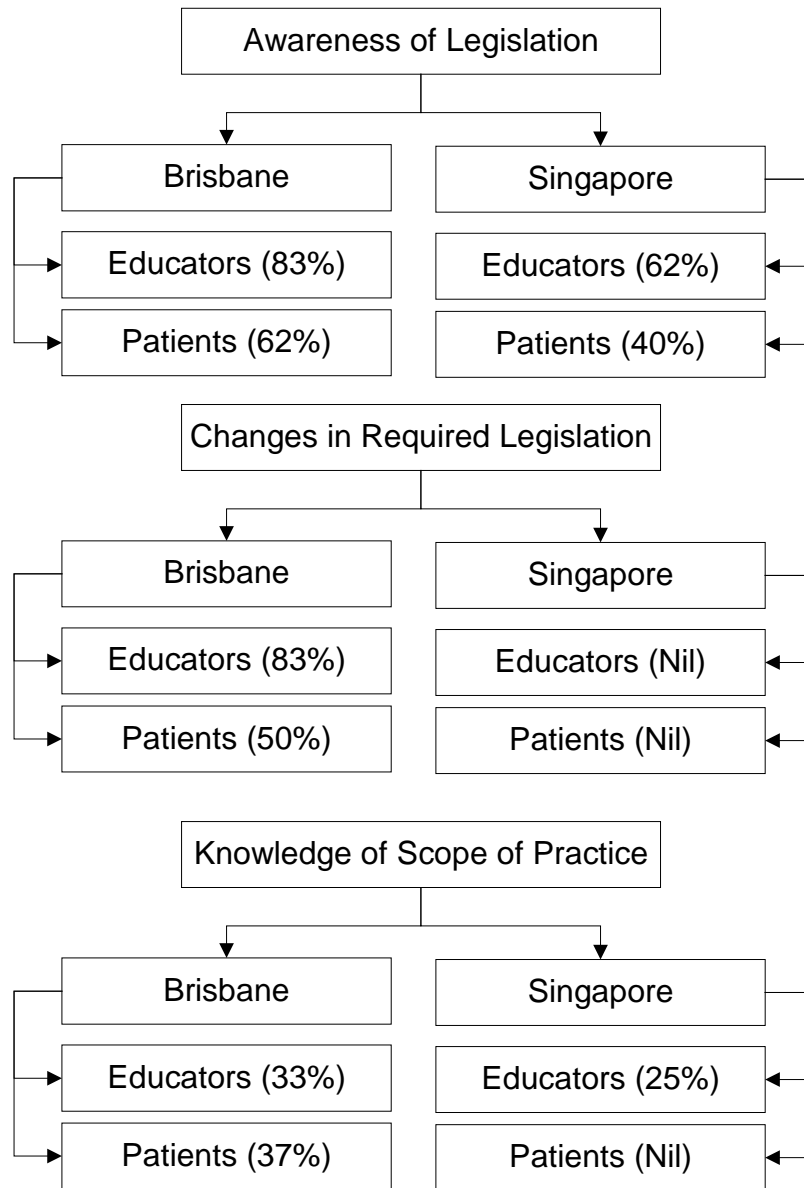


Figure 3.7: Awareness of legislation governing practice.

The responses arguably demonstrated that the educators in both Brisbane and Singapore were of the opinion that legislation governing scope of practice existed. However, there was a marked decrease in the numbers from both sites who demonstrated what the scope of practice actually related to. Although they assumed there was legislation, it did not

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exist.

In response to Research Question 2, the educators and patients in Brisbane and Singapore were evenly matched across the final four topics. The most significant difference was the 37% of Brisbane patients who felt that the educator did not understand the patient's problems sufficiently. In terms of whether the educator had sufficient involvement in patient treatment, 20% of Singapore patients were supportive, whereas only 12% of Brisbane patients concurred. The disparity may be based on Brisbane patients having an overall expectation of the provision of a Western health care system.

In response to Research Question 3, 62% of the Brisbane patients expressed a positive attitude towards the educator, and 80% of patients in Singapore were also positive. Moreover, 75% of the Brisbane patients considered that improvement in educator recognition within the sphere of professional interaction was required. Across the nine topics, the Brisbane educators (74%) and the Singapore educators (67%) were relatively similar in their opinion of how they interacted with other health professionals. The positive Brisbane response was based largely on the educator's experiences in the health care team. The patient responses in Brisbane and Singapore were closely related at 48% and 47% respectively but much lower.

In response to Research Question 4, there was a mixed response rate to the 15 topics. Responses to several topics demonstrated that the educators in both Singapore and Brisbane had a positive opinion of their input to patient self-care that was not supported by the respective patient groups. For example, 75% of the Singapore educators considered their role to be very important, whereas only 40% of the patients concurred.



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With respect to increasing patient knowledge of diabetes, 83% of the Brisbane educators were very satisfied with their role, whereas 37% of the patients concurred. The discrepancy in attitude and belief may account for the high response of 75% for additional change to patient/educator interaction from the Brisbane patients and no response from the Brisbane educators. Overall, the responses showed a much stronger response from the Singapore and Brisbane educators than from either group of patients. This discrepancy may be the foundation for both the ADEA and ADES to reassess their role and input to diabetes education.

### Observational Analysis

The patient's attitude towards the diabetes educator was positive at 50% and 62% in Brisbane and Singapore respectively. However, the percentages dropped substantially, 30% and 37%, when the patients were asked to comment on the educator's ability to increase their knowledge of diabetes. The percentage reduction was noticeable and suggested that what the ADEA and ADES were trying to promote through their credentialing program was not evident in contemporary practice. This norm suggested that, until credentialing becomes an essential qualification for employment, patient knowledge and the educator's input would remain within the status quo.

Overall, patients regarded diabetes educators as health care providers who were easy to talk to, did not use complicated terminology, and could be related to as a friend who offered support and advice. The patient's attitude was reflected in their lack of interest in qualifications, assuming the educators were nurses with an interest in diabetes, and even less awareness of, or interest in legislation governing practice.

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The educators' responses of 83% and 62% in Brisbane and Singapore to whether they were aware of legislation governing practice was a mix of knowledge of nursing practice and the guidelines and policies of the ADEA and ADES. Interestingly, when asked if the legislation governing practice required changing, the same percentage of Brisbane educators responded positively. However, there was no response from the Singapore educators. The lack of Singaporean response may be based on their being culturally disinclined to comment on the current situation and involvement in querying legislation to be inappropriate. The Western approach may be culturally more assertive. This was observed in Brisbane where the educators were much more self assured.

