

## **REDUCING CORTISOL LEVELS AND STRESS IN SCHIZOPHRENIA CAREGIVERS THROUGH SELF HYPNOSIS**

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### **ABSTRACT**

Schizophrenia affects individuals across all age groups, with a peak incidence between 20 and 30 years of age. The recurrence rate among adult patients with a first episode of schizophrenia within three years ranges from 57% (95% CI:  $\pm 21.2\%$ ) to 93.8% (95% CI:  $\pm 3.7\%$ ). Caregiving for schizophrenia patients remains a significant challenge, especially in meeting their daily needs and providing adequate care. The aims to evaluate the effect of self-hypnosis training on reducing stress levels and cortisol concentrations in caregivers of schizophrenia patients in the Langsa City Health Center area. This quasi-experimental study utilized a pretest-posttest group design. The effects of self-hypnosis training were analyzed by comparing cortisol levels and stress degrees before and after the intervention in the caregiver group, with a control group comprising caregivers and independent schizophrenia patients. Among 16 caregiver participants, 14 showed a decrease in cortisol levels following self-hypnosis training, while only 2 experienced an increase (from 38.92 to 63.37 ng/ml and from 58.43 to 74.81 ng/ml). Stress levels also declined significantly, with the number of caregivers experiencing moderate stress reducing from 13 to 3 after the intervention. Self-hypnosis training effectively reduces cortisol levels and stress severity in caregivers of schizophrenia patients. This intervention may offer a valuable approach to alleviating caregiver burden.

**Keywords:** Schizophrenia, Caregiver, Cortisol, Self-Hypnosis

### **INTRODUCTION**

Caregiving for patients with schizophrenia remains a significant challenge globally, encompassing not only the management of patients' daily

needs but also seeking appropriate medical assistance and providing emotional and social support to promote recovery. The failure of caregivers to adequately care for individuals with schizophrenia is a well-documented concern. Previous studies report relapse rates among adult patients with a history of first-episode schizophrenia ranging from 57% (95% CI:  $\pm 21.2\%$ ) to as high as 93.8% (95% CI:  $\pm 3.7\%$ ) within three years post-treatment (Caseiro et al., 2012; Chen et al., 2005). Other research indicates relapse rates between 50% and 75% after patients return home for continued care.

Research by Syed Tahir et al. (2013) highlights that 72% of caregivers for schizophrenia patients experience significant stress, yet receive minimal support from mental health services. The high levels of caregiver stress stem from multiple factors, including the substantial time commitment required for patient care, communication difficulties, inadequate intervention strategies for symptom management, and financial strain. Consequently, the burden on caregivers remains substantial, while the prevalence of mental health disorders related to schizophrenia continues to be high.

In Langsa City, Indonesia, data from five community health centers (Puskesmas) reported a total of 386 patients diagnosed with mental disorders, including schizophrenia (Langsa City Health Office, 2019). Self-hypnosis has been shown to have applications across various aspects of life and may offer benefits for caregivers by improving coping mechanisms and reducing stress.

The quality of life among caregivers of patients with schizophrenia has been found to be lower than that of caregivers of individuals with other illnesses (Shallo et al., 2015). Schizophrenia distorts numerous executive functions and induces caregiver fatigue, underscoring the necessity for psychological support to mitigate caregiver burden and promote the use of positive coping strategies (Ahmet et al., 2015). Caregivers are also vulnerable to stress and social stigma, yet often lack adequate attention and support from healthcare systems (Yi Yin et al., 2015).

Cortisol, a glucocorticoid steroid hormone produced by the adrenal cortex, plays a critical role in the body's response to stress by regulating glucose metabolism, suppressing immune responses, and influencing the metabolism of fats, proteins, and carbohydrates. Elevated cortisol levels have been associated with chronic stress and may serve as a biological marker for caregiver burden (Wisse, 2013).

The term "hypnosis" was first coined by James Braid, a prominent 19th-century British physician. Historically, the practice was referred to as mesmerism or animal magnetism. The word derives from "Hypnos," the Greek god of sleep; however, hypnosis is distinct from sleep. Unlike sleep, individuals in a hypnotic state remain aware of and responsive to their surroundings despite their relaxed state.

