ILLNESS UNCERTAINTY AND TREATMENT MOTIVATION IN TYPE 2 DIABETES PATIENTS

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Aims: To characterize the uncertainty in illness and the motivation for treatment and to evaluate the existing relation between these variables in individuals with type 2 diabetes. Method: Descriptive, correlational study, using a sample of 62 individuals in diabetes consultation sessions. The Uncertainty Stress Scale and the Treatment Self-Regulation Questionnaire were used. Results: The individuals with type 2 diabetes present low levels of uncertainty in illness and a high motivation for treatment, with a stronger intrinsic than extrinsic motivation. A negative correlation was verified between the uncertainty in the face of the prognosis and treatment and the intrinsic motivation. Discussion: These individuals are already adapted, acting according to the meanings they attribute to illness. Uncertainty can function as a threat, intervening negatively in the attribution of meaning to the events related to illness and in the process of adaptation and motivation to adhere to treatment. Intrinsic motivation seems to be essential to adhere to treatment.

DESCRIPTORS: uncertainty; motivation; diabetes mellitus, type 2

LA INCERTIDUMBRE EN LA ENFERMEDAD Y LA MOTIVACIÓN PARA EL TRATAMIENTO EN DIABÉTICOS TIPO 2

Objetivos: Caracterizar la incertidumbre ante la enfermedad y la motivación para el tratamiento y evaluar la relación existente entre estas variables en diabéticos tipo 2. Método: Estudio descriptivo, correlacional, en una muestra de 62 diabéticos atendidos en consulta. Usadas la Escala de Incertidumbre ante la Enfermedad y la Escala de Motivación para el Tratamiento. Resultados: Los diabéticos tipo 2 presentan bajos niveles de incertidumbre ante la enfermedad y una elevada motivación para el tratamiento, siendo la motivación intrínseca más elevada que la extrínseca. Se verificó correlación negativa entre la incertidumbre frente al pronóstico y tratamiento y la motivación intrínseca para el tratamiento. Discusión: Estos pacientes se encuentran adaptados actuando en conformidad con los significados que atribuyen a la enfermedad. La incertidumbre puede funcionar como amenaza interfiriendo negativamente en la atribución de significados de los acontecimientos relacionados con la enfermedad y con el proceso de adaptación y motivación para adherirse al tratamiento. La motivación intrínseca parece ser un aspecto fundamental en la motivación para el tratamiento.

DESCRIPTORES: incertidumbre; motivación; diabetes mellitus tipo 2

INCERTEZA NA DOENÇA E MOTIVAÇÃO PARA O TRATAMENTO EM DIABÉTICOS TIPO 2

Objectivos: Caracterizar a incerteza na doença e a motivação para o tratamento e avaliar a relação existente entre estas variáveis, em diabéticos tipo 2. Método: Estudo descritivo, correlacional, numa amostra de 62 diabéticos atendidos em consulta. Aplicadas a Escala de Incerteza na Doença e a Escala de Motivação para o Tratamento. Resultados: Os diabéticos tipo 2 apresentam baixos níveis de incerteza na doença e elevada motivação para o tratamento. A motivação intrínseca é mais elevada do que a extrínseca. Existe uma correlação negativa entre a incerteza face ao prognóstico e tratamento e a motivação intrínseca para o tratamento. Discussão: Os resultados sugerem que estes indivíduos se encontram adaptados agindo em conformidade com os significados que atribuem à doença. A incerteza pode funcionar como ameaça interferindo negativamente na atribuição de significados aos acontecimentos relacionados com a doença e com o processo de adaptação e motivação para adesão ao tratamento. A motivação intrínseca parece ser um aspecto fundamental na motivação para o tratamento.

DESCRITORES: incerteza; motivação; diabetes mellitus tipo 2

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INTRODUCTION

Health systems have to face numerous problems. One of them is treatment abandonment or incorrect compliance by patients with chronic illnesses like diabetes. Lack of motivation and non-compliance are probably the most significant causes of treatment failure, which leads to health system dysfunctions and increases morbidity and mortality. Literature has reported that individuals with diabetes find it difficult to comply with the treatment program[1] (metabolic control, food planning, physical activity and medical treatment).