In both Brisbane and Singapore, the comments made by patients supported the observational and interview data relevant to how the educators were perceived by patients and how the educators considered themselves as members of a health care team. Examples of the more common views expressed by patients relevant to the educators were as follows:

#### Brisbane

- “the educator was part of a team”
- “the educator had no special expertise”
- “the educator provided support and advice when needed”

#### Singapore

- “being told what was good food / bad food was helpful”
- “the educator was easy to talk to”

- “the educator was not taken too seriously”

These comments suggested that the patient is more aware of the role played by the doctor or nutritionist. When considered in purely tabular terms, (Table 3.6) the themes of greatest interest to these participants (i.e., to which participants gave positive responses) were related to knowledge, qualifications, and professional relationships. In contrast, the themes of least interest to these participants related to the need for changes of various kinds or scope. One might conclude these participants are most interested in upholding and furthering the professional standing of the diabetes educator and less interested in questioning the limits of the standard practice or modifying the training, etcetera, associated with it.

Table 3.6: Summary of participant responses based on tabular analyses

Topic	Major topic (high percentage)	Minor topic (low percentage)
Professional relationships (RQ3)	Awareness of professional relationships Knowledge (Different levels)	Interact more than other professionals Any improvement required
Patient-educator Relationships (RQ4)	Knowledge of self-care Attitude to educator participation	Additional changes required Psychologist access and availability
Training (RQ2)	Knowledge of the educator’s qualifications As qualified as other professionals	Attitude to educator as a career Additional training required
Legislation (RQ1)	Awareness of legislation policy Knowledge of role of the educator	Restricted scope of practice Knowledge of scope of practice

### 3.4.2 Summary focused on themes in relation to role and site

This results chapter has analysed a range of data gathered from a select sample of

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participants from Singapore and Brisbane who were either patients or diabetes health educators. First, on the comparative summary of demography reported in relation to Optimal Scaling, Singaporean and Brisbane participants, regardless of other affiliations, differed in terms of their use of alcohol and their age group. Likewise, educators and patients (referred to as clients in that analysis) differed in relation to their levels of education and their use of tobacco. The differential may be due to the Singaporean participants being younger or possibly to cultural differences in their social behaviour (e.g., deference to authority).

Second, based on the identification of topics of responses to four research questions, Brisbane educators were the most likely to answer these questions proportional to their number, whereas Singaporean patients were least likely to answer these questions proportional to their number. Of the 18 patients, ten were located in Singapore, and, likewise, of the 14 educators, eight were located in Singapore. Despite the disparity in numbers per location, the Brisbane participants were relatively more forthcoming with their responses to the research questions.

Finally, based on the automated text analysis reported in the last section, educators, regardless of their location, were likely to share many common values, as were patients from Brisbane who were older. In contrast, Singaporean patients tend to espouse a distinct set of values as expressed by spatially close associations with concepts that are relatively remote from those for the other three subsets of participants (Brisbane educators, Brisbane patients, Singaporean educators).

Based on these associations, one might conclude that Singaporean patients are more

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concerned with tangible events and people (i.e., doctors, nurses, blood tests, and diets). In contrast, the other three subsets appear to be more concerned about the generalities of patient care in relation to health information, hospitals, and the work and training of educators. The following chapter discusses these findings in relation to the research questions and the literature.

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## **Chapter 4.0      DISCUSSION**

This study has clearly demonstrated that the global significance of diabetes as a major disease management concern has not translated into rapid reform.

This study addressed *five* research questions about the perceived role of the diabetes educator. The questions related to (a) legislative documentation relevant to scope of practice, (b) training, (c) relationships with other health professionals, and (d) the perception held by patients of diabetes educators.

From these *five* research questions, these structured questions were asked during the interview sessions:

1. What are the legislative and policy frameworks that determine diabetes educators' scope of practice in hospitals and clinics?
2. What training programs do diabetes educators undertake to develop their knowledge, and where are the training programs conducted?
3. How do diabetes educators interact with patients and other health professionals in the health care team?
4. What are the patient's perceptions of their interaction with the diabetes educators?
5. Is cultural awareness a factor in the diabetes educator / patient interaction?

### **4.1      Research Question 1**

With respect to the first question about legislation governing scope of practice, the answers were site specific. Thus, 83% of Brisbane educators and 50% of Brisbane

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patients considered that changes in legislation were required. The same question from both educators and patients in Singapore elicited no response. Educators and patients in Singapore understood the question about legislation but either could not offer an opinion or, for whatever reason, chose not to. The high response rate from the Brisbane educators may be due to an awareness that their professional role as a member of the health care team depended on legislation prescribed by the employing policy makers. The lack of responses from either the Singapore educators or patients may be based on a cultural /ethnic belief that any legislative change would be the decision of the administrators and therefore non-negotiable.

When patients and educators in both sites were asked if they understood the role of the educator, 30% of the patients and 25% of the educators in Singapore answered in the affirmative; conversely 50% of the educators and 25% of the patients in Brisbane responded likewise. The reversal of opinion between educators and patients appeared to be based solely on patient perception as legislation, in both sites, applicable to and formulated specifically for the determination of the scope of practice for diabetes educators, did not exist. Scope of practice was unofficially based on the educators' awareness of their strengths and limitations based on their primary professional qualification.

#### **4.1.1 Implications**

In all cases in this study, the qualification was from the nursing profession. The base qualification of nursing as a means of determining scope of practice has become unacceptable, as health professionals from other disciplines have started to practise as

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diabetes educators. This change has been supported by the Australian Diabetes Educators Association (Australian Diabetes Education Association, 2003). Because the Singapore Diabetes Educators Association based its terms of reference on that of the ADEA, a similar reappraisal for scope of practice definition would be necessary.

#### **4.2 Research Question 2**

With regard to the second question on training for diabetes educators, 83% of Brisbane educators felt they had sufficient training as opposed to 62% of educators in Singapore. Only 30% of patients in Singapore and 37% of patients in Brisbane believed that they knew how diabetes educators were trained. The general view was that educators were nurses who had developed a special interest in diabetes. The higher percentage of Brisbane educators who considered their training to be at a sufficiently high level may be based on their perception of the rigor of their nursing and educator training programs. Conversely, the lower percentage of Singapore educators who considered their training to be at an appropriate level may be based on a feeling of dissatisfaction with their training programs.

