ICEEPSY 2014

Adherence to the therapeutic regime in person with type 2 diabetes

Carlos Albuquerque\textsuperscript{a*,} Carla Correia\textsuperscript{b}, Manuela Ferreira\textsuperscript{a}

\textsuperscript{a} Instituto Politécnico de Viseu, CI&DETS, ESSV, Rua Don João Crisóstomo Gomes de Almeida, n° 102, Viseu 3500-843, Portugal
\textsuperscript{b} Centro Hospitalar Tondela-Viseu, EPE, Av. Rei Don Duarte, s/n, Viseu 3509-504, Portugal

Abstract

Background: It is expected that people with diabetes, throughout their lives, integrate and initiate a range of behavioral, therapeutic or preventive actions, suggesting the confirmed risk of occurring a globalized noncompliance, deteriorating their quality of life and an exponential economic impact. Objectives: to determine adherence to prescribed therapeutic regimen; and identify sociodemographic, clinical and psychosocial variables that influence adherence to the therapy. Methods: Was conducted a study quantitative, cross-sectional, non-experimental, descriptive, correlational study, with a sample of 102 people with diabetes type 2, aged 40 to 85 years, mostly male (51.96%). The evaluation protocol includes: social-demographic and clinical questionnaire, Diabetes Self-care Scale, Questionnaire about the knowledge of Diabetes, Depression, Anxiety and Stress Scale. Also resorted to HbA1c to directly assess adherence. Results: It appears that there is no statistically significant association between socio-demographic variables, sex and age and adherence. Single individuals, residents in urban areas, pensioners and those with the 3rd stage of schooling or more, adhere better to treatment. The variables such as, blood glucose monitoring, specific diet fulfillment and knowledge, reveal a statistically significant effect on adherence (p < 0.05). Anxious, depressed and stressed individuals adhere less. Conclusion: The evidences underlines the urgent need to recognize the importance of measuring patient adherence to a diabetes treatment plan for the maintenance of glycemic control. We suggest the reinforcement of educational programs in people with type 2 diabetes in order to enhance greater adherence to self-care.

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Peer-review under responsibility of the Organizing Committee of ICEEPSY 2014.

Keywords: Diabetes type 2 insulin-dependent, self-care, knowledge, adherence to therapeutic regimen, therapeutic education.

* Corresponding author. Tel.: +351-232-419100; fax: +351-232-428343
E-mail address: cmalbuquerque@gmail.com
1. Introduction