Mental health services provided at community health centers for caregiver support remain limited. Only 40% of caregivers reportedly receive adequate information from healthcare providers on adapting to the challenges

of caring for patients with schizophrenia. The stress experienced by caregivers can negatively impact the quality of care provided, exacerbating their burden and compromising patient outcomes.

## **METHODS**

### **A. Research Design**

This study employed a quasi-experimental design with a pretest-posttest control group framework to investigate the effects of self-hypnosis training on caregivers of patients with schizophrenia. Participants were allocated into two groups: an intervention group receiving self-hypnosis training and a control group with no intervention.

### **B. Population and Sample**

The study population comprised female caregivers aged 45 to 60 years who had been actively providing home care to adult patients diagnosed with schizophrenia for a period exceeding three years. Participants were recruited from five community health centers (Puskesmas) within Langsa City, Aceh. A total of 30 caregivers were purposively selected and equally divided into the intervention (n=15) and control (n=15) groups.

### **C. Data Collection Procedures**

**Secondary Data:** Epidemiological data on schizophrenia prevalence were sourced from the Langsa City Health Office and reports from the five designated Puskesmas. **Primary Data:** Data were collected directly from caregivers engaged in home care. The control group was selected from Puskesmas whose demographic and caregiving profiles closely matched those of the intervention group. Data collection commenced only after obtaining ethical approval and necessary permissions from health authorities.

### **D. Intervention Description**

Eligible caregivers were thoroughly briefed on the objectives and procedures of the self-hypnosis training and provided written informed consent. Baseline assessments included administration of the Depression Anxiety Stress Scale-21 (DASS-21) and collection of blood samples for cortisol level measurement. The self-hypnosis intervention consisted of four structured sessions: Introduction to self-hypnosis principles and initial guided practice. Evaluation and reinforcement of self-hypnosis techniques. Independent home practice for twelve days alongside routine caregiving

duties. Final reinforcement session with comprehensive evaluation, including repeated DASS-21 assessments and cortisol measurements.

### **E. Personnel**

The principal investigator conducted data collection and psychological assessments, supported by a certified nurse hypnotherapist. The self-hypnosis training was facilitated by a master hypnotherapist possessing formal certification and extensive clinical experience in hypnotic therapy.

### **F. Research Procedure Flow**

The study followed a systematic sequence from participant recruitment and baseline data acquisition through the intervention phase to post-intervention evaluation, ensuring methodological rigor and participant adherence.

### **G. Data Processing and Statistical Analysis**

All collected data were entered into SPSS version 17.0. Data integrity was ensured through comprehensive validation and consistency checks. Descriptive statistics summarized nominal, ordinal, and continuous variables. Normality of data distribution was assessed via the Shapiro-Wilk test, appropriate for the relatively small sample size. For variables demonstrating normal distribution, paired t-tests were employed to compare pre- and post-intervention scores. Non-normally distributed data were analyzed using the Wilcoxon signed-rank test. Statistical significance was established at a p-value threshold of less than 0.05.

### **H. Ethical Considerations**

This study is a continuation of prior research involving caregivers and received approval from the appropriate institutional ethical review board. All participants provided written informed consent voluntarily before enrollment, ensuring adherence to ethical standards governing human research.

## RESULTS AND DISCUSSION

Subject Characteristics Overview. are illustrated in the following figure 1

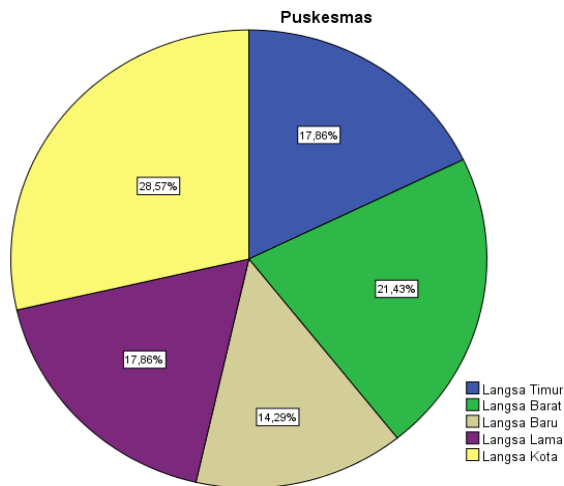


Figure 1 The characteristics of the subjects' residential areas

### Effect of Self-Hypnosis on Caregivers' Cortisol Levels

Self-hypnosis training significantly reduced cortisol levels in caregivers, with 86.67% showing a decrease after the intervention, while 13.33% showed no change (see Figure 2).

