Inequality in the Experience of Stressful Psychological Events: Evidence from a Regional Survey in Tehran

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Abstract

Background: Socioeconomic status is one of the most important social determinants of the formation of stressful events. The purpose of this study was to estimate the amount of inequality in experiencing stressful events among higher and lower socio-economic groups and zones of Tehran citizens.

Methods: The study was descriptive-analytical and cross-sectional. Through a multistage sampling method, 5895 adult residents in Tehran were selected. The research tool was a researcher-made questionnaire designed to measure stressful events in Tehran, which includes 11 dimensions of stressful factors. Concentration index and concentration curves were used to analyze the data.

Results: Among the 11 stressful life events, 6 of them were significant. Stress by the neighborhood problems (CI = -0.47, 95% CI: -0.66, -0.28) and living problems (CI = -0.50, 95% CI: -0.68, -0.32) was pro-rich, and these two dimensions formed the greatest inequality between the poor and the rich. The other 3 dimensions of stress caused by housing problems, political problems and fear of the future were also pro-rich. Only educational problem stressors were pro-poor. Stressful life event experience was concentrated on residents of low-development areas (zones 1 and 2).

Conclusion: Residents of Tehran experience stressful events unequally, and this inequality exists both within and between social groups. Most stressful events were observed among the poor and less developed zones.

Keywords: Inequality, Stressful Events, Concentration Index, Pro-poor, Pro-rich

Introduction

The metropolis of Tehran, as the political and economic capital of Iran, has undergone the greatest amount of urban transformation over the past five decades. Unbalanced urban growth in Tehran, accompanied by widespread immigration from all over the cities and villages of the country, has been accompanied by growi ng stressful events (1, 2). Noorbalal et al. found that 82.7% of Tehran's residents in 2017 experienced a severely stressful event. Regarding the events is concerns related to personal and familial future (53.7%), the second is financial and economic con-

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↑What is "already known" in this topic:
Most previous research has examined the positive relationship between socioeconomic status of individuals and their experiences of stress. People with a higher status are better off and people with a lower status experience more stress.

→What this article adds:
Inequalities in the experience of stressful events between the poor and the rich take different forms and, depending on the nature of stressful events, can be in favor of the poor or in favor of the rich or neutral. This article examines inequality in the total population and five zones of Tehran with different social and economic development.

cerns (47.1%*)*, and the third concern is about the high cost of living *(*41.7%) (3)

Many studies have examined the relationship between the socioeconomic status of individuals and the experience of stress (4-10). Structural status affects the experiences and perceptions of stressful events and everyday troubles to the extent that this stratification system carries an unequal distribution of resources, opportunities, and personal interests, the low social status, along with a source of stressful living conditions (7, 11-13).

People with low socioeconomic status are subjected to stress in many aspects; sometimes, the source of stress is related to their low socioeconomic status and also their perception of the situation, and sometimes to the financial pressures and the difficulty of living conditions. The impact of the social and economic status of individuals on the experience of stressful events is not always a regular and accurate pattern. Due to many mediator variables that exist in people's lives, this effect is sometimes moderated and sometimes exacerbated. As Woodward et al. (10) have shown, individuals with a low socioeconomic status who have positive and constructive social interaction have experienced less stressful events than those in the upper classes with poor positive social interactions. Although in the context of equal positive social interactions, socioeconomic status has had a positive effect on the reduction of stress experience.

Local facilities and the number of people benefiting from these facilities are effective on the level of experience of stressful events and creating anxiety and mental health of people. Neighborhoods and areas with higher socioeconomic status have better sports facilities and clubs, access to municipal services and a variety of leisure facilities (14, 15). In addition to the unequal distribution of services and urban facilities, the quality of service distribution is another issue that is important here; In other words, even with equal distribution of resources and facilities, the quality of distribution between rich and poor areas makes a significant difference in the health outcomes, especially the mental health of local residents (16).

This study aims to measure the inequality in experiencing stressful events among lower and higher socioeconomic groups within Tehran in 2017. Most previous research has examined the positive relationship between the socioeconomic status of individuals and their experiences of stressful events. People with higher status are better off and people with a lower status experience more stress. The main premise of the research is that inequalities in the experience of stressful events between poor and rich people take different forms and, depending on the nature of stressful events, can be in favor of the poor or in favor of the rich or neutral.