Diabetes Mellitus (DM) is one of the major public health problems worldwide, not only due to the increasing number of affected people, but according to its relation with disability and premature mortality, and not neglecting the costs involved in its treatment and prevention. It is a chronic disease in fast expansion, reaching even the characteristics of a pandemic set. The World Health Organization (WHO, 2011) argues that diabetes and its complications have a significant economic impact in patients, their families and in national health systems, considering that there are 346 million people with diabetes in 2011, and predicting that diabetes’ deaths will double between 2005 and 2030. Portuguese set proves to be a matter of concern as well. DM is increasingly common in our society: its prevalence rises according to the age and extents to both genders. The prevalence of diabetes in the Portuguese population in 2012 was 12.9%, considering ages between 20 and 79 years old, which corresponds to a total of about 1 million people (Boavida et al., 2012). It is described consistently as one of the most demanding and complex chronic diseases in a behavioural and psychological point of view, being undeniable the relations between the psychological aspects of the patient and the disease, not forgetting its impact on the patient's bounds with his family and society. This impact occurs when diagnosis takes place. When it is diagnosed during adulthood, the disease is often experienced as a loss of physiological balance and a limitation in lifestyle. When it is diagnosed at a later stage, the patient identifies diabetes as the beginning of his end and it is regarded as a sign of aging (Figueirola & Peralta, 2003). It is a disease that is a heavy psychological burden to the patient and his family, and can become unwieldy to manage, in some moments of life, plus the fact that dealing with this disease is different from other chronic illness (Welch, Weinger & Jacobson, 2008), because it requires daily self-management which definitely contributes to the control of the metabolic situation. Thus, it is important to understand that the goals of metabolic control cannot be achieved at the expense of psychological well-being of the patient. When the treatment plan is determined, it becomes essential that beyond the biological and medical aspects, the importance of evaluating the patient’s psychological processes should be attended, because biopsychosocial health of the patient is a decisive condition to encourage self-care with the disease (Anthony, 2010). Therapeutic obedience is established as a key element in the control of chronic disease. Its absence appears to have a considerable impact on the incidence and prevalence of many chronic diseases. Chronic diseases and diabetes in particular have nowadays a major impact on global health, representing in developed and developing-stage countries an economic burden. Diabetes is for that reason responsible for a huge number of mortality and morbidity in these countries and it is expected that the economic impact of chronic diseases will continue to grow until 2020, when they will represent 65% of total health expenses (Bugalho & Carneiro, 2004). According to WHO (2003), in developed countries, 50% of chronically ill patients do not adhere to the therapies. This percentage increases exponentially when we face to developing-stage countries, where the lack of resources and the absence of equity in health care access promotes the therapeutic adherence into a problem. The concept of adherence, most recently used, indicates an active participation by the patient and the existence of collaboration and interaction patterns in relation to health care. It requires compliance by the patient to the recommendations of the health professionals, both working as active partners in the treatment plan (WHO, 2003; Bugalho & Carneiro, 2004); it implies the active and voluntary participation of the patient, who shares the responsibility of treatment with a team of health professionals; it allows the existence of an agreement between both agents, respecting their beliefs and desires (Bugalho & Carneiro, 2004). In the opinion of Haynes, Acklooe, Sahota, McDonald, Yoo (2008) and WHO (2003) there is only an adherence plan when the behaviour of a patient in taking medication, diet commitment, and / or changes in lifestyles, will coincide with the advice of a health professional, i.e. it is the degree of conformity between the recommendations done and the patient's behaviour to the proposed therapeutic regimen. Several studies have shown that patients want to feel included in the clinical process increasingly, demanding for more information and requiring more interaction with healthcare professionals. So it is required a biopsychosocial approach that regards patients as active partners in their treatment plan (Cabral & Silva, 2010). A good obedience to the treatment means loyal connection in the entire process of the treatment plan, as well as the adoption of therapeutic behaviours and their conservation. This extended commitment is difficult and changes completely the pace of daily life, especially in diseases that evolve asymptotically. This difficulty is compounded by the complexity of treatment regimens (Bugalho & Carneiro, 2004), leading many patients to an attitude of non-adherence. According to Telles-Correia Barbosa, Mega and Monteiro (2008) non-adherence occurs when the patient behaviour does not coincide with the recommendations of health professionals, not just confining to the differences...
in the application of the therapeutic regimen, but also because they don’t follow the directions on changes in their lifestyles and health habits in order to adopt healthy practices. This phenomenon also occurs when the patient does not come for consultations, which were previously marked, or does not perform additional diagnostic tests. A behaviour of non-adherence should be understood as responses of patients to the lack of coincidence between their ideas and those of the health professionals, regarding their disease and / or problems. According to Christensen (2004, Cit. Levensky in 2006) non-adherence rates fluctuate depending on the report of treatment in an acute phase, 20 to 40%, on the treatment of chronic disease 30-60% and on the preventive treatment regime 50-80%.

Non-adherence is a barrier to a successful treatment and may result in worsening health status of the patient, eventually causing errors in future treatments. This clinical deterioration may compel the requirements of more drugs, involving the need for further diagnostic procedures, more costly and complex treatments, consultations, the use of emergency services and the increase in hospitalizations (Cabral and Silva, 2010). This idea is validated by Levensky (2006), Bugalho and Carneiro (2004) and Osterberg and Blaschke (2005) which confirms not only that non-adherence to therapy has adverse effects on care quality, but also acts significantly as a barrier to the success of the treatment, which means significant costs in medical and social terms. Gall and Carneiro (2004) suggest that different factors may influence adherence to the therapeutic regimen: factors as social, economic and cultural supports, related to services and health professionals, to the underlying disease and co-morbidity to the treatment and to the patient.

