

Impact of Sleep Deprivation and Coping Abilities on The Psychological Adjustment of Caregivers of The Elderly

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ABSTRACT

Objective: To examine the impact of sleep deprivation and coping abilities on the psychological adjustment of caregivers of elderly.

Study Design: Cross sectional analytical study.

Place and Duration: Department of Psychology, University of Gujrat, Gujrat Pakistan, from Jan to Jul 2018.

Methodology: The caregivers of the elderly were recruited in the study with the caregiving experience of 6 months to 2 years. The respondents with any physical or psychological problems were excluded from the study. The sleep deprivation, coping and psychological adjustment were measured using the Pittsburgh sleep quality index, coping styles scale, scale of adjustment for adults respectively.

Results: The data of 200 caregivers of the elderly was analyzed using structure equation modeling. The model fit was established with the p -value of <0.001 . It was found that caregivers' sleep deprivation and coping abilities affected their psychological adjustments. The overall model confirmed that sleep deprivation and coping ability affected the psychological adjustment. The individual relationship between sleep deprivation predicted psychological adjustment with the value of regression estimate as 5.808 (p -value <0.001). Furthermore, the role of coping abilities on psychological adjustment had a regression value of 0.151 (p -value 0.7013).

Conclusion: The sleep deprivation affected the psychological adjustment of caregivers of the elderly, whereas the coping abilities did not affect the psychological adjustment.

Keywords: Adult, Caregivers, Coping, Cross sectional, Psychological adjustment, Sleep deprivation.

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INTRODUCTION

There is a tremendous burden on the caregivers to support elderly individuals with their physical, psychological, financial and spiritual needs.¹ The caregivers of elderly individuals may come across many problems while managing them. Time management, emotional strains, physical strains, privacy problems, financial burdens, helplessness, depression, loneliness, and sleep deprivation are some issues.² Sleep deprivation occurs when a person is unable to have a proper sleep. It is pertinent to note that the amount of sleep necessary for optimal functioning may vary from person to person. A lack of sleep may cause harmful effects such as sleeping during the daytime, accidents due to not paying attention, mood swings, eating disorders, cognitive dysfunction and chronic fatigue.^{3,4}

It is essential to explore sleep deprivation in the caregivers of the elderly. A recent study conducted in Taiwan confirmed that 91.7% of caregivers of elderly

with dementia experienced sleep problems while giving attention to their older adults.⁵

Coping is defined as managing demands (external or internal) that exceed the available resources. This ability is dependent on the environment and personality of the individual.⁶ Previous research has established the importance of proper assessment of coping abilities of the caregivers of elderly persons.⁷

Caregiver sleep deprivation and coping may adversely affect the psychological adjustment of the elderly. According to the diagnostic and statistical manual of mental disorders (DSM-5), psychological adjustment is defined as a disorder involving emotional and behavioral problems within three months after experiencing a stressor leading to clinical impairment.^{7,8} Adjustment is associated with depressive and anxious moods. Sleep problems are associated with both the issues.^{9,10} The caregivers of the elderly and the aging population are the most significant segment of society. The current study was planned to provide information regarding sleep problems and coping abilities of caregivers and determinants of the psychological adjust-

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ment (depressive, anxious, and conduct issues) of caregivers.

METHODOLOGY

The cross-sectional analytical study was conducted from January to July 2018. The data was collected from 200 caregivers of the elderly from the community of Sialkot by using consecutive sampling on the reference prevalence of insufficient sleep among adults in the U.S.¹¹ The Research Review Committee of the Department of Psychology, University of Gujrat, Pakistan, approved the study before the data collection (letter# PSY/UOG/20/2418).

Inclusion Criteria: The caregivers of the elderly were recruited in the study with the caregiving experience of 6 months to 2 years. The age of elderly patients for inclusion criteria was taken more than 60 years.

Exclusion Criteria: The caregiver who had any physical or psychological disorder were excluded from the study.

Initially, 338 caregivers were recruited, from which 219 meet the requirements of eligibility criteria. Nineteen survey forms were rejected due to incomplete or missing information.

The sleep deprivation was measured using the Pittsburgh sleep quality index Urdu version. It is used to determine the quality and pattern of sleep in adults.¹² It differentiates "poor" from "good" sleep quality by measuring seven areas of subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications and daytime dysfunction over the last month. PSQI-U depicts good linguistic interchangeability and test re-tests with the Cronbach alpha of 0.6.^{12,13} The coping styles scale Urdu version measures the coping ability of adults with 22 items on a 5 point Likert scale. It has two sub-scales of problem-focused coping and emotion-focused coping with a reliability of 0.87 and 0.89, respectively. The scale of adjustment problems for adults Urdu version measures the psychological adjustment with 48 items and eight sub-scales of depression (behavior, cognitive, physiological symptoms), anxiety (behavior, cognitive, physiological symptoms) and conduct (behavior, cognitive symptoms) issues with the Cronbach alpha value of 0.929.¹⁴ The scales were used after taking permission from the authors via email.

The researchers recruited the caregivers of the elderly from the community. The caregivers were approached at their homes. In the first face-to-face

interaction, consent was taken from the participants after briefly explaining the nature of the study. The caregivers were asked about their physical and psychological health. The data were collected after signing the written informed consent from the caregivers. The face-to-face interview was taken for data collection. The participants were given proper instructions about responding to the statements and their responses were recorded on the questionnaire. Confidentiality of the study participants was maintained.

