Ranking of Stressful Life Events in General Population of Tabriz, Iran

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Abstract: This study was aimed to determine the ranking order of stressful life events among general population of Tabriz-Iran. In this descriptive and cross-sectional study 600 individuals over 18 years old in Tabriz were selected with the data of provincial health center using randomized cluster and systematic sampling. The subjects were asked to differentiate the rate of stressfulness of each event by scoring between 0-20 on a relatively modified version of Holms-Rahe scale of stress ratings. Death of child" has the highest score of the stressful events (mean = 19.75 and Standard error = 0.005), while "summer vacation" devotes the least score to itself (mean = 4.06 and Standard error = 0.23). In comparison of the total mean score of stressfulness, women have significantly higher total mean than men (13.04 vs. 11.48, p = 0.0001), as well as in different age groups, the age group of 18-39 (mean = 12.64) has significantly devoted the highest mean to itself (p = 0.008). The results indicate that the socio-cultural as well as age and gender differences in the researches regarding the ranking and quantification of the stressful life events should be noticed. However, there are still common events in different cultures which exert the same effects of stressfulness, excluding the effects of socio-cultural factors or individual's perception.

Key words: Stressful events, ranking, general population, cultural differences

INTRODUCTION

Psychosocial stresses as the factors which can affect the physical and mental health of humans have been noticed as one of the important health subjects. For the first time in some scale was developed by Holms and Rahe (1967) in order to measure the intensity of the stress caused by the recent experiences of life. This scale includes 43 events of life which ranks the events of life from the most stressful event to the least stressful one. For each event of life a numerical rating is allocated to estimate the relative effect of that event in terms of the Life Change Unit (LCU). To estimate the level of the stress simply the humans cross those events of life which they have experienced during the one past year and they add life change units of those events. Holmes and Rahe (1967) found out that humans tolerating more than 150 life change units in a year have a higher rate of physical or psychological disease.

However, some difficulties and limitations with the approach of life events rating scale have been noticed. Among which the scale doesn't take into account the individual's assessment of an event, the reaction toward it or the ability to cope with that event (Miller, 1993).

Instead the score of life change unit in the existing scale has been predetermined and it reflects the assumption that the assumed event of life will have a similar effect on every individual. While, nowadays "stress" is vastly defined as a negative emotional state which appears in response to the events perceived beyond the individual's ability to cope with them (Cohen and Herbert, 1996). This definition emphasizes on the important role played by the individual's perception or assessment of events in experiencing "stress".

Also, the reliability of the life events rating scale for the retrospective assessments and the subject that the real life events regarding the stress caused by them intend to interact each other, are considered to be among the limitations of the scale (Spurgeon *et al.*, 2001; Dimsdale *et al.*, 2005). However, cross-cultural studies have indicated that the humans in very different cultures intend to rank the stressful events similarly (Mc Andrew *et al.*, 1998). And the data show that humans are fairly coordinated in ranking the stressful events in scales such as Holmes and Rahe (Bhugra *et al.*, 1999).

Some of the studies recently conducted in Iran, show that comparing the first ten stressful life events to the similar foreign studies there are many similarities such

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as in type and ranking events. However, about some of the events the results of the studies show the cultural differences in ranking the stressful events (Malakouti *et al.*, 1998; Vahhabzadeh *et al.*, 1998).

The main purpose of this research is to rank the stressful life events in general population of Tabriz as a major city in North-west of Iran (As an Asian and Muslim living country) and determine the mean score of stress for every specific event.

This research seeks to respond to the following questions:

- Dose ranking the stressful events in Tabriz-Iran have a different pattern from that of the foreign studies or not?
- Do the ranking and mean scores of stress regarding various age and sex groups show differences or not?

MATERIALS AND METHODS

In the form of a cross-sectional and descriptive research and using randomized cluster sampling method and also using the available statistical data about the households of Tabriz in Health center of East-Azerbaijan province, 300 households (in the form of 30 clusters) were specified in the whole Tabriz and then 2 individuals over 18 years from every household were chosen using randomized systematic sampling method. We excluded children and adolescents (<18) due to developmentally different perspectives of them on stress. In the case of no one was available at a household (for second time), non responses and the case when a household did not contain 2 members over 18 years, we planed to select the nearest household to the cluster as the alternative sample.