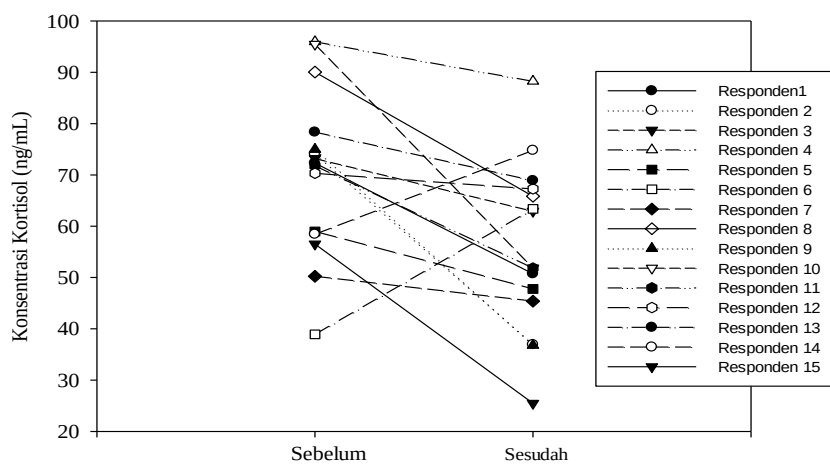
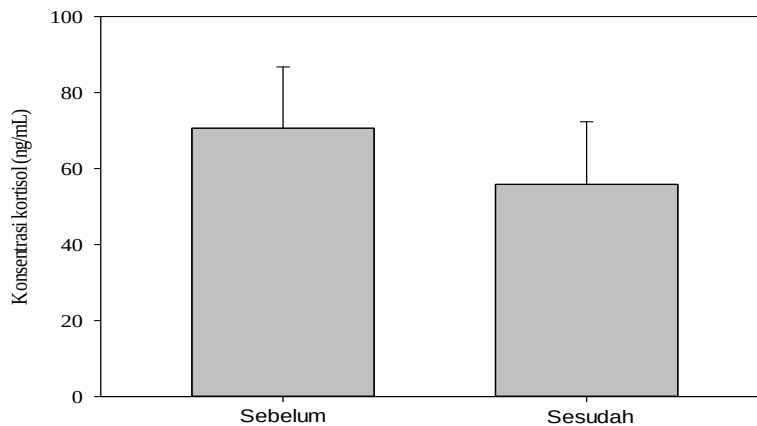


Figure 2. The mean cortisol levels before and after self-hypnosis

The mean cortisol levels before and after self-hypnosis training were 70.64 ng/mL and 55.87 ng/mL, respectively. The Shapiro-Wilk test confirmed that cortisol data were normally distributed ( $p > 0.05$ ). Statistical analysis revealed a significant reduction in cortisol levels following the training ( $p < 0.05$ ) (see Figure 2). Thus, the null hypothesis ( $H_0$ ) was rejected, and the alternative hypothesis ( $H_1$ ) accepted. These results demonstrate that self-hypnosis effectively reduces stress levels in caregivers.



**Figure 3. Mean cortisol levels ( $\pm$  standard deviation) measured before and after the self-hypnosis training intervention.**

Hypnosis effectively reduces cortisol levels, a key stress biomarker, by enabling the brain to modify expectations and regulate physiological responses. During hypnosis, caregivers internalize positive suggestions that help them accept caregiving challenges and better manage negative emotions such as depression, anxiety, and stress.

Previous research on nurses' occupational stressors highlights that chronic stress impairs psychoneuroimmunological function. Spiritual practices enhance coping and problem-solving by providing strength and guidance. This study confirms a significant association between emotional and spiritual states and cortisol levels, with notable cortisol reduction observed two weeks post-intervention.

Our results demonstrate a strong correlation between self-hypnosis, zikr (spiritual remembrance), and cortisol levels among caregivers of schizophrenia patients. Emotional well-being and spiritual

practices serve as important indicators of biological stress in this population.

## CONCLUSION

There is a significant relationship between self-hypnosis and zikr practices and cortisol levels in caregivers of patients with schizophrenia. Emotional states—specifically depression, anxiety, and stress—along with zikr practices, can act as reliable markers of cortisol status among schizophrenia caregivers.

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