Training programs for diabetes educators are offered by the respective Australian and Singaporean Diabetes Educators Associations through hospital or educational institutions that provide the level of initial qualification required. Completion of these programs provides a qualification that allows the recipient to seek employment and practice as a diabetes educator. Since employment can be secured with this qualification, the diabetes educators in this study saw little need to progress through the credentialing process advocated by each Association. To be credentialed required a system of mentoring, and



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very importantly additional financial costs, considered to be prohibitive when credentialing was not compulsory. Therefore, the ideal for training as a diabetes educator existed, but the regulatory powers to make credentialing mandatory for employment did not.

#### **4.2.1 Implications**

The current role played by the diabetes educators in patient management of diabetes in this study could not demonstrate an understanding of the educational models advocated in the literature i.e., to produce both attitudinal and behavioural change that would enhance patient self-management. The cognitive approach to patient self-management was the most evident during the educator / patient observation process. Educators based their advice to patients on the provision of information that relied on the patients understanding the concepts of diabetes pathology. Observation of the educator / patient interaction (Figure 2.2) elicited a process of patient interaction that seldom varied. The greater part of the interaction followed the steps depicted in Figure 2.2 and only developed in to other discussion areas because of a particular and individual concern the patient may have had. There was little evidence of the educators understanding the more modern approach of behavioural and attitudinal change to produce compliance and patient self management of care. This supports the view that early diabetes education focussed on the acquisition of knowledge and its impact on behavioural and metabolic outcomes (Anderson & Funnell, 2008). It would appear that little has changed in the contemporary education provided as witnessed in this study. It posed the question of whether the findings would be different in institutions where the educators were

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credentialed.

Patient education has been widely supported and advocated for diabetes care in the literature by (Miller, 1972; National Institute for Clinical Excellence, 2003; Redman, 2001; Renders & Griffin, 2001). However, if diabetes educators were not progressing to the credentialing stage, then it could be assumed that the quality of the educational process was not at an optimum level. According to the NICE (2003) findings, some educational programs are unstructured, few are evaluated, and few individuals who deliver education have been formally trained.

The ADEA Code of Conduct (2004), stated that diabetes educators have a responsibility to work towards credentialed status and, once attained, to maintain their credentialed status. The Code of Conduct defined a credentialed educator as a full member of ADEA who has completed an ADEA accredited graduate diabetes education course and, in addition, has completed a supervised period of clinical practice and activities that fulfill the continuing education and professional development requirements of the ADEA credentialing program (Australian Diabetes Educators Association, 2004).

It is apparent that the ADEA would prefer educators to complete the credentialing program. However, employment does not depend on having done so, and this study showed that credentialing was not considered an attractive proposition. As the Singapore Diabetes Educators Association based its code of conduct on the Australian model, a similar situation existed in the hospital and clinic visited in Singapore. By not undertaking a formal training program, it had to be assumed that many diabetes educators relied on primary qualifications as a health professional and possibly short - term

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continuing education courses to provide additional relevant skills.

Perceptions of the role of the patient in educational programs have changed. According to Funnell (1995), the trend is towards referring to diabetes education programs as self-management education training programs. Thus, patients attend the program to be taught the skills necessary to personally play an important role in managing their disease. The educator, therefore, requires the skills to assist the patient in reaching particular goals and in consciously appreciating why their personal involvement is crucial to good health care. According to (Bruner, 1971), three variables must be acknowledged by anyone engaged in teaching: (a) the learner, (b) the knowledge, and (c) the learning process.

This theory by Bruner is acknowledged as being dated but was used on the basis that the theory is still valid. To assist the patient in understanding self-management goals and being personally involved in achieving these goals, the educator must be both aware of these variables and have the skills to engage in a process that will enhance the management skills of the recipient.

Encouragement of self-management by informing patients about the risk to their health by not adopting behavioural change is a theoretical concept. The provision of tools to achieve the desired outcome may well be lacking. Leventhal's Self Regulatory Model (Leventhal, 1987), the Protection Motivation Theory Rogers, (Rogers, 1984), and the Health Belief Model (Becker & Maiman, 1975), all talk about patients possessing the techniques, knowledge and skills to make change based on an appreciation of the health risks. This study found that patients agreed that the diabetes educator encouraged self-management but did not discuss the methods on how to achieve it.

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This study suggests that there is a serious lack of individuals who have undertaken a training program that provides the skills associated with the mechanism of teaching, an understanding of the learning process, and the ability to use these skills to assist patients in achieving levels of patient interaction that would be beneficial in health care management. One has to consider whether the various reactions to inter-professional relationships, patient perceptions, and the educational process would be different and possibly more structured if the educators had had the benefits of the credentialing process.

Research is a core component required by the ADEA (Australian Diabetes Educators Association, 2001) and its credentialing program (Dunning, 2006). Since the educators who participated in this study were not credentialed and did not pursue research options, it appears that they had not been exposed to a research ethos. Alternatively, although research has been identified as a core component of the educator's role, the extent to which research should be taught has not been clearly articulated in the graduate certificate of diabetes education (Parahoo, (2000). Informal discussion with educators in Brisbane and Singapore suggested that the reasons for not conducting research centred on lack of time, resources, and opportunity, rather than lack of understanding the research process, and how research and clinical practice can be integrated. Dunning (2006) reported similar reasons for not being involved in research.

### **4.3 Research Question 3**

Responses to question three on how patients and educators perceive the interaction between the educators and other health professionals, 75% of the Singapore educators as

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opposed to 67% of Brisbane educators, were aware of intra-professional interaction. The higher percentage in Singapore may be as a result of the educators' personal interpretation of their daily interaction with the other health professionals but the disparity with Brisbane educators was not evident during the observation sessions in this study. Patients in both sites said they were aware that the educators did communicate and consult with other health professionals.

#### **4.3.1 Implications**

The literature relevant to the role of the educator has wholeheartedly supported the educator as a member of the multi-disciplinary health care team and has valued the contribution they make to the care of the diabetic patient. The change from passive patient into active patient who participates in the decision making program has meant that the educator has become, in theory, a facilitator who helps patients to learn how to manage their diabetes. Therefore, the educator has to be aware of how to promote self-management by (a) increasing patient knowledge, (b) providing the skills to facilitate change, and (c) change attitudes and behaviour.

#### **4.4 Research Question 4**

In question four, patients and educators were asked to comment on personal perceptions of input educators felt they made to patient wellbeing, and how patients actually perceived the educator's input; varying responses resulted from both research sites. In Brisbane, 83% of educators felt that the patients appreciated and supported their contribution while 75% of educators felt similarly in Singapore; however, the patients

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were not as supportive with only 30% of Singapore and 37% of Brisbane patients offering support. In Brisbane, 62% of patients had a positive attitude to the educator's contribution as opposed to 50% of patients in Singapore.