Diabetes is one of the most demanding chronic illnesses, in both the physical and psychological sense. Living with this illness implies adopting a lifestyle adjusted to one's health condition, which calls for changes in everyday life activities and permanent compliance with the treatment, since it is the only way to avoid the serious complications[2].

To live with a chronic incurable illness is to live in a state of constant uncertainty. There is more to the challenge of adjusting to a chronic illness than the simple biophysical adaptation to its process. In fact, multiple adaptations are required, and the implied state of uncertainty is a deep and personal experience[3].

Uncertainty is considered a major factor affecting adjustment to the illness. However, few studies have been developed to understand the long term effects of uncertainty on chronic illnesses[3]. The performed research mainly report that this concept has been studied in contexts of economy, decision making, prediction, tolerance, control, stress and ambiguity. In this sense, it is pertinent to enhance knowledge in this underexplored field.

The concept of illness uncertainty has been changing over time. However, there is a consensus that it is a cognitive state in which individuals are incapable of attributing a meaning to illness-related events. This is observed in situations in which one is not able to assign definite values to objects and events and/or to precisely predict illness outcomes[4-5]. These aspects can interfere with the motivational process as well as treatment compliance. The illness-associated stimuli cause reactions that are, supposedly, explained by the uncertainty theory in four stages: the first comprises the antecedents that generate uncertainty; the second regards perceiving uncertainty as either a threat or an opportunity; the third corresponds to the coping strategies adopted to reduce the uncertainty that is considered a threat or, on the other hand, to maintain the uncertainty that is considered an opportunity; and, finally, the fourth regards the state of adaptation that results from the adopted coping strategies[3].

With respect to motivation, this concept is defined as a group of perceived forces that make one act, and is influenced by one's experiences and other external factors[6-7].

Human beings rarely act based on a single motive. Rather, human behavior is impelled by intrinsic and extrinsic motivations[8]. Intrinsic motivation is responsible for an individual's participation in an activity for the sheer pleasure of the activity, and not for a tangible reward that could result. On the other hand, extrinsic motivation is that through which one takes part in an activity with the aim of obtaining a tangible reward[7-9].

Several theories attempt to describe the motivational phenomenon. However, none are thorough regarding the process. It is worth highlighting that despite their diversity, the renowned approaches are not contradictory. Rather, they are complementary and, thus, permit understanding a certain motivational phenomenon that, in the present study, leads to treatment compliance or non-compliance. The theories that aim to describe the phenomenon as well as the influencing factors include: Leventhal's Model of Behavior Self-Regulation, Treatment Compliance Models and the Health Beliefs Model.

Leventhal's Model of Behavior Self-Regulation provides a theoretical construction/explanation that helps to understand the factors influencing one's perceptions regarding illness threats, the association between those perceptions, the descriptions of self-reported illness symptoms, and how personal beliefs influences one's self-care behavior and drives one to either promote or ignore illness threats.

According to this model, there are two active processes in the illness: cognition, which refers to the objective interpretation of illness threat; and emotion, which is the subjective reaction to a threat. These parallel processes, cognition and emotion, are interactive. For instance, the type 2 diabetes diet implies cognitively processing the information to understand the complex relationship between consuming carbohydrates and blood glucose levels. However, emotional processes interact with sociocultural values of food and eating. Those values come from social experience; therefore, they might be considered more important than the cognition process when one decides to eat food that increases blood glucose levels, since one feels socially obliged to do that[10].

The health beliefs model is based on the supposition that healthy behaviors are rationally determined by the vulnerability to health threats.

Individuals end up assigning a value to those perceptions that makes them believe or not in the efficacy of the actions that lead to the improvement of their health. Therefore, based on these beliefs, it is possible to predict different health-associated behaviors, at the level of either illness prevention or health promotion[11]. Compliance implies an active attitude with voluntary and collaborative involvement of both the patient and the health care professional, in a combined process that aims to change patient behavior. Hence, patients comply with the treatment or therapeutic protocol based on a combined agreement, in which patients take part, and which allows patients to develop an appreciation of the importance of certain prescribed actions[12].

