Conceptual Model for QoL Path Analysis in Cerebral Stroke

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***Abstract*— A conceptual model for QoL path analysis in cerebral stroke is proposed. Results of a research on the QoL effects of cerebral stroke are presented. A path model for QoL in cerebral stroke evaluation is estimated.**

Keywords*— Conceptual Model, Path Analysis, QoL, Cerebral Stroke

I. INTRODUCTION

Cerebral stroke is an authentic therapeutic issue in each and every industrialized country. This is the third driving purpose behind death and leaves many suffering patients with physical and mental failures, making an exceptional social and money related burden to the community. According to the World Health Organization (WHO), the stroke is described as a damage to brain functionality and the presence of focal neurological symptoms lasting more than 24 hours due to vascular etiology [1].

Quality of life (QoL) after a stroke is measured with different characteristics: for example, wellbeing particular practices, life fulfilment or subjective well-being, the latter focusing more on emotions. But there is an expansive agreement that valuation of QoL ought to contain fragments of physical, mental, social and over-all wellbeing. QoL is firmly identified with the meaning of health, characterized by the WHO: a condition of complete physical, mental and social prosperity, not just nonappearance of sickness or inability [1]. At the patient's level, the QoL can be observed as a result of an elaborate procedure of collaboration between personal qualities, medical outcome, coping and behavior, social support, and the quality of healthcare received.

The goal of the paper is to evaluate the opportunities to improve the QoL of people with consequences of cerebral stroke. It is based on analysis of the life's quality of patients suffering from cerebral stroke in Bulgaria and follow the role of modern pharmacotherapy for improving some of the major factors, that are having negative impact on the life's quality. A conceptual model for QoL Path Analysis in Cerebral Stroke is proposed to achieve this goal.

II. A CONCEPTUAL MODEL FOR QOL PATH ANALYSIS IN CEREBRAL STROKE

Every conceptual model represents a scientific hypothesis for the relationship between different factors affecting any phenomenon of the social reality. It signifies a substantial theoretical framework around which the entire research is organized. The investigator explores the interrelations among factors which are important in construction of the research question; thus, formulating experimental hypotheses.

A. Main groups of Factors affecting the QoL in Brain Stroke

According to the Stroke Specific Quality of Life Scale (SS-QoL) [2], [7] 12 socially significant factors with their subfactors are essential when analyzing the QoL of patients after a brain stroke. It is one of the specific scales for evaluation of QoL after a cerebral stroke, being significantly more secure and sensitive in comparison to the traditional quality assessment tools. The main groups of factors affecting the QoL in Brain Stroke are presented in table 1 and visualized respectively in fig. 1. Appropriate abbreviations are proposed in the third column of the table.

TABLE I. ABBREVIATIONS OF THE MAIN GROUPS OF FACTORS AFFECTING THE QOL IN BRAIN STROKE

1. N	2. Factor	3. Abbreviation
4.	5. Energy	6. En
7.	8. Family Roles	9. FamRoles
10.	11. Language	12. Lang
13.	14. Mobility	15. Mobil
16.	17. Mood	18. Mood
19.	20. Personality	21. Pers
22.	23. Self-care	24. SelfCare
25.	26. Social Roles	27. SocRoles
28.	29. Thinking	30. Think
31.	32. Upper Extremity Functions	33. UpExFu
34.	35. Vision	36. Vision
37.	38. Work Productivity	39. WorkProd

