

Effect of Role Strain, Burden and Biochemical Parameter among the Care Givers of Patient with COVID- 19

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Synopsis

Framework: A respiratory virus outbreak that started in December 2019 in Wuhan, Hubei Province, China, has been linked to the COVID-2019. **Aim:** The purpose of the current study is to evaluate the degree of role stress, load, and physiological parameter among those who provide care for the patient with COVID 19. **Investigation:** A cross-sectional descriptive research study using a quantitative technique was carried out on patients who lived in and around Vadapalani. Based on the inclusion criteria, a self-structured questionnaire was used to collect demographic and clinical data from a total of 100 study participants. Fasting cholesterol levels were also assessed while the patients were receiving care. **Results:** The outcome results identified that the, 36 (36%) had mild, 26 (26%) had moderate and 28 (28%) had severe level of role strain and 58 (58%) had mild, 6 (0.6%) had moderate and 36 (36%) had severe level of burden. The living condition of care giver and duration of stay with client had shown statistically significant association with role strain, burden and biochemical parameter among the caregivers of patient with COVID 19 at $p < 0.05$. **Conclusion:** This study demonstrates and concluded that there is strong relationship between level of role strain, burden and fasting lipid profile.

Keywords: Burden, Caregiver, COVID- 19, Lipid Profile, Patient, Role Strain.

1. Introduction

Health is a state of being sound in body, mind, and spirit, notably the absence of physical illness or discomfort [1]. Health is not the goal of life; rather, it is a resource for life. It is a constructive idea that emphasises physical capabilities as well as social and personal resources. Every community has a lot of variation. Most cultures share a common theme of individual strengths and health requirements. Numerous factors affect health, which has many determinants [2].

In Wuhan, Hubei Province, China, a respiratory infection outbreak that started in December 2019 has been linked to the COVID-2019 [3]. As of January 31, 2020, this pandemic had spread to 19 nations, with 11,791 confirmed cases, 213 fatalities included. After then, it was deemed a Public Health Emergency of International Concern by the World Health Organization. Since then, the COVID-19 outbreak has also been under control because to efforts by the WHO and public health organisations worldwide. However, it has been spreading and

endangering health, resulting in millions of infections, thousands of fatalities, and some recovery across the globe [4].

According to a report from the WHO and Hopkins University, 15,537,513 cases of COVID-19 have been documented as of 24 July 2020, with 634,069 fatalities and 9,535,641 recoveries worldwide. Africa has been home to 789,226 infections, 16,715 fatalities, and 447,026 COVID-19 recoveries among these cases from around the world. In Ethiopia, as of 24 July 2020, 11,933 people have the disease, 197 have died from it, and 5,645 have recovered [5,6]. Family careers frequently run into a variety of their own psychological, spiritual, social, economic, and physical challenges as a result of longer lifespans and a rise in ambulatory and at-home care for patients with severe disease. As a result, these problems might potentially persist longer [7].

Assessment of the difficulties associated with COVID-19 and coping mechanisms are crucial on several levels. The research will be used to develop effective coping mechanisms and COVID-19-related stress interventions. It will also provide enough

information for any relevant body, including policymakers and planners, to advise the most vulnerable population on how to prevent and manage COVID-19 physiological and psychological influences timely and effectively [8,9,10]. It will close the knowledge gap in the subject area and provide baseline data so that other researchers can do comparable research while taking into account this study's challenges. [11].

The findings may be better explained by potential gender variations in informal carers' coping strategies during the particularly stressful COVID-19 pandemic. Sadly, no studies have been done on how gender influences caring during the COVID-19 outbreak [12]. The current study also revealed that female COVID-19 carers had a higher likelihood than male carers of experiencing increases in carer load as a result of the illness [13]. The lipid profiles of the carers revealed sex differences in lipid levels. The stress of providing care, lifestyle changes brought on by new responsibilities for male carers, the impact of dyslipidaemia, and the sex-related progression of cardiovascular disease may all contribute to these differences [14]. Chronic stress may contribute to the lipid profile getting worse. Changes in lifestyle may have contributed to higher HDL-C levels in the group. The causes of this discovery are unclear; however, it could be because female caregivers had greater beginning caregiving intensity levels than male carers. To interpret and evaluate these findings, further study in this area is required [15,16]. Healthcare administrators should think about strategies and tactics to ease the strain of caring for COVID-19 patients on family members [17]. The current study sought to determine the correlation between the level of role strain, burden, and biochemical parameter among the carers of COVID patient 19 and the level of role strain, burden, and biochemical parameter among the carers of COVID patient.