#### **4.4.1 Implications**

When educators in Singapore and Brisbane were invited to define their role as a diabetes educator, compilation of their responses included terms such as management, teaching, supportiveness, the achievement of good health outcomes, and promotion of self-management processes. All of the educators considered these responses to be important and to be components of their daily involvement with patients. However, they also agreed that patient continuity of care could be problematic, as the patient may see a different educator at each visit. Therefore, the emphasis on a particular aspect of care may be different at each visit. A unique finding in Brisbane was the extraordinary lengths one educator went to ensure diabetic suitable food was available, if required, by one of her patients at the bar where he socialised.

The debate may well surround the question of whether the patient is receiving the support required, and, in what capacity patients are regarded by the educator. This study supports the fact that educators try very hard to include the patient in any discussion, but in essence the interview appears to be an "I tell you listen" process. This model of the passive patient had also been a factor recommended for change to a more active patient involvement in the decision making process, and was supported by Dean (2001) when referring to the introduction of a multi-disciplinary team approach. Diabetes educators in this study were aware of the need for inter-professional communication and support to

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obtain the maximum benefits of the multi-disciplinary team for their patients. With respect to the patient's perceptions of the role played by the educator in assisting them to manage their diabetes, there was a generally positive response.

An appreciation of support would be difficult to measure other than by the use of a questionnaire, so in both Brisbane and Singapore, the educator's responses were probably based to some extent on patient feedback or personal impressions. An interesting point regarding patient behaviour was made by an educator at the polyclinic in Singapore who believed that patients in Brisbane would be more difficult to deal with as they would be more aware of their "rights." Although the educator could not explain why she held this opinion it may be based on the belief that patients in the more affluent, developed, western countries have an expectation that the health services will be readily available and provide a service commensurate with the patient's expectations. The lower response rate in Singapore may again be a result of ethnic hesitation in voicing an opinion that could be either supportive or disparaging. In terms of frequency of visits to the hospital or clinic, 75% of educators in Singapore considered the status quo to be sufficient as opposed to the view expressed by 50% of educators in Brisbane.

#### **4.5 Comparative analysis between the two study sites**

In summary, of three questions relating to legislation, training, and patient appreciation of the service provided by the educator, the Brisbane educators' results were significantly higher than those of the Singapore educators. The educators' perception of the interaction between members of the multi-disciplinary team, however, was greater in Singapore than in Brisbane. There was no apparent reason why the educators in Brisbane responded to

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three questions much more positively than the educators in Singapore. Equally, there was no clear reason why the Singapore educators considered that there was greater interaction with other health professionals than did the Brisbane educators. If the results were based on cultural, educational, or differences in institutional relationships, there was no obvious means of identifying these differences from the data.

#### **4.6 Research Question 5 Cultural awareness**

Some of the responses during interview provided information which, while relevant to the research questions, added additional peripheral viewpoints, basically of a personal opinion on diabetes care in the respective research sites. From the researcher's viewpoint, the patient population visiting either site was basically similar.

The educators at the hospital noted that in an effort to encourage self-management, Chinese patients were motivated to understand the benefits of good healthcare by using numbers. For example, when taking blood sugar readings, higher numbers became the "bad" number; when readings indicated lower numbers, then they became "good" numbers. By encouraging the means of producing "good" numbers through exercise and diet control, patients would become more aware of how they could influence and take control of their health. Any such scheme to encourage patients to participate in self-management was important given that failure to incorporate important aspects of culture into direct patient care and diabetes education targeting ethnically diverse populations may result in less than optimal patient satisfaction in these populations (Williams et al., 2006).



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Although physical examination of a patient was not considered problematic, only one educator, in Singapore, made a point of referring to potential difficulties when examining male patients from different ethnic/cultural backgrounds. In Singapore, one educator, a Muslim, acknowledged that she had to be careful when touching a male patient. She had to explain to the patient why touching was necessary to form an assessment of the patient's health. By contrast, four other educators responded by acknowledging the existence of cultural differences and the importance of recognising and working around them. For example, some of the Chinese patients were taking medicine prescribed by both the clinic and the local Chinese herbalist. These patients considered the western medicine to be useful in combating the symptoms of diabetes, but the Chinese herbalist provided the medicine that actually treated the disease itself. If a patient became unwell, often the western medicine was blamed, and the herbalist advised the patient to discontinue its use until they recovered, which was problematic.

The following chapter, the Conclusion, drew together the expectations of the Diabetes Educators Associations and the reality of practice found in the communities where the research study was undertaken. It also considered future initiatives and implications for research programs in diabetes education.

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## **Chapter 5.0      CONCLUSION**

In the literature and introduction to this study, diabetes has been portrayed as a clear and urgent global problem. Education has been considered to be a principal weapon in combating both the onset and complications of the disease. The international insight into diabetes education provided by the two research sites, however, revealed a basic failure to implement recommended practice among non-credentialed educators. The data analysis demonstrated sufficient similarities to be able to consider this study as representative of the current nursing trained role of the diabetes educator. No previous study has offered such an intimate account of actual practice through qualitative methods.

The research questions were designed to explore the role played by the educator in providing educational programs in a health care team working together to combat diabetes and its associated complications. Patient education was a priority in a series of policy and standards documents on diabetes management, the St Vincent Declaration (1989), the Declaration of the Americas (1996), and the Declaration of the Western Pacific (2001). Since these publications, this study showed little apparent progress in achieving the ideal outcomes articulated in these documents in fairly typical practice settings. Current guidelines state that education is fundamental to help people with diabetes modify their lifestyle and prevent ill health. For example the American Association of Diabetes Educators website advertised its forthcoming 2008 conference with a strong bias towards patient self-management issues. However, many people with diabetes are not receiving adequate education (Knight, Dornan, & Bundy, 2006).

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Instead, this study showed an ad hoc approach to the educator-patient relationship, which followed a basic formula. Employers accepted and expected that the educator would practise within the parameters of their primary qualification code of conduct, which, in all cases, was nursing. This study, moreover, showed commonality in nursing based practice between the practice centres in Brisbane and Singapore and no clear evidence of best practice in the educational process. When compared to the respective recommendations of the Australian Diabetes Educators Association (ADEA) and the Association of Diabetes Educators Singapore (ADES), diabetes educators in the two countries were more similar to each other than to their country's standards. The focus was day-to-day care.