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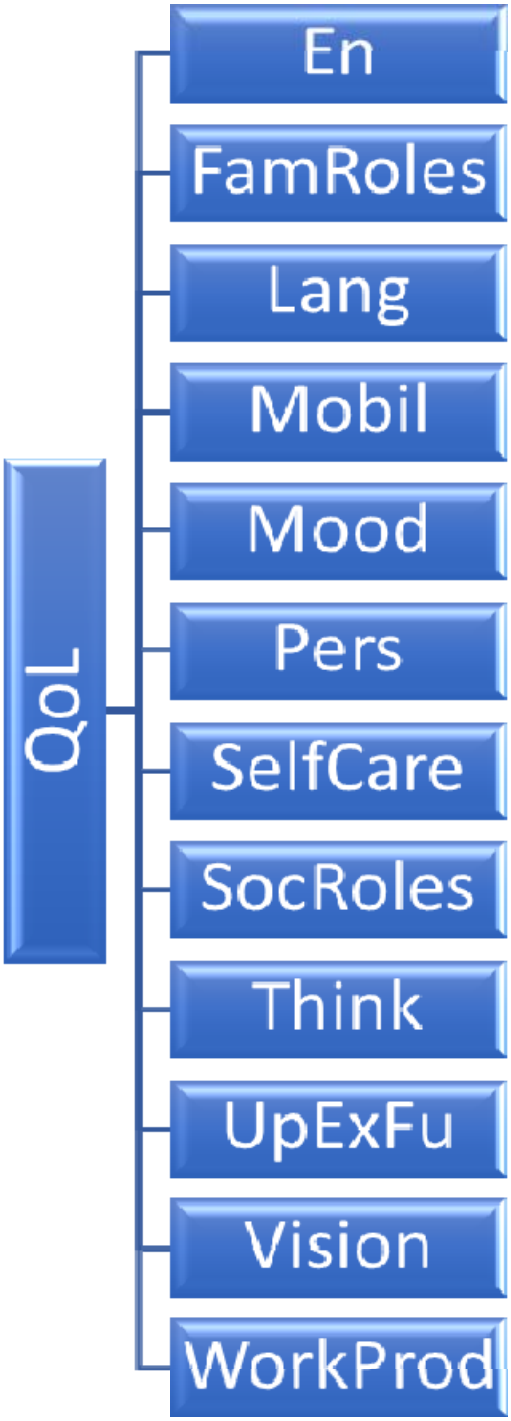

Fig.1 Main groups of Factors affecting the QoL in Brain Stroke

B. Main Factors with Subfactors affecting the QoL in Brain Stroke

The 12 main groups of factors with their subfactors affecting the QoL in Brain Stroke are presented in fig. 2. To every one of the factors: Energy, Family Roles, Personality, Thinking, Vision and Work/Productivity correspondingly are associated three sub-questions characterizing the situation. To the five rest of factors: Language, Mood, Self-Care, Social Roles, Upper Extremity Function consistently are associated five sub-questions describing the condition. Only the factor Mobility needs one more sixth sub-question to evaluate the circumstances.

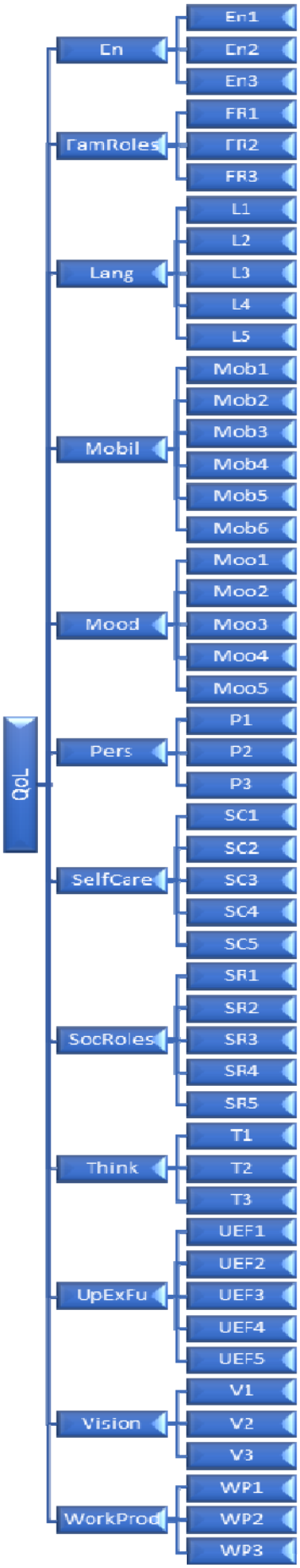

Fig.2 Main Factors with Subfactors affecting the QoL in Brain Stroke

C. A Conceptual Model for QoL Path Analysis in Cerebral Stroke

The conceptual model which was derived from the SS-QoL scale is shown in figure 3. It consists of twelve main parts corresponding to the main groups of factors with their sub-factors. First are the energy components which affect the overall condition of the person, driving him to fulfil or not his routine engagements. Second are the evaluators of the degree to accomplish the Family Roles, etc.