In this study, the difference in the experience of stressful events between the poor and the rich is based on the development of their place of residence. Based on the level of socioeconomic development, all areas of Tehran are divided into 5 zones with very high, high, medium, and low, and very low development rates.

Methods

Population, Sample Size, and Sampling methods

The study was descriptive-analytical and cross-sectional. The statistical population of this research was all residents of 22 municipal districts of Tehran. Because each region is heterogeneous in terms of socioeconomic status, we divided them into three categories: high, medium, and low, based on the latest traded housing prices. From each socioeconomic zone, two regions randomly and from each region, the main street was selected and by referring to the homes, the sample size of the adult population (18 years old up) was entered into the study. Other demographic variables were also proportional to the population size (PPS) of each region and each selected neighborhood. Based on Cochran's formula, 385 people were selected as a sample for each level. Considering 15% sample drop, the sample size was calculated to be 443 individuals and considering the design effect of 1.5, the sample size was increased to 665 individuals. Finally, 9 analytical levels were determined: three socioeconomic statuses (high, middle and low) and three age groups (18-39 years- 40 to 59 years- 60 years and older). Considering these 9 levels of analysis, the number of research samples was 5895. A detailed description is published elsewhere (3, 17).

Research Tool

The research tool was a researcher-made questionnaire based on a checklist "Measuring Social Psychosocial Stress in Tehran". In general, this comprehensive checklist encompassed 159 events that may cause stress in the last year. After conducting explanatory factor analysis, we reached into 11 dimensions. These 11 dimensions were the main variables of our study and the inequalities in these 11 dimensions were measured (Table 1). Tavangar et al. (18) validated this questionnaire in the previous research which included 11 dimensions. The amount of explained variance was (R^2=0.49) and the degree of reliability with the items of these factors was (Cronbach's Alpha = 0.822). The content validity (CVR) of the items was 0.61 and the content validity index (CVI) was 0.86, which is an acceptable validity in the field of the expert agreement for the instrument.

Constructed a socio-economic variable. This variable was the per capita housing price in 2017 in Tehran, which has been constructed through the combination of the total price of the house divided by the household size. Because of the cultural importance of the house in Iranian culture and the high share of housing cost in Tehran (19), we chose this indicator (i.e., per capita house price) as a proxy for the socioeconomic status of the individuals.

The results of Sadeghi and Zanjari's research were used to zone the areas of Tehran. These researchers used cluster analysis of the level of development of the regions based on the scores of the TOPSIS (Thechnique for Order Preference by Similarity to Ideal Solution) technique and factor analysis. Then, Tehran divided into 5 development zones including developed (beneficiary), semi-developed (almost beneficiary), and medium development (semi beneficiary), less developed (deprived) and under-

Table 1. Factors and items related to stressful events

Factors	Stressful Events
Political Problem (Cronbach's Alpha=0.739)	1. Insecurity to express political aspirations and opposition 2. Watch, read or hear the words and actions of politicians 3. Frequent change in domestic and foreign policies and community rules 4. Corruption in the police, court, government departments and agencies, municipality and so on 5. Safety problems (uncertainty about food health, road and vehicle safety) 6. Social discrimination 7. Uncertainty about the real people's perspective 8. Watch, read or hear controversial speeches by health professionals 9. Internet Problems (Filtering, Slowness, Definitive, etc.)
Social problems and neighborhood underdevelopment (Cronbach's Alpha=0.731)	1. Living in a place where a person is faced with addictive scenes 2. Living in a neighborhood where a person faces poverty scenes 3. Living in the neighborhood where the person faces other people's unemployment 4. Low economic, social and cultural level of the neighborhood 5. Living in the neighborhood where the person faces the scenes of others' violence 6. Living in the neighborhood where the person faces scenes of prostitution 7. High crime and low sense of security in the neighborhood 8. Living in the neighborhood where the person faces the scene of child labor
Livelihood and wage problems (Cronbach's Alpha=0.609)	1. Salary problems 2. Uninsured by the employer 3. Expensive daily necessities 4. Education expenditures of family members 5. Exposure to unexpected costs 6. Market instability
Fear of the future (Cronbach's Alpha=0.663)	1. Concerned about individual and family future 2. Concerns about the financial and economic future 3. Concerns about the future of education 4. Concerns about the future of the job 5. Concerns about the future of the neighborhood and society
Educational events (Cronbach's Alpha=0.635)	1. Doing homework, presenting content in class, exam and dissertation 2. The problem of interpersonal relationships in education 3. Dormitory problems 4. Educational failure 5. Financial difficulties during the education years
Educational changes (Cronbach's Alpha=0.704)	1. Change the field of study 2. Changes in education regulations 3. Change in the educational environment
Individual changes (Cronbach's Alpha=0.463)	1. Change in sleep habits 2. Reach old age 3. Change in your hobbies 4. Change in performing religious rituals 5. Changes in social activities 6. Change in beliefs, attitudes and thoughts
Job difficulty (Cronbach's Alpha=0.642)	1. Extreme and overwhelming job responsibilities 2. Time pressure for job tasks 3. Problem with manager 4. Problems with working physical conditions 5. The problem of transportation between work and home