Thus, 600 individuals over 18 were the total statistical sample of the present research which were chosen using randomized cluster and systematic sampling methods.

The life events questionnaire made by Holmes and Rahe (1967) and Paykel *et al.* (1971) are tools mainly used in the researches related to the life events. Since, these questionnaires are not valid in Iran, we tried to make a questionnaire with Holmes and Rahe's (1967) approach making some changes in it.

In Holmes and Rahe's (1967) approach both the negative and positive events are considered and the subjects are asked to rank the events excluding their pleasantness and unpleasantness considering the rate of need to social readjustment.

While, in Paykel's approach the negative and unpleasant aspects of events and not merely "change" are considered. Considering the socio-cultural differences and also the revisions made later in Holmes and Rahe's

(1967) questionnaire due to its some limitations (Paykel *et al.*, 1971) some of the events were added to Holmes and Rahe's (1967) questionnaire and some others were left out. This was done due to some cultural and ethnological considerations and by posing open-ended questions about the most important stressful life events among the small samples of people of Tabriz.

Thus, a questionnaire was obtained with 50 different events in which Holmes and Rahe's (1976) approach was considered. Eventually, the questionnaires were given to the sample individuals in their home by 6 trained female interviewers holding B.S/B.A degrees.

The procedure performed was as follows: the interviewers after giving the necessary explanations about the questionnaire and getting an oral consent, asked the subjects to think about each event and specify the stressfulness of each event when happening in their life by scoring it between 0-20 (including its being positive or negative).

To make the grading objective and tangible from 0-20, the interviewers used a type of graded color diagram which was graded from 0-20 in gradient form.

After completion of 600 questionnaires, the raw data were entered the computer. To analyze the data, statistical software SPSS and appropriate statistical tests including t-test and analysis of variance (one-way ANOVA) were used.

RESULTS

The present research was done with 600 subjects in the age range of 18-70. The most important demographic features of the subjects have been mentioned in Table 1.

Ranking of stressful life events obtained by analyzing the questionnaires of 600 subjects in Tabriz city has been reflected in Table 2.

In this table, the stressful life events have been put in order from the most to the least regarding the rate of stressfulness. In this study the "death of child" has gained the highest score of stressfulness (mean = 19.75 S.E = 0.005) and summer vacation has devoted the lowest score to itself (mean = 4.06 and S.E. = 0.23).

Table 1: Demographic features of the subjects

Demographic features	Frequency	Percentage
Age		
18-39 years	385	64.2
40-64 years	185	30.8
65 and over	30	5
Gender		
Male	207	34.5
Female	393	65.5

Table 2: Ranking of stressful life events in general population of Tabiz-Iran

Rank	Stressful life events	Mean	S.E
1	Death of child	19.75	0.005
2	Death of spouse	19.27	0.009
3	Infidelity of spouse	19.14	0.113
4	Jail term	18.93	0.009
5	Addiction	18.78	0.009
6	Divorce	18.62	0.12
7	Standing accused	18.48	0.11
8	Marital discord	18.12	0.11
9	Child running away	18	0.11
10	Death of close family member	17.79	0.12
11	An unexpected event (accidents, earthquake, war, storm)	17.09	0.14
12	Failure in achieving the goals in life	16.53	0.15
13	Being in debt more than usual	16.41	0.16
14	Marital separation	16.40	0.18
15	Behavioral and educational problems of child	15.80	0.17
16	Major change in health of family member	15.33	0.18
17	Fired from work or unemployment	14.90	0.22
18	Major change in financial status	14.74	0.18
19	Major personal injury or illness	13.89	0.23
20	Frequent quarrels with spouse	13.86	0.19
21	Unsuccessful schooling	13.53	0.23
22	Unsuitable conditions of the working environment	13.24	0.18
23	Unwanted trampling the rights of others	12.73	0.24
24	Death of an intimate friend	12.73	0.22
25	Spouse begins or ends work	12.61	0.27
26	Discord with the family members of the spouse	12.60	0.22
27	Lack of social security	12.43	0.28
28	Obligation to change life style	11.97	0.27
29	Unwanted pregnancy	11.74	0.29
30	Major change in responsibilities at work	11.68	0.22
31	Major change in sleeping habits	10.91	0.23
32	Major change in living conditions	10.35	0.25
33	Sexual problems	10.31	0.28
34	Marriage of children	10.23	0.26
35	Child leaving home	10.02	0.27
36	Major change in socio-religious activities	9.82	0.28
37	Marriage	9.52	0.29
38	Pregnancy	8.40	0.28
39	Outstanding occupational achievement	8.19	0.29
40	Unintentional abortion	8.12	0.29
41	Marital reconciliation	7.86	0.27
42	Gain of new family member	7.50	0.28
43	Change to different line of work	7.50	0.25
44	Major change in social and recreational activities	7.39	0.25
45	Begin or end school	6.77	0.28
46	Norooz feast	5.97	0.27
47	Change in schools	5.68	0.24
48	Menopause	5.18	0.26
49	Retirement	4.91	0.24
50	Summer vacation	4.06	0.23
Total mean			12.50

