

## TELEPHONE SUPPORT PROGRAM FOR MONITORING DIABETES MELLITUS: SATISFACTION AND GLYCEMIC CONTROL<sup>1</sup>

Gabriela Marsola Olivatto\*  
 Carla Regina de Souza Teixeira\*\*  
 Marta Cristiane Alves Pereira\*\*\*  
 Tânia Alves Canata Becker\*\*\*\*  
 Jennifer Vieira Paschoalin Marques\*\*\*\*\*  
 Paula Parisi Hodniki\*\*\*\*\*

### ABSTRACT

This study's aim was to identify the satisfaction and glycemic control of people with type 2 diabetes mellitus after participating in a monitoring program with telephone support, using the chronic care model. This is an observational and cross-sectional study. A questionnaire addressing sociodemographic variables and the clinical variable of glycated hemoglobin was applied, along with a satisfaction scale in two separate groups, one of which was also monitored by phone. The group who better managed glycated hemoglobin was the one monitored by phone and received diabetes support. Most patients reported satisfaction with incoming calls after receiving education by telephone, which corroborates evidence regarding the care and support provided to patients by health services using this technology in the treatment of diabetes.

**Keywords:** Diabetes mellitus. Telephone. Personal satisfaction.

### INTRODUCTION

*Diabetes Mellitus* (DM) is characterized by hyperglycemia that results from impaired insulin secretion, insulin action, or both<sup>(1)</sup>. DM is currently acknowledged as a public health problem, due to its prevalence and incidence, early mortality and costs involved in its management and treatment of complications<sup>(2)</sup>. The prevalence of DM has increased in recent years and it has become one of the most predominant chronic diseases worldwide. The factors that explain this predominance include increased life expectancy, which results in a growing elderly population, and changes in eating habits and lifestyle<sup>(2)</sup>.

The rapid growth in diabetes rates represents an important public health problem worldwide and estimates are that DM will affect 285 million adults around the globe, increasing to 438 million individuals up to 2030<sup>(3)</sup>.

Many individuals with DM2 have already developed or are at the risk of developing comorbidities, including DM-related complications and clinical conditions (e.g. heart disease, lipid disorders, nerve damage, hypertension and depression) and other medical problems with potential to interfere with self-care (e.g. emphysema, arthritis and alcoholism). Additionally, the diagnosis and the daily effort to manage the disease may emotionally impact those with DM2, making self-care even more difficult<sup>(4)</sup>.

The identification of the characteristics of these patients enables healthcare providers to customize education regarding DM2 and facilitates the selection of appropriate educational and behavioral interventions and strategies to support self-care, always based on evidence<sup>(5)</sup>. Providing self-care education is not an easy task because, in addition to professional competence, it also requires patients be interested and willing to learn. If the patient does

<sup>1</sup> In 2011, this project received funding from CNPq – National Council for Scientific and Technological Development – public notice MCT/CNPq/CTSAUDE/MS/SCTIE/DECIT No. 42/2010, titled “Intervenções para qualificar a atenção em diabetes mellitus” [Interventions to quality care provided to *diabetes mellitus*].

\* Senior undergraduate student, Undergraduate Nursing Program – Teaching and Bachelor's degree, EERP/USP, Ribeirão Preto, SP, Brazil.

Mailing address: Rua Fagundes Varella, 391, Vila Marcelino. CEP 13570-594. Mobile 55 16 99774-5007. E-mail: ibagabi@hotmail.com

\*\* Advisor. Associate Professor, Department of General and Specialized Nursing at EERP/USP, Ribeirão Preto, SP, Brazil. E-mail: carlarst@eerp.usp.br

\*\*\* Professor, Department of General and Specialized Nursing at EERP/USP, Ribeirão Preto, SP, Brazil. Email: martacris@eerp.usp.br

\*\*\*\* PhD in Sciences – Graduate Program in Fundamental Nursing at EERP/USP, Ribeirão Preto, SP, Brazil. Email: tania.becker@usp.br

\*\*\*\*\* MSc student – Graduate Program in Fundamental Nursing at EERP/USP, Ribeirão Preto, SP, Brazil. E-mail: jennifervpm@usp.br

\*\*\*\*\* MSc student – Graduate Program in Fundamental Nursing at EERP/USP, Ribeirão Preto, SP, Brazil. E-mail: paulaph@usp.br

not adhere to the educational practice and to treatment, self-care becomes difficult and eventually will negatively reflect on glycemic control<sup>(6)</sup>.