Poor adherence to self-care of diabetes is a combination of several features of the disease and its treatment. According to Wagner, et al. (1998), the fact of diabetes being a chronic disease with no immediate discomfort and no obvious risks, leads the treatment plan to make changes in lifestyle and the treatment is complex, intrusive and inconvenient, there is no direct supervision of the conduct. The goal of treatment is prevention not cure. These are the predictors of poor adherence factors. As Wild (2012) refers, other condition that influences adherence is that many people with diabetes fail to understand the importance and consequences of a non-treatment procedure. The variety of inaccurate beliefs and the low level of health literacy, contribute to an unbalanced view of the therapeutic plan for diabetes, underestimating the consequences of a non-adherence habit. An example is the widespread belief that early treatment with insulin is a mark of personal failure, a punishment for a low self-care, or even that patients have entered a new and irreversible treatment process (Campbell, 2012; Nau, 2012). This belief leads to one-third of diabetic patients, who need insulin treatments, to express desire of avoiding it. To Malerbi (2011) the factors associated with non-adherence to diabetes treatment can be divided into three groups: treatment characteristics, patient behaviours and social factors. The lack of standardized instruments to assess compliance and the difficulty in assessing how close the patient follows the health professionals’ instructions makes the assessment of treatment adherence a complex process. The concept of adherence itself encompasses a wide range of behaviours related to health and disease and its evaluation can be accomplished through self-assessment and interviews to the patient, but many of the results may have a biased expression.

Specialists often refer to the values of glycated hemoglobin to assess the treatment adherence, which will reflect the degree of control and currently it seems to be the best indicator of the patient’s health status. Patients with good metabolic control apparently have good adherence habits (Johnson, 1994). The index of glycated hemoglobin is therefore considered as the most valid indicator of treatment adherence (Nathan et al., 1993), for the patients with a poor metabolic control present superior HbA1c values when compared to the therapeutic target. A low value of HbA1c is a good indicator of the health status and a good treatment adherence. On the other hand, high values of HbA1c are related to weak health, suggesting that there is something wrong in treatment adherence. However, this does not specify which component in non-adherence is missing (Johnson, 1994). This leads us to an indirect evaluation of adherence through auto-reports, interviews, inquiries, that can provide, for example, valuable information about behavioural adherence to different components of the treatment.

Treatment adherence among patients with DM-type 2 is strongly influenced by the level of knowledge of the patient, including not only what they know and do not know about the illness, but by misconceptions, beliefs and inaccurate assumptions on the matter (Campbell, 2012). Structured and targeted educational plans play a key role in the adherence level of patients. Kalogianni (2012) believes that it is vital to educate patients and convince them of the benefits of treatment, as well as maintaining a therapeutic relationship based on communication, trust and motivation. A structured education not only allows significant improvements in metabolic control, but it also
increases the adaptation process to the new situation of disease stage and the development of strategies, so this becomes the main manager of their illness, reducing long-term costs for patient and for society. It is a process that leads to a sharing of responsibility in decisions, allowing the diabetic patient the commitment to manage his diabetes and consequently achieve a greater autonomy level (Boavida & Fox, 2008). Assal (2000) refers that the therapeutic education is a continuous and systematic process, integrated in health care, which empowers people to collaborate in their own health process, improving their quality of life and allowing them to acquire self-therapeutic skills. International Diabetes Federation (IDF, 2011) mentions that education is essential for people with diabetes, so they are able to take informed decisions, cope with daily routines of a complex chronic disease and make changes of attitudes towards the daily monitoring of the disease. Therapeutic education must be seen as part of the treatment and as a tool for the patient to get this new behaviours, changing the existing ones, in order to maximize his health. Blair (2010) states that education should empower the patient, providing him skills and basic essential knowledge to monitor his blood sugar and to understand how his medication, diet and physical activity can affect his glucose levels, and thus becoming more independent from health professionals in their disease management. Therapeutic education is considered the cornerstone of the treatment of diabetes because patients must have skills and knowledge which enable them to manage daily symptoms and limitations related to the disease. But according to Norris et al. (2002a), 50-80% of diabetic patients have tiny knowledge about their disease and few skills to put them into practice. This lack of knowledge results in a poor control of the disease, with very high HbA1c values. Less than half of type 2 diabetic patients achieve optimal glycemic control. These data demonstrate that education, provision of information and the empowerment of the patient are not only basic keys but essential to a conscious decision making, adherence and appropriate treatment.

2. Purpose of the Study

Aims of the study: Determine adherence to the prescribed treatment regimen; identify sociodemographic, clinical and psychosocial variables that influence adherence to the therapy.