Ranking of stressful life events by gender and age:
Table 3 shows the ranking of first 10 stressful events with mean score of stressfulness of each event and also it indicates total mean scores of first 10 events separating gender.

In both genders, first 10 stressful events are similar and they have something in common but ranking of the events about four events out of first 10 including infidelity of spouse, jail term, divorce and addition is different.

In women, the rank of jail term is higher than infidelity of spouse and rank of addiction is more than divorce and in men it is opposite.

In both genders, infidelity of spouse and jail term are higher than divorce and addiction. In comparison of similar life events with each other in both genders and among 50 life events, the one-way analysis of variance showed that in eleven life events, there in not a significant difference in mean scores of the stressfulness of events in both men and women. Those events include: death of spouse, infidelity of spouse, divorce, standing accused, marital separation, major change in financial status, unsuitable conditions of the working environment, major change in responsibilities at work, sexual problems, marital reconciliation and retirement.

But in 39 other events there was a significant difference in devoting the scores of stressfulness to life events between man and woman. So that men got higher scores only in 2 events and they were "Fired from work or unemployment" (p = 0.001) and "Change to different line of work" (p = 0.001) but in 37 events, women have devoted a higher mean score to life events, so that in first 10 stressful events, 6 events in women showed higher scores compared to men.

Those 6 events include: death of child (p = 0.007), jail term (p = 0.017), addiction (p = 0.001), marital discord (p = 0.001) child running away (p = 0.001) and death of close family member (p = 0.001).

In comparison of the total mean scores of stressfulness of first 10 stressful events in women and men, women have significantly (p = 0.001) devoted higher score of stressfulness for the first 10 events to themselves (Table 3).

Also, in comparison of the total mean scores of stressfulness for the 50 life events in both women and men, the women (mean = 13.04) in proportion to men (mean = 11.48) have significantly devoted a higher total mean to themselves (p = 0.001).

In comparison of the similar life events with each other in different age groups and among 50 life events, the one-way analysis of variance indicated that in 24 life events, there is a significant difference in mean scores of the stressfulness of the events, so that 18 events out of 24, in age group of 18-39, have got a higher mean score of stressfulness compared to other age groups. Those events include: the events with the ranking numbers of 8, 10, 12, 20, 21, 25, 26, 29, 30, 33, 37, 38, 39, 40, 41, 44, 45 and

Table 3: Ranking of the first ten stressful life events by gender

Rank	Male	Mean	S.E	Female	Mean	S.E
1	Death of child	19.55	0.13	Death of child	19.86	0.02
2	Death of spouse	19.39	0.10	Death of spouse	19.20	0.14
3	Infidelity of spouse	19.24	0.20	Jail term	19.08	0.11
4	Jail term	18.65	0.17	Infidelity of spouse	18.77	0.15
5	Divorce	18.34	0.19	Addiction	19.02	0.10
6	Addiction	18.31	0.17	Divorce	18.77	0.15
7	Standing accused	18.28	0.19	Standing accused	18.58	0.12
8	Marital discord	17.38	0.24	Marital discord	18.51	0.12
9	Child running away	17.30	0.19	Child running away	18.37	0.13
10	Death of close family member	17.28	0.24	Death of close family member	18.33	0.13
	Total mean of first ten events	18.37		Total mean of first ten events	18.89	
	Total mean of fifty events	11.48		Total mean of 50 events	13.04	

47 in Table 2. Five events out of 24 mentioned events, in age group of 40-64 years, have showed a higher mean score of stressfulness compared to 2 other groups. Those events include the events with the ranking numbers of 9, 16, 17, 28 and 32 in Table 2.

