

# A study to assess the effect of stressful life events on psychological distress levels of participants living in an urban area

Sayali C. Tiwari<sup>1</sup>, Swati R. Deshpande<sup>2</sup>

<sup>1</sup>Department of Community Medicine Lokmanya Tilak Municipal Medical College and General Hospital, Sion, Mumbai, Maharashtra, <sup>2</sup>Department of Community Medicine, Seth G.S. Medical College and KEM Hospital, Parel, Mumbai, Maharashtra, India

## ABSTRACT

**Context:** Stressful life events affect the psychological wellbeing of individuals. Through this study, we aim to understand this effect and various other factors affecting the psychological wellbeing of the study participants. **Aims:** To determine the vulnerability of study participants to psychological distress following stressful life events **Settings and Design:** Cross-sectional observational study in an urban setting **Methods and Materials:** Systematic random sampling with a sample size of 178. **Statistical Analysis Used:** Analysis is done using SPSS version 22. Tests used are chi square test, Spearman's rank correlation test. **Results:** The number of life events and psychological distress scores had a positive correlation. The events that occurred in one month before history taking, a correlation was found to be strongest and no correlation was found between the events which occurred more than one year before study enrolment and the psychological distress. Factors like sleeping patterns, exercise, and marital status also had a significant correlation with the psychological distress score of participants. **Conclusions:** Mental health is dependent on many parameters with life events being a major factor at a given point of time. However, different factors apart from life events will affect psychological wellbeing, and mental health is an interplay of all those factors.

**Keywords:** Life events, psychological distress, urban area

## Introduction

Stress is perceived as an active, unfolding process, which is composed of causal antecedents, the mediating process and effects.<sup>[1]</sup> The mental health of a person is influenced by both, biological and social factors. It is not a static condition, but subject to variations and fluctuations of quality and degree, one of the important influencing factor being, "Stress".<sup>[2]</sup> Life events can be defined as any major change in a person's circumstances

that affects interpersonal relationships, work-related, leisure and recreational activities.<sup>[2]</sup> An association between stressful life events and subsequent illness has been established by many studies. These events might propel an individual into working in a more optimistic, positive and productive way or they may negatively affect the wellbeing of the person. The key here lies in studying these life events, their interplay with human emotions, and the ultimate response.

## Aims and Objectives

### AIM

To determine the vulnerability of study participants to psychological distress following stressful life events.

**Address for correspondence:** Dr. Swati R. Deshpande, 603-B, SnehaBandhan, Eastern Express Highway, Mulund, East, Mumbai - 400081, Maharashtra, India. E-mail: drswatideshpande@rediffmail.com

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## Objectives

1. To determine the relation between stressful life events and psychological distress.
2. To understand the effect of various sociodemographic factors on psychological distress.

## Materials and Methods

### Study design

A cross-sectional observational study. Approval for the study was obtained from Institutional ethics committee, dated 28-04-2016.

### Study area

The urban field practice area of a tertiary care hospital.

### Inclusion criteria

Residents of 18-60 years who agreed to give consent to be the part of the study

### Exclusion criteria

1. Patients with diagnosed psychiatric illness.
2. Relatives who were living temporarily with the family.

### Sample size estimation

The sample size was estimated using the formula  $4pq/E^2$  and was calculated as 178.

### Sampling method

Systematic Random sampling

Lottery method was used for each chawl. Chits numbered 1-9 were made and one chit was picked for each chawl. Every 10<sup>th</sup> household from that number was selected for the interview. For example, if house number 4 was selected by the lottery method, every 10<sup>th</sup> house as 4<sup>th</sup>, 14<sup>th</sup>, 24<sup>th</sup>, etc., was chosen. One individual between 18 and 60 years was selected from each selected house until sample size was reached. If the house was found locked, it was visited thrice. If the house was locked even after the third visit, the next house was selected.

### Study tools

#### Presumptive stressful life events scale

This scale has been developed by Gurmeet Singh *et al.* The scale is used for the Indian population to study life events.<sup>[3]</sup>

#### Kessler's Psychological Distress Scale (K10)

This scale is developed by Kessler R, Harvard Medical School, Boston, MA, USA. The questionnaire is designed to yield a global measure of distress based on questions about anxiety and depression. Participants with the score on Kessler's scale below 20 were classified as having no distress, participants with scores 20-24 were classified as having mild psychological distress, and participants with score 25-29 were classified as having moderate distress and those with score more than 30 as having severe psychological distress.<sup>[4]</sup>

Stress assessment of the participants was done with consultation from psychiatrist whenever necessary. This helped to rule out early signs of depression in the participants and initiate early treatment.