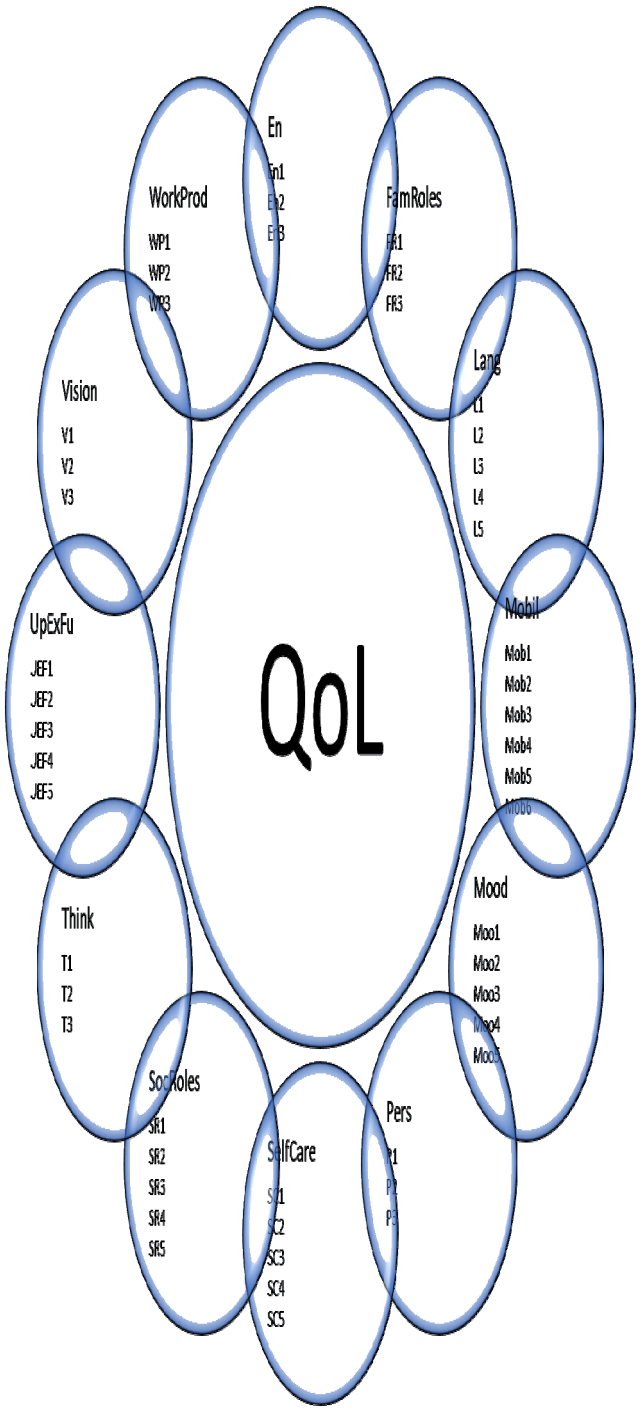

Fig.3 The Conceptual Model for QoL Path Analysis in Cerebral Stroke

In view of this model and the experimental assignment performed in the modified research, a strategy has been created to give the examination a reasonable apparatus for better understanding the absolute idea of QoL.