The nurse playing the role of educator and being a member of the multidisciplinary team, should have appropriate methodology and develop communication skills, discipline, creativity, respect, and have an ethical behavior to favor the care process, the transmission and communication of information, and the delivery of quality care to the population<sup>(7)</sup>.

An important aspect in the process of organizing healthcare services refers to the satisfaction of patients in regard to healthcare facilities. The satisfaction of patients can be defined as an assessment that would express attitudes and an affective response, based on the belief that care delivery has certain qualities that can be assessed by patients<sup>(8)</sup>.

Satisfaction can influence adherence to medication and non-medication treatment, which is essential in the care provided to DM patients. Therefore, understanding barriers and facilitators regarding “behavioral modifications” can support nursing interventions to promote or strengthen conditions that favor adherence<sup>(9)</sup>.

The satisfaction of patients is directly linked to the care provided and access facilitated in the entrance of healthcare services, thus, an organized, humanized, and individualized service accompanied by bonds established between community and staff make patients feel appreciated and satisfied, which in turn improve treatment adherence and lead to positive outcomes<sup>(10)</sup>.

Considering that patient satisfaction is a factor influencing treatment adherence<sup>(9)</sup> and also that the “Telephone Support Program for Monitoring People with Diabetes Mellitus Using the Chronic Care Model” (ATEMDIMEL) was implemented in Ribeirão Preto, SP, Brazil in 2013, this study’s objective was to identify the satisfaction and glycemic control of people with DM2, after their participation in the telephone support program.

## METHOD

This observational cross-sectional study used quantitative analysis of data. The population was composed of 61 individuals with DM2, who participated of the entire ATEMDIMEL program

implemented in the District Basic Health Unit in the West Sector of Ribeirão Preto in 2013. This is a pragmatic clinical trial intended to verify the effectiveness of interventions, telephone support and letter including the results of laboratory tests, on the metabolic control of people with DM cared for in the West District in the city of Ribeirão Preto, SP, Brazil. The participants were divided into two groups – G1 and G2. The G1 received weekly phone calls for four months and an educational plan established in an intervention manual previously developed by one of the authors. The G2 received regular care and a letter with the results from the laboratory exams. The results show that telephone support is an important tool to improve the care provided to individuals with chronic conditions, especially in regard to the metabolic control of individuals with DM2<sup>(11)</sup>. All the patients were invited to participate in the study with the following selection criteria: having a medical diagnosis of DM2, aged between 18 and 85 years old, both sexes, having a mobile and/or landline, and consenting to participate in the study. Two of 63 participants in the original study<sup>(11)</sup>, refused to take part in this study.

The individuals were divided into two groups: 34 were assigned to the intervention group (G1), in which telephone support was provided to self-monitoring and 27 individuals composed the control group (G2).

Two instruments were used to collect data. The first was a questionnaire addressing the participants’ characterization: I – sociodemographic data – sex: male and female; age was grouped into: 18 to 64 years old and 65 old or older; marital status: married or stable relationship, divorced, widowed or single; education: years of schooling: 1 to 4, 5 to 8 and  $\geq 9$  years; family income was divided in times minimum wage: up to three, four to nine, 10 or more times the minimum salary. Occupation: formally employed, informal job, retired, homemaker, and others; and metabolic control, classified as good when the glycated hemoglobin – HbA1C – was below 7,0%<sup>(12)</sup>. The second instrument was the Automated Telephone Disease Management Satisfaction Scale (ATDM) applied only to the intervention group. This scale is divided into three domains: how easily the call was completed, how useful it was,

and how intrusive it was. The scale was originally developed in English by Dr. John Piette and comprises 11 items classified in a five-points Likert scale: always (1), almost always (2), sometimes (3), rarely (4), and never (5)<sup>(13)</sup>. This scale was translated and adapted to the Brazilian culture in Ribeirão Preto, SP, Brazil<sup>(14)</sup>.

Data collection was conducted at two different points in time, from October to December 2013, before the intervention was initiated and after the patients participated in the four-month program. Those who met the inclusion criteria received clarification regarding the study's objectives and were invited to participate and signed free informed consent forms.