The methodology for this study was similar for Brisbane and Singapore. In each case, the same format of observation, interview, re-observation, and review of any available legislation governing the educator's scope of practice was followed. The selection of sites was not unusual or atypical of practice in these countries. These hospitals were important institutions in their respective cities. Because this study involved participation in the daily activity of the educator and their interaction with patients, the qualitative method of investigation used by the researcher was supported in the literature as the method of choice. The researcher maintained the role of silent observer and impartial interviewer. The major constraint imposed by this methodology was the need to select English speaking educators and patients in Singapore and the lack of a trial period of familiarisation with the Singapore settings. As the Singapore and Brisbane sites showed minimal differences between educators and patients in terms of the consultative process, it appeared that these methodological constraints did not affect the results in any

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substantive way.

A trial session conducted at the hospital in Brisbane confirmed that the research process and methodology was appropriate. The trial visit to one research site allowed the researcher to be familiar with proceedings and to blend in with the day-to-day consultations. The choice of the Brisbane site for the trial was based on its geographical proximity and ease of access for the researcher. It did not appear that the presence of the observer markedly changed the nature of the interviews, observations, or patient relationship with the educator (see also (Mobley, 1992).

## **5.1 Recommended practice for diabetes educators**

### **5.1.1 Standards**

The areas of particular interest arising from this study:

1. Culture,
2. Patient self-management,
3. The Role of the Diabetes Educator,
4. Patient perceptions, and
5. Training.

### **5.1.2 Cultural Issues**

Recommendations in the literature for programs fostering culturally sensitive practice, self-management and the educational process to scaffold program development, and evaluation were not observed. The multicultural societies of the two research sites provided a naturally occurring opportunity to examine cultural sensitivity to the

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understanding of patients and their compliance with treatment. This aspect of practice has become of increasing potential importance with the spread of diabetes into the developing worlds, but treatments have been based on western approaches. The question of whether racial/ethnic minorities make health related decisions differently and how these decisions can be influenced, was very pertinent (American Association of Diabetes Educators, 2001). Recent discussions have highlighted concerns that communication of information that considers cultural, religious, and linguistic differences are important to promote effective self-management and cultural relevancy (Hill, 2006). By contrast, the AADE expressed the view that diabetes educators can be a major factor in improving the level of care received by patients irrespective of their geographical, racial, or socioeconomic classifications (Gonzalez, 2008). It has also been argued that cultural relevancy is significantly associated with greater program satisfaction when working with distinct groups of patients (Williams et al., 2006).

In this study, diabetes educators did not vary their approach when treating a patient from a different cultural background. Indeed, it did not appear that the educators were aware that cultural differences may affect patient understanding and compliance with treatment. One educator, from a total of fourteen interviewed, expressed the view that she had to be aware of cultural requirements when working with a male Muslim. Perhaps the selection of English speaking participants shaped this apparent effect. More generally, it appeared that the diabetes educators were applying a universal approach commensurate with their discipline, training, and experience, which derived from the nursing profession. Cultural differences made little contribution to this study in terms of educator awareness and implementation of different procedures for different ethnic groups, even though the

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research sites were urban, rather than isolated rural communities.

### **5.1.3 Patient self-management**

Educators relied on trying to deliver the benefits of adhering to good self-management practice by congratulating patients who had either lost weight or retained a good blood sugar level. Recommendations in the literature for programs fostering learning based interaction as a bridge to self-management did not occur.

By contrast and to possibly add to the diabetes educator myth, the National Centre for Monitoring Diabetes, (2004), considered that diabetes educators provided a planned educational process. This helps people understand the benefits of good self-management and equips them with the necessary knowledge and skills to implement best practice self-management. The recommendations for the role of the diabetes educator as depicted in the ADEA and ADES documentation were not observed nor were they discussed as future goals to work towards.

Actual strategies based on principles of teaching and learning were not evident in either the hospital or clinic sites. For example, the use of strategies based on the concept of health awareness, as depicted by the Health Belief Model (Becker & Maiman, 1975; Lewis, 1990) or Transtheoretical Model (Prochaska, 1992), were not observed. These findings support those of Diabetes Australia (Australian Diabetes Educators Association, 2004), when only 29.2% of diabetes educators reported to using one or more theoretical models to underpin the information and education they provide. The most frequently used models were the Transtheoretical Model (13.8%) followed by the Health Belief Model

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(9.0%). Diabetes education has encompassed more than the documentation of information; the new goal has been characterised as aiming to facilitate changes in specific behaviours (Austin, 2006). The view expressed by Austin supports the earlier opinion of Diabetes Australia, 2004, which suggested that there was a need for information and education to be based on sound theory and principles. This is possible due to the readily accessible substantial, discrete, and coherent body of systematically derived theory regarding education and behaviour. There appears to be a serious lack of adoption of these models into the routine practice of information and education provision for people with diabetes. In this study, there was no evidence of professional development to explain and encourage models that support the team approach to deliver diabetes care and self-management education interventions, (Siminerio, 2006).

The National Standards of Practice for Diabetes Educators also promoted the view that the diabetes educator establishes education programs that are based on three principles.

1. Education programs have documented aims and objectives.
2. Teaching modules have documented aims and objectives in measurable terms.
3. All education plans are reviewed and evaluated at least every 3 years.

The analysis of data from Brisbane and Singapore did not indicate signs of the establishment of education programs. Measureable and documented aims and objectives were not in evidence during either individual observation or interview sessions. The National Standards also held the diabetes educator responsible for the evaluation of the diabetes education process. In this study, several educators stated quite categorically that

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they had no time for conducting an evaluation process. In both Brisbane and Singapore, the patient workload was considered to be a deterrent to additional activities. None of the educators volunteered any interest in the evaluation process throughout the semi-structured question time at interview. Evaluation of practice was neither observed nor reported. Moreover there was no requirement by the employing authorities for the educators to engage in more proactive training that may have provided the skills and incentive to evaluate their interaction with the patients. In order to determine if the educators would have preferred to be involved in more proactive work in preparing and evaluating educational processes and their outcomes, if creative resources and supports were available, an additional level of questioning would have been required.

