

Prevalence and correlates for stress among caregivers for chronically ill patients at Ndola teaching hospital

Davies Simukoko*, David Mulenga, Victor Mwanakasale
School of Medicine, Copperbelt University, Ndola Zambia

Received: 28-06-2017 / Revised: 14-07-2017 / Accepted: 05-08-2017

ABSTRACT

Background: Among the factors that contribute to stress is poor social support systems and age. Stress causes the lowering of immunity and predisposes individuals to infections. This accounts for the general malaise the caregivers present with whilst looking after patients in the hospital. "Stress occurs when the demands are appraised as exceeding a person's resources to cope". The objectives of the study were to find the prevalence and correlates for stress among caregivers at Ndola Teaching Hospital. **Methodology:** This was a cross sectional study and was done at Ndola Teaching Hospital in Ndola on the Copperbelt province of Zambia using a standardized questionnaire. **Results:** The study enrolled 197 participants. The overall prevalence of stress was 67.52% which was 133 participants. The factor associated with stress was poor family support (51.8%) and age (67.5%) among the correlates. **Discussion:** The study has demonstrated that stress is a major problem among caregivers at Ndola Teaching Hospital. Those who had a poor family support system were more likely to suffer from stress and further complained of malaise.

Key words: Caregiver, Chronically ill patient, corticotrophin release hormone (CRH), Hypothalamic-pituitary-adrenal (HPA) axis, Stress.

Introduction

Caregiving is an important part in the total care provided to chronically ill patients it provides significant amounts of assistance with personal and instrumental activities of daily living [1]. A chronically ill patient in this study will be defined as a person suffering from a disease condition for more than two weeks whether terminal or not. Furthermore, a caregiver will be defined as someone rendering any help to the sick patient irrespective of their relation to the patient from the time they are diagnosed through to the end, however health professionals are excluded. Seeing that that the study is looking at the correlates for among caregivers it is important to, therefore, make mention of the physiology of stress to understand how the body responds to and copes with stress.

"The fight-flight response involves the sympathetic branch of the autonomic nervous system as a fast, first wave response; and the endocrine pathways of the hypothalamic-pituitary-adrenal (HPA) axis as a slower, second wave response"[2]. This entails that the sympathetic nervous system, therefore, prepares the body for immediate action. Through a cascade of complex physiological reactions, the adrenal medulla which is part of the endocrine system is stimulated to produce adrenaline and noradrenaline. These are important stress hormones. They have different effects on certain body organs that contain their receptors. For example, noradrenaline and adrenaline increase the force and rate of contraction of the isolated heart. Noradrenaline produce vasoconstriction in most if not all organs via α_1 receptors, but adrenaline dilates the blood vessels in skeletal muscle and liver via β_2 receptors [3]. Further, the lungs are stimulated and energy is wisely used for necessary functions such as muscle contraction while unnecessary functions such as saliva production, digestion, and reproduction are held temporarily [2]. Further, adrenal cortex hormones are also released due to activation of the HPA axis as

*Correspondence

Davies Simukoko

School of Medicine, Copperbelt University, Ndola
Zambia

E- Mail: sim28015426@gmail.com

the hypothalamus releases corticotrophin release hormone (CRH). Cortisol an important stress hormone is responsible for elevation of blood glucose which is needed for energy production. Not only does it elevate blood glucose, it also increases metabolic rate, regulates blood pressure, works on the immune system and the inflammatory response. All these effects help the body to cope with the fight-flight response. However, cortisol returns to normal levels 40 to 60n minutes after a stressful event, through a negative feedback loop [2]. A small amount of stress is necessary for us to cope up with the challenges of life. Moreover, “chronic exposure to stress hormones, whether it occurs during the prenatal period, infancy, childhood, adolescence, adulthood or aging, has an impact on the brain structures involved in cognition and mental health. However, the specific effects on the brain, behaviour and cognition emerge as a function of the timing and the duration of the exposure to environmental adversity”[4]. Technological advancements that have led to proper care of patients whether young or old, making them live longer in their fragile state has undoubtedly contributed to the stressful physical strains, financial constraints, emotional effects, and social isolation experienced by caregivers caring for such. “These complex medical needs may ultimately impact their physical and emotional health” [5].

According to Glaser he stated that, “historically, clinicians have suspected that both major and minor stressful events can have health implications. Observations and case reports link severely stressful life events with a sudden onset or worsening of a variety of illnesses [6]. We investigated stress among caregivers for chronically ill patients at Ndola Teaching Hospital in Zambia. The objectives of the study were to determine the prevalence of stress among caregivers for chronically ill patients at Ndola Teaching Hospital, to determine factors associated with stress among caregivers for chronically ill patients at Ndola Teaching Hospital and to make recommendations to the Ministry of Health on how to solve the problem of stress among caregivers.

Methodology

Study design: This was a cross sectional study looking at the prevalence and correlates for stress among caregivers for chronically ill patients at Ndola Teaching Hospital. Initially a pilot study of 30 participants was done at Ndola Central Hospital from which the sample size for the main study was obtained.

Study duration: Data collection was done from March to May 2017

Study site: The study was done at Ndola Teaching Hospital. Ndola is the provincial capital city of the Copperbelt province in Zambia and it is the second largest city in Zambia.

Study population: Caregivers at Ndola Teaching Hospital were enrolled into the study.