Data were typed twice in a database created in Microsoft Excel for future data analysis. SPSS version 17 was used for the descriptive and inferential analysis. The Student t-test was performed to compare two means from unpaired samples. This test is necessary to verify that the variances of two groups are not statistically equal at the 5% significance level and to verify whether data are normally distributed. PROC TTEST from SAS ® 9.0 was used to perform this procedure.

The project was submitted to and approved by the Institutional Review Board at the University of São Paulo at Ribeirão Preto, College of Nursing according to Resolution 196/96, Brazilian Council of Health (approval No. 216/2012).

## RESULTS AND DISCUSSION

A total of 61 individuals participated in the study: 34 composed the intervention group and 27 the control group. Age among the participants in the intervention group ranged from 47 and 82 years old, most individuals were women (59%). A total of 22 (65%) participants were married, 20 (59%) Catholic, 19 (56%) attended school for up to five years, 33 (97%) had an income of two times the minimum wage (minimum wage current at the time was R\$678.00) and 20 (59%) individuals were retired. Age in the control group ranged from 33 to 82 years old, 17 (63%)

were women, 19 (70%) married, 17 (63%) attended school for up to 5 years, 15 (55%) had an income of one time the minimum wage, and 11 (41%) were retired. These results were similar in both groups.

The prevalence of the female sex may be linked to a conception that men are invulnerable and the female sex is fragile, therefore, men do not focus on health preventive measures and for this reason, do not seek health services to receive care<sup>(15)</sup>.

In this study, 50% of the individuals of both sexes attended school up to five years, which shows a low level of education that compromises self-care. Therefore, this population requires efficient health delivery and healthcare providers need to promote a better understanding of recommendations and health education, developing strategies that encourage effective self-care<sup>(16)</sup>.

In regard to the glycated hemoglobin, Table 1 shows the means of tests for the groups before and after the intervention. It is known that HbA1C is essential to assess how effective DM2 control is and to assess the risk for chronic complications caused by this pathology. Levels of A1C above 7% in adults are already associated with a progressive risk for chronic complications<sup>(12)</sup>.

Table 1 shows a slight improvement in the HbA1C mean of the intervention group. The mean, which was initially 9.31, dropped to 8.85 after the intervention. In the control group, however, the result was the opposite, the HbA1C mean for this group showed an upward tendency.

A difference of 0.4618 was found for the intervention group with a p-value of 0.26, which despite lack of statistical significance, suggests that improvement was obtained in the glycated hemoglobin, that is, HbA1C levels dropped. In turn, a difference of -0.5407 was found for the control group with a p-value of 0.24. Even though, this result is not statistically significant, comparison between the means collected at the beginning and at the end of data collection shows worsened glycated hemoglobin control.

**Table 1.** Descriptive analysis of glycated hemoglobin obtained by intervention and control groups (ATEMDIMEL). Ribeirão Preto, SP, Brazil 2013

Comparison between groups	Glycated hemoglobin A1C				
	Mean (sd)*	CI 95%**		p-value	Estimated difference
<b>Intervention n(34)</b>	Before 9.31 (2.17) After 8.85 (0.67)	-0.3553	1.2789	0.2643	0.4618
<b>Control n(27)</b>	Before 8.01 (1.87) After 8.55 (1.78)	-1.4577	0.3762	0.2442	-0.5407

\*sd: standard deviation; \*\*CI 95%: confidence interval of 95%.

The boxplot shown in Figure 1 indicates a drop in the median glycated hemoglobin in the intervention group and in the pre- and post-intervention quartiles, meaning that even extreme values of glycated hemoglobin improved. The control group, however, clearly shows an increased median of glycated hemoglobin at the beginning, during and at the end of data collection. A displacement is also observed in the first and third quartiles, indicating a general increase in the mean of glycated hemoglobin for this group.

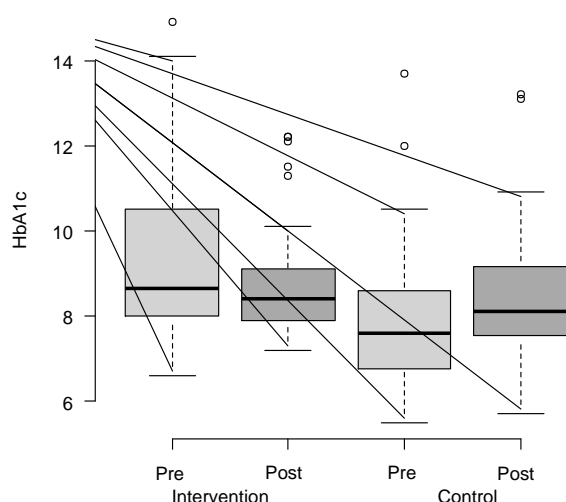
**Figure 1.** Boxplot of glycated hemoglobin obtained by the intervention and control groups, ATEMDIMEL. Ribeirão Preto, SP, Brazil 2013