Individuals can notice the benefits, the barriers, their susceptibility to, and the seriousness of their illness. But if one assigns little importance to one's own health, overvaluing other areas in their life, the degree of compliance with a proposed action will be too low and one's disposition toward that action can be null, and, thus, it will not take place[13].

In this direction, the present study had the following purposes: to describe the characteristics of illness uncertainty and treatment motivation in type 2 diabetes patients who were attended at two Health Centers in the Central Region of Portugal; and to analyze the relationship between illness uncertainty and treatment motivation in those patients.

METHOD

Type of study

This is a descriptive-correlational quantitative study, developed with the following research question and hypothesis:

Q_1- What are the characteristics of illness uncertainty and treatment motivation in type 2 diabetes patients?

H_1- There is a relation between illness uncertainty and treatment motivation in these patients.

Variables

The studied variables were: illness uncertainty, which is a cognitive state in which the individual is unable to assign a meaning to illness-related events[4-5]; and treatment motivation, which is a group of perceived strengths that cause one to act, influenced by one's own experiences and other external factors[6-7].

Sample

The sample consisted of 62 individuals, adults and elderly, which were attended in diabetology appointments at the Health Centers in the cities of Pombal and Figueira da Voz, Portugal, from February 9th to April 2nd 2004. Subjects were between 43 and 84 years old, with an average age of 67.06 years and a standard deviation of 8.18 years. Most subjects (59.7%) were women. In terms of marital status, 67.7% were married, 1.6% single, 6.5% divorced and 24.2% widowed.

Procedures

The instrument was administered in a sample of individuals diagnosed with type 2 diabetes, considering the pre-determined criteria of including patients that came to diabetology appointments at Health Centers of the cities Pombal and Figueira Foz, Portugal, between February 9th and April 2nd 2004, who had agreed to participate in the study. In view of these criteria, 62 individuals were interviewed.

Ethical aspects

Before data collection, the research project was approved by the Directors of both referred Health Centers. Individuals who agreed to participate in the research signed the free and informed consent form. Subjects' conditions were taken into consideration and the researchers clarified all doubts that were presented.

Instruments

The instrument used for data collection consists of sociodemographic questions, in addition to part A of the *Uncertainty Stress Scale* (USS) and the *Treatment Motivation Scale* (TMS).

The USS[14] comprises three parts. In part A, individuals are asked to classify their degree of uncertainty in areas regarding their health condition and coping with uncertainty. In part B, participants are asked to classify their stress level related to uncertainty. Part C comprises a 10 cm analogical visual scale that measures overall uncertainty, stress, threat, and the perception of aspects corresponding to the state of uncertainty.

The Portuguese version[14] of the USS, called Illness Uncertainty Scale (IUS), which was used in this study, consists only of part A of the original version.

It is a 5-points self-answered *Likert* scale, containing 24 items, which evaluates the illness in

terms of prognosis, treatment and coping with uncertainty. Five answer possibilities are given: 0 - I have no uncertainty; 1- I have little uncertainty; 2- I have uncertainty; 3- I have some uncertainty; 4- I have much uncertainty. The respective scores are obtained by adding up the answers to the items in each dimension. The total uncertainty score is the sum of the 24 items.

Regarding validity, the IUS[15] showed good internal consistency, with Cronbach alpha values of .72 for uncertainty toward prognosis, .70 for coping with uncertainty, and .82 for the total scale. In the same study[15], the IUS was administered with Zung's self-evaluation anxiety scale, obtaining respective correlation values of .40, .68, and .69 for the prognosis, treatment, coping and total uncertainty dimensions, which may be interpreted as a argument for the criterion validity of the IUS.

