

# Reporting of Stressful Life Events by Hypertensive and Non-Hypertensive Individuals: A Comparative Analysis

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## ABSTRACT

Hypertension is a significant global public health issue widely prevalent around the world. High blood pressure (BP) is a major risk factor for chronic disease, stroke and coronary heart disease. The aim of the study was to compare the reported experience of stressful life events among hypertensive and non-hypertensive individuals in reference to their gender. Presumptive stressful life event scale developed by Singh (1984) was administered on 200 individuals (100 hypertensive and 100 non-hypertensive) selected purposively. The findings revealed that hypertensives reported significantly higher number of undesirable stressful life events and higher stress. Moreover, hypertensives experienced higher stress through various stressful life situations in comparison to non-hypertensives. Furthermore, the difference in reporting stressful life events between hypertensive and non-hypertensive individuals, in relation to gender, was statistically non-significant ( $p > 0.05$ ).

**Keywords:** Hypertension, Stressful life event, Undesirable event, non-hypertensive.

## INTRODUCTION

Modern life is full of challenges, demands, frustrations, and heightened pace of life. This

rapid evolution has led to a significant increase in stress levels affecting all aspects of life. Stress is characterised by feelings of frustration, anger, and anxiousness <sup>[1]</sup>. When stressful events are experienced, there is an immediate activation of the sympathetic nervous system leading towards the body's natural response, which in turn, releases stress hormones like adrenaline and cortisol, which consequently leads to a temporarily increase in heart rate and blood pressure <sup>[2]</sup>. While these responses are normal in short term, but prolonged activation of the acute stress response can lead to maladaptive behavior <sup>[3]</sup>. Holmes and Rahe (1967) <sup>[4]</sup> reported that people experiencing elevated stress level, regardless of whether the stressors are positive or negative, are at a greater risk of developing an illness within next two years. Though stress is one of the vital main reasons of hypertension but is still an underappreciated consequence risk factor <sup>[5]</sup>.

Hypertension, is a growing global concern as well as a major contributor to cardiovascular disease. It remains one of the leading causes of death worldwide, especially among middle-aged and old age people <sup>[6]</sup>. WHO (2023) defined hypertension as a chronic condition with the systolic blood pressure readings is  $\geq 140$  mmHg and the diastolic blood pressure readings is  $\geq 90$  mmHg <sup>[7]</sup>. The latest data highlighting that the prevalence of

hypertension is 1.3 billion worldwide [8]. Furthermore, the NFHS-5 data indicating that 24% of men and 21% of women in India have hypertension highlights a significant public health concern [9]. Annually, hypertension leads to approximately 10.8 million preventable deaths and contributes significantly to a burden of 235 million disability-adjusted life years (DALYs) [10]. Despite numerous recent findings highlighting the prevalence of hypertension. Despite numerous recent findings highlighting the prevalence of hypertension, there remains a crucial gap in understanding the specific role of experiential stress in both the development and exacerbation of high blood pressure. While much attention has been given to general stress factors, the unique impact of different stressful life experiences on hypertension has not been sufficiently explored.

Moreover, the findings from the present study can have practical implications for both clinical practice and public health. For clinicians, understanding about the experiential stress on hypertensive patients can lead to more comprehensive treatment plans. For public health initiatives, highlighting the connection between stress and hypertension can support the development of programs aimed at reducing stress and promoting mental well-being as part of hypertension prevention and management strategies. With these views and facts in mind, the current study was conducted with the following objective: To compare the experience of stressful life events of hypertensive and non-hypertensive individuals in reference to their gender.

