



Engineering Analysis of Neuro-Educational Strategies in Monitoring Diabetic Patients: Case of Public Health Doctors

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ABSTRACT

The purpose behind the study of neuro-educational strategies advocated by SNEs by doctors in the process of accompaniment of diabetic patients is to set up a training device aimed at changing the behavior of patients "Habitus health" Mérand R. and Dhellemmes, R. (1988). [1] and creating the basics of a Patient Centered Approach (PCA) to share decision-making "share decision making". This approach of neuro-therapeutic education allows to build appropriate skills which facilitate the promotion of health in a global and harmonious way (complete state of physical, mental and social well-being) WHO.

The activity of treating physicians consists in designing therapeutic and hygienic-dietary means adapted to the needs of diabetic patients. This research on the introduction of cognitive and behavioral neuroscience in the field of public health aims to describe, understand, characterize and explain the degree of effectiveness of neuro-educational strategies and the change of the patients' behavior in the understanding of their disease as well as the development of reflexive autonomous and responsible care practices. The offer of psycho-socio-therapeutic care allows the acquisition of new skills. The "Safi Provincial Region" diabetic patient support system consists in implementing a collaborative and integrated approach to patient care by primary health care institutions (ESSP), monitoring and control by the service. diabetology at Mohamed V hospital and associations.

We conducted a qualitative and quantitative exploratory study in the provincial region with physicians (generalists and endocrinologists) in the ESSP and at the provincial hospital. It is, thus, clear from this research that GPs preferentially and predominantly prefer not only SNEs that use traditional support methods, but also neurocognitive and behavioral strategies (in a timid manner).

The results of the study highlighted the contribution of SNEs in the promotion of health in its multifactorial aspects, and the questioning of traditional accompaniment devices of diabetic patients in the field of public health.

Key words: Neuro-education, therapeutic strategy, Habitus health, conception and diabetic patients.

1. INTRODUCTION

Neuro-therapeutic education consists in helping patients, most of whom suffer from chronic diseases, to self-care. It had its first rise in the United States in the 1970s with diabetic patients. Since this year, this practice has spread to many of the chronic diseases in adults as well as adolescents and children.

This neuro-educational approach allows to acquire the knowledge and builds the competences (conceptual, procedural and behavioral) which facilitate their self-knowledge, their self-determination and their awareness of the factors of therapeutic effectiveness and the promotion of their physical moral, social and psychological well-being. This approach to training andragogic therapy and developmental aims should help patients better understand their disease and better adopt reasoned behaviors and collaborative attitudes with the team in the planning and management of therapeutic care plans.

The central question of our research is stated in the following way: faced with the difficulties of scripting effective educational-therapeutic strategies. What neuro-educational and behavioral accompaniment approach is needed in the field of public health in order to personalize and individualize the path of psychotherapeutic care?

The research sub-questions are divided into three main concerns:

- What is the nature and typology of neuro-educational strategies (NES) advocated by public health physicians to support diabetic patients?
- What is the role and relevance of these NES in the process of health promotion in diabetic patients?
- What contextual constraints must be overcome to create favorable conditions for health education (behavioral and cognitive)?

The fundamental purpose of our research would be to analyze the neuro-educational strategies adopted by public health physicians and to evaluate their impact and effects on the

development of behavioral and cognitive skills "Education for Health and not only Education for Health". Health ".

The study aims to understand the factors of effectiveness of the process of neuro-educational accompaniment "NE" likely to play a role in structuring and promoting reasoned, responsible and respectful behavior towards the personalized program of care "PPS".

However, it is important to note that the complexity and difficulty of implementing personalized neuro-educational strategies requires the use of modeling approaches to learning styles in adult patients to identify and understand their learning mechanisms. Kolb 1984 [2]. The research that we are developing here highlights the SNE concept as a methodological method of care, promoting the emergence and optimization of the full potential of patients to achieve concrete and measurable results in terms of health promotion public.

The intended purpose would therefore be at least double. On the one hand, it is addressed directly to public health decision-makers, doctors, and paramedical bodies, who seek to emphasize the need to introduce programs: therapeutic, educational, cognitive and behavioral. But it is also aimed at diabetic patients as a factor of awareness and awareness of good health practices in the choice of dietary care.