In the studied patient sample, the IUS showed good internal consistency, with Cronbach alpha values of .81, .73, and .87, respectively, for prognosis and treatment, coping, and total uncertainty. Correlation values between the item and the total score of each sub-scale and the total score were above .30, except for items 1 and 23, whose values were .23 and .24.

The TMS used in this study results from an adaptation of the Treatment Self-Regulation Questionnaire (TRSQ) for diabetes, which was developed to explain the Self-Determination Theory[16]. This is a theory based on human motivation and has been adapted to several situations in the promotion of healthy life habits, namely weight loss and physical exercises in the long term, keeping adults away from smoking and improving glucose control in individuals with diabetes[17].

The TMS is a Likert scale composed of 19 items, of which 13 evaluate intrinsic treatment motivation, while the other six look at extrinsic treatment motivation. This scale aims to measure autonomous and controlled motivations to adopt a healthy life style regarding diabetes treatment, glucose control and practicing exercises. Answers are organized on a scale from 1 to 7 points, ranging from strongly disagree to strongly agree, in which the score of each dimension is obtained by summing the answers of items in each dimension and by the total score.

In the study sample, the instrument showed good internal consistency, with Cronbach alpha values of .78, .88, and .86, respectively, for extrinsic and intrinsic motivation, and the total. Correlation values of the item with the score of each sub-scale and with the scale total exceeded .39, except for item 15, whose value is .13.

RESULTS

Regarding illness uncertainty, the data show reduced average values for the total and for the dimensions, uncertainty concerning prognosis and treatment, and coping with uncertainty, corresponding to 1.29, 1.32, and 1.20, respectively, and with a reduced dispersion of .63, .67 and .66 (Table 1).

Table 1 - Average values and dispersion of the answers to items that evaluate illness uncertainty

Items concerning illness uncertainty	X	SD	Min	Max
1* - What you could have done to detect you health condition earlier.	1.89	1.494	0	4
2* - Regarding the development of my health condition.	1.81	1.114	0	4
3* - Regarding my current health condition.	1,92	1.271	0	4
4**- If changes in my health style will help my health condition.	1.32	1.184	0	4
5** - How to make sense of what others have told me about my health condition.	1.15	0.989	0	3
6* - Regarding the efficacy of the treatment that has been proposed to me.	0.71	1.062	0	4
7* - If my health problem is under control.	1.39	1.464	0	4
8** - What to tell others about my health condition.	1.24	1.250	0	4
9* - Regarding the different explanations I have been given.	1.13	1.221	0	4
10** - If my health condition will interfere with my ability to develop my usual activities.	1.06	1.17	0	4
11** - How to deal with my symptoms.	1.82	1.337	0	4
12* - Regarding the choices made for my treatment.	1.00	1.173	0	4
13**- If the changes in my appearance will appear in my intimate relationship.	1.13	1.261	0	4
14* - If what I have been doing to overcome the situation will help me.	1.08	1.076	0	4
15* - If my exam results are a reliable indicator of my real health condition.	1.00	1.293	0	4
16**- Regarding my ability to deal with emotions related to my health problem.	1.65	1.294	0	4
17** - If I have any difficulty to deal with emotions related to my health problem.	1.71	1.372	0	4
18* - Regarding the quality of the information I have been given.	0.76	1,155	0	4
19* - If I should comply with all the treatments that have been proposed.	0.74	1.241	0	4
20* - What is the importance of uncommon symptoms to my health condition.	2.00	1.201	0	4
21** - If I can count on people that are important to me to stand by me when I need them.	0.56	1.081	0	4
22**- If my financial condition will be affected by my health condition.	0.95	1.324	0	4
23* - Which symptoms I should be pay close attention to.	2.18	1.349	0	4
24* - What I should observe to check my health condition.	1.16	1.204	0	4
Total illness uncertainty	1.29	0.63	0.25	3.13
Uncertainty toward prognosis and treatment	1.32	0.67	0.21	3.36
Coping with uncertainty	1.20	0.66	0.00	2.80

* items concerning the dimension uncertainty about prognosis and treatment
** items concerning the dimension coping with uncertainty

In all the items, maximum (4) and minimum (0) values are observed, considered in the IUS anchors; except for item 5, in which the maximum value presented was 3.

