

# Nursing and diabetes management:the diatel study research paper examples

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## **Nursing And Diabetes Management:**

### The DiaTel Study

Type 2 Diabetes Mellitus (DM), easily the most common form of diabetes present and known as non-insulin dependent diabetes mellitus (NIDDM) is a disease wherein the body is either immune to the effects of or does not produce enough insulin, a hormone responsible for carbohydrate and sugar metabolism into glucose and its transport into the cells as. In type 2 DM, glucose accumulates in the blood due to lack of insulin resulting to hyperglycemia. This is characterized by the triad of polydipsia, polyuria and polyphagia (MayoClinic, 2013).

Type 2 DM is not curable, but manageable (MayoClinic, 2013) to improve quality of life and prevent comorbidities. The most common are micro- and macrovascular, proven to be associated with increases in glycosylated hemoglobin (HbA1c) levels (Stone et al., 2010, p. 478). Microvascular complications include diabetic nephropathy, neuropathy, and retinopathy, while macrovascular complications involve coronary artery disease, peripheral arterial disease, and stroke. The latter is due to occurrence of atherosclerosis or the accumulation of plaque in the arterial wall lining leading to a narrowing and restricted blood flow (Fowler, 2008, p. 1, 5). Along with a carefully planned diet, and sometimes with exercise, oral hypoglycemic agents (OHAs), such as metformin for initial therapy, are the standard treatment employed by American Diabetes Association (2013) in the management of type 2 DM (p. S22). While insulin is the gold standard for type 1, it can also be used in type 2 when patients are newly diagnosed, distinctly symptomatic, and with significant elevations in HbA1c levels. ADA

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also enumerated treatment guidelines for the management of diabetes with complications.

Glycemic control proves to be of importance in the reduction of morbidity and mortality incurred from diabetes. Macrovascular complications can be significantly reduced if glycemic control is started early in the course of the disease and with specific intensity (as cited in Stone et al., 2010, p. 478).

Determining the efficacy commonly involves self-monitoring blood glucose (SMBG) and laboratory examination of HbA1c. While these monitoring techniques prove to be particularly efficient in the young to middle-aged adults, presence of complications make it challenging to assess success of glycemic control, especially in older populations.

Telemonitoring is a relatively new method of observing glycemic control at a distance using information technology. Past studies have proven its cost-effectiveness in the management of chronic diseases such as heart disease and asthma (Meystre, 2005). Other studies, however, were not able to produce significant results in the employment of home telemonitoring (HT) specifically in diabetes management. Coupling it with active care management (ACM) provided by a nurse practitioner, the study by Stone and his colleagues (2010) tries to determine whether HT (+ACM) can provide short-term effective glycemic control (p. 478).

The DiaTel Study employed a 6-month randomized controlled trial of veteran patients with type 2 DM enrolled at the VA Pittsburgh Healthcare System. Inclusion criteria included: (1) at least one outpatient visit between 6/1/04 - 12/5/05, (2) aged <80 yrs., (3) with medications for  $\geq 12$  mos., (4) absence of referrals to VAPHS Diabetes Clinic for 18 months, and (5) recent HbA1c level

of  $\geq 8.0\%$ . Exclusion criteria included: (a) life expectancy of 6mos., (b) involvement in another study, (c) institutionalized, and (d) no telephone line. (Stone et al., 2013, p. 479)The participants were divided into two groups: the active care management with home telemonitoring (ACM+HT) group and the lower intensity care coordination (CC) group. The ACM+HT group received a management support intervention through HT allowing continuous education, monitoring and data transmission of SMBG, blood pressure and weight, and adjustment of medications (supervised by an endocrinologist). The CC group, on the other hand, received monthly reminders and education from the nurse practitioner based on data maintained by the participants and compliance, but can call practitioner for concerns. Intervention adjustments were directed to their primary care physician. HbA1c, BP, weight, and lipid levels were determined at baseline, 3 months and 6 months of therapy. (Stone et al., 2013, p. 479)Results show that HbA1c levels are significantly reduced in the treatment group at 3 and 6 months, and in-between reductions were significantly greater in the same than the control. This may be related with the increase in nurse educator contact given to the treatment group, though this correlation was not verified in the study. While about 75% of the study population did SMBG at least once daily, the relationship between the frequency of SMBG and degree of HbA1c decrease cannot be assessed. This was further ascertained by studies saying that their relationship is complex and requires other variables. Furthermore, there were no other primary outcomes such as BP and lipid profiles were markedly lowered or improved at any of the time period, even though more patients had achieved the desired levels of the outcomes in the treatment group,

especially for LDL and triglyceride levels. This might be due to the absence of any concerns with blood pressure or lipid levels during the time of the study. This study showed that active care management and home telemonitoring provided by nurse practitioners can effectively lower glycosylated hemoglobin levels of diabetic patients. It can also reduce the risk of complications through slightly, not substantially, lowered blood pressure and lipid levels. The researchers were not certain, however, if continuation of the therapy for years can provide the significance in results they desire. The cost-effectiveness of this particular therapy is also doubtful owing to the use of technology and resources, which cannot be accessed by all. Further studies are definitely required to assess successful use of such an intervention.

## References

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