developed (very deprived). Among 22 districts of Tehran, districts 1, 2, 3 and 6 were developed districts, districts 5 and 7 were relatively developed, districts 4, 8, 11, 13, 21 and 22 were medium development, districts 9, 10, 12, 14 and 20 less developed and finally districts 15, 16, 17, 18 and 19 were underdeveloped (20).

In the second phase, we calculated the Absolute Concentration Index (CI) for experiencing stressful events. This index indicates the concentration of events among the socio-economic statuses. In other words, Concentration Index measures the inequality in experiencing stressful events based on the concentration curve (cumulative curve). The Concentration Curve (CC) has two axes: a horizontal axis (X-axis) and a vertical axis (Y-axis). On the horizontal axis is located the population from the poorest to the richest, and on the vertical axis is located the percentage of cumulative health (outcomes) variable. If the stressful event (outcome variable) in the poor is more than the rich, the CI sign is negative and the concentration curve will be above the line of the bisector and vice versa. Given the negative nature of the outcome variable in this study (stressful event), the negative sign of CI indicates that the distribution in stressful events is pro-rich and vice versa. CI calculated according to the following formula (21-23):

Table 1. Ctd

Factors	Stressful Events
Housing problems (Cronbach's Alpha=0.651)	1. Renting Problem 2. Dissatisfaction with the quality of housing 3. Changes in Housing 4. Expensive housing
Problems of Job Relationships (Cronbach's Alpha=0.464)	1. Emotional abuse at work (disregard, humiliation, disturbance, swearing, etc.) 2. Problems in interpersonal relationships, disputes, and issues 3. No control over work
Family relationships (Cronbach's Alpha=0.689)	1. Wife's Treachery 2. Controversy with wife and leave home 3. Interventions of husband and wife families 4. Psychological Abuse by your' wife 5. Conflict with family members 6. Being obliged to live in a different family cultural

$$CI = \frac{2}{N\mu} \sum_{i=1}^{n} h_i r_i - 1 - \frac{1}{N}$$

h_i: Health (outcome) variable

μ: Health variable mean

$r_i = \frac{i}{N}$: Individual relative rank in living standards

Results

Table 2 presents the distribution of the respondents based on the most important demographic characteristics.

Inequality Analysis

According to the results, six of the eleven studied events showed a significant inequality and the other five showed a non-significant inequality. In the following, the results of each significant event are reported separately:

Inequality in political events: According to the values of the absolute concentration index, in the whole population of Tehran, there was a significant, pro-rich inequality in the stress caused by political events (CI = -0.27, 95% CI: -0.47, -0.07). Also, based on the developed zones of Tehran, there was a significant inequality (CI = -0.627, 95% CI: -1.109,-0.242) in the lowest zone, but in the second to fifth zones, no significant inequality was found (Table 3 and Diagram 1).