Although the ADEA advocated that educators should monitor the quality and outcomes of their practice to improve their service provision, educators were quite adamant that they were not monitored, nor did they have time to monitor patients, evaluate the outcome of the education and care provided, or engage in research to enhance their area of expertise. This outcome is at variance with the argument that the educator's role is to provide an environment that could be described as providing scaffolding for the learning process (Skinner et al., 2006). Additional questioning may also have determined if the educators were actually aware of the literature relevant to their role as a member of the health care team. The educators viewed the lack of time as the barrier to monitoring patients, evaluation, and research. They did not identify an interest in doing so, even if time was not an issue. Hence, further research in this area would need to examine awareness of the recommended practice and willingness to adopt it in current practice. Lack of evaluation of practice outcomes was not unique to this study. In the United States



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of America in 1986, the national Standards for Diabetes Self-Management Education developed a program to evaluate diabetes self management education programs. By 1997, there were no national outcomes data (Peeples, Tomky, Mulcahy, Peyrot, & Siminerio, 2007). By 2009, the President of the AADE stated that it was essential that the work diabetes educators did was firmly grounded in research, backed by best practices, and advocated by experts in the field (Draheim, 2009), p.529. Little had changed in the evaluation of and research in diabetes education since 1986.

The codes of conduct of both the ADEA and the ADES targeted credentialed diabetes educators. Because the educators involved in the study were non-credentialed, the various recommendations for educator - patient interaction were not observed. Further study of credentialed educators would be interesting to determine if a heavy workload and lack of time were the sole determinants in determining if the ADEA recommendations were not carried out.

#### **5.1.4 The multi-disciplinary clinic environment**

Duplication of patient information was significant between members of the health care team, particularly in areas of diet and nutrition. Fifty percent of patients in Singapore nominated repetition of information as a factor but did not consider it to be a distraction from the overall contribution by the educator. Multidisciplinary clinics operated in both the Brisbane and Singapore research sites; however, practice in the teams remained individualised. The use of multidisciplinary clinics was also heavily supported in the literature. The perceived success and importance of the multidisciplinary clinics has been recognised by the Australian Federal Government who will initiate funding initially for

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thirty one “Super Clinics” at primary care level (Iliffe, 2008). These super clinics will be in the public sector and managed initially in chosen general medical practices, which will, in turn, have other health professionals working as a chronic disease management team. In effect, these super clinics are multidisciplinary clinics, their recognition as super clinics supports the concept of having a multi-professional team working together to care for the at risk patient.

The data analysis was supportive of the multidisciplinary teams insofar as they provided a range of professional health specialties designed to maximise patient care. However, patients held mixed views about duplication of information that, on occasion, could have been contradictory. Patients nominated nutrition and diet control as the most common area of duplication of advice from members of the team. The introduction of the structural innovation of team based care, therefore, was helpful but not sufficient to differentiate the role of the clinic based diabetes educator from that of the hospital based diabetes educator.

In the present study, personal appeal in selecting goals appeared to be based on ease of attainment (e.g., a minor change of diet or alcohol consumption as opposed to taking daily blood samples for noting blood sugar levels). In both Brisbane and Singapore, no obvious system or plan was developed to provide the patient with the tools to feel confident in maintaining good health. Instead, the educators encouraged patients to accept responsibility for self-managing their diabetes in the intervals between visits to the hospital or community clinics. In this respect, educators presented a care package that was similar for every patient. Yet, they did little to encourage a belief in the patient that

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following the advice would achieve good outcomes. When individuals have been provided with information on health behaviours, it has been found that they will select personally appropriate goals, which have personal appeal (Estabrooks et al., 2005). Diabetes education should be integrated with the change of lifestyle, attitude, knowledge, skills in diabetes self-management, and program evaluation (Lee et al., 2007).

### **5.1.5 Patient perceptions**

From the patients' perspective, those interviewed reported that they found the educator to be helpful. They recognised that the educator had a specific role in their health care. However, they gave mixed reactions about whether their educator was as well qualified as the other health professionals and about what their actual role was in assisting the patient to develop a plan to combat the possible complications associated with diabetes. Interestingly, patients in Brisbane and Singapore provided exactly the same response to the question relating to their attitude towards the role of the educator and their attitude towards other health professionals (i.e., 62 and 40%). In a study carried out in New York and Pennsylvania, the major disagreement between the physician and educator was in medical practice (Redman & Fry, 1998). The perception being that the physician considered the educator was encroaching on a medical approach, rather than an educational approach, when consulting patients. The conflict over the role of the educator versus that of the physician has still to be resolved (Peyrot, 2008). Between 1998 and 2008, therefore, little appears to have changed. Overall, the impression gained from the patients was that they were happy and comfortable in their discussions with the educator. The educator was someone to whom the patients related. They appreciated their

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contribution and participation in their health care. Sixty two percent of the Brisbane patients and fifty percent of the Singapore patients also expressed their support for the educator's participation.

### **5.1.6 Training**

In this study, the level of qualification varied from diploma level nurse training to university degree level for other health professionals in the multidisciplinary team. Irrespective of the difference in level of qualification, each member of the health care team was recognised by patients as providing a service for the benefit of their health care. The patients also expressed the view that other members of the health care team were trained specialists in their particular professional discipline and that educators were nurses with an interest in diabetes. Patients displayed some difference of opinion between those patients who did not give qualifications any consideration and those who thought that university training like other health professionals would be appropriate.

### **5.1.7 Outcomes**

Topics of greatest interest to the participants related to knowledge, qualifications, and professional relationships. In contrast, the topics of least interest related to the need for changes of various kinds including the scope of practice. One might conclude that the participants were more interested in upholding and furthering the professional standing of the diabetes educator and less interested in questioning the limits of the standard practice or modifying the training associated with it.

One might conclude that Singaporean patients are more concerned with tangible events

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and people, that is, doctors, nurses, blood tests, and diets. In contrast, the other three subsets appear to be more concerned about the generalities of patient care in relation to health information, hospitals, and the work and training of educators.

The broader conclusion to be drawn is that the standard academic training available to health professionals regardless of the locale of their practice has an homogenising effect of their attitudes and knowledge, as demonstrated in this study by the extent to which Singaporean and British educators were of common mind in terms of their responses. It is also of interest that Brisbane patients in many respects took up positions akin to these educators. One might say that the position taken up by Singaporean educators is not clearly aligned with specific cultural settings, except that the levels at which they commented tended to be lower than participants from Brisbane.

This homogeneity is underlined by the gap between the views expressed by the three subsets of participants alluded to above (Brisbane educators, Singapore educators, Brisbane patients, and Singapore patients). The attitudes and knowledge of this group are expressed both in a preference to discuss the immediacies rather than the generalities of the treatment for diabetes. In fact, one might say that they evince a preference for not discussing the role of the educator per se as demonstrated by the relatively low levels of thematically based comments relative to the other three groups.

Over and above these cultural differences, the strong preference of participants to discuss knowledge, qualifications, and professional relationships rather than the need to modify any of the above is consistent with a strongly conservative professional orientation. It is difficult to rate the chances of growth and change in relation to the work of diabetes

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educators when a critical mass of educators and their patients are patently not considering change as a strong option.