Although these patients showed a low degree of illness uncertainty, they reported having more uncertainty about symptoms (items 20, 23) and health condition (items 1, 3) in the dimension of uncertainty toward prognosis and treatment.

As to treatment motivation in total and in the respective dimensions of intrinsic and extrinsic motivation, considering the limits (1-7), high average values were observed: 5.25, 5.63 and 4.48, respectively. Dispersion values were .89, .97, and 1.39. Intrinsic motivation values were superior to those of extrinsic motivation (Table 2).

Table 2 - Average values and dispersion of the answers to items that evaluate treatment motivation

Treatment Motivation Items	X	DP	Min	Max
A - I follow my diabetes treatment and/or control my glucose because...				
1** - Other people would be furious at me if I didn't.	3.69	2.413	1	7
2* - To do this, for me, is a personal challenge.	5.13	1.684	1	7
3* - I believe I will improve my health by doing it.	5.98	1.287	3	7
4* - I would feel guilty if I didn't do what the doctor told me to.	5.77	1.624	1	7
5** - I want the doctor to think I am a good patient.	5.32	1.818	1	7
6* - I would feel bad about myself if I didn't do it.	5.58	1.694	1	7
7* - It is exciting to keep my glucose within the recommended values.	5.16	1.681	1	7
8** - I don't want other people to be disappointed in me.	3.77	1.970	1	7
B - The reason why I follow my diabetes and exercise regularly is because...				
9** - Other people would be disappointed at me if I didn't.	3.26	2.103	1	7
10* - I believe it is important for me to keep healthy.	5.97	1.379	1	7
11* - I would be ashamed of myself if I didn't.	4.97	1.792	1	7
12* - It is easier to do it than to keep thinking about it.	5.10	1.686	1	7
13*- I have put serious thought into it and I believe that it is the best thing to do.	5.58	1.443	1	7
14** - I want others to see that I am capable of doing it.	4.81	1.982	1	7
15** - The doctor told me to do it.	5.73	1.681	1	7
16* - I feel these are the best thing I can do for myself.	6.23	1.078	1	7
17* - I would feel guilty if I didn't do it.	5.94	1.424	1	7
18* - These are the best choices I could make.	6.24	1.082	1	7
19* - It is a challenge to learn to live with my diabetes.	5.55	1.554	1	7
Total treatment motivation	5.25	0.89	1.63	6.74
Intrinsic motivation	5.63	0.97	1.46	7.00
Extrinsic motivation	4.48	1.39	1.67	6.83

* items regarding the intrinsic motivation dimension
** items regarding the intrinsic motivation dimension

The data resulting from the evaluation of the answers to the various items, according to Table 2, show that a majority of type 2 diabetes patients present a high degree of treatment motivation in the different aspects.

In all items, maximum (7) and minimum (1) values are observed, considered in the TMS anchors; except for item 3, regarding the belief that by complying with treatment, one will improve one's health, in which the minimum value presented was 3.

Although patients presented indicators of a high degree of treatment motivation, the latter is higher in aspects associated with maintaining healthy life habits (dimension of intrinsic motivation) evaluated by items 18 - "These are the best choices I could make" - and 6 - "I feel these are the best things I can do for myself".

It is worth highlighting that the highest dispersion was observed in answers to items 1 and 9, which evaluate extrinsic motivation regarding others' indignation in case the patient does not keep diabetes under control.

Association between illness uncertainty and treatment motivation

In Table 3, a negative association is observed between illness uncertainty and treatment motivation. This is evidenced between the intrinsic treatment motivation dimension and illness uncertainty toward diagnosis and treatment.