3. Research Methods

Was conducted a study quantitative, cross-sectional, non-experimental, descriptive correlational study, using a non-probabilistic sample, including a total of 102 people with type 2 diabetes who attend the consultation of Metabolism in the Diabetes Unit of Tondela-Viseu Hospital. Inclusion criteria were: being type 2 diabetic patients with a definitive diagnosis for more than 1 year, administer insulin for more than 1 year and attend consultations of metabolism in the Diabetes Unit. The survey was composed by five sections. We opted to be self-administered due to the specific language associated with low education and literacy levels of the sample. The sociodemographic representation of diabetes patients was performed using the questions of a varying format (open and closed questions). The clinical characteristics of the patient, including the collection of anthropometric data such as weight, height, body mass index, and clinical abdominal circumference, blood pressure and HbA1c, were also taken in account. The activities of self-care with diabetes were assessed using the Scale of Self-Care with Diabetes (Bastos, Severo & Lopes, 2007), multidimensional scale, composed by six dimensions in the assessment of self-care that was parameterized in days per week. The Knowledge Inquiry of Diabetes (Bastos, 2004) intends in 24 items to assess the level of knowledge on diabetes. The EASD-21 (Pais-Ribeiro, Honored & Leal, 2004) is a multidimensional scale of 21 items divided into three dimensions, anxiety, stress and depression, with Likert type structured responses, where subjects evaluate their feelings duration during the last week. Please note that the HbA1c clinical parameter was used to directly assess the adherence level to treatment.

The statistical programme SPSS (Statistical Package for Social Sciences), version 19.0 for Windows was used for information processing.

Ethical and methodological principles were considered with permission for implementing the data collection instrument. Data collection was carried out in October to December 2013.
4. Findings

The sample included 102 people with type 2 insulin dependent diabetes, 53 (51.96%) male, with an average of 63.24 ± 10.47 year-old patients, with a variation coefficient (VC) of 16, 56%, suggesting a moderate dispersion. The age average for men, 62.77 years old, is lower than females’, 66.73 years old (Table 1).

Table 1: Age Statistics by gender.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>n</th>
<th>Min</th>
<th>Max</th>
<th>Média</th>
<th>Dp</th>
<th>SK/error</th>
<th>K/error</th>
<th>VC (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>53</td>
<td>40</td>
<td>84</td>
<td>62.77</td>
<td>10.16</td>
<td>0.07</td>
<td>-0.96</td>
<td>15.22</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>49</td>
<td>41</td>
<td>85</td>
<td>63.73</td>
<td>10.87</td>
<td>-0.06</td>
<td>-0.38</td>
<td>17.06</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>102</td>
<td>40</td>
<td>85</td>
<td>63.24</td>
<td>10.47</td>
<td>-0.05</td>
<td>-0.94</td>
<td>16.56</td>
<td></td>
</tr>
</tbody>
</table>

Most diabetic patients are married (75.5%), although the group of widowed people (18.7%) is also representative. The subjects mostly live in rural areas (66.7%), the remaining residents live in urban areas (33.3%). Application of the chi-square test allows us to conclude that there is no statistically significant relationship between the variables area of residence and gender ($X^2 = 0.079, p = 0.779$). 50.0% live with a spouse / partner and 1.0% in institutions. The 1st cycle of education (52.9%) is the main level of education in diabetic patients, followed by the 2nd cycle (18.7%) and 8.8% with no schooling. Regarding employment status, the majority reported being retired (56.9%), and from the 24.5% of professionally active people, 36.0% hold their employment in trade business. The clinical profile of the sample points an average of 15.73 years of disease progression, belonging to women the highest average, 16.39 years; they also present a higher average (6,74 years) of insulin administration, with the sample mean of 6.03 years. The whole sample has acute and chronic complications and analysing these ones, retinopathy emerges as the most frequent (30.06%), 33.75% among women and 26.51% among men. Cardiovascular disease was reported by 24.54% of the patients, being more common in women (27.50%). Amputation is the health problem with the lowest expression, 1.23%.

Considering the results according to the HbA1c clinical parameter values, in a total of 102 patients, 42.2% have an adequate glycemic control (HbA1c between 0 and 7.9%), where women (44.9%) have the highest rates in a good glycemic control; however, in statistics the chi-square value did not reveal significant differences ($X^2 = 0.291, p = 0.590$) (Table 2).

Concerning self-care, the activity where people with diabetes were more engaged was monitoring blood glucose with an average of 5.73 days, followed by regular diet (5.07 days), taking medication (6.85 days), specific diet (4.09 days) and feet care (3.85 days). Physical activity is referred as being the less practiced, with an average of 1 day per week.

The sample presents enough knowledge on diabetes (41.2%), with man showing more knowledge on it. However there are deficits in knowledge in areas related to the identity of the disease, its causes, complications and treatment. Medication is considered by 78.4% of the patients as the most important component in the treatment of diabetes, and 53.9% do not even recognize physical exercise as part of the treatment. Men have mean levels of anxiety, stress and depression higher than women, but without significant statistical differences ($p \geq 0.05$).

