Stress and preference factors determining the dialysis introduction age

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The purpose of this article is to discuss stressors and preference factors in human life that influence and might determine the dialysis introduction age (DIA) based on a questionnaire distributed to patients attending a hospital in Kobe, Japan. Results show that the most stressful factor causing an earlier DIA is troubled inter human relations and the preference factor delaying the DIA is social drinking.

Keywords: ill human relations, stress, glass of wine, subjective preference, dialysis introduction age (DIA)

1. INTRODUCTION

A variety of "stressors" set into motion defense reactions mediated through the nervous and the hormonal systems [1]. It is normative that human life nowadays is so occupied by a wide range of stressors that the pleasure derived from the process of living is regretfully often drained away by stress as illustrated in Fig. 1 (right).

As a counteraction, the author has elaborated an extensive brain-grounded theory of temporal and spatial design in architecture and the environment [5] from a brain-grounded theory of design based on subjective preference of the sound field in concert halls [2–4] established earlier. Our research affirms that by encouraging personal traits and satisfying individual needs, subjective preference works as an approach to enhancing individual health and creativity [11]. Most generally, subjective preference is regarded as the primitive response of a living creature that entails judgments that steer an organism in the direction of maintaining life, so as to enhance its prospects for survival as illustrated in Fig. 1 (left).

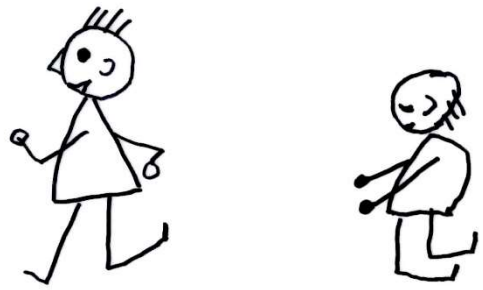

Fig. 28. Left: A life of expressed creativity based on individual personality (DNA), maximized preference that enjoys good health till the end of life. Right: Stress of life stemming from serious illness such as kidney disease.

Disturbing individual preference (also known as bullying or ill treatment of others) undermines and eventually destroys individuality. It is a remarkable fact that on a neural level subjective preference is deeply associated with the base of "aesthetics".

Let us present an investigation carried out in the form of a distributed questionnaire with results of a statistical analysis that revealed ill interhuman relations as a potential accelerator of the dialysis introduction age (DIA), likely caused by severe stress. On the contrary, the preference factor of drinking socially, as it is said to be the best of all medicine, may postpone the DIA.

2. PROCEDURE

2.1 Questionnaire

A questionnaire containing the following specifications was distributed in February 2017 among patients attending a hospital in Kobe, Japan.

A. Dwelling environment

Number of times moving house, environmental noise pollution (annoying, not annoying), other pollutions (yes / no), pets (dog, cat or other ( )).

B. Individual clinical history

High blood pressure (yes / no; If yes, enter number of the past years suffered ( )),

proteinuria (yes / no; If yes, enter number of the past years suffered ( )), dialysis

introduction year and month (y, m), hospitalization (yes / no; If yes, enter

number of times of more than 5 days), others ( )).

C. Stressors

Working hard for about 20 years before dialysis introduction (yes / no; If yes, how many years ( )), human

relations for about 20 years before dialysis introduction (troubled, not), past noise pollution suffered for 20 years before dialysis introduction (traffic, neighboring, other), bad odours suffered for 20 years before dialysis introduction (factory, waste water, other)).

D. Preferences

Alcohol intake for about 20 years before dialysis introduction (number of 180 cc - sake), smoking for about 20 years before dialysis introduction (number of cigarettes/tobacco)

E. Preference for future life. These questions were given with the intention of pointing the patients' awareness toward their preference in the three stages of life, in which the third stage of life is particularly important [5, 11].

The first stage of life (Body: walking, jogging, swimming, radio and TV exercise, Tai Chi, baseball, other. Please select one only).

The second stage of life (Mind: viewing water flow, the moon and stars, birds, scenery, enjoying the breeze, others, listening to music in concert halls, classic music, Jazz, songs, Japanese traditional music, music performance, art appreciation, community activities, other. Please select one only, others ( )).

The third stage of life (creations based on personality: research works and their presentations, authoring, music composition, interpretation of music scores, drawing art, artistic photographs, ceramic art, house design supportive of creations, excavation, fashion design for development of personality, drama creation, activities supporting personality development in children, cultural activities, others. Please select one.)

2.2 Factor Analysis

In order to predict the DIA according to 16 factors of stress and preference in addition to factors of environment of dwelling as well as clinical history obtained by questionnaire, the mathematical quantification theory class [7] was applied. All questionnaire data collected was 34 but valid data was 30 without lack of data, which were unanswered. The DIA data were rearranged by rounding, for example, 55 is 50 and 68 is 60.

3. RESULTS

In order to calculate the DIA, individual clinical history of past high blood pressure and proteinuria records were unexpectedly insignificant. But, the following eight effective factors were found significant to describe the DIA, 1) human relations; 2) worked hard in years; 3) alcoholic beverage; 4) noise pollution at the dwelling; 5) other pollutions; 6) smoking; 7) number of hospitalizations; 8) number of times moving house. Other factors such as sex, pets, bad odours, past noise pollution and preference for future life from first to third stages were insignificant for the DIA.