The data was analyzed by using structure equation modeling,¹⁵ (SEM) on the Analysis of a Moment Structures (AMOS) version-21 for windows. The analysis provided a model fit summary, important indices for the model and regression estimates to measure the rate of change in independent variable due to independent variables. The *p*-value of ≤ 0.05 was considered statistically significant.

RESULTS

Two hundred caregivers of the elderly were recruited in this study. The mean age of the caregivers was 35.54 ± 8.20 years with the range of 20-56 years. Most of the caregivers were females (172) and only 28 caregivers were males. The caregivers were mostly daughter-in-laws (96) followed by daughters (42), and granddaughters (32). Out of 134 (67%) caregivers were taking care of elderly from 6-12 months and rest of them 66 (33%) were helping elderly from 7-24 months.

Table-I showed the *p*-value of 0.013 in the model fit summary that indicated the model significance. It showed the impact of sleep deprivation and coping ability on the psychological adjustment of caregivers of elderly. The following were the model fit indices: chi-square/df was 2.543, goodness of fit index was 0.973, adjusted goodness of fit index was 0.918, comparative fit index was 0.968 and root mean square error of approximation was 0.088. These indices were according to cut-off specified by the literature.

Table-I: Model fit summary of structure equation model (n=200).

Structure Equation Model (SEM)	
<i>p</i> -value	0.013
Chi-square test	2.543
Goodness of Fit Index	0.973
Adjusted Goodness of Fit Index	0.918
Comparative Fit Index	0.968
Root Mean Square Error of Approximation	0.088

Further, to confirm the relationship among variables individually, the regression weight estimates

were calculated. These estimates showed the change in dependent variable due to independent variables. Table-II showed that the sleep deprivation and psychological adjustment regression estimate was 5.808 (p -value, <0.001).

Table-II: Regression estimates of sleep deprivation, coping ability and psychological adjustment in caregivers of elderly (n=200).

Factors	Estimate	p -value
Adjustment <Sleep Deprivation	5.808	<0.001
Adjustment <Coping Ability	0.151	0.703

DISCUSSION

The current study confirmed the relationship among variables by using structural equation modeling analysis, which analyzed the impact of sleep deprivation and coping ability on psychological adjustment. The model fit summary calculated the p -value of 0.013. It showed that sleep deprivation and coping ability predict the psychological adjustment of the caregivers of the elderly. Furthermore, the other indices of the model also showed significance. The chi-square/df was 2.543. Byrne wrote a book on structural equation modeling in the United States.¹⁵ He established that the score does not exceed three (3) for a model fit.

Further, in our study, the goodness of fit index (GFI) and adjusted goodness of fit index (AGFI) indices were 0.973 and 0.918, respectively. In contrast, Hooper *et al*, from Ireland showed that the limit must be above 0.90.¹⁶ The current results were well above the prescribed limit. The comparative fit index (CFI) value was 0.968 in the present study. Hu and Bentler showed,¹⁷ that a value above 0.90 was considered significant. The root mean square error of approximation (RMSEA) was 0.088 in the present study and Browne and Cudeck from United States,¹⁸ in their book, confirmed the impact of sleep deprivation and coping ability on the psychological adjustment of caregivers of the elderly.

Moreover, the regression estimates provided by structural equation modeling infer the relationship among the variables. The regression estimate of sleep deprivation and psychological adjustment was 5.808 (p -value, 0.001), which specified that a one-point increase in sleep deprivation lead to 5.808 unit increase in the psychological adjustment. Further, the relationship was significant. Peng *et al*,⁴ studied the sleep problems in the caregivers of Taiwan. A cross-sectional study measured caregivers' sleep at their homes in the period

of 7 days. Their findings showed the worse quality of sleep in the participants. 91.7% of the respondents demonstrated terrible sleep patterns.

Another study by Doherty *et al*, in Ireland explored sleep issues in adjustment disorder. It was a multicenter study on 185 individuals with adjustment disorder. About 42.5% of patients with adjustment disorder showed a significant problem of sleep deprivation.¹⁹ A study by Dirikkan *et al*, in Turkey,²⁰ witnessed that caregivers encounter depresses and anxious symptoms. Among the caregivers, 74% reported sadness (a symptom of depression) and 84% experienced intense anxiety. The anxious feelings were due to the apprehension of losing the patient, prognosis of disease, any surgery and adjusting to the treatment. A behavioral health care management company in the United States studied conduct issues related to drug abuse among the caregivers to manage the burden of caregiving.²¹

Furthermore, coping and psychological adjustment of caregivers of the elderly showed a regression estimate of 0.151 (p -value 0.703). This showed a non-significant relation between coping and psychological adjustment. Monteiro *et al*, studied the coping abilities of caregivers of patients with Alzheimer's disease that confirmed lower coping ability in the caregivers.¹⁰

The coping ability has no effect on the psychological adjustment of caregivers of the elderly, which implies that the caregivers had a better coping ability.

CONCLUSION

The sleep deprivation affected the psychological adjustment of caregivers of the elderly, whereas the coping abilities do not affect the psychological adjustment.

Conflict of Interest: None.

Authors' Contribution

IN: Conceived idea designed methodology statistical analysis, manuscript writing editing review and final approval of manuscript, MMRG: Conceived idea designed methodology and data collection, MAS: Literature search, statistical analysis, manuscript review.

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