## **5.2 Negative outcomes**

1. Employers in this study did not differentiate between credentialed and non credentialed educators for employment.
2. The educators relied heavily on their nursing training when interacting with the patients.
3. Treatment plans were not evaluated and there was no evidence of goal setting to encourage behavioural or attitudinal change.

## **5.3 Limitations of the study**

The sample size of 14 educators was small. However, the richness of information derived from studying participants from two international communities on specific and yet similar issues outweighed the collection of large quantities of information from a single research site. Yet, three methodological limitations were identified in the procedural conduct of the study.

First, the English language was a major barrier to access the wider community of non-English speaking diabetes educators and patients in Singapore. It could, therefore, be argued that a future study involving non-English speaking patients and diabetes educators could produce data with a different perspective to that of this study. Data from such a study may also be more indicative of what could be expected in a developing or third world country. Although the educators could speak English, their understanding of the

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relevance and meaning of a question proved on occasion to be difficult to establish. Questions often had to be rephrased several times.

Second, time to interview Singapore educators was difficult because the educators had a very busy workload and did not work to a patient appointment system. In both hospital and clinic, the problem was to find patients who spoke English and could be both interviewed and observed while the educator conducted their assessment so that the researcher could follow proceedings. As the data analysis showed, some educators in Singapore and patients from both Singapore and Brisbane responded to questions in a way that demonstrated either a lack of understanding of the intent of the question or was genuine uncertainty about how to respond.

Third, the data collection process was completed on time and, overall, in a relatively brief window. It is possible that more extended observations might have provided more detail. However, the basic outcome would have remained. An opportunity to interview administrators after the diabetes educators and patient interviews might have provided an opportunity to assess their reaction to the points made, particularly by the educators, about the relevance of training to effective practice and about their perceived role as part of the health care team.

#### **5.4 Future considerations**

Despite the priority assigned to education as a weapon against diabetes and despite recommendations published by various educators' associations, this study identified a large ongoing gap between what they hoped to achieve and the reality of what had been

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achieved. This study also posed the question as to whether the title of Diabetes Educator is appropriate when considering current practice. If the role of the educator is to promote patient self-management through educational learning theories, then there is huge scope for the current role to be re-negotiated and re-defined. This study confirmed the view of Simmons (2001) that a substantial portion of diabetes education time is often spent explaining what diabetes is, when patients also need to learn how to carry out self-care tasks.

This study has shown that the diabetes educator(s) through their specific professional discipline, which may be from a number of the health professions, can contribute to the knowledge a patient requires as a minimum, to control their diabetes. However, it is also apparent that the educator(s) does not have the skills to formulate and implement policy and practice that would develop attitudinal and behavioural change in the promotion of patient self-management. The gap between what is currently practised as opposed to what is promoted by the respective diabetes educators associations has not been bridged.

The American Association of Diabetes Educators (AADE) promotes the scope of practice for diabetes educators as the provision of knowledge and skill training that help individuals identify barriers and to facilitate problem solving and coping skills to achieve effective self-care behaviour and behaviour change (Martin, Daly, McWhorter, Shwide-Slavin, & Kushion, 2005). The AADE ADEA and the ADES continue to promote this idealistic mantra but it is not practised by the educators in the hospital or clinic setting. The emphasis continues to centre on self-management issues rather than how to ensure that the educator has the skills and education to progress the various associations ideals.



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This discrepancy in emphasis relating to what one can consider to be the role of the educator continues to be sanctioned. The AADE conference scheduled for 2008 concentrates almost exclusively on self-management education and behavioural modification, which supports the evidence that education per se for the educator is either considered not to be an issue or there is an assumption that the current training program provides the required training, and that educators are actually applying the association recommendations in the clinical setting.

In 2009, the perception of diabetes education and the role of the diabetes educator was questioned by the president of the AADE. The questions targeted the following. Who is qualified to teach patients about self-management? What types of topics need to be covered during sessions with patients? How do we distinguish between high quality educational practices and those that are not effective? What is a diabetes educator and what exactly do they do? (Draheim, 2009), p.529. These questions are appropriate and relevant to this study and its focus on the myth and reality of the diabetes educator.

Traditionally, the diabetes educator has been referred to as the diabetes nurse educator. This trend has slowly been rectified both in practice and in the literature (Australian Diabetes Education Association, 2003). Nursing practice has remained the actual basis of the current rather nebulous role of the educator. The suggestion that the descriptor could be changed to that of the diabetes care provider has been promoted by Simmons (2001). In his model, a member of the existing diabetes care team accepted the responsibility for helping patients navigate through the maze that is the health care system, systematically identified barriers, and ensured that relevant measures (human, welfare, educational) are

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made available to patients. Simmons (2001) considered that, in order for the current diabetes care model to change, a shift in the current biomedical and nursing models of care to a more patient centred approach is required.

It remains unclear to what extent a more educational approach would improve the quality of diabetes education. This study has not provided evidence that an essential component of diabetes education is well trained instructors who are knowledgeable about diabetes, educational principles, and behavioural strategies (Anderson & Funnell, 2008). A similar study with credentialed diabetes educators may provide different outcomes.

## **5.5 Implications for future practice and research**

A very strong case has been made in the literature for education as a means of combating the incidence and associated complications of diabetes by developing programs leading to an increased patient self-management policy. Diabetes self-management education (DSME) is defined as an interactive, collaborative, ongoing process involving the person with diabetes and the educator(s). The process includes four topics (Martin et al., 2005):

- a. assessing the individuals specific education needs,
- b. identifying the individual's specific diabetes self-management goals
- c. education and behavioural intervention directed toward helping the individual achieve identified self-management goals, and
- d. evaluating the individual's attainment of identified self-management goals.

This study has shown that the educator assesses what the patient is required to do to develop self-management in particular modalities, (e.g., nutrition and maintaining good

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blood glucose levels). However, there has been early recognition that an educational strategy that relies on health professionals' perceptions to determine what diabetic patients need to know may be inadequate (Genev et al., 1992). Despite numerous recommendations for the training of diabetes educators, this study has shown that little has changed for the non credentialed educator. The educator(s) did not identify any interventions to promote or evaluate the achievement of self-management goals. Despite the support by a number of agencies and declarations from the World Health Organisation, little has been achieved in the determination of how to implement educational teaching and learning modules to change the attitude and behaviour towards diabetes often exhibited by those with the disease. The role of the health professional best suited to providing the educational programs has been nebulous in its description. There is an urgent need to investigate the likely interventions required to disseminate "new" practice regimes.