Table 3 - Association between illness uncertainty and treatment motivation*

	Illness uncertainty (Total)		Uncertainty toward prognosis and treatment		Coping with uncertainty	
	r_s ◘	p	r_s ◘	p	r_s ◘	p
Treatment motivation (total)	-0.276	0.030*	-0.310	0.014*	-0.199	0.121
Extrinsic motivation	-0.159	0.216	-0.130	0.312	-0.159	0.217
Intrinsic motivation	-0.307	0.015*	-0.363	0.004*	-0.221	0.084

◘ Non-compliance with the variable *normality presuppositions*, through the *Kolmogorov - Smirnov* test with *Lilliefors'* correction.

In fact, although the association is not high, the data suggest that the higher the uncertainty level toward diagnosis and treatment, the lesser the patients feel intrinsically motivated to adopt a healthy life style concerning diabetes, glucose control and physical activity.

DISCUSSION

In general, subjects present a low degree of illness uncertainty and high treatment motivation. Nonetheless, intrinsic motivation is higher than extrinsic.

Patients show less uncertainty regarding their expectations toward social-family support. These results show the family support felt by patients, which allows them to express their emotions, which coping strategies are centered in, and have a positive influence on their expectations concerning the illness, treatment and prognosis. Moreover, patients acquire a probabilistic viewpoint, with the possibility that positive things will take place[18].

Attention should also be given to the low degree of uncertainty toward efficacy, compliance to the proposed treatment, and quality of the received information.

Concerning efficacy and treatment compliance, results suggest that the studied patients have already adapted to the illness, and have adopted appropriate coping strategies to either maintain or reduce illness uncertainty, as pointed out in stage four of its conceptualization[4]. After the initial phase, in which patients agreed with the proposed treatment, the next phase involves maintaining behaviors recognized as important to keep a quality of life that patients consider good.

Regarding the quality of the received information, since patients are regularly followed in medical appointments, the proximity with health care professionals indicates that patients find answers to their questions directly from those professionals and consider the information they receive about their illness and their health condition reliable. Hence, this translates into the low degree of uncertainty patients report.

In fact, the theory supports that the lack of information originates uncertainty because it does not allow patients to build a reference frame. However, this is the only uncertainty situation that is temporary and most easily corrected. To do this, the health care professional should be available to correctly inform and clarify any doubts patients may have[4].

The theory also shows that the developmental model of treatment compliance includes three stages. The first is the patient agreeing with the proposed treatment, which is negotiated between the latter and the health care professional. In the second stage (treatment compliance), patients continuously follow the proposed treatment and the surveillance of their own health, regardless of any obstacles that may hinder their treatment. The last stage regards treatment maintenance and health surveillance, in which patients keep the adopted measures in the previous stages, with the aim of improving their health and incorporating them to their life style, thus changing new behaviors into habits[19].

This study indicates an elevated degree of motivation regarding health improvement and maintenance in individuals with type 2 diabetes. Moreover, it suggests that these individuals act in accordance with what they believe is the best thing to do regarding their health. This is consistent with the Health Beliefs Model, which postulates that decisions made by patients to adopt a certain healthy behavior, like controlling capillary glucose and exercising regularly for instance, is due to psychological variables, such as perceiving the benefits of certain actions. Therefore, patients assign a certain value to those perceptions. That assigned value makes them believe in the efficacy of the actions that help improve their health[13].

In this research, the lowest treatment motivation values refer to the reasons that make individuals behave according to what others expect of them. Those values belong to the extrinsic motivation dimension. Results show that these patients appear to act more according to intrinsic than to extrinsic motivation. However, both are important to move patients in the sense of keeping their diabetes under control.

Human beings are complex and rarely act based on a single motive. An individual's behavior in a certain situation is based on intrinsic and extrinsic motivations[8]. However, the theory does not indicate which, intrinsic or extrinsic, is strongest. The World Health Organization acknowledges that access to medication is a necessary but insufficient variable for treatment success. Patient compliance with the recommendations made by health care professionals is an important variable, but economic and social variables, as well as illness and treatment characteristics, in addition to health professional training, family participation and a multidisciplinary approach are also considered important for the efficacy of treatment compliance[20].