2. Methods and Materials

Study Design: To evaluate the level of Role strain, Burden, and Lipid profile, a quantitative technique using a non-experimental, cross-sectional descriptive research design was used in the current study. **Study Setting:** From April 14th, 2022, to July 30th, 2022, the survey was undertaken from the carers of COVID-19 patients who lived in a chosen location. **Ethical Approval:** The study was carried out after receiving formal approval from the chosen Village Administrative Officer and ethical clearance from the Saveetha Institute of Medical and Technical Sciences' institutional ethical council (IEC). **Study Participants:** 100 carers who matched the inclusion criteria and were providing care for COVID-19 patients in the chosen location (n=100) were enlisted as study participants. The inclusion requirements for the study's participants were that they be over the age of 18, be willing to take part, be in charge of caring for COVID 19 patients, have cared for clients for at least a month, live in the same home as the patient, and be able to speak and write Tamil or

English. **Sampling Technique:** A total of 100 caregivers of COVID-19 patients were recruited based on the inclusion criteria using convenience sampling technique. **Informed Consent:** Each study participant received a thorough explanation of the study's objectives before providing their written informed consent. **Pre – Assessment:** Before assessing the fasting lipid profile, demographic and clinical information were gathered using a self-structured questionnaire. **Post – Assessment:** Utilizing the Zarit Scale, Psychological Distress Scale, and Fasting Lipid Profile during the course of care, the level of role strain and load was assessed. The obtained data were then tabulated and analysed using descriptive and inferential statistics [2].

3. Conclusion and Results

Section- A: Clinical and demographic characteristics

With regards to the clinical characteristics (36) 36% were of previous history of diabetes mellitus, (38) 38% of them given care more than 4 hours a day, (36) 36% of them were used coping strategies, (33) 33% of them had covaxin vaccination, about (45) 45% of them were stayed less than 3 months with the patient.

With regards to the age distribution of 100 research participants' demographic characteristics (32) 32% were between the age group 31-35 years, (48) 48% were females, (48) 48% were post graduate, (55) 55% were working, (44) 44% were known Tamil language, (75) 75% were of nuclear family, (48) 48% were residing in rural areas.

Section -B Assessment the Level of Role Strain, Burden and Biochemical Parameter among the Caregivers of the Patient with Covid-19.

Assessment on Role Strain Level among Covid-19 Caregivers

According to the results of the current study, of the individuals in our study, 36 (36%) had mild, 26 (26%) had moderate, and 28 (28%) had severe levels of role strain (Table 1 and Fig 1).

Level of role strain	Frequency (F)	Percentage (%)
Mild Role Strain	36	36.0
Moderate Role Strain	26	26.0
Severe Role Strain	38	38.0

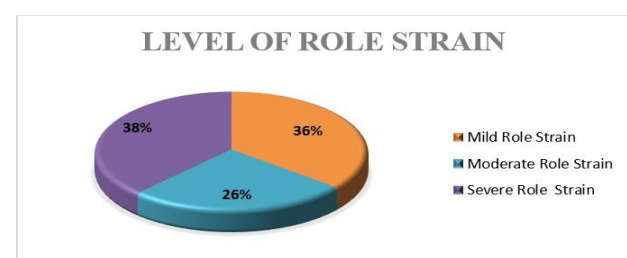


Figure:1 Role Strain Level among Covid-19 Caregivers

Muriuki MM, Oluchina S, et al. (2021) conducted a cross-sectional study with 255 carers of adult patients with the goal of determining the degree of role strain among the family carers. The Modified Caregiver Strain Index tool and questionnaire were used to collect data from the study participants, and the findings indicated that 25,9% of them experienced light role strain, 44,3% moderate role strain, and 29,8% severe role strain [17].

Susan K. et al. (2020) used a descriptive research design with 100 carers who matched the inclusion criteria and were chosen using a non-probability purposive sample technique. Role strain was evaluated using a self-structured rating scale and a socio-demographic proforma. The research revealed that 64% of individuals had severe role strain, 20% had moderate role strain, and 16% had mild role strain [18].

Hence the current study and the above supportive studies revealed that, there is an evidence of increased role strain among the clients care givers and therefore it is proven to be will possibility of developing stress among any care givers who are taking care of the patients which the investigator failed to identify or not able to rule out the reasons for the occurrence of stress among these care givers of COVID 19.

Assessment on Level of Burden among the Caregivers of Covid-19

According to the results of the current study, 36 (36%) had a severe degree of load, 58 (58%) had a light level, and 6 (0.6%) had a moderate level (Table 2 and Fig 2).

