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Effectiveness of Different Styles of Diabetic Education on Outcomes of the Type II Diabetic Patient

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**Abstract**

The purpose of this project is to determine if there is a significant advantage to certain diabetic education strategies that yield better outcomes in regards to control of diabetes.

**Introduction**

Type II diabetes mellitus is a global problem that is seeing the average age of onset decrease and an increase in the annual financial burden. It is a disorder where the pancreas creates insulin but the body develops resistance to insulin (Matti et al., 2015). When this occurs, it manifests with elevated serum glucose, polyuria, polydipsia, unexplained weight loss, mood swings, headaches, polyphagia, and polyuria (Matti et al., 2015). Insulin resistance usually leads to elevated blood glucose levels and elevated blood lipids (Matti et al., 2015).

**Methodology**

**Data Sources:** CINAHL, PubMed, and Cochrane

**Key Words:** Diabetes, Type II, Education, Diet, Computer-based, Individual-based, Group-based

**Filters:** Articles published within the last 10 years

**Inclusion Criteria:** Type II diabetics, who were not taking insulin, with no major comorbidity conditions, and had metabolic measurements (HbA1c and FG values). Required to use some form of diabetes education (individual-based and/or group-based and/or computer-based).

**Results:** Overall, 14 studies met the criteria (8 from PubMed, 3 from Cochrane, and 3 from CINAHL).

**Section 1. Group Based Education:**

**Measurements in 13 studies found significant reduction in HbA1c at 6 months with a reduction of 0.44% points (p = 0.0006), at 12 months with a reduction of 0.46% points (p = 0.001) in 11 studies, and 2 years with a reduction of 0.6% (Hawthorne, 1997) study: Mean decrease of 0.1% in the intervention versus a 0.04% decrease in the control group.

**Hiss (2001) study: Mean decrease of 0.2% in the intervention versus a 0.05% decrease in the control group.

**Ko (2004) study: Mean decrease of 0.5% decrease in HbA1C at the 12-month follow-up for the intervention versus a 0.2% decrease in the control group.

**Shibayama (2007) study: Mean decrease of 0.1% increase in their HbA1C at their 12-month follow up for the intervention versus no change in the control group.

**Section 2. Individual Based Education:**

Overall, 5 studies were reviewed.

**Duke, Colagiuri, & Colagiuri (2009) reviewed 9 studies.**

**Goudward (2004) study: Mean decrease of 1% HbA1c and 0.4% with intervention at 6-9 and 12-18 months follow up compared to 0.4% and 0.6% respectively.**

**Hawthorne (1997) study: Mean decrease of 0.1% in the intervention versus a 0.04% increase in the control group at 9-12 month follow up.**

**Hiss (2001) study: Mean decrease of 0.3% at the 12-month follow up in the intervention versus a 0.2% decrease in the control group.**

**Individual Therapy Versus Group Based Therapy**

**Computer Based Education**

**Pal et al., (2013) comprised a systematic review of 16 RCTs that studied the effects of computer based education versus routine care.**

**Ko (2004) study: Mean decrease of 0.5% decrease in HbA1C at the 12-month follow up for the intervention versus a 0.2% decrease in the control group.**

**Shibayama (2007) study: Mean decrease of 0.1% increase in their HbA1C at their 12-month follow up for the intervention versus no change in the control group.**

**Section 3. Computer Based Education**

**Pal et al., (2013) reviewed 10 studies: All studies combined to show a significant (p = 0.0018) decrease in HbA1c in favor of the intervention group over the control at 6-12 months (Pal et al., 2013).**

**Discussion**

**Individual Therapy Versus Group Based Therapy**

**The question that comes up is: how does diabetic education actually improve the HbA1c values? Are the patients eating better? Are they taking their medication more religiously? Are they just overall better educated and able to recognize when their diets is not controlled?**

**Stensbekk found statistically significant reduction in HbA1c but it doesn’t appear to be clinically significant.**

**Certainly education is great adjuvant treatment for the type II diabetic but education alone is not enough to control diabetes in all populations.**

**Cinar & Shou (2014) saw only modest decrease in HbA1c and FPG at 6 months while Mukadder & Beyeritz (2009) saw dramatic drops in HbA1c in only 2 months. This significant difference only highlights the challenge when comparing study to study.**

**Mukadder’s study had individuals from Turkey where routine diabetes education was not offered while Cinar’s control group had routine education.**

**Computer Based Education**

**Pal et al., (2013) found varying results with the majority showing a significant improvement in HbA1c in 6 months. However, the studies spanned a variety of time frames, from 6 months to 1 year.**

**Lee et al., (2007) did find a significant improvement in HbA1c but the results had some flaws. It showed subgroups were more likely to login and utilize the system over someone who was uneducated and were advanced in age.**

**Underlying Issues**

**Standard of care:** Each study made attempts to define this but left this area vague.

**Variability:** Education styles, sample size, routine care, inclusion/exclusion criteria, and duration were different in each study.

**Target Population:** In this review, multiple studies took place outside of the United States and ultimately will not impact the population.

**Applicability to Clinical Practice**

**Overall, it appears that education at any level should be incorporated in the usual care for type II diabetic patients.**

**Studies show varied results but a direct relationship is seen between the amount of education received and the improvement on their metabolic and psychological outcomes.**

**More effective strategies are available for the provider to consider.**

**Side effects of diabetic education are very limited and only a few cases of anxiety have been documented.**

**Incorporate the patient in the decision as to the type of education they receive.**

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**References**