2. FRAMEWORK

The theoretical frame of reference that will be used to analyze the metadata of the study is at the crossroads of many different scientific fields, including: Neuroscience, mediation pedagogy, differential psychology, cognitive psychology, developmental psychology and cognitive ergonomics. There is also the epistemological and methodological foundation of an old personality psychology and coaching. Ultimately, these dimensions will be directly related to the results of andragogical approaches and more particularly the accompanying approaches.

The study will be devoted to the definition of the SNE concept by specifying its polysemic mode of expression, its nature / its typology, its theoretical and epistemological conceptions according to which it has been defined in the research of cognitive and behavioral sciences.

We will also discuss the origin of this term and its current heavy challenges in the development of an educational and training practice throughout life. We will be interested in the work that has been carried out in the field of support in adult education, in particular that of Validation of Acquired Experience (V.A.E.). The theoretical framework identifies the salient and relevant features of a Diabetic Patient Centered Approach (CASA) as a social subject and actor capable of reconfiguring its resources. Accompanying patients, which is neither a science nor a theory (Paul, 2002) [3]. The framework of analysis will be envisaged through the different theoretical presuppositions and pedagogical approaches.

The study of these different approaches will then allow us to develop a conceptual framework that is adapted from the

recommendations of FID [4], which encourages "health care providers can support the prevention and management of diabetes by providing an education. Healthy lifestyles and encouraging the creation of environments conducive to physical activity. "

3. METHODOLOGY AND RESULTS

From a methodological point of view, this research is part of the field of descriptive and exploratory study. Its purpose would be to explain, describe and analyze the impact and the effects of the support systems recommended by the medical profession in the field of public health. That is, finding the causal link between neuro-educational support strategies and the personal development of patients. It is, therefore, a matter of designing and formalizing a meta-model for modeling objects and cognitive and behavioral activities to create the appropriate conditions favoring the prevention and promotion of health. Together, the patient would be expected to make informed decisions about issues affecting his or her health as an individual act with the family and the caring community.

The recommended methodological approach is of a mixed type. It is based on an exploratory investigative analysis approach, the crucial objective of which would be to collect at first sight the data provoked and aroused by a wide bibliographic study. On the other hand we will try to advocate an ergonomic approach (occupational psychology) based on a professional didactic, privileging an engineering analysis of the real situation of work P. Pastré 2002 [5].

- The goal would be to identify and understand the mechanisms for developing skills in ill patients:
- Analysis of the activities of the different diagnostic actors.
- Design and implementation of NE effective coaching practices consistent with the strategic vision of public health promotion (departmental policy).

The questionnaire would be constructed according to the KABP method (knowledge, attitudes, beliefs, practices) [6] and comprises 3 parts: As a result, the perceived roles, attitudes and strategies advocated by the medical profession would be the main focus of the study. Thus, we will define the obstacles that hinder the operability of neuro-educational support strategies.

In another register we put the focus on an engineering analysis needs and expectations of stakeholders to improve these practices of support. As well as the interpretation of the results, by checking the scientific, technological and socio-economic impact expected from the research.

3.1. Design of the study

As part of education and training of diabetic patients. We have opted for a descriptive and exploratory research of mixed type (qualitative and quantitative). The study will have the ultimate goal of verifying the impact of neuro-educational strategies in the accompaniment of diabetic patients. Our case study is limited to the province of Safi.

3.2. Location of the study

The province of Safi covers an area of 3,634 km² and has 692,000 inhabitants, or 194 inhabitants / km². Our sample has a privileged geostrategic position with a representative and significant study sample.

It should be noted that the provision of care for diabetes care in the province of Safi is characterized by the management of the ESSP, the diabetic monitoring center, and the diabetology service at the clinic. Mohamed V hospital, in addition to 92 private medical practices.

3.3. Population of the study

To carry out our descriptive study, we chose diabetic patients and public health actors representing structural and organizational differences in order to have a significant representativeness. Then we will discuss the results found both in terms of the quantitative evaluation of the general characteristics of the study population, and the thematic qualitative analysis of neuro-educational strategies advocated by general practitioners. The head of department of metabolic diseases.

The facilitator of the SRES diabetes program at Safi.

- Representatives of local associations.
- Al Amane Association for the Support of Diabetic Patients (AAA).
- Balsam Association (AB).
- Diabetic patients who benefit from activities in the context of health education.
- General practitioners of all ESSP in Safi province.
- Medical specialists (endocrinologist) at Mohamed V provincial hospital.
- Diabetic patients followed at the health centers and adhering to the associations.