III. Research Methodology

In the present work an examination is conducted where the key point is towards progress of the QoL and testing hypothetical and emotional ideas in genuine and alive circumstances. The following statistical methods are planned:

- ✓ Validation of life quality assessment tools for specific groups of patients, suffering from cerebral stroke.
- ✓ Statistical demographic results' analyses of questionnaire tools' application for the evaluation of the quality of patients' life, suffering from cerebral stroke.
- ✓ Correlation analyses for determination of the dependence's degree of individual factors affecting the life's quality in patients suffering from cerebral stroke.
- ✓ Comparative analysis of the medical alternatives for treatment of patients suffering from cerebral stroke.

As per the ebb and flow biopsychosocial model of endless ailment, the impression of patients with stroke and their parental figures concerning their own wellbeing status and QoL is especially significant, in both research and clinical practice. The term wellbeing related QoL is an idea that mirrors the physical, passionate and social practices and dispositions of an individual, with respect to their past and current wellbeing status. The appraisal of QoL in patients with stroke is a mind-boggling procedure given the wide scope of manifestations that it causes, stroke possibly influencing practically all human capacities, from sphincter control to engine, subjective and visual capacity, among others.

IV. Research on the QoL Effects of Cerebral Stroke

A. Demographic Specification of the Survey

The study was conducted in DCC 8, Sofia within seven months period of time – 01.06.2016 – 31.12.2016. A sample of 30 patients was included, who meet the following criteria: Diagnosis – patients who had a cerebral stroke; Lack of other chronic diseases; Lack of depressive psychiatric expertise; Ability to answer the questionnaire individually.

Thirty patients with an average age 67.13%, of whom females: 10 – 33.3%, males: 20 – 66.7%, 56.7% live in the cities and 43.3% in the villages. Full neurological status was done to the patients, epiphyses and questionnaires were used and visual acuity (visus) and ocular bottoms were studied. The questionnaire Stroke Specific Quality of Life Scale (SS-QoL) was applied [2]. It is one of the specific scales for evaluation of QoL after a cerebral stroke, being significantly more secure and sensitive in comparison to the traditional quality assessment tools.

In both sexes, the only difference is in the domain identity, with men showing significantly lower values. Age is moderately strongly related to family roles (Spearman's rho=-0,413) and mobility (Spearman's rho=-0,405) and poorly related to language (Spearman's rho=-0,319). Links are inverse, with increasing age, the quality of life decreases.

No significant differences were found between patients from cities and villages.

B. Path Model for QoL in Cerebral Stroke Evaluation

Path analysis is a technique for assessing equity rate, and the similarity of a lot of information with model, which is required to change hypothetical model as a causal chart [4], [9]. By utilizing factor investigation brings about this segment, we attempt to characterize straightforwardly and in a roundabout way the relations of model's pointers with QoL variable, and assess the overall significance of immediate and aberrant factors relations by LISREL software design. The relations of independent variables to depended latent variable are illustrated in figure 5. At the first iteration these relations could be surveyed according to t-value coefficients.