### Statistical analysis

Data were analysed using SPSS software version 22.

### Operational definitions

1. **Regular exercise:** Thirty minutes of moderate physical activities such as walking, running, cycling, swimming, any other form of sports at least five days a week.<sup>[5]</sup>
2. **Regular sleep:** Daily sleep of 6-8 hours without awakening in between, without any day time sleepiness, lethargy, and mood swings.<sup>[6]</sup>
3. **Employed:** An individual with a paid job is considered employed.

## Results and Observations

### Sociodemographic profile of participants

In all, 50% of participants (89/178) belonged to age group 18–30 years; 55.6% participants (99) were females while 44.4% (79) were males; 54.5% (97) participants were married, 43.8% (78) unmarried and 1.7% (3) were widowed; 66.3% (118) belonged to nuclear family, 14% (25) participants belonged to joint family and 19.7% (35) participants belong to a three-generation family; 40.4% (72) participants were graduates while 1.1% (2) participants were illiterate. Moreover, 41% (73) participants belonged to upper middle class according to the modified Kuppaswami scale and 2.2% (4) participants belonged to lower middle class.

### Presumptive stressful life events scale

Average number of events that occurred in a lifetime was  $3.5 \pm 2.4$ . Life events were categorized as desirable events, undesirable events and ambiguous events. Average number of those events was  $1.5 \pm 0.9$ ,  $1.4 \pm 1.5$  and  $0.6 \pm 1.1$  respectively with financial difficulties being the most commonly reported undesirable event.

Average number of events occurring in the duration of one month before data collection was  $0.7 \pm 0.8$ .

Average number of events occurred from the duration of past one month to one year was  $1.3 \pm 1.5$ .

Average number of events occurred beyond past one year was  $1.5 \pm 1.4$ .

### Stressful events and distress

Figure 1 shows the psychological distress experienced by participants. 52.2% (93) participants showed no psychological distress, whereas 11.8% (21) participants showed severe distress.

### Various factors and psychological distress

\*Some amount of stress can be a part life without having serious ill effects; hence, for analysis purpose, category of no distress and mild distress are clubbed into one category and moderate and severe distress are clubbed into category of distress present.

Table 1 shows that more the number of life events more will be psychological distress. This difference was statistically significant with chi square value 6.99 and *P* value less than 0.05.

Figure 2 shows that Spearman’s rho was 0.402 and *P* value 0.001\* showing significant positive correlation between scores of two scales.

Figure 3 shows that a statistically significant positive correlation between undesirable life events and distress score was found to be with Spearman’s rho of 0.430 and *P* value 0.01\*.

In Figure 4, the positive correlation between events occurring within one month before data collection and psychological distress score was found to be significant with Spearman’s rho of 0.362 and *P* value 0.01\*.

Figure 5 shows a correlation between the events occurring within one month to one year prior to data collection and the distress score was found to be positively significant with Spearman’s rho of 0.297 and *P* value 0.01\*.

In Figure 6, the correlation was insignificant with Spearman’s rho of 0.03 and *P* value of 0.69 in events occurred beyond one year and psychological distress score.

Tables 2.1 and 2.2 show Variables such as marital status, exercise pattern, history of prior illness and sleep pattern were found to be significantly associated with psychological distress implying that these factors have an independent effect on psychological distress irrespective of life events. Regular sleep, daily exercise had a positive impact on psychological distress, while a prior history of major illness was associated with more distress.

### Discussion

In all, 52.2% (93) participants reported no as well as mild psychological distress. However, 14.04% (25) participants reported moderate distress while 11.8% (21) participants reported severe distress making overall distress level up to 25.8%. This reported that stress levels are lesser compared to other studies done by Kilkkinen *et al.*, where the prevalence of psychological distress was found to 31% among the rural areas of Australia.<sup>[7]</sup> Another comparative study done by Manpreet Kaur *et al.*, however, showed only 6.6% of participants showing moderate stress in urban area.<sup>[8]</sup> This difference might be observed due to the difference in the age group of study population.