Figure 1 shows that the patients in the intervention group presented improved control of glycated hemoglobin and as a result, may have experienced improved health. Hence, the use of telephone as an intrinsic tool in the care of patients with DM2 is viable to promote improved quality of care by rapidly and efficiently clarifying doubts of patients without

necessarily requiring them to visit the healthcare service<sup>(17)</sup>.

A study addressing educational interventions using telephone calls to monitor self-care, symptoms and satisfaction of patients in regard to care as a strategy to promote self-care among individuals with DM2, also reports significant decrease in the HbA1c levels<sup>(18)</sup>. An integrative review assessing nine different studies concluded that HbA1c levels often drop significantly after telephone follow-ups<sup>(19)</sup>. The use of telephone in the care provided to patients with DM stands out due to its results as a viable strategy to approximate health services and healthcare providers to patients with DM<sup>(20)</sup>, thus, favoring improved glycemic control.

In regard to the ATDM Satisfaction Scale applied in the intervention group, questions were divided into three main domains. The first domain refers to how easy calls were completed. In its first item, addressing the interviewees' level of comprehension, most (94%) reported that language was easy to understand. In regard to the volume of the sound used in the calls, 94% of the individuals reported no difficulties to hear the conversation. In regard to information provided, 85% of the individuals reported that information was never transmitted in a hurry. In regard to how difficult it was to answer questions by telephone, 82% reported they never had this type of problem during the intervention as shown in Table 2.

The second domain, how useful the call was, shows that most individuals (94%) felt reassured that the nurse was aware of how they were doing. A total of 28 (82%) participants reported they learned new things regarding self-care and 82% also reported that the calls helped them to recall some procedures such as checking blood glucose or eating healthy food, as shown in Table 3.

In regard to the third domain, how intrusive the call was, all the 34 patients reported the calls were always interesting and they always enjoyed receiving the calls. When asked whether the calls

bothered them, all the participants reported the calls were never inconvenient. In regard to the duration of calls, the 34 individuals reported it was always adequate, as shown in Table 4.

**Table 2.** Numerical (n) and percentage (%) distribution of the individuals in the intervention group ATEM DIMEL, according to the items in the Satisfaction Scale ATDM, according to the domain “how easily the calls were completed”. Ribeirão Preto, SP, Brazil 2013.

How easily the calls were completed	1 - always	2 – almost always	3 - sometimes	4 - rarely	5 - never
1- Was the language used during calls easy to understand?	32 (94%)	2 (6%)	0	0	0
2- Was the sound sufficiently loud for you to listen without difficulty?	32 (94%)	1 (3%)	1 (3%)	0	0
3- Was information ever transmitted too quickly?	2 (6%)	1 (3%)	1 (3%)	1 (3%)	29 (85%)
4- Did you find it difficult to answer the questions by telephone?	1 (3%)	1 (3%)	3 (9%)	1 (3%)	28 (82%)

**Table 3.** Numerical (n) and percentage (%) distribution of the individuals in the intervention group ATEM DIMEL, according to the items in the Satisfaction Scale ATDM according to the domain “how useful the call was”. Ribeirão Preto, SP, Brazil 2013

How useful the call was	1 - always	2 – almost always	3 - sometimes	4 - rarely	5 - never
5- Did the calls reassured you that the nurse knew how you were doing?	32 (94%)	1 (3%)	0	0	1 (3%)
6- Did you learn anything new about self-care in these calls?	28 (82%)	1 (3%)	1 (3%)	2 (6%)	2 (6%)
7- Did the calls remind you the need of doing something such as checking your blood sugar or eating healthy?	28 (82%)	1 (3%)	2 (6%)	1 (3%)	2 (6%)

**Table 4.** Numerical (n) and percentage (%) distribution of the individuals in the intervention group ATEM DIMEL, according to the items in the Satisfaction Scale ATDM, according to the domain “how intrusive the call was”. Ribeirão Preto, SP, Brazil 2013.

