Mindfulness-Based Stress Reduction (MBSR) Intervention on Emotional Distress and Glycemic Control in Diabetes Older Adults

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Background:
The population of seniors has significantly increased worldwide. Approximately 50-80% of seniors have one or more chronic conditions and diminished physical abilities. (Bekhet et al., 2014). The decision to relocate is often precipitated by confusion and crisis for elderly people (Magilvy&Congdon 2000).Thus, relocation to long term care facilities has emerged as an important issue in geriatric health care (Hertz et al., 2008). Relocation stress is a common issue in elderly diabetic patients newly moved into long term care affecting 20-40% of residents in long term care facilities(Grigsby et al., 2002, Fisher, et al., 2008). Depression or distress is linked to impaired glycemic control in diabetics, decreased adherence to therapeutic diet control, and also decreased glucose production, glucose mobilization and insulin resistance (Makine et al., 2009). Previous studies have evaluated the effectiveness of MBSR in other populations; however, studies of MBSR in these populations are still limited.

Purpose:
This study was to evaluate the effects of a Mindfulness Based Stress Reduction (MBSR) intervention for improving emotional distress and glycemic control (HbA1c) in diabetes older adults

Methods:
A randomized controlled trial was conducted in six long term care facilities. A sample of the total 140 diabetes elderly participants who newly relocated to long term care facilities within one year was recruited. Six long term care facilities were randomly assigned into either the intervention group (3 institutions, n=66) or the control group(3 institutions, n=74). Intervention group received a Mindfulness Based Stress Reduction program intervention. The mindfulness instructor orally guide the elderly with the Taiwanese language to practice mindfulness breathing, meditation, compassion cultivation, wheelchair sitting mindfulness yoga, mindfulness listening, difficulty interpersonal relationships, mindfulness eating and drinking, body parts appreciation and share the group discussion on the final.

A group of 10-15 participates per once was implemented once per week for a total 9 weeks of the 90 minutes. Control group received routine diabetes nursing care. The emotional distress (depression, DASS-21; Relocation Stress Scale- Chinese Version, RSS- C) questionnaires and glycemic control (HbA1c) were used to measure outcomes. Assessments were conducted at baseline and at 3, 6 and 9 weeks of follow-up. Generalized Estimating Equation (GEE) was used for adjustments of the effects o f MBSR intervention.

Result:
All participants mean age were 78.5 years. An 90% (60/66) MBSR intervention retention rate was achieved. Compared with control, the MBSR intervention was more effective in reducing emotional distress and improving glycemic control. Significantly improved included relocation stress (RSS-C) scores (β=-9.26, SE=1.13, Wald $\chi 2$=66.99, P<0.001), depression (DASS-21) scores (β=-6.79, SE=1.07, Wald $\chi 2$= 40.11, P<0.001) and HbA1c levels (β=-1.38, SE=0.29, Wald $\chi 2$= 22.90, P<0.001) from baseline to 3, 6 and 9 weeks of follow-up.

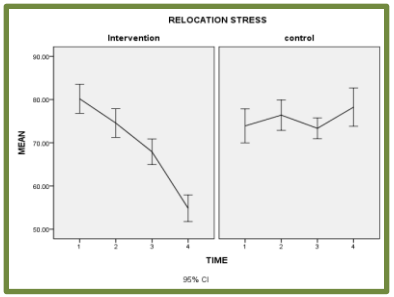

Figure 1. GEE to evaluate the effects of relocation stress between groups and at four time points.

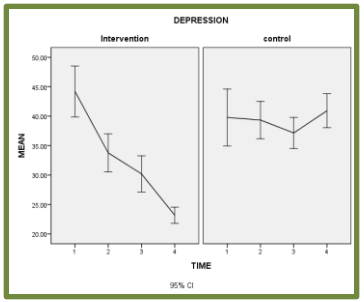

Figure 2. GEE to evaluate the effects of depression between groups and at four time points

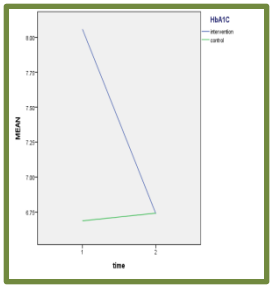

Figure 3. GEE to evaluate the effects of HbA1c between groups and at two time points.

Conclusion:
In the conclusion, the MBSR intervention significantly improved emotional distress and reduced diabetes risk in HbA1c levels. The results suggest that diabetes education were proficient in specific intervention program design in long term care.