Considering the influence of sociodemographic variables like gender, age, cohabitation, residence area, education and employment status in the treatment adherence there is absence of statistically significant associations, however after further analysis it was found that the patients with lower HbA1c levels tend to be elder women, resident in urban areas, with restricted family, with the 3rd cycle of education or more and retired, which reflects greater adherence.

Table 2 - Characterization of Diabetic Patient by gender and HbA1c levels.

<table>
<thead>
<tr>
<th>HbA1c</th>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>Residual Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 7.9%</td>
<td>Male</td>
<td>21</td>
<td>39.6</td>
<td>22</td>
<td>44.9</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>32</td>
<td>60.4</td>
<td>27</td>
<td>55.1</td>
</tr>
<tr>
<td>Total</td>
<td>Male</td>
<td>53</td>
<td>100.0</td>
<td>49</td>
<td>100.0</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Considering the influence of sociodemographic variables like gender, age, cohabitation, residence area, education and employment status in the treatment adherence there is absence of statistically significant associations, however after further analysis it was found that the patients with lower HbA1c levels tend to be elder women, resident in urban areas, with restricted family, with the 3rd cycle of education or more and retired, which reflects greater adherence.
Bearing the clinical variables’ relation, disease duration, insulin administration there are no significant statistical associations, but closer examination showed that are the diabetic patients with more time in disease diagnosis, taking insulin for less time and with another person responsible for its administration the ones with highest adherence to treatment because they evidence lower HbA1c levels.

Analysing the relationship between the adherence to treatment and disease knowledge there is a negative association slightly significant \(r = -0.204, p = 0.040\), indicating that the greater the knowledge is, the lowest HbA1c values are, then higher adherence results (Table 3). Considering influence of self-care in adherence program, the results demonstrated that diabetic patients more committed in blood glucose monitoring and with healthy meals have lower HbA1c levels, so those who adhere best to the treatment plan \(p = 0.035\). There were no significant associations between anxiety, stress and depression; however being positive associations indicate that the higher levels of anxiety, the higher HbA1c levels, and the lower the adherence to treatment.

Table 3 - Simple Linear Regression: Adherence to treatment based on knowledge skills.

<table>
<thead>
<tr>
<th>Treatment plan adherence</th>
<th>Knowledge skills</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-0.204</td>
</tr>
<tr>
<td></td>
<td>0.040</td>
</tr>
</tbody>
</table>

**Discussion of the Findings**

Adherence to treatment plan of diabetes is complex because it is not only restricted to taking medication. Other components are important such as self-monitoring, diet and physical activity. Improve adherence to treatment of diabetes mellitus is to improve glycemic control and therefore decrease morbidity and death associated to an uncontrolled diabetes and reduce the effective cost of the disease.

This particular adherence to treatment may be higher in elder patients, when compared to younger age groups, because among teenagers the lack of supervision, autonomy and social influences cause a decrease in it [Bugalho & Carneiro, 2004]. Based on this idea and on the results of our studies we can infer that the greater the age of the diabetic patient, the greater the adherence to treatment. Diabetic patients of our study with partners / or children (restricted family), adhere better to treatment, because the importance of family, although threatened by the contingencies and changes in daily life, is evident in adherence to treatment, as there is cohesion, organization and family support there is a better treatment adherence [Ingerski, Anderson, Dolan & Hood, 2010]. Socio-economic factors have been identified as important in adherence plan. The low level of education, illiteracy, unemployment, low income and geographic distance from health facilities can be significant barriers to adherence [Bugalho & Carneiro, 2004]. Sharing this point of view and based on the results of our study we can conclude that patients living in urban areas, with medium / high levels of education have lower mean levels of HbA1c, i.e. they adhere more to a therapeutic plan. The present study shows the existence of statistically no significant negative associations between the duration of disease and adherence to treatment, i.e., the greater the duration of the disease, the greater the adherence. It is expected that patients with higher duration of disease have a greater knowledge about the same, that can understand better the therapeutic regimen and consequently that can show a stronger adherence. The act of taking daily medication and several times a day tells the patient that he suffers from a chronic disease, which can trigger a framework of denial and drug treatment. Extended therapies, common in chronic diseases, such as diabetes, where does not exist a definite improvement of the results, reveal a lower motivation to adhere to a treatment plan [Dailey, Kim & Lian, 2001]. According to the above statements and with the results of our study we can infer that the longer the duration of insulin administration, the lower the adherence to treatment. One of the important factors in adherence is autonomy for carrying out self-care activities. When the diabetic patient is not self-sufficient, it is essential that there is a good family support that contributes to the successful management and treatment compliance. Rossi (2005) conducted a study on the influence of family support in the care of adults with type 2 diabetes, finding that family support in daily care was fundamental in adherence and metabolic control. According to their results and the results of our research we can conclude that in diabetic patients where someone else is responsible for the administration of insulin, greater is the adherence to the treatment plan.