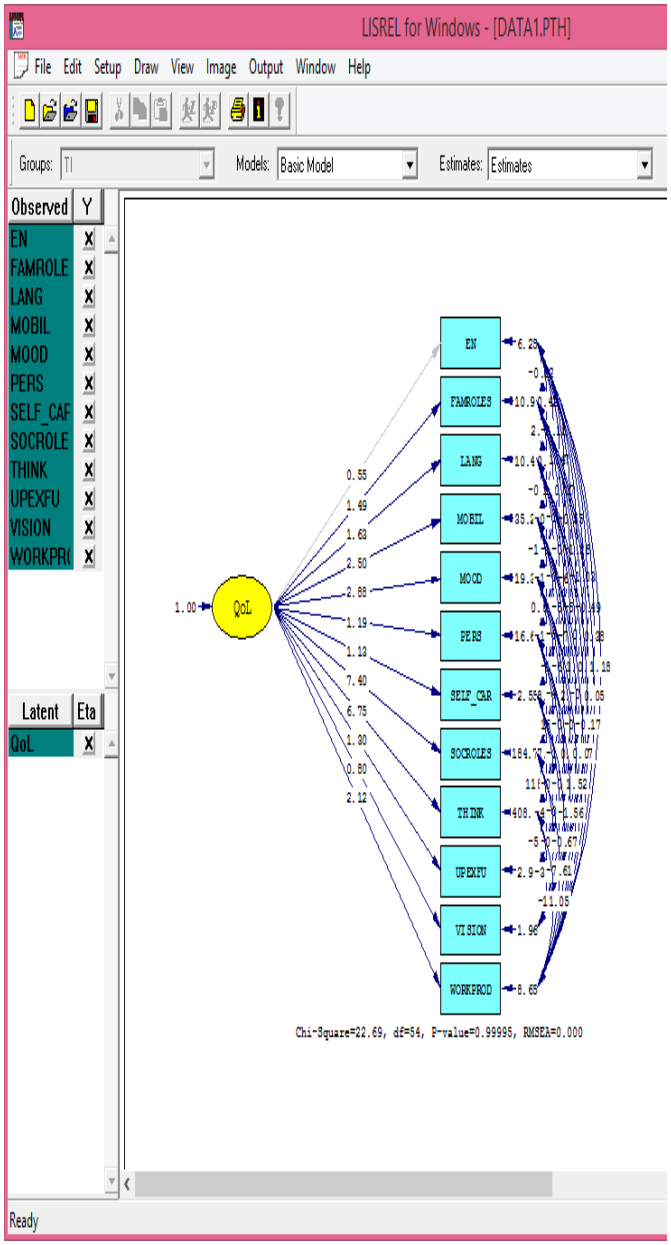

Fig.5 Path Model for QoL in Cerebral Stroke Evaluation

C. Analysis of the Results

There is increasing consensus on the importance of life's quality of patients with cerebral stroke. Measuring the quality of life is beneficial for better understanding and patients' response to their illness and the effect of therapeutic processes as well as controlling the effectiveness of medical care. The data obtained from evaluation of QoL can be used to conduct economic analysis and allocation of financial resources, as thereby can influence the healthcare policy.

There is expanding agreement on the significance of QoL of patients with cerebral stroke. Estimating the personal satisfaction is helpful for better understanding and patients' reaction to their sickness and the impact of remedial procedures just as controlling the adequacy of therapeutic consideration. The information got from assessment of QoL can be utilized to lead monetary examination and assignment of money related assets, as in this way can impact the human services approach. The improvement of the innovation is continually changing the recovery amusement.

This new stroke innovation gives patients more reiterations, practice time and force contrasted with past development trainings. This new technology also is additionally progressively intuitive, eye catching and truly spurs the patient. These innovations are truly helping saddle the cerebrum's capacity to fix itself in manners that haven't been seen previously.

V. CONCLUSION

Cerebral stroke is among the most common socially significant diseases. Tracking the quality of life in dynamics is crucial for both the patients themselves and their possible re-socialization, as well as reducing the engagement of relatives, social workers and society. This disease is a subject of neurology. Neurologists and pharmacists are closest to the patients with the above diseases. In the present study, we have tried to analyze the high-tech capabilities of AI, both for timely diagnosis and follow-up of patients' quality of life and their rehabilitation. Fast and full recovery with improved quality of life are particularly important in the demographic collapse in our region and the opportunity of returning part of the sick people to the labor market. The importance of life quality and treatment of such patients should be priority number one during the therapy.

ACKNOWLEDGMENTS

We thank the stroke patients who participated in the evaluation and their families as well. The second author is grateful to Prof. Dr V. Petkova (Faculty of Pharmacy, Medical University of Sofia), Dr. E. Mermeklieva (MC „Ofta – Neuro" Sofia) and Prof. Dr. L. Haralanov, Head of Neurological Clinic of NHH, Sofia for support in the investigations. The first author expresses her deep gratitude to her PhD student V. Goleshevska from the PhD School at French Faculty of Electrical Engineering, TU-Sofia for the technical support and path investigation. The publication fee was payed within the framework of R&D Project in support of individual participation in scientific forums (session 2019), contract № ИУНФ 19000.

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