The study hypothesis was partially accepted. The association between illness uncertainty and intrinsic treatment motivation shows that patients with greater uncertainty toward prognosis and treatment are those less motivated to comply with the treatment they consider effective.

The theory of illness uncertainty explains how individuals react to illness-related stimuli and how they

structure the meaning assigned to these events[3]. Since patients have a low uncertainty degree, it is presumed that they have adopted coping strategies, which humans usually use to face stress-inducing events, appropriate to their situation, and uncertainty is acknowledged as an opportunity to grow and change. This aspect deserves further investigation. Uncertainty, when understood as a threat, offers a challenge as well as an opportunity. This opportunity that patients have to maintain and/or improve their health condition may lead to an increase in motivation to comply with the treatments proposed by health care professionals[13].

This idea is supported by problem solving models that suggest that individuals deal with illnesses or symptoms as they would with any other everyday issue. That is, when facing a certain problem or a change in their health condition, individuals are motivated to overcome the problem and recover their normality. Regarding health and illness, being healthy is an individual's normal state, hence, when illness occurs, it is interpreted as a problem that will motivate one to reestablish their health condition.

Therefore, patients perceive their illness as an opportunity or as a threat. If patients perceive the risks of certain actions and the benefits of others, they adopt strategies and behaviors that contribute to not worsening their health condition. Thus, it is important for patients to actively participate in the self-care process and comply with the proposed treatment.

As verified in this study, a high degree of motivation implies that patients consider health- and illness-related issues important. Moreover, patients believe that they will reap benefits from changes made in their life style based on health recommendations, and thus prevent the onset of further complications.

The higher the perceived illness susceptibility and seriousness, the lower the illness uncertainty. That perception is also directly related to the probability of the decision leading to an action, which should be based on treatment motivation[13].

Actually, in cases of chronic illnesses, uncertainty may function as a threat to illness adaptation, thus reducing one's ability to adopt coping strategies and assign meanings and values to illness-related objects and events. This makes individuals unable to correctly predict illness outcomes, which negatively interferes in the process of adaptation and motivation to comply with the treatment.

However, other variables could explain the variation in treatment motivation. For instance, the fact that these patients attend medical appointments provides them with access to privileged health care. The contact with health care services, including the motivational and informational load provided by health care professionals, may also be a factor to justify the motivation values found.

Thus, it is justified to study these variables in other samples in order to diagnose uncertainty and treatment motivation levels, mainly in individuals who are not followed in medical appointments.

CONCLUSION

Regarding illness uncertainty, results reveal that most patients show a low degree of illness uncertainty. However, patients report higher uncertainty regarding symptoms and health condition, both pertaining to the uncertainty toward prognosis and treatment dimension. Lower degrees of illness uncertainty are associated with patients having significant others to count on, which falls in the coping with uncertainty dimension. Low illness uncertainty is also relatively related to treatment compliance, its efficacy, and to the quality of information, which belong to the uncertainty toward prognosis and treatment dimension.

Results show that most patients present high degrees of treatment motivation. Higher motivation degrees were observed in the intrinsic motivation dimension, mainly in aspects related to keeping healthy life habits and improving and maintaining one's health condition. Aspects in which patients show a lower motivation degree include the reasons that make diabetes patients behave according to what others expect of them, that is, aspects of extrinsic motivation. These results show that type 2 diabetes patients appear to act mostly according to intrinsic rather than extrinsic motivation.

Patients with greater uncertainty feel less motivated toward treatment, especially those with greater uncertainty toward prognosis and treatment, who feel less intrinsically motivated to adhere to treatment.

Further studies should be performed on these variables in type 2 diabetes patients, mainly in individuals from the community, in order to evaluate the characteristics of uncertainty toward diabetes.

Furthermore, it would permit, through health education actions, to reduce uncertainty and encourage primary care patients to comply with a permanent therapy and adaptation to the illness, thus adopting a life style appropriate to the disease, with a view to improving quality of life and adding years to one's life and life to one's years. It is also proposed that studies be performed concerning the relationship between illness uncertainty, treatment motivation and glucose control.

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