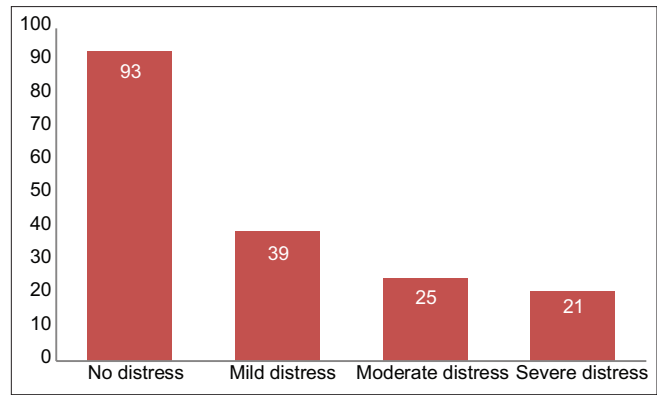


Figure 1: Psychological distress experienced by participants

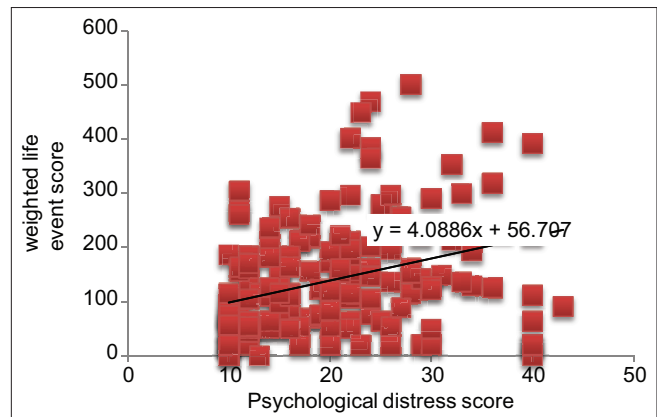


Figure 2: Relation between the score on the Kessler’s scale and the mean stressful life events score

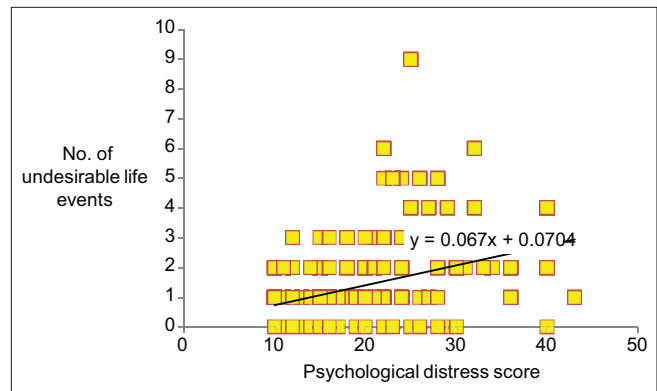
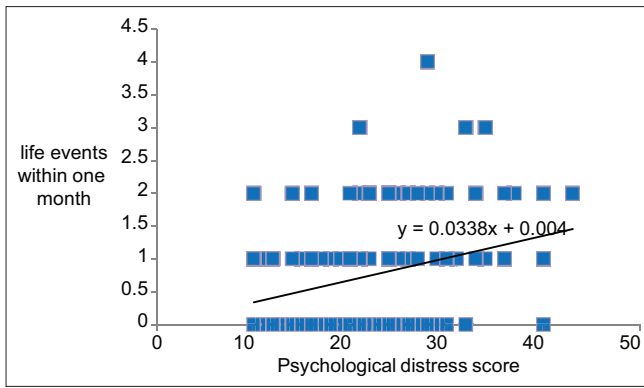


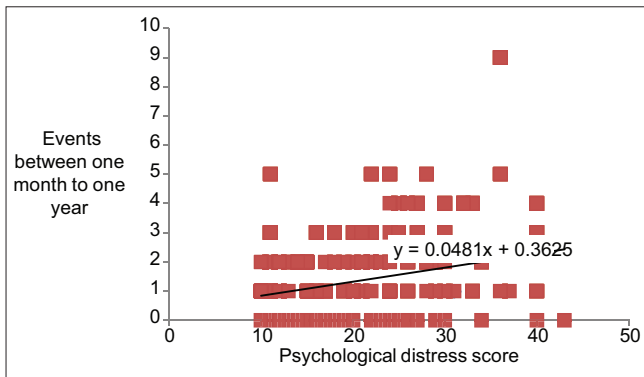
Figure 3: Relation between number of undesirable life events and the psychological distress score