## **MATERIALS & METHODS**

In the present exploratory research, a sample of 200 adults age range from 45-70 years was purposively selected from the urban areas of the two districts Almora and Pithoragarh of Kumaun region of Uttarakhand. The sample comprised of 100 hypertensives (50 males and 50 females) and 100 non-hypertensives (50 males and 50 females). Only individuals who did not report taking medication for

physiological or psychological problem, other than hypertension, were included in the sample. The hypertensive participants were diagnosed for their physiological condition by the medical practitioners and were under medication for the same for at least past one year. Additionally, all participants had completed at least secondary education. The following tools were used for data collection:

1. Personal Data Schedule (PDS): It was developed by the researcher to take the sociodemographic details, preliminary information regarding the hypertension status, and consent of the subject.
2. Presumptive Stressful Life Event Scale: It was developed by Singh et al. [11] (1984). It consists of 51 life events which are further classified into personal or impersonal life event and desirable, undesirable and ambiguous life event. All the participants were asked to tick (Yes/No) from the life events which were applicable to them. It was administered on adult age group of 35+. The description of the dimensions in this tool are:

Personal life event: The life event that depends on the individual's action.

Impersonal life event: The life event does not depend on the individual's action.

Desirable life event: It is a positive occurrence or experience that brings happiness, fulfillment, or satisfaction to individuals.

Undesirable life event: It is a negative occurrence or experience that causes distress, discomfort, or hardship.

Ambiguous life event: An ambiguous life event is a situation that is unclear or uncertain in nature, making it difficult to determine its significance or consequences.

## **STATISTICAL ANALYSIS**

To analyse the difference in reported stressful life event between hypertensive and non-hypertensives chi-square statistical test was used.

**RESULT**

The present study was conducted to investigate the difference in reported

stressful life event between hypertensive and non-hypertensives in reference to gender.

**Table 1: Frequency of stressful life event among hypertensive and non-hypertensives**

Life Event type/ Hypertension status	Desirable	Undesirable	Ambiguous	Total
Hypertensive	140	336	212	688
Non-Hypertensive	156	232	106	494
Total	296	568	318	1182
Chi square ( $\chi^2$ ) = 24.04; df= 2; p<.05 (SIG)				

The results revealed significant difference between reported experiences of stressful life events among hypertensive and non-hypertensive individuals as presented in Table 1. The findings also revealed that non-hypertensive individuals experienced more stress from desirable life events (156) than hypertensive individuals (140). In contrast, hypertensives reported significantly higher stress from undesirable life events (336) than non-hypertensives (232). The intensity of stress experienced by hypertensive individuals in response to undesirable life events was notably higher in comparison to non-hypertensive individuals. Additionally,

hypertensive individuals (212) reported much higher stress from ambiguous life events than non-hypertensives (106). Heightened stress in hypertensives due to ambiguous life events indicating towards a greater susceptibility to stress in situations characterized by uncertainty and lack of clarity.

Hypertensives and non-hypertensives both reported an experience of more stress due to undesirable events in their lives as compared to ambiguous and desirable stressful life events. Overall, hypertensives reported a higher frequency of stressful life events (688) than non-hypertensives (494).

**Table 2: Reported personal and impersonal event among hypertensive and non-hypertensives**

Life Event type/ Hypertension status	Personal	Impersonal	Total
Hypertensive	260	428	688
Non-Hypertensive	312	182	494
Total	572	610	1182
Chi square ( $\chi^2$ ) = 74.04; df= 1; p<.05 (SIG)			

Table 2 indicates that statistically significant difference between hypertensive and non-hypertensive individuals in reporting personal and impersonal stressful life events. The findings also revealed that hypertensive individuals reported significantly higher stressful impersonal life events (428) as compared to non-hypertensives (182).

Additionally, in personal life events, stress was observed more in non-hypertensive individuals (312) as compared to hypertensive individuals (260). This suggested that the intensity of experiencing stress in personal life event was more in non-hypertensive than in hypertensive individuals.