Poor implementation of learning modules has not been a problem solely relevant to the diabetes educator / patient interaction. Mental health care providers have identified similar problems in the care of patients suffering psychological / mental health problems. The response of the mental health carers was to develop the Recovery Model (The Australian Psychological Society, 2009) p.14, designed to consider current activities and question the implementation of outcomes.

The Recovery Model was an approach adopted in the mental health field, which focused on helping people with mental health problems to take control of aspects of their lives regardless of current symptoms. Recovery was not about "getting rid" of problems but

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about taking part in positive activities. Treatment was very much directed to collaboration between the therapist and the consumer, with the therapist working from a strength based person-control approach.

The evidence based psychosocial interventions that were currently used included, behavioural, cognitive, cognitive-behavioural, health based, attitudinal, and self-management

Questions about practice as a means of achieving positive outcomes:

- What strategies can be used to define terms such as positive behaviour?
- What is the best approach for delivering training in positive behaviour supports?
- Do we understand what constitutes post intervention counselling?

The recovery model can be translated from mental health problems to the diabetic patient who is being encouraged to participate in the self-management of their health situation. The diabetic patient is not being treated to cure their diabetes but to become personally involved and work in collaboration with the diabetes educator to develop positive activities that will prevent secondary complications. As with the mental health patient, the therapist (in this case, the diabetes educator) works with the patient to develop a personal involvement in their treatment.

The literature provided evidence of interaction between the diabetes educator and the patient that supports the contemporary treatment regimens of behavioural, attitudinal, and cognitive approaches to encouraging self-management. Five questions asked in the recovery model about positive outcomes can be answered relevant to the diabetic patient:

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1. The patient returns for future appointments.
  2. The patient demonstrates dietary change leading to healthy eating.
  3. The patient is willing to discuss issues with the educator and become personally involved in planning their ongoing health care.
  4. The best approach for delivering training is a collaboration between the patient and educator with the patient's interests being paramount.
  5. Interviewing the patient can elicit concerns, uncertainty, negative thoughts / behaviours that once identified can provide a foundation on which to build a management plan designed to allay these concerns and start to develop more positive behaviours and thought processes.

The similarities between the mental health association and the diabetes associations with regard to determining the best approach to patient care and the encouragement of patient involvement in managing their health were quite marked. The implementation of the means of encouraging self-management remains a major obstacle in diabetes care. The credentialing process and the exposure it provides to learning modules may be the one factor that will strengthen the transition from initial diagnosis to the understanding of self- management benefits.

After researching the role of the diabetes educator in both Brisbane and Singapore, this study has identified nine points that are in opposition to the requirements of both professional diabetes educators' associations.

1. There was little evidence of best practice outcomes (i.e., how the diabetes educator has improved the health of the patient).

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2. Despite some awareness of possible cultural differences, there was no educational package to deal with the requirements of a diverse population.
  3. Strategies to encourage attitudinal and behavioural change were not developed and disseminated.
  4. Evaluation of care plans did not routinely occur.
  5. Educational aims and objectives were not apparent in documents.
  6. Teaching modules using those advocated in the literature were not apparent.
  7. A monitoring process was lacking.
  8. Very little goal setting and no research took place.
  9. There was some evidence of duplication of information provided for the patient between members of the multi-disciplinary team on the basic knowledge about diabetes and minimal self-care issues (e.g., nutrition).

The nine points support the view that most educational programs are unstructured, that very few have been formally evaluated, and that few individuals who deliver education have been formally trained for this purpose (Skinner et al., 2006). The data in this study has shown the practice change void between what was proposed 19 years ago and what the various diabetes associations have continued to recommend today. Clearly, this study shows that much still needs to be done in ensuring that those responsible for diabetes education are trained to the level commensurate with the credentialed educator. The various diabetes educators associations must be more proactive in demanding that all educators must be credentialed. Employers must support the associations by employing credentialed educators and implement legislation to support the role of the credentialed

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educator as a member of the multi-disciplinary health care team.

The well documented increase in the incidence of diabetes must generate government intervention to legislate on the accepted qualification of diabetes educators for training and employment. As management of diabetes becomes increasingly complex, it is imperative that diabetes health care professionals be well educated and appropriately credentialed (Martin et al., 2005). To date, there is no evidence of a study of credentialed diabetes educators having been conducted using a similar methodology to that used in this study.

Education in managing diabetes is central to patient care. Therefore, education of the diabetes educator to ensure the best possible outcomes must be taken to a level beyond that of the current nursing qualifications. In effect, there are two concepts to be considered. First, the education process to produce the best health outcomes through the promotion of patient self-management programs. Second, the education program to provide diabetes educators with the skills and level of training beyond that required for general nursing practice. As other health professionals are being encouraged to become diabetes educators (Australian Diabetes Education Association, 2003), an educational program specific to diabetes education, and the qualification of diabetes educator, must be a requirement of practice, and be in addition to the initial professional qualification.

## **5.6 Future research**

This study did not predetermine that the educators who participated would be uncredentialed. This circumstance was a significant factor in the present study. The findings

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of this study have suggested that a traditional pattern of nursing practice has continued to prevail and that this pattern has been enabled by employers. Further research needs explore the emerging practice of alternative credentialed diabetes educators. Such research would contribute to the data produced by this present study in several ways.

1. A study of a similar format with credentialed educators could help to determine whether there is a marked difference in how the educator relates to the patient and whether they initiate the recommendations for patient interaction as determined by the respective diabetes educators associations.
2. A research program in an environment where educators had participated in all the recommendations for patient education could help to determine whether patients could identify the educator's role in positively changing their attitude and behaviour patterns to obtain positive health outcomes. That is, we need to know more about the extent to which the changed practice differs from that of the current diabetes education and how this changed practice improves the patients' health.
3. An extension of this kind of study could follow the patients, helping to determine whether their interaction with the educator had influenced their self-management planning and contributed to a healthier lifestyle or whether the interaction only lead to a temporary improvement.

No other study of this type had previously been conducted.

This present study has added to the literature by showing how diabetes educators are “doing it their own way” and by opening up the challenges in finding “new ways” to



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provide care based on recommended practice. It stimulates future discussion on the training and role of the diabetes educator within the health care team. The ADEA and the ADES must pursue legislation to ensure that a common standard and level of qualification will apply to all educators and that being credentialed will be essential for employment in hospitals and community clinics, if practice is to enter a new era.

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