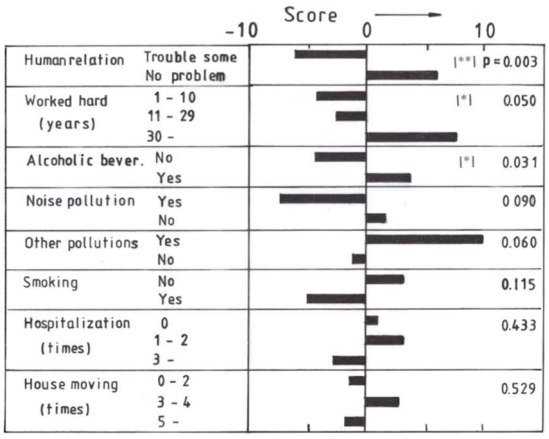

Fig. 29. Resulting score of each category of eight factors in calculating DIA by analysis. Symbols [**] and [*] signify significant levels 0.01 and 0.05, respectively.

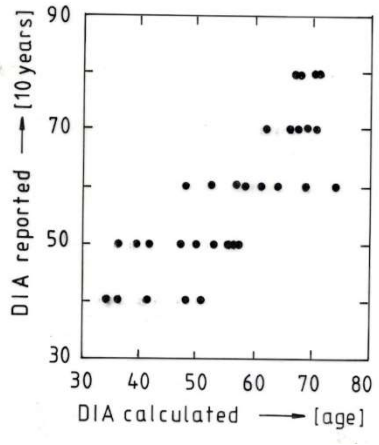

Fig. 30. Relationship between DIA calculated utilizing results of analysis and DIA (10 years as round number) reported in the questionnaire by each patient. The DIA may be roughly described by eight factors shown in Fig. 2.

As shown in Fig. 2, the most significant factor predicting DIA was human relations ($p < 0.01$), the second significant factor was preferred alcoholic beverage ($p < 0.05$) and the third was working hard ($p = 0.05$). By applying these 8 factors the DIA is roughly described as shown in Fig. 3. The coefficient of determination was 0.59 (> 0.5), so that the DIA was fairly described by the eight factors.

4. DISCUSSION

As described above, the most significant factor causing an accelerated onset of DIA was troubled stress in inter-human

relations. It is worth noticing that verbal communication is performed in the left hemisphere mainly [12] and the right hemisphere is almost sleeping, so that subject to misunderstand in the whole brain. One of the most effective way eliminating this kind of stress is a non-verbal international and intergenerational language, for example, “fist bump” of 0.1 s duration is a simple greeting expressing “affection.” The author performed such a joyful greeting to participants during the international symposium (8the ISTD) held at University of Bologna. Another effective way to eliminate such trouble is to take, for example, a two weeks leave at least three times a year, avoiding the periods of Christmas season and summer time. Such conscious decisions mark an element of temporal design in one’s life. It was found that effects of environmental noise appeared causing an accelerated onset of DIA here as an second order.

Another significant factor was preferred alcoholic beverage, i.e., a glass of wine or cup of sake is said to be the best of all medicines to postpone the DIA. In fact, after a series of investigations on the effects of aircraft noise on unborn babies and children conducted near the Osaka International Airport [7][8][9], the author experienced the beginning of his kidney disease due to work-related stress and additional stress from the authorities. At that time he had good luck mediated by the Alexander von Humboldt Foundation, West Germany, where he was studying German at the Goethe-Institute in Boppard near the Rhine and could enjoy a glass of well-cooled white wine after each lunch looking over wonderful water flows. After two months, the research work on subjective preference of sound fields, intended to take place in Goettingen for about one year and 8 months, was conducted [10]. After these pleasant experiences, the author’s DIA was postponed for about 34 years due to manifest life preferences.

The third significant factor was the past period of working hard, but this factor is somewhat related to aging, so that it is not simply concluded.

In general, it is highly recommended to adopt theory to health and peace avoiding wars: maximizing preference and minimizing stress of life [11]. The author has proposed that preferences, when shaped into creations based on the individual personality in the third stage of our lives, carry within them the most survival power because they can self-sustain as culture. On a global level, such a realization may become a second renaissance: an approach to development that is built upon the special talent of every individual and as such, representing an extension of each unique personality that has developed over a long course of time since the Big Bang.

In short, the first stage in the evolution of life is the physical body, and the second stage is the mind. These two stages, however, are common to all animals. These two levels of existence are never free from worry or ill treatment between individuals, further ethnic conflict or even war between nations. Freedom from these worries can be achieved in the third stage of life.

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As a matter of fact, the author himself has been receiving dialysis treatment since 2009, attending the Kidney Center at Konan Hospital once a week. On other days of the week, he has been performing peritoneal dialysis on himself behind a small-sized creative work space (CWS) [5]. In these conditions, he noticed the potential for an investigation by means of presenting questionnaires to colleagues.

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Keiko Ando often improved the report written in Japanese to those concerned. In the English expressions found in this article Ms. Marianne Jogi, an artist and a PhD candidate from Tallinn University of Technology, Estonia, and Dr. Cecilia Bonazza, Italy in connection with the 8th International Symposium in connection with the 8th International Symposium on Temporal Design for 14 -15 September 2017 held at University of Bologna held at University of Bologna, have kindly collaborated.

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