How intrusive the call was	1 - always	2 – almost always	3 - sometimes	4 - rarely	5 - never
8- Did you find the calls interesting?	34 (100%)	0	0	0	0
9- Did you like receiving the calls?	34 (100%)	0	0	0	0
10- Did you find the calls inconvenient?	0	0	0	0	34 (100%)
11- Do you think the duration of calls was adequate?	34 (100%)	0	0	0	0

Studies of this nature help understanding the factors related to the satisfaction of patients with DM2 and relate to improved clinical conditions because a patient satisfied with his/her treatment and with the education provided is consistent with the nurses' good clinical practice and education and also with health outcomes, as this study's results reveal<sup>(16)</sup>.

Nursing practice associated with the use of telephone as a resource to provide continuous

education, can promote significant changes in the patients' ability to adapt to this health condition, highlighting the importance of technical and clinical knowledge in nursing interventions<sup>(18)</sup>. Therefore, the individuals who received the calls were very satisfied and presented improved HbA1c, which shows the importance of this strategy as educational support in the care provided to diabetes patients and that it can be useful in interventions in the field of health.

No limitations were identified during this study.

## CONCLUSION

The satisfaction of individuals with DM2 in regard to care delivery after taking part of an educational program implemented by telephone is slightly related to improved glycemic control, though no statistically significance was found.

Assessing the satisfaction of patients after an educational process is consistent with evidence from both clinical practice and from

the literature in regard to care and attention patients receive and the improvement healthcare providers perceive both in the service provided and in regard to the continuity of care.

It is believed that telephone support can be a strategy used to favor the treatment and counseling of patients with DM2, enabling them to be closely monitored in order to prevent chronic complications and promote health, which contributes to self-care and decision-making that favor patients' quality of life.

---

## PROGRAMA DE APOIO TELEFÔNICO PARA O MONITORAMENTO DO *DIABETES MELLITUS*: SATISFAÇÃO E CONTROLE GLICÊMICO

### RESUMO

Pretendeu-se, com este estudo, identificar a satisfação e controle glicêmico das pessoas com *diabetes mellitus* tipo 2, após a participação em um programa de monitoramento com suporte telefônico, utilizando o modelo de cuidado crônico. Trata-se de estudo do tipo observacional e transversal. Para a obtenção dos dados, foi utilizado um questionário contendo variáveis sociodemográficas, variável clínica da hemoglobina glicada e uma escala de satisfação, com dois grupos distintos, um monitorizado por telefone e outro não. O grupo que obteve o melhor controle da hemoglobina glicada foi aquele em que houve apoio e acompanhamento telefônico para o monitoramento do diabetes. A maioria dos pacientes mostrou-se satisfeita com as ligações recebidas, após um processo educativo por telefone, o que corrobora evidências como o cuidado e acolhimento que o usuário recebe do serviço de saúde para o uso dessa tecnologia em diabetes.

**Palavras-chave:** *Diabetes mellitus*. Telefone. Satisfação pessoal.

---

## PROGRAMA DE APOYO TELEFÓNICO PARA EL MONITOREO DEL *DIABETES MELLITUS*: SATISFACCIÓN Y CONTROL GLUCÉMICO

### RESUMEN

El objetivo de este estudio fue identificar la satisfacción y el control glucémico de las personas con diabetes *mellitus* tipo 2, tras la participación en un programa de monitoreo con soporte telefónico, utilizando el modelo de cuidado crónico. Se trata de un estudio del tipo observacional y transversal. Para la obtención de los datos fue utilizado un cuestionario conteniendo variables sociodemográficas, variable clínica de la hemoglobina glucosilada y una escala de satisfacción, con dos grupos distintos, uno monitorizado por teléfono y el otro no. El grupo que obtuvo el mejor control de la hemoglobina glucosilada fue aquel en el cual hubo apoyo y acompañamiento telefónico para el monitoreo de la diabetes. Tras un proceso educativo por teléfono, la mayoría de los pacientes se mostró satisfecha con las llamadas recibidas, lo que corrobora evidencias tales como el cuidado y la acogida que el usuario recibe del servicio de salud para el uso de esta tecnología en diabetes.

**Palabras clave:** *Diabetes mellitus*. Teléfono. Satisfacción personal.

---

## REFERENCES

1. American Diabetes Association - