Distribution Pattern of Stressful Events in Districts of Tehran, Iran: Evidence from a Regional Survey

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Abstract

Background: Tehran metropolis has been the center of urban growth in Iran in recent decades, which has led to the growth of psychological problems and stressful events. The present study aimed to determine the distribution of stressful events in different districts of Tehran.

Methods: The present descriptive-analytical study examined 5,985 citizens of Tehran in 2018. Subjects were selected via multi-stage cluster sampling, and data were collected using a researcher-made questionnaire to measure stressful events. The exploratory and confirmatory factor analyses confirmed the validity and reliability of the questionnaire, respectively. Eleven stressors were extracted based on factor analysis, which were scored from 0 to 100. Mean scores of stressful events were compared using one-way analysis of variance and the Tukey’s post hoc test. All statistical analyses were carried out using SPSS 16 and AMOS 18. The statistical significance level was set to 0.05.

Results: The mean total score of stressful events was 6.78. The highest and lowest scores of stressful events were related to fear of the future (15.15) and academic changes (1.11), respectively. Results of the Tukey’s post hoc test indicated differences between districts 12 and 20 in political problems, between districts 11 and 16 in neighborhood underdevelopment and social harm, between districts 16 and 19 in the livelihood problems, and between districts 1 and 2 in educational problems and educational changes. Moreover, mean scores of stressful events were highest in districts 1 in terms of worry about the future, in district 22 in terms of individual changes, in district 20 in terms of occupational difficulty, and in district 18 in terms of housing problems. There was no significant difference in the mean scores of stressful events due to employment and family relationships between the districts.

Conclusion: Based on the results, residents in less developed districts of Tehran, with poor urban facilities, are less affected by events due to subsistence, occupational, and economic issues, while residents in more developed districts are more affected by non-existence events, such as filtering, political instability, social constraints, and other factors.

Highlights:

What is current knowledge?
The phenomenon of stress and mental pressure has always been seen in previous studies as a class event and more focused on the lower social and economic classes and less privileged areas.

What is new here?
According to the nature and characteristics of stress, its concentration is more in some privileged or less privileged areas, and yet the main concentration of stressful events was in less privileged areas.

Introduction

According to the theory of stimuli, stressful events are a set of events or conditions leading to physiological or psychological responses that predispose a person to illness or discomfort. According to Lazarus’ theory, stress perception occurs at two stages, primary evaluation (evaluation or judgment of an event) and secondary evaluation (evaluation of resources to adapt to a stressor) (1).

Stress is an important and widespread phenomenon of modern urban life. The complexity of urban relationships and the diversity of issues in large cities contribute to the abundance of social sources of stress (2-4). Tehran metropolis, as the political and economic capital of Iran, has been the center of changes and development in the past few decades and is the most immigrant-friendly city in the country (5). The unbalanced development of Tehran metropolis and the concentration of facilities and services in the city as well as the uneven distribution of urban facilities and services in districts and neighborhoods of Tehran have been the subjects of various studies (6-10). The process of rapid urban changes has been associated with the development of various diseases, mental health problems, and increased stressful events (2, 4, 11).

Noorbala et al. (2017) found that 82.7% of Tehran residents had experienced at least a severe stressful event during the past year (1). It is generally believed that place of residence, physical characteristics, social relationships, services, and opportunities provided in neighborhoods can influence health and well-being (13, 14).

Identification of stressful stimuli and their consequences is of great importance due to the well-established link between stress and various mental illnesses (15). Moreover, there is a clear relationship between stress and suicide rate (16). Stress is also an important risk factor for depression (17-23) and anxiety disorders (24, 25). In addition, stress can significantly influence the recurrence and treatment outcome of disorders (26). Jiang et al. have found that stressful life events are directly related to life satisfaction and depression (26).

Local facilities and the extent to which people enjoy these facilities affect the level of stressful events and individuals’ mental health. Neighborhoods and districts with higher socioeconomic status have more sports facilities and access to urban services as well as other leisure facilities (27). Even with equal distribution of resources and facilities, the distribution of the facilities among privileged and non-privileged districts significantly affects the mental health outcomes of local residents (28).

The present study investigated the differences in experience of psychologically stressful events and their distribution in different districts of Tehran, Iran.

Methods

The present cross-sectional study was performed on residents of 22 districts of Tehran in the spring of 2018. Sampling was done using a multi-stage cluster and probability proportional to size sampling methods. Assuming the highest variance \( \sigma^2 = 0.25 \) in the statistical population, the sample size was calculated for each level of the analysis with a 95% confidence interval and an absolute error of 0.05. Three neighborhoods with different socioeconomic status were randomly selected from each district. Considering three socioeconomic zones (high, medium, and low) in Tehran and also three age groups of young (18-39 years), middle-aged (40-59 years), and the elderly (older than 60 years), 5,985 subjects were selected from 22 districts of Tehran. Based on the housing prices, all neighborhoods in each district were divided into three categories: high, moderate, and low. Sampling was done according to age and gender in each area.
of Tehran. Inclusion criteria included age of ≥18 years and being a native of the same neighborhood. Exclusion criteria were reaching a certain sample size based on age, sex, and location. Necessary permissions were obtained from the research deputy of the University of Social Welfare and Rehabilitation Sciences. Before data collection, the research purpose and methods were explained to all participants, and they were assured about the confidentiality of data.

The initial questionnaire included 159 yes-no questions on stressful events. In order to determine the content validity, the questionnaire was given to 27 mental and social health experts, and a content validity ratio of 0.61 and content validity index of 0.86 were obtained. It should be noted that in order to enrich the questionnaire items and comprehensively review stressful events, in four areas of the city, focused groups were held with 10 to 15 residents. This was done to modify some items before presenting them to experts for the validity assessment of the questionnaire.

We utilized the confirmatory and exploratory factor analyses and various factor rotation techniques for evaluating construct validity of the questionnaire. A Kaiser-Meyer-Olkin index of 0.822 was obtained.

The SPSS 16 software was used to perform the exploratory factor analysis, and the AMOS software was used to perform the confirmatory factor analysis. The amount of explained variance was R²=0.49 and Cronbach's alpha was 0.822. Root mean square error of approximation of ≥0.05 and goodness of fit index of ≥0.09 indicated a good fit of the model in the confirmatory factor analysis (Table D).

The mean score of each district was compared with that of other districts. We provided a basis for comparing the districts given that the score of each district in each factor was between zero and 100. One-way analysis of variance and the Tukey's post hoc test were used to determine significant differences. Due to the high volume of data and tables, we only mentioned important cases and the contrasting homogeneous groups in the text.

Results

Based on the results, most subjects were male (51.9%), married (48.9%), employed (58.2%), and with diploma (50.8%) and owned houses (45.5%) (Table D).

Table 1: Descriptive characteristics of participants

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3097</td>
<td>51.9</td>
</tr>
<tr>
<td>Female</td>
<td>2847</td>
<td>48.1</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>2882</td>
<td>48.9</td>
</tr>
<tr>
<td>Single</td>
<td>2684</td>
<td>45.5</td>
</tr>
<tr>
<td>Divorced</td>
<td>203</td>
<td>3.3</td>
</tr>
<tr>
<td>Widower</td>
<td>125</td>
<td>2.1</td>
</tr>
<tr>
<td>Iliterate</td>
<td>78</td>
<td>1.3</td>
</tr>
<tr>
<td>Elementary</td>
<td>182</td>
<td>3.1</td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>2377</td>
<td>50.8</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>1729</td>
<td>29.7</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>820</td>
<td>14.1</td>
</tr>
<tr>
<td>PhD</td>
<td>117</td>
<td>2.1</td>
</tr>
<tr>
<td>Employment status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>3154</td>
<td>55.2</td>
</tr>
<tr>
<td>Unemployed</td>
<td>889</td>
<td>16.5</td>
</tr>
<tr>
<td>Housekeeper</td>
<td>627</td>
<td>11.6</td>
</tr>
<tr>
<td>Retired</td>
<td>268</td>
<td>4.8</td>
</tr>
<tr>
<td>Other</td>
<td>474</td>
<td>8.8</td>
</tr>
<tr>
<td>Owned</td>
<td>2335</td>
<td>45.5</td>
</tr>
<tr>
<td>Housing type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rental</td>
<td>1959</td>
<td>38.1</td>
</tr>
<tr>
<td>With family</td>
<td>640</td>
<td>12.4</td>
</tr>
<tr>
<td>Organizational</td>
<td>65</td>
<td>1.3</td>
</tr>
<tr>
<td>Other</td>
<td>147</td>
<td>2.9</td>
</tr>
<tr>
<td>Income to cost ratio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income&lt;Cost</td>
<td>815</td>
<td>15</td>
</tr>
<tr>
<td>Income=Cost</td>
<td>3957</td>
<td>71</td>
</tr>
<tr>
<td>Income&gt;Cost</td>
<td>778</td>
<td>14</td>
</tr>
</tbody>
</table>

The total mean stress score due to political problems was 10.28 in the districts of Tehran. The mean scores of stressful events due to this issue were lowest in districts 12 (4.11) and 20 (4.19). The mean scores of political problems differed significantly between the 22 districts of Tehran (F=14.64, P<0.001). The results of the post hoc test indicated that a difference between homogeneous group 1 (districts 1, 12, 13, and 20) and other groups in terms of stress caused by political problems was significant. The total mean stress score due to political problems was 10.28. The mean scores of stressful events due to this issue were highest in districts 12 (4.11), 13 (12.11), and 20 (9.42). There was a statistically significant difference in the mean score of stress due to fear of the future between the districts of Tehran (F=14.64, P<0.001). The results of the post hoc test indicated a difference between homogeneous group 1 (districts 1, 12, and 20) and other groups in terms of stress caused by fear of the future.

The total mean score of stress due to fear of the future was 15.15 and highest among the 11 stressful factors. The mean scores of stressful events due to this issue were lowest in districts 12 (4.11), 13 (12.11), and 20 (9.42). There was a statistically significant difference in the mean score of stress due to fear of the future between the districts of Tehran (F=14.64, P<0.001). The results of the post hoc test indicated a difference between homogeneous group 1 (districts 1, 12, and 20) and other groups in terms of stress caused by fear of the future. The total mean score of stress due to educational problems was 3.94. The mean scores of stressful event due to this issue were highest in districts 1 (7.63) and 2 (7.42). There was a statistically significant difference in the mean scores of stress due to educational problems between the districts of Tehran (F=15.94, P<0.001). The results of the post hoc test indicated a difference between homogeneous group 1 (districts 1 and 2) and other groups in terms of stress caused by educational problems.

The total mean score of stress due to individual changes was 6.49. The mean score of stressful events due to this issue was highest in district 22 (12.78). There was a statistically significant difference in the mean score of stressful events due to individual changes between the districts of Tehran (F=11.13, P<0.001). The
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results of the post hoc test indicated a difference between homogeneous group 1 (districts 1, 19, and 22) and other group in terms of stress caused by individual changes. The total mean score of stress due to job difficulty was 4.58. The mean score of stressful events due to this issue was lowest in district 20 (1.46). There was a statistically significant difference in the mean scores of the event between the districts of Tehran (F = 6.56, P < 0.001). The results of the post hoc test indicated a difference between homogeneous group 1 (districts 12, 14, and 20) and other group in terms of stress caused by job difficulty.

The total mean score of stress caused by housing problems was 9.47. The mean score of the stressful event due to this issue was highest in district 1 (14.27). There was a statistically significant difference in the mean scores of the event between the districts of Tehran (F = 6.62, P < 0.001). The results of the post hoc test indicated a difference between homogeneous group 1 (districts 1, 16, and 18) and homogeneous group 2 (districts 5, 12, and 14) in terms of stress caused by housing problems.

According to the results of the one-way analysis of variance, there was a statistically significant difference in the mean scores of familial relations between the districts of Tehran (F = 3.31, P < 0.001). The results of the Tukey's post hoc test indicated that unlike the previous stressors, there was no significant difference between urban and rural areas of Tehran in terms of family-relation-related stressful events.

discussion
If we categorize districts of Tehran into three classes of privileged, semi-privileged, and non-privileged based on previous studies (6, 10, 30) and different indices of urban development, some stressful events can be seen in all three categories. Consistent with findings of previous studies (13, 27, 28), we found that the mean score of stressful events was higher in less-privileged areas, such as districts 12, 15, 16, 18, 19, 20, and 21. Residents in these districts experience more stressful events due to underdevelopment of the neighborhood, social issues, livelihood problems, and housing problems compared with residents in more developed districts. Previous studies also showed that access to urban facilities and services, social participation, social capital, urban spaces, recreational spaces, and urban welfare affected perception and experience of stressful events (31, 32).

The mean score of stressful events due to political events (insecurity to express demands, filtering problems, administrative corruption, and contradictory words of politicians) was higher in privileged districts (1, 2, 3, 5, and 6) compared with other districts. This factor seemed to be more important for the residents of these districts. The mean score of stress due to other issues such as educational problems (dropout and dormitory problems) and academic changes (e.g. changes in rules and regulations) as well as individual changes (changes in bedtime, changes in beliefs) were also higher in these districts. In general, the type of stressful events differed between the districts so that most of the stressful events in the less-privileged districts were due to subsistence, economic, housing, etc. issues, while residents in the privileged districts experienced more stressful events due to personal, political, and educational issues. This finding is somewhat contrary to the results of other studies that reported a direct correlation between socioeconomic status of the districts and the individuals' stress level (1, 3, 14, 27).

Some studies reported that people with a lower socioeconomic status and residents of urban slums were more likely to experience stressful events due to job difficulties and occupational/family problems (5, 6), but we found no such difference between residents in privileged and non-privileged districts. The mean score of stressful event due to fear of the future was high in almost all districts of Tehran.

In the present study, we sought to determine the distribution of stressful events in districts of Tehran, but there were some limitations. First, if the distribution of the stressful events was achieved by neighborhood, it would be possible to extract more powerful and accurate results. Second, regional level information and determinants could be related to each stressful event. Nevertheless, our study provides an important framework for conducting future analytical studies and planning to reduce the rate of stressful events, which have negative consequences on the lives of citizens. It is suggested to further investigate the causes of stressful events in each district based on the findings.

Conclusion
Based on the results, residents in less developed districts of Tehran with poor urban facilities are less affected by events due to subsistence, occupational, and economic issues, while residents in more developed districts are more affected by non-subistence events such as filtering, political instability, social constraints, and other factors.

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Ethical statement
The research received approval from the ethics committee of Tehran University of Social Welfare and Rehabilitation Sciences (Code: IR.USWR.REC.1397.022). The participants were ensured about the confidentiality of their personal information.

Conflict of interest
The authors declare that there is no conflict of interest regarding publication of this article.

Author contributions

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