3.4. Selection of samples

We conducted a representative sample of our survey to describe, predict, and extrapolate the entire population:

- Health professionals: These were all general practitioners of the ESSP who are 40 in number.
- Among 474 diabetic patients who benefited from health education activities, our study covered 97 or 20.5%.

3.5. Data collection tools

3.5.1. Quantitative component:

We have established two questionnaires:

The first questionnaire administered to diabetic patients who presented at the ESSP during the period of our study and who voluntarily agreed to participate in the study.

The second questionnaire was given to the ESSP general practitioners who agreed to participate voluntarily in the study.

3.5.2. Qualitative component:

The documentary analysis:

The data collected can be modeled according to the following characteristics:

- Sociodemographic data.
- Specific training (s) in education for the health of the

diabetic patient.

- Knowledge about the disease by study sample.
- Knowledge of the vision of the national program in terms of health education.
- The practice of neuroeducational education for health by study sample.
- Barriers encountered in the practice of education for the health of the diabetic patient
- Attitude of general practitioners for health education.
- Representation of patients with regard to educational strategies advocated by physicians.

4. RESULT AND DISCUSSION

4.1. Presentation of the study population:

Table 1 : Characteristics of the target population.

Number of institutions studied	Urban	18
	Rural	25
	Total	43
Number of MG practicing in all establishments visited	Urban	41
	Rural	20
	Total	61
Number of questionnaires distributed	50	
Number of questionnaires retrieved	41	
Response rate	82%	

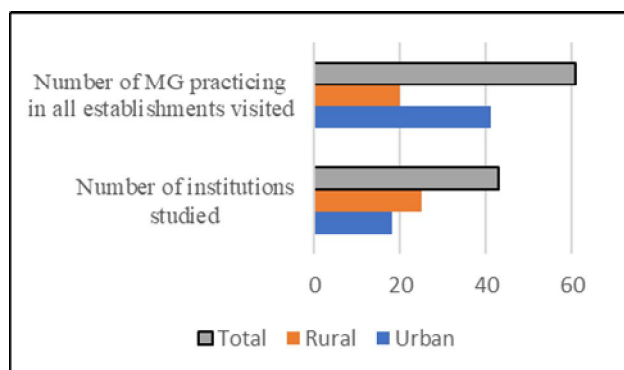


Figure 1 : The sample of institutions and MG in the survey.

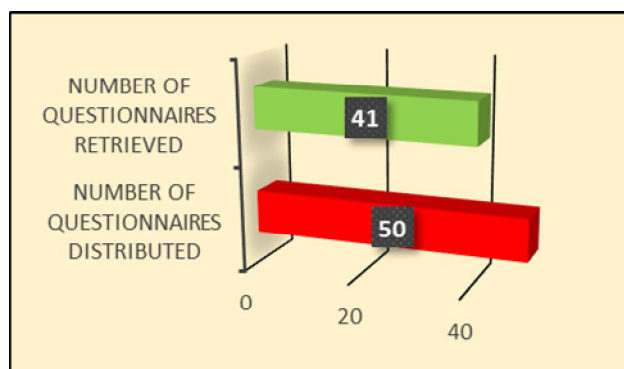


Figure 2 : Number of respondents questioned

4.2. Descriptive analysis of the population:

According to the socio-demographic characteristics of the participants of the study:

a. For general doctors « MG »:

Table 2 : Sociodemographic characteristics of diabetic patients.

Socioprofessional characteristics PD	Frequency (n=97)	Rate %
Age (in years)		
<40	1	1.03
(40-50)	16	16.49
(50-60)	63	64.94
>60	17	17.52
Sex		
F	81	83.50
M	16	16.49
Marital Status		
Married	49	50.51
Single	6	6.18
Divorced	5	5.15
Widow(er)	37	38.14
Environment		
Urban	97	100
Rural	00	00
Level of studies		
Illiterate	72	74,22
Primary	20	20,61
middle School	3	3,09
University	2	2,06
Professional Situation		
In activity	24	24,74
Retirement	3	3,09
Jobless	0	0
Without activity	70	72,16

We find that in our sample, women represent approximately an average of 83.50% of the total sample. The age of our study population was between 40 and 60 years old for an average age of 50 years and 72.16% of the study population was without a professional activity. 50.51% of the sample is married and 38.14% widowed. It also testifies to a low socio-economic level. It should be noted that 74.22% of our population was illiterate. 20.61% have a primary education level, 3.09% secondary and 2.06% have a university level.