As shown in Table 1, a number of life events was associated with psychological distress. This was similar to a study done by Hassanjadeh where stressful events were associated with increased distress.<sup>[9]</sup>

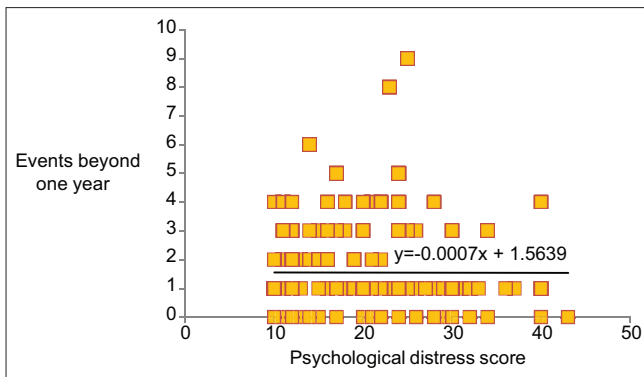
Correlation between the number of undesirable stressful life events that have occurred and the score of the participants on the psychological distress scale was positive implying increase in the undesirable life events lead to more psychological distress. This finding was similar to that of study done by Vinokur



**Figure 4:** Relation between number of life events within one month and the psychological distress score



**Figure 5:** Relation between number of life events in the duration of more than one month to past one year and the psychological distress score



**Figure 6:** Relation between number of life events which occurred before one year and the psychological distress score

*et al.* where undesirable life events were associated with distress, emotional disturbances, depression etc.<sup>[10]</sup>

Correlation between numbers of events that have occurred in the period more than one month to past year from the data collection was positive. There was no correlation between the number of life events that occurred before one year from the time of data collection and the psychological distress. In a study done by Philips, life events were not found to be associated with anxiety after five years.<sup>[11]</sup> This shows that the psychological impact of any life event decreases as time passes.

Table 1: Number of events and stress			
No. of events	Kessler's scoring		Total (%)
	No psychological distress (%)	Psychological distress present (%)	
≤2	64 (84.2)	12 (15.8)	76 (42.7)
>2	68 (66.7)	34 (33.3)	102 (57.3)
Total	132	46	178

$\chi^2$ - 6.99, d.f.-1, p value: 0.008\*

Table 2.1: Factors influencing the psychological distress			
Variable	Score on Kessler's scale		p
	No psychological distress	Psychological distress present	
Age (years)			
≤40	101	32	0.35
>40	31	14	
Sex			
Male	62	17	0.23
Female	70	29	
Marital status			
Married	67	30	0.04*
Unmarried	64	14	
Widowed	1	2	
Occupation			
Employed	74	23	0.47
Unemployed	58	23	
Type of family			
Joint	19	6	0.91
Nuclear	88	30	
Three-generation	25	10	

Table 2.2: Factors affecting psychological distress			
1	Socioeconomic status		
	Middle class	54	21
	Upper class	77	26
2	Exercise pattern		
	Regular	40	4
	sometimes	43	16
	never	49	26
3	Previous history of major illness		
	Present	14	12
	Absent	118	34
4	Sleep pattern		
	Regular	111	26
	disturbed	21	20

No significant difference was observed in the psychological distress faced by participants aged above and below 40. This was contradictory to the findings by Folkman *et al.* which showed a significant difference in the younger and older population in hassles and coping mechanisms.<sup>[12]</sup>

Females faced slightly more distress compared to males. However, this difference was not statistically significant. This is in contrast

to the study done by Sacco *et al.* where perceived stress from life events was more in females compared to males.<sup>[13]</sup> Another study done by Caballo *et al.* also showed that stressful events had more negative impact on females than males.<sup>[14]</sup>

Marital status of the participants has a significant association with stress. Here, 66.7% of widowed/widowers were having psychological distress, followed by 30.9% of the married study subjects and only 17.9% of unmarried participants, because death of a spouse is an undesirable life event and likely to cause distress in individuals. Married participants are also more likely to experience events like marital disputes which might be a contributory factor leading to stress in them.

