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**Title: Effectiveness of Zentangle practice in reducing stress, anxiety and depression level of caregivers of persons with dementia (PWD) in Hong Kong**

### **ABSTRACT**

Facing problem of aging population, the prevalence of dementia in Hong Kong is rising. Under the influence of Chinese traditional culture of respecting and obeying parents, Chinese family caregivers may suffer from strong familial and filial obligation to take up caregiving duties. Compared to non-dementia caregivers, dementia caregivers have higher risk of stress, anxiety and depression because of unpredictable and uncontrollable behavioral problems from the person with dementia (PWD), social isolation, providing care, short of money, and reduced leisure time.

Zentangle practice is a mindfulness-based art therapy which can reduce stress, anxiety and depression level. There is a lack of studies regarding Zentangle practice as an intervention for caregivers of PWD. Therefore, the aim of the study is to examine the effects of Zentangle practice on Stress, Anxiety and Depression level of Caregivers of PWD in Hong Kong.

The study design was a quasi-experimental study which used to pretest-posttest design with control group. Convenience sampling was adopted for approaching District Elderly Community Center (DECC). Participants of experimental group and control group were allocated by the staff of DECC. The data was collected by questionnaires which were composed by 2 parts. The first part collected demographic information which included age, gender, educational level, financial status, relationship between participant and patient with dementia, caring hours per day. The second part of the questionnaire was the Chinese version of Depression Anxiety Stress Scales (DASS-21) which measure depression, anxiety and stress in one scale.

In the pretest (T0) stage, 80 sets of data were collected from DECC A and DECC B for experimental group (n=40) and control group (n=40). Experimental group

received 4-week Zentangle practice. It included one 1-hour teaching session held by a certified Zentangle teacher and four 1-hour practice sessions. Control group maintained usual practice in DECC. In the pretest (T1) stage, totally 73 sets of data were collected from DECC A and DECC B for experimental group (n=34) and control group (n=39). In order to test the effect of time of Zentangle practice, 63 sets of data were collected in the posttest (T2) stage from DECC A and DECC B for experimental group (n=29) and control group (n=34).

In data analysis, demographic data were analyzed by independent *t*-test, chi-square test and Mann-Whitney U test. The pretest and posttest score of experimental group and control group were compared by paired *t*-test, independent *t*-test and Wilcoxon Signed Rank test.

At the time of posttest (T1) stage, Zentangle practice had significant effect on reducing stress ( $t=-4.166$ ,  $p<0.001$ ), anxiety ( $t=-2.500$ ,  $p=0.018$ ) and depression ( $t=-3.391$ ,  $p=0.002$ ) in level in the experimental group. There were significant increase in stress ( $t=2.592$ ,  $p=0.014$ ), anxiety ( $t=3.266$ ,  $p=0.002$ ) and depression ( $t=6.062$ ,  $p<0.001$ ) level in control group. The result indicated that Zentangle practice has statistically significant effect in reducing stress, anxiety and depression level.

At the time of posttest (T2) stage, there were insignificant change in stress ( $t=1.092$ ,  $p=.284$ ), anxiety ( $t=.931$ ,  $p=.358$ ) and depression ( $t=1.517$ ,  $p=.158$ ) level in experimental group. There were insignificant change in stress ( $t=0.076$ ,  $p=0.940$ ), anxiety ( $t=-0.091$ ,  $p=0.928$ ) and depression ( $t=-1.695$ ,  $p=0.099$ ) level in control group. The effect of Zentangle practice in reduction of stress, anxiety and depression level of caregivers of person with dementia was statistically insignificant at 1 month after the intervention.