A factor that may influence adherence to therapy, perhaps the most common and most studied, is the knowledge that patients have about their disease and treatment regimen. In our research, more knowledge means better treatment adherence \(p = 0.040\). These results demonstrated that patients, when facing disease, have to acquire
knowledge and skills to manage their illness every day, its symptoms, its limitations, thus increasing adherence to treatment plan to achieve good metabolic control (Gulabani, John & Isaac, 2008).

Daily treatment of DM requires a complex and demanding regimen, whose goal is to get closer of what is considered normal glycemic profile. Adherence to this regimen is difficult because it implies a multiplicity of daily self-care behaviours. For the study of adherence to treatment in diabetes, it is necessary to understand that there are several important self-care treatments, such as specific diet, practice of physical exercise, administration of medication, glucose monitoring, and feet care. In our study, blood glucose monitoring and specific diet are the variables that influence treatment adherence ($p \leq 0.05$), i.e. the higher the individual's involvement in blood glucose monitoring and specific diet the greater the adherence to treatment. The remaining self-care, general nutrition, feet care, physical activity and medication do not reflect significant associations in statistics but as there are negative associations we must consider that the more the patient develops activities related to these self-care the lower the value of HbA1c and the greater the treatment adherence.

According to our results we can conclude that high levels of stress, anxiety and depression affect negatively adherence to treatment. These results were confirmed by the studies of Fischer, Glasgow and Strycher, 2010 and Anderson, et.al, 2009. Connexions between stress, anxiety, depression and diabetes, must lead to a careful evaluation of its prevalence in diabetic patients. Clinical implications of these psychological changes are evident, however, there are several studies that demonstrate that these disorders are often devalued and underdiagnosed, particularly among diabetic patients. It is crucial the role of health professionals in the recognition of these diseases and monitoring of diabetes after diagnosis promoting thereby an adherence to treatment.

5. Conclusions

Diabetes, because of its prevalence and association with co-morbidities, requires urgent intervention by the adoption of healthy lifestyles and medication, and despite the proven effectiveness of drugs, maintenance of glycemic / metabolic control within desirable levels, it remains unsatisfactory. This is justified by the lack of adherence to a treatment plan (medication use, adoption of balanced diet and regular physical exercise) that requires the change of lifestyle and especially by the maintenance of these new habits. For many diabetic patients, the need of changes in their lifestyle leads to a poor adherence to self-care practices. This conclusion is critical because it is linked not only to the deteriorating physical condition of the patient, but also to a significant increase in direct and indirect costs to the health system and society in general. The relevance of adherence is unquestionable because the success of the treatment plan and the control of a chronic disease like diabetes depend on it. The lack of adherence to diabetes treatment is a widely recognized problem with magnitude in national and international scenes. However there are gaps in the knowledge of techniques related to education/care that promote achievement and/or improvement of adherence to treatment. We need to rethink the role of health professionals regarding the lack of adherence to self-care and only having a multidisciplinary and multi-disciplinary educational approach with diabetes patients we can expect satisfactory levels of adherence to treatment and increasing glycemic control. Therapeutic education is a keystone of the promotion of self-care in type 2 diabetes, it should be a planned activity to create conditions that can produce health behaviour changes. The use of educational practices as a strategy in the treatment of type 2 diabetes aims to improve patients' knowledge about their disease and treatment, as well as motivate and reinforce the importance of healthy lifestyles, improving the quality of life of diabetic patients: increasing their autonomy, enabling adherence and management of their disease. Educate diabetic patients will develop their chronic illness empowerment and will give them the ability to recognize the importance of adherence to the therapeutic regimen and control their disease.

Acknowledgements

We appreciate the support of the Foundation for Science and Technology (FCT - Portugal) and diabetic people by demonstrated interest in participating in the study.