Inequality in problems about the underdevelopment of the neighborhood: In the whole population, there was a significant, pro-rich inequality in the stress caused by underdevelopment of the neighborhood (CI = -0.47, 95% CI: -0.66, -0.28). Also based on the developed zones of Tehran, in the lowest (CI = -0.80, 95% CI: -1.24, -0.36) and the second zones (CI = -0.46, 95% CI: -0.86,-0.07) there was a significant inequality, but in the third to fifth zones inequality was not significant (Table 4 and Diagram 1).

Inequality in problems about livelihood: In the whole population, there was a significant, pro-rich inequality in the stress caused by livelihood problems (CI = -0.50, 95% CI: -0.68, -0.32). Also based on the developed zones of Tehran, in the lowest (CI = -1.14, 95% CI: -1.53, -0.76),

Table 2. Descriptive characteristics of participators

Demographic features		Percent	Number
Gender	Male	51.9	3097
	Female	48.1	2847
Marital status	Marriage	48.9	2882
	Single	45.5	2684
	Divorced	3.4	203
	Dead wife	2.1	125
Education	Illiterate	1.3	78
	Elementary	3.1	182
	High school	9.1	528
	Diploma	50.8	2377
	Bachelor	29.7	1729
	MA	14.1	820
	PhD	0.2	117
Employment status	Employed	58.2	3145
	Unemployed	16.5	889
	Housekeeper	11.6	627
	Retired	5	268
	Other	8.8	474
Housing type	Ownership	45.5	2335
	Renter	38.1	1959
	With Family	12.4	640
	Organizational	1.3	65
	Other	2.9	147
Income to Cost ratio	Income>Cost	15	835
	Income=Cost	71	3957
	Income< Cost	14	778

Table 3. Absolute CI of stress caused by the experience of political events, by population and zones

Group	Estimate	STE	LB	UB
1	-0.627	0.197	-1.014	-0.240
2	-0.210	0.220	-0.642	0.222
3	-0.514	0.298	-1.099	0.071
4	-0.059	0.266	-0.582	0.462
5	0.049	0.185	-0.314	0.413
Population	-0.275	0.100	-0.473	-0.078

*1 = Zone with the lowest level of development, 5 = Zone with the highest level of development
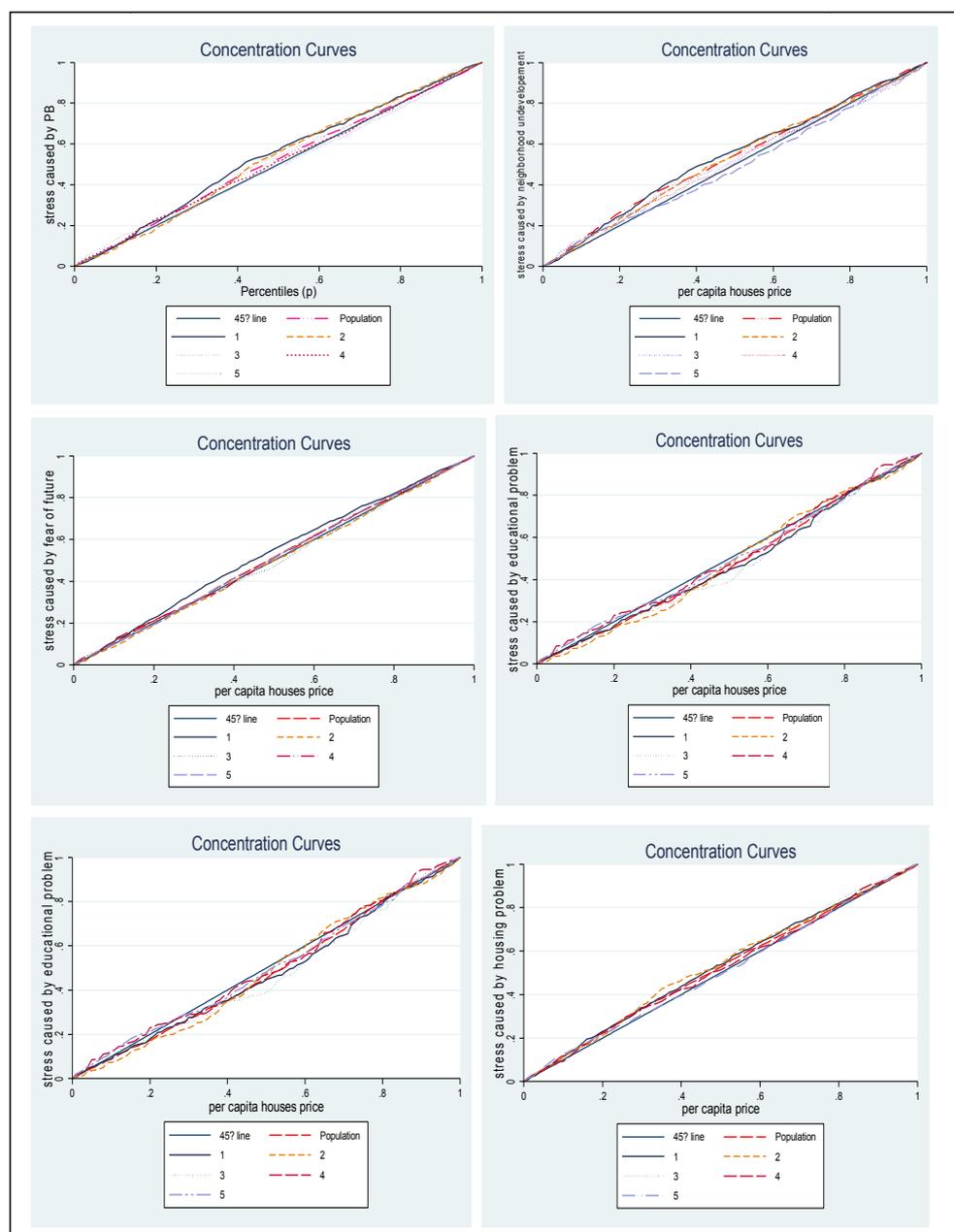