In age group of 65 and over only an event has dedicated a higher mean score of stressfulness to itself in comparison with two other age groups. It was the event with ranking number of 36 in Table 2, i.e., major change in socio-religious activities (p = 0.001).

Also, in comparison of total mean of stressfulness of first 10 events (Table -2) in triple age groups, there was a significant difference (p = 0.01) so that age group of 40 to 64 years old had the highest total mean score of stressfulness and the age group of 65 years and over have devoted the lowest total mean score of stressfulness of first 10 events to itself.

However, in comparison of total mean score of stressfulness for 50 life events in different age groups, the age group of 18-39 (mean = 12.64) has significantly devoted the highest mean to itself (p = 0.008), while the age group of 65 and over has got the lowest mean again (mean = 11.17).

DISCUSSION

The results of the present survey indicated that the "death of child" among 50 stressful life events devotes the highest stressfulness score to itself with the lowest standard error and "death of spouse" and "infidelity of spouse" were ranked second and third.

Reviewing Table 2 points out that the events at top of the table with high mean score of stressfulness have a lower standard error which indicates the unanimity of the ideas of the responders in determining the rate of their stressfulness. Standard error increases with the importance of the life events decreasing.

In the studies done in the field of ranking of stressful events in other cities of Iran, in some of them "death of spouse" and in some others "death of child" and in others "infidelity of spouse" were ranked first in stressful events (Malakouti *et al.*, 1998; Vahhabzadeh *et al.*, 1998; Attari *et al.*, 1996).

In all of the above studies Paykel's questionnaire was the base and it has been used with the changes done in stressful life events proportionate to socio-cultural status of the population studied (Paykel *et al.*, 1971). The results of these studies show that compared to the results of present study in first ten stressful events, several events excluding the type of ranking, have higher stressful effects in proportion to other events in people and different groups in various cities of Iran. Those events include death of child, death of spouse, infidelity of spouse, divorce, jail term, addiction and death of close family member.

In the studies of ranking stressful life events in other countries, in the first ranking by Holmes and Rahe (1967) which led to making Social Readjustment Rating Scale (SRRS), "death of spouse" has been in the first rank and "death of close family member" has devoted the 5th rank to itself. It is when "infidelity of spouse" has not been essentially included as one of the stressful life events in the scale (Holmes and Rahe, 1967). In the study of Paykel *et al.* (1971) "death of child" has got the first rank while "death of spouse" and "infidelity of spouse" have been in second and fifth rank, respectively.

Miller and Rahe (1997) in their study by a questionnaire similar to Holmes and Rahe's (1967) with 44 stressful life events added, named Recent Life Changes Questionnaire (RLCQ) have dealt with ranking and scoring the life events in 1990s in which "death of child" was ranked first while "death of spouse" and "death of brother or sister" were ranked second and third, respectively.

The results of the present study point out that the total mean score of stressfulness of the stressful life events is significantly more in women than men. Also in comparison of the similar events for 6 ones out of first 10, women have significantly devoted higher stressfulness scores to themselves and also in the whole

50 events other than 11 ones with no significant difference between men and women, in others out of 39, women have devoted a higher score to themselves in 37 events.

In Miller and Rahe's (1997) study women have significantly dedicated a higher total mean score to themselves compared to men and in comparison of the similar events with one another in all of the cases, except an event (marital separation due to vocational problems), women have had a higher stressfulness mean score in proportion to men (Bhugra *et al.*, 1999). It seems that women compared to men assess the stressful life events and react to them in a higher level. In the interpretation of this finding Miller and Rahe (1997) propose that instead of considering these types of results implying women's overreactor, men may be considered as underreactor. Miller and Rahe (1997) mention that, the studies carried out in the men suffering from acute myocardial infarction indicate that men intend to deny or repress their very severe illness symptoms. It seems that men compared to women use psychological defenses in reacting to life stresses.