Data collection tool, Data entry Method and Analysis:

Data was collected through the use of a standardized questionnaire for each caregiver, the questions aimed at assessing whether a participant was stressed or not. Informed consent was obtained from each caregiver before enrolment. A questionnaire was administered to the participants. Later this was correlated with the sex, age, whether the participants were satisfied with the support from family, and whether where from within Ndola or another district. Data was entered and analysed using SPSS V 20. Outcome variables were compared using the Chi-square test, a yielding *P*-value of less than 5% was considered statistically significant. Adjusted odds ratios and their 95% confidence intervals were recorded.

Results

A total of 197 caregivers participated in the study which was about 77% of the total sample size. 133 (67.5%) participants reported to have had stress, whereas 64 (32.5%) participants reported otherwise. The table below gives a summary of demographic characteristics of the participants.

Table 1: Demographic data of study participants (number and percent)

Demographics	Number	(%)
Sex:		
Male	30	15.2
Female	167	84.8
Residence:		
Local	110	55.8
Referral	87	44.2
Age range:		
18-39	64	32.5
≥40	133	67.5

Further, the prevalence of stress for each factor was calculated and the significance of stress for each correlate was calculated as shown in the table below.

Table 2: Showing summary of prevalence and correlates for stress among caregivers

Correlates	Stress prevalence	Stress Score N=197 n (%)		Odds ratio	P value
		Not stressed	Stressed		
Sex:					
Male	63.33%	11(17.2%)	19(14.3%)	0.219	0.596
Female	68.26%	53(82.8%)	114(85.7%)		
Age:					
≤39	56.25%	28(41.2%)	36(27.9%)	0.592	0.043
≥40	69.92%	40(58.8%)	93(72.1%)		
Residence:					
Local	66.36%	37(57.8%)	73(54.9%)	0.119	0.699
Referral	68.96	27(42.2)	60(45.1%)		
Family support:					
Satisfied	49.47%	48(75.0%)	47(35.3%)	1.703	0.000
Not satisfied	84.31%	16(25.0)	86(64.7%)		

Discussion

The demographic data showed that more females participated in care giving than men. Culturally in Zambia women are considered to be more sympathetic and therefore take the position of caregiving in most instances. As a whole, men have shown a preference to manage care rather than administer care. For example, a man would be more likely to hire someone to help with tasks such as bathing or dressing his wife or own father who needs help with these daily activities. They quite simply are not as comfortable providing personal care as women might be [7]. Comparing the prevalence of stress between sexes it was found to be higher in females this is because biological differences between men and women, like hormones, explain part of it. These are examples of sex differences. But social factors between men and women (gender differences) may play a bigger role [8]. Women often have more sources of stress such as socioeconomic problems, family affairs, and educational restraints [9]. It was found out that males were 0.219 times less likely to be stressed, but the *p*-value was 0.596 which is not significant. This differs with the results of studies mentioned above comparing between males and females. In this study the prevalence of stress was higher in those aged forty and above. This is similar to a study that showed that health-related stress is highly prevalent in older adults and seems to play an important role in the association between levels of perceived stress and age in older adults [10]. Further according to the results obtained those below forty were 0.592 times less likely to have stress. In Zambia

there are a few tertiary hospitals and act as the referral hospitals throughout the country. Ndola Teaching Hospital is the second largest referral hospital. Therefore people seeking specialist care have to travel long distances. These patients come with caregivers who mostly are their relatives. There were more caregivers from within Ndola than from outside. This could be due to the fact that there is no level one hospital in the district; people seeking medical attention come directly to the referral hospital. The prevalence of stress was high among referral caregivers. This study also looked at whether there was an association between stress and the caregivers not staying within Ndola. It was found that local residents who attended Ndola Teaching Hospital were 0.119 times less likely to be stressed. The Chi-squared test showed a *P*-value of 0.699. Therefore, residence had no effect whatsoever to influence the occurrence of stress among the caregivers attending Ndola Teaching Hospital.

In our study the prevalence of stress was higher in those who did not receive sufficient help from their family. Further it was noted that those who were not satisfied with family support were 1.703 more likely to be stressed with a *p*-value of 0.000 which is significant. Zambia being an under developed country the consequences of stress are not appreciated by the community. This is consistent with a study done by Vernooij-Dassen et al who reported in emerging countries, the consequences of stress remain

undervalued [11]. Long standing stress has negative implications. As observed in the study those who were stressed were more likely to complain of malaise and suffered cough or flu. This is due to the dysregulation of the stress hormones on the immune system [2]. A Study done by Legg et al also showed that if stress remains chronic, prolonged elevations of glucocorticoids may cause serious adverse effects, such as immunosuppression, hypertension, dyslipidemia, and osteoporosis [12]. Therefore, improving family as well as social support for the caregivers may prove to be beneficial. Ozbay et al states, "Social support may moderate genetic and environmental vulnerabilities and confer resilience to stress, possibly via its effects on the hypothalamic pituitary-adrenocortical (HPA) system, the noradrenergic system, and central oxytocin pathways" [13]. Needless to say, we advise to recall biasness and respondents' answers to questionnaire as it was not translated in local language being adherent to the instructions given by Health and aging society.

Conclusion

It can be concluded that the main reason as to why most care givers are stressed is because of not receiving support from the family members. Additionally age has an impact on the occurrence of stress among caregivers. It would be important to find ways of lobbying for family support by engaging the communities. Further a recommendation to the management to find ways of effectively supporting the caregivers. Additionally, through management this issue to be aired so that the government to intervene at ministry level.

Acknowledgement

My sincere gratitude goes to all the caregivers who took part in the study, my project supervisors, family and friends.

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Source of Support: The Ministry of Education through the students Bursaries Committee

Conflict of Interest: Nil