Diagram 1. Concentration curve of stressful events by population and zones

the second (CI = -0.42, 95% CI: -0.79, -0.06), and the third (CI = -0.54, 95% CI: -1.05, -0.04) zones there was a significant inequality, but in the fourth and fifth zones inequality was not significant (Table 5).

Inequality in problems about fear of the future: In the whole population, there was a significant, pro-rich ine-

quality in the stress caused by fear of the future (CI = -0.12, 95% CI: -0.34, -0.08). Also, based on the developed zones of Tehran, in the lowest zone (CI = -0.65, 95% CI: -1.05, -0.24), there was a significant inequality, but in the second to fifth zones, inequality was not significant (Table 6).

Table 4. Absolute CI of stress caused by the experience of livelihood problem, by population and zones

Group	Estimate	STE	LB	UB
1	-0.802	0.224	-1.243	-0.362
2	-0.469	0.202	-0.866	-0.071
3	-0.074	0.263	-0.914	0.118
4	0.018	0.218	-0.503	0.354
5	0.049	0.137	-0.251	0.288
Population	-0.477	0.095	-0.665	-0.288

Table 5. Absolute CI of stress caused by the experience of livelihood problem, by population and zones

Group	Estimate	STE	LB	UB
1	-1.149	0.197	-1.536	-0.761
2	-0.429	0.187	-0.796	-0.062
3	-0.549	0.257	-1.054	-0.044
4	-0.192	0.268	-0.718	0.332
5	0.030	0.159	-0.258	0.343
Population	-0505	0.092	-0.687	-0.323

Table 6. Absolute CI of stress caused by the fear of future, by population and zones

Group	Estimate	STE	LB	UB
1	-0.652	0.206	-1.057	-0.246
2	0.122	0.238	-0.344	0.589
3	0.153	0.308	-0.451	0.757
4	0.020	0.279	-0.528	0.569
5	-0.064	0.216	-0.489	0.360
Population	-0.128	0.109	-0.341	0.085

Table 7. Absolute CI of stress caused by the experience of the educational problem, by population and zones

Group	Estimate	STE	LB	UB
1	0.104	0.114	-0.120	0.329
2	0.264	0.174	-0.078	0.607
3	0.196	0.165	-0.128	0.521
4	0.100	0.162	-0.217	0.418
5	0.170	0141	-0.106	0.446
Population	0.190	0.068	0.057	0.324