Table 2: The frequency and percentage distribution of the carers of COVID-19's burden N = 100

Level of Burden	Frequency (F)	Percentage (%)
Mild burden	6	6.0
Moderate burden	58	58.0
Severe burden	36	36.0

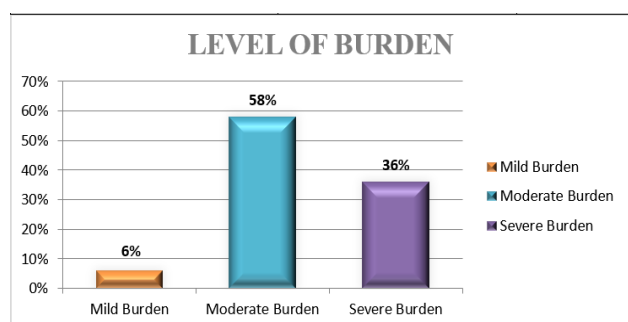


Figure: 2 Level of Burden for Caregivers of COVID-19 Patients

Abasat Mirzaei et al. (2020) conducted a descriptive cross-sectional study among 210 carers of COVID-19 inpatients and outpatients at Bahman Hospital from March 2020 to June 2020. The results of the study showed that male family carers experienced a higher level of burden when compared to female carers, with care burden scores of 83.2% for inpatients and 80.9% for outpatients, respectively, highlighting the

severity of the hardship among carers of Covid-19 patients [19].

Using a purposive sample technique, Premavathy R. and Singh V. (2021) conducted a descriptive study with 60 carers of COVID-19 patients. The caretakers' burden and stress were measured using the carers burden scale (Zarit-22 interview scale) and Kingston carers stress scale. According to the findings, the average score for load and stress among COVID-19 patient carers was 47.0007.008, 29.204.202. It is implied that COVID-19 patient carers experience modest to moderate levels of stress and strain [20].

Hence the current study and the above studies reveals that, there is a difficulty and increased level of burden was experienced by care givers of patients with COVID 19.

Assessment on Lipid Level Among the Caregivers of Covid-19

According to the results of the current study, 16 (16%) of research participants had normal lipid levels, 48 (48%) had hyperlipidemia, and 46 (46%) had hypolipidemia (Table 3 and Fig 3).

Lipid Profile	Frequency (F)	Percentage (%)
Normal	16	16.0
Hyperlipidemia	48	48.0
Hypolipidemia	46	46.0

LIPID PROFILE

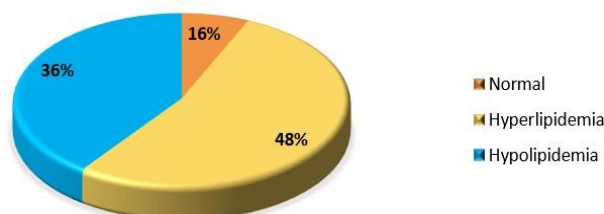


Figure: 3 Level of Lipid Profile among caregivers of patient with COVID-19

The lipid profile was one of the physiological parameters that was affected by psychological stress, as well as other specific organs and parameters. Lipid profiles may also be impacted by physical stressors brought on by physical work. Night shift care givers may increase the risk of hyperlipidemia, but in this case, overall wellbeing is crucial.

Researchers discovered lipid abnormalities in professional caregivers, which were linked to occupational stress. Their study finding revealed how stress affected triglycerides, LDL cholesterol, and HDL cholesterol (HDL). Caregiver burden and stress has been linked to dyslipidaemia, which includes high total cholesterol, low HDL, and high LDL.

Section- C: Association between carers of patients with COVID-19 and the degree of role stress, burden, and biochemical parameter.

In our present study, the demographic characteristics

including duration of stay and living condition of caregiver with clients shows statistically significant association with level of role strain

4. Restrictions

Since there were only 100 carers in the sample, the researcher was unable to extrapolate from the study's results. The study only included carers who lived in the chosen area. The particular Vadapalani location chosen for data collecting is another restriction. Only the carers' social and cognitive characteristics were taken into account. Due to a lack of literature, the current study has just a few supporting studies in the Indian population.

5. Interpretation

The current study reveals that the role strain and burden has an impact on blood cholesterol levels for those who provide care for COVID-19 patients. Concern among mental health policy-makers is the carer burden experienced by family carers. Healthcare administrators should therefore think about strategies and tactics to lighten the load on COVID-19 patient carers. Future research should look at the mechanisms, specific elements of carer burden, and related factors in order to inform policies, programmes, and interventions tailored to the particular requirements of carers intended to lessen the negative effects of carer burden made worse by the pandemic. A sizeable percentage of carers mentioned burden and unpreparedness. Healthcare professionals should offer sufficient assistance to support informal carers in carrying out their duties.

6. Acknowledgment

Authors would like to appreciate all the study participants for their co-operation to complete the study successfully.

7. Conflict of Interest

~~Authors declare no conflict of interest.~~

8. Finding Support

None.

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