There was no significant association between the employment status of participants and psychological distress. Although unemployment by itself may cause stress, employment also comes with the stress events on its own due to workplace troubles which cause stress. This might be the cause of an insignificant statistical difference between the two variables. Another factor to be considered here is according to the operational definition of our study, even housewives were considered in the category of unemployed. However, it is less likely to cause stress as it can be a choice or a social norm. This is observed against the report titled “Equality and inequality in health and social care: a statistical overview” unemployed people were more likely to have potential psychological illness than employed.<sup>[15]</sup>

The association between socioeconomic status of the participants and their psychological distress was not significant in our study. This was similar to the study done by Baum *et al.*, where inconclusive results were obtained regarding the stress and the socioeconomic status of the participants.<sup>[16]</sup> However, the study done by Sherbourne *et al.* showed that lower levels of social support in socioeconomic status in stressful life events had a detrimental impact on mental and physical functioning in older individuals.<sup>[17]</sup>

Our study showed no association between the religion of participants, stressful life events and psychological distress levels. This was in contrast to study done by Lorenz *et al.* which showed that various dimensions of religiousness buffered the impact of stressful life events on depressive episodes or adjustment disorders.<sup>[18]</sup>

Exercise and psychological distress had significant association. Increased level of distress was found in participants who exercised sometimes or did not exercise at all. These findings were similar to the study done by Hassmen *et al.* showing participants who exercised regularly had higher levels of sense of coherence and a stronger feeling of social integration and lesser levels of psychological distress than their less frequently exercising counterparts.<sup>[19]</sup> In another study done by Hamer *et al.*, it was observed that the minimum level of at least 20 minutes/week of any physical activity was associated with a significantly lower risk of psychological distress.<sup>[20]</sup>

The participants having regular sleep patterns reported no psychological distress while those with disturbed sleep had higher levels of psychological distress. This finding was similar to that of the study done by Leggett *et al.* where sleep disturbance was tested as moderator for life events and depressive symptoms.<sup>[21]</sup> The study showed that sleep disturbance was significantly associated with stressful life events and higher levels of depressive symptoms as well. Another study done by Vahtera *et al.* showed that individuals liable to anxiety and stress also had 3.11 times more odds of sleep disturbances than the normal population.<sup>[22]</sup>

A study done by Marum *et al.* showed that negative life events may increase psychological distress and also reduce life satisfaction.<sup>[23]</sup> Another study done by Moitra *et al.* showed that stressful life events were shown to be associated with worsening of symptoms of a panic attack.<sup>[24]</sup> These findings are similar to our study showing an association between stressful life events and increased psychological distress. Recent research also shows the effect of stressful life events on health. A study done by Zurlo *et al.* showed that stressful life events were shown to impact the perceived quality of life in women attending fertility clinics.<sup>[25]</sup> A study done by Luo *et al.* showed association between abrupt and unexpected stressful life events and worsening of symptoms of spondyloarthritis.<sup>[26]</sup>

## Conclusion and Recommendations

This study concludes that life events play a major role in the psychological wellbeing of the participants. A total number of life events and undesirable events are major contributors to psychological distress. Time since an event plays a major role producing psychological distress in participants. Events occurring within the last one year have a significant effect while those occurring in remote past have no correlation with the current psychological distress of the participants. Life event, however, is not the only factor that has an effect on psychological distress. Factors like marital status, exercise, sleep pattern and previous history of major illness independently affect the distress score of the participants. Mental health of the study subjects is, thus, dependent on many parameters with life events being a major factor at a given point of time.

As observed from the study, stressful life events increase the vulnerability of individuals to psychological distress and may exacerbate pre-existing physical and mental disorders. Hence, stressful life events can be utilized as a screening tool, especially in individuals with other predisposing factors and can be used to prevent exacerbation of ailments. Counselling services can be offered at primary care levels especially to individuals who face stressful life events to develop an effective coping mechanism. This will be helpful in the early management of stress and particularly in improving positive mental health and also in the timely detection of psychological disorders if any.

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## Conflicts of interest

There are no conflicts of interest.

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