Table 8. Absolute CI of stress caused by the experience of the educational problem, by population and zones

Group	Estimate	STE	LB	UB
1	-0.486	0.205	-0.888	-0.084
2	-0.379	0.222	-0.815	0.057
3	-0.116	0.282	-0.676	0.442
4	-0.357	0.302	-0.950	0.235
5	-0.018	0.187	-0.387	0.348
Population	-0.290	0.103	-0.492	-0.088

Inequality in educational problems: In the whole population, there was a significant, pro-poor inequality in the stress caused by educational problems (CI = 0.19, 95% CI: -0.05, -0.32). Based on the five zones of Tehran, there was not any significant inequality (Table 7).

Inequality in problems about housing: In the whole population, there was a significant, pro-rich inequality in the stress caused by housing problems (CI = -0.29, 95% CI: -0.49, -0.08). Also, based on the developed zones of Tehran, in the lowest, there was a significant inequality (CI = -0.48, 95% CI: -0.88, -0.08), but in the second to fifth zones amount of inequality was not significant (Table 8).

Discussion

Stressful events always manifest themselves in social and economic environments and have a class character. In contrast with the other studies that examined inequality in the experience of stress only among the population or urban areas, our study examined the situation of inequality in the experience of stressful events both in the whole population and various socio-economic zones. In this study, 6 stressors, including stress caused by political events, neighborhood underdevelopment and social problem, livelihood and wage problems, fear of the future, educational problems, and housing problems, had a significant relationship with the socioeconomic status of individuals. Except for the stressful events caused by educational problems which showed a significant, pro-poor inequality, inequality in the other dimensions was pro-rich. The largest amount of inequality was related to the experience of stressful livelihood and wage events and the least amount was related to the stressful events of fear of the future.

Although in previous studies (10, 13, 24, 25) there is a consensus on the effect of socioeconomic status and economic inequalities on stress and stressful events, the results of the present research showed that the distribution of stressful events among social and economic classes is significantly different. While previous studies (14, 24, 26) have examined the general relationship between socioeconomic and stress, in the present study, various events leading to stress were examined among the various socioeconomic groups of city dwellers.

The results of this study are consistent in line with the other studies (27, 28) that consider the difference between socioeconomic status as a risk factor in the experience of psychological stress. Consistent with Yang's study (29), our results revealed that the greatest inequality in the stressful event experience is concentrated on residents of low-development areas (zones 1 and 2). Everson's study (30) has shown that there is a direct relationship between living in neighborhoods with low socioeconomic status and the density of stressful events. A study by Amroussia et al. (31) found that socioeconomic conditions, including employment status, income, and monetary assurance margins, play a major role in justifying inequality in stress experience. Consistent with our results, Hatch (32) and Turner (33) found that the focus of stressful and traumatic events is concentrated among individuals and regions with low occupational and low economic groups. A longitudinal study of Hudston (34) in Massachusetts found that communities with lower SES had higher rates of psychiatric hospitalization, and this association with economic stress could be explained. Some limitations of this study are: 1) if the distribution of these stressful events were achieved by neighborhood, it would be possible to derive more powerful and accurate results. 2) information and determinants about regional levels can be related to each of the stressful events and show exactly what factors and determinants at the regional level are related to which stressful event.

Conclusion

Residents of Tehran experience stressful events unequally, and this inequality exists both within and between social groups. The main burden of experiencing stressful events falls on the poor living in Tehran. The largest amount of Inequality among the residents of Tehran was very high in the two dimensions: stress caused by "livelihood and wage problems" and "neighborhood and social problems". Other studied dimensions, such as stress caused by housing problems, political problems and worries about the future, have also led to significant inequality. In addition, inequality in the experience of stress varied between residents of different socio-economic zones, so that inequality in the experience of stressful events in the low socio-economic zones (except for the case of stress caused by educational problems) was very high.

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Ethical approval

This research has been done based on the ethics code license with the ID IR.USWR.REC.1397.022 of Tehran University of Social Welfare and Rehabilitation Sciences

Conflict of Interests

The authors declare that they have no competing interests.

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