**Table 3: Reporting stressful life event of Hypertensive and Non-hypertensive individuals in reference to gender**

	Hypertension	Non-Hypertension	Total
Male	345	252	597
Female	343	242	585
Total	688	494	1182
Chi square ( $\chi^2$ ) = 0.086; df= 1; p<.05 (NS)			

Table 3 indicates that the difference in reporting stressful life events among hypertensive and non-hypertensive individuals in reference to their gender was found statistically non-significant ( $0.086, p > 0.05$ ). Additionally, the findings indicate towards no gender differences in reporting stress life events in hypertensive and non-hypertensive individuals. 345 stressful life events were reported by male participants, while 343 stressful life events were reported by female participants. Similarly, in the non-hypertensive group, male participants reported 252 stressful events, while females reported 242 events, showing only a slight gender difference in stressful life event reporting.

## DISCUSSION

The relationship between stress and hypertension has been a subject of scientific inquiry for many years, due to the observed increase in blood pressure and serum cholesterol during stressful events.<sup>[12]</sup> The present study findings revealed that frequency of reporting stressful life events was significantly associated with hypertension. Individuals with hypertension reported a notably higher number of such events compared to non-hypertensive individuals. Results also suggested that hypertensive individuals reported significantly higher frequency of stress in impersonal stressful life events. One possible explanation is that hypertension may be linked to an overactive stress response system, such as increased sympathetic nervous system activity. This heightened physiological reaction could cause hypertensive individuals to perceive external, uncontrollable stressors more intensely, leading to the reporting of higher levels of impersonal stress. Furthermore, hypertensive individuals might be more preoccupied with their health, which could amplify their alertness of external stressors. The constant need to manage their condition, along with concerns about medical treatment and financial implications, may exacerbate their overall stress levels. This finding aligns

with previous research suggesting the association between chronic stress and the development of cardiovascular conditions like hypertension<sup>[13]</sup>. Similar findings were observed by Bhelkar et al.<sup>[14]</sup>, Sagare et al.<sup>[15]</sup> and Jadhav et al.<sup>[16]</sup> reported that high stress was found to be significantly associated with the development of hypertension. Furthermore, a systematic review by Jim et al.<sup>[17]</sup> (2019) found that 5 out of 13 studies demonstrated a strong correlation between stress and hypertension. This emphasizes the notion that experiential stress plays a pivotal role in the development and management of hypertension. Additionally, studies reported that chronic worry can cause sustained stress, which in turn increases the risk of hypertension. Individuals with low ambiguity tolerance are more likely to experience elevated stress in uncertain situations, further contributing to the development of hypertension.<sup>[18]</sup> This research aligns with current results that hypertensive individuals reported significantly higher levels of stress in response to ambiguous life events compared to non-hypertensives.

Furthermore, the analysis revealed that males and females had no significant difference in reporting the frequency of stressful life events. This finding suggests that both the genders experience similar levels of stress, which may equally contribute to the development of hypertension. Previous research has often indicated that stress responses can differ by gender, with men typically exhibiting more reactive behaviours and women often demonstrating more emotional responses to stress<sup>[19]</sup>. However, the lack of significant differences in this study implies that the overall impact of stress on blood pressure may be consistent across genders. This could indicate that both males and females face comparable external stressors or that their coping mechanisms might lead to similar physiological responses regarding hypertension. This finding contrasts with the research conducted by Sacco et al.<sup>[20]</sup> found that females perceived higher levels of stress due to life events than

males. Additionally, Caballo et al. [21] reported that stressful events had a more adverse effect on females than on males.

## CONCLUSION

In conclusion, the findings of the present study indicate that significant differences were observed between hypertensive and non-hypertensives in reporting different stressful life events. Undesirable life events were experienced more frequently by hypertensive individuals. This pronounced gap highlights the heightened vulnerability of hypertensives to stress in such situations, which may contribute to their overall health challenges. The greater frequency of stress responses in hypertensives underscores the need for targeted interventions to help manage stress in this population. Furthermore, no significant difference was found with respect to gender in the experience of stressful life events, suggesting that both men and women may be equally affected by stress's impact on blood pressure. Future research could explore specific types of stressors experienced by each gender, as well as how these factors may interact with other variables like lifestyle choices, social support, and individual resilience.

## Declaration by Authors

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