Regardless of how to interpret these findings, at least they indicate that in the studies about ranking and scaling of stressful life events, men and women need scoring separately and a single questionnaire can not be used for men and women with the same mean scores of stressfulness.

The results of the present research indicate that in comparison of different age groups (young, middle-aged and aged) from the view of total mean score of stressfulness for the total 50 life events, the young age group (18-39) has devoted the highest mean to itself while the aged group (60 and over) got the lowest mean.

This subject when noticing only for first ten stressful events, the middle-aged age group (40-64) gained the highest total mean while the aged group devoted the lowest total mean to itself again.

In Miller and Rahe's (1997) study, despite the lack of significant statistical difference in three age groups considering the total mean scores of stressfulness, the young and middle-aged age groups both intended to dedicate higher mean scores to themselves in comparison with the aged group (Bhugra *et al.*, 1999).

This subject shows the probability of decreasing the importance of life event changes when people turn late adulthood or the individual acquires more adjustment skills with the increasing of age and turning agedness.

In Spurgeon's study the age group of 46-55 devoted a higher total score to itself for the whole events and in the second rank there was the youngest age group (16-25) (Spurgeon *et al.*, 2001).

These findings point out that age is an important determining factor in stress scores and it should be noticed in the studies about the ranking of stressful life events.

On the other hand, the results of the present study show that the youngest age group with the lowest life experiences has devoted the highest total mean of stressfulness to itself and they propose that the stressfulness scores the individuals give to life events have no necessarily relationship with the practical experiencing of the events.

Also, the results of the present study indicate that the psycho-social developmental stage, in which the individual lies, has an essential role in determining the events with more stressfulness compared to others.

Among the aged the only event which has significantly devoted the higher mean score of stressfulness to itself, is the "major change in socio-religious activities" in comparison with two other age groups. This subject can express the importance of noticing the religious issues and providing suitable conditions in order to reinforce and develop religious beliefs and attitudes in the aged society noticing ontological and existential needs of this age group.

On the whole, paying attention to the events which have significantly dedicated higher mean scores of stressfulness to themselves in every age group can be specifically noticed in mental health plans of the society. This subject has a specific importance especially in age group of the early adulthood (18-39 years old) in which more life events with higher mean scores of stressfulness have been identified. Reviewing the results of the present study indicates that the events regarding the educational, vocational and marriage subjects are very important for the young.

CONCLUSION

In the conclusion of the findings of the present study, noticing several points is important:

Firstly, in reviewing different studies carried out with various questionnaires in different populations and societies, it becomes evident that some of the stressful events have commonly and constantly maintained their stressfulness in various societies through time. It means that the stresses such as death of children, death of spouse, jail term, infidelity of spouse, divorce and death of close family member regardless of socio-cultural impacts in different societies are considered to be as first 10 stressful events due to the intensity of stressfulness effects. It is when some other events, like as "infidelity of spouse", are completely affected by socio-cultural conditions of various populations and societies and the factor of "culture" has an essential role in determining an

event as a stressful event in the first stage and in the second stage in determining the intensity of stressfulness and the type of reaction to it.

Therefore, basically in ranking and scoring the stressful life events, paying adequate attention to different types of events which can be considered stressful in a specific society from socio-cultural view, is necessary and in designing the questionnaire sound qualitative studies in general population should be noticed in order to determine different types of stressful events.

Secondly, in individual level, the results of the present study indicated that variables such as age and sex have a remarkable effect in individual's assessment of the rate of stressfulness of events and so a single questionnaire with predetermined fixed scores can not be used in order to determine the rate of stressfulness of life events for different age and sex groups.

Especially, the gender indicates a more specific role and stronger effects in ranking stressful life events. Therefore, in individual level using the questionnaire appropriate to age and sex subgroup of individual studied makes possible a more exact assessment.

Also, it seems necessary that the surveying different stressful events in a specific society should be repeated in a specified time intervals because the pass of time and change of social conditions of every society from time to time may enter new stressful events into life of humans. The authors consider necessary the highest time duration of a decade for the resurveying of different stressful events.

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