Table 3 : sociodemographic characteristics of doctors (MG)

Socioprofessional characteristics	Frequency (n=41)	Rate %
Age (in years)		
<30	2	3.78
(30-40)	15	36.11
(40-50)	19	47
>50	7	13.11
Sexe		
F	24	67
M	17	33
Environment		
Urban	26	58.44
Rural	15	41.56

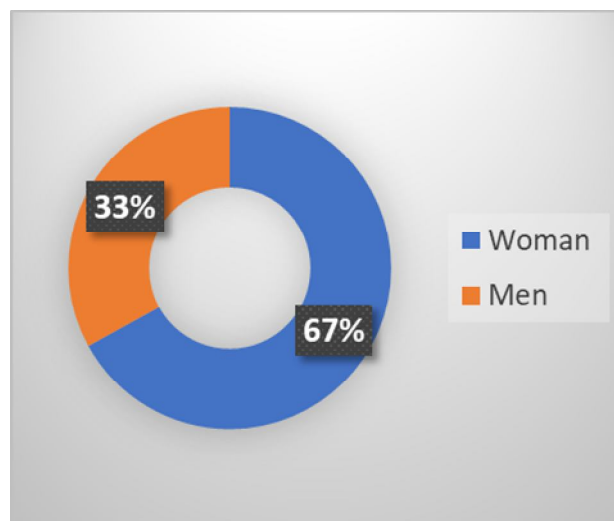


Figure 3 : Distribution of the population by gender.

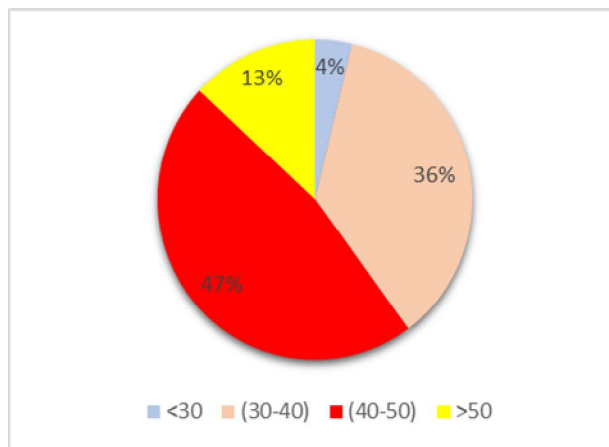


Figure 4 : Distribution of population by age.

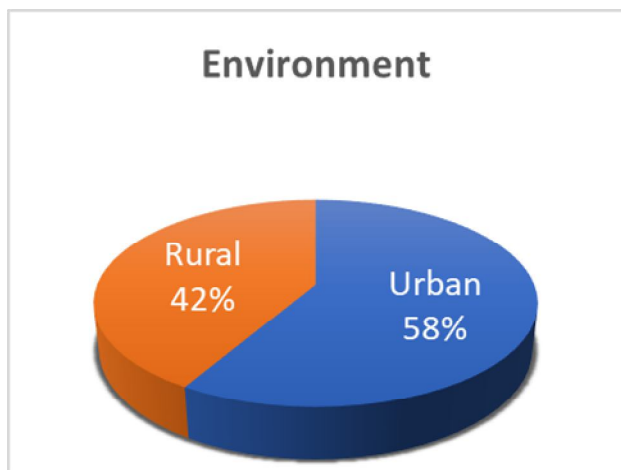


Figure 5 : Distribution of the population according to the socio-professional environment.

The doctors who participated in the study are 67% female. The average age of the doctors who took part in this study is about 40, bearing in mind that almost half of the population is over 40 years old.

The distribution of general practitioners in the Network of Primary Health Care Establishments by exercise sites shows that one third in rural areas and two thirds in urban areas.

For diabetic patients:

- b. According to the criterion "training in education for the health of diabetics":

Table 4 : Description of Population by Criterion: Education Training for Diabetic Health

Education Training for the Health of Diabetics	Frequency (n=41)	Rate %
Sexe		
F	15	36.58
M	26	63.41
Environment		
Urban	31	75.60
Rural	10	24.39

An analysis of the results in Table 4 reveals that more than half of the doctors practicing in rural areas have never had training in education for the health of the diabetic patient. Male doctors trained in education for the health of the diabetic patient are 63.41%, and only 36.58% for female doctors.

- c. According to the practice of education for the health of the diabetic:

Table 5 : Description of the population according to the practice of education for the health of the diabetic.

The dispensary activities in the context of health education	Frequency (=41)	Rate %
Diabetic hygiene rules and nutrition	30	73.17
Physical activity	15	36.58
Psychological and social support	3	7.31
Time spent for the patient on average 20min	0	0
Monitoring	41	100
Supports used	40	97.56
The treatment	41	100

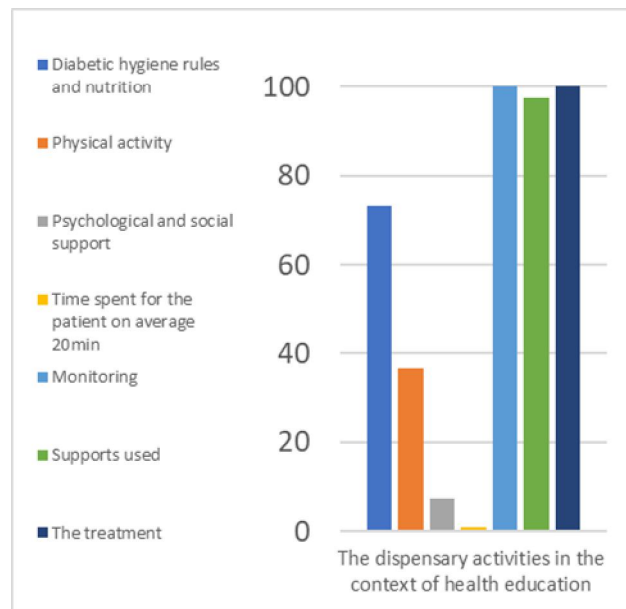


Figure 6 : Frequency of neuro-educational strategies adopted by the MG.

The statistical data in Table 6 shows us a percentage of 73.17%, which very often practices a health education concerning the rules of hygiene and nutrition. Thus, we note that 36.58% very often practice a health education about physical activity.

It is important to note that among our population, 100% report that they practice health education regarding the treatment and follow-up of diabetic patients, 97.56% use the supports provided by the Ministry of Public Health.

Nevertheless, the average time doctors spent on health education for each diabetic patient did not reach the estimated average of about 20 minutes. This explains the low rate of the practice of psychological and social support in health education.

5. CONCLUSION

At the end of this research and even if we are aware of the limitations of our study, which allowed us to better understand the models of conception of neuro-educational strategies advocated by doctors. This description led us to the identification of two main, complementary and integrative components to prevent and promote health in its biopsychosociological aspects:

- The first dimension aims at setting up a therapeutic medical device in the strict sense
- The second register aims to adopt a diabetic patient-centered approach capable of adopting an autonomous and responsible management of his/her health (realism and reflexivity).
- Our results should be interpreted as a vocation to a classic biomedical conception, valuing the preventive and safe therapeutic approach.

The current heavy trends put the focus on the development of the behavioral and cognitive neuroeducational approach, which offers a field of research to the general medicine discipline. It provides us with an appropriate framework to put in place a content - personalized and individualized therapeutic education and training program for diabetics (program takes into consideration the needs, the value system (according to an anthropological aim [7] by bringing the patient to develop self-awareness, self-esteem, self-confidence and above all the feeling of self-efficacy and competence (SEPC) [8] organize large-scale national communication campaigns on the risk factors of diabetes , prevent diabetes in at-risk groups by early detection, update the epidemiological data on diabetes (information system and national epidemiological survey) and consider the diabetic patient as "full partner in the organization of medical work, but also as a producer of a number of activities carried out by oneself, in the service of others and the world "(Tourette - Turgis, 2015, p26 [9].

In defined cognitive and behavioral education actions should be personalized according to the age groups of the populations concerned, the stage of evolution of diabetes, the level of education and other vascular risk factors, because in this particular case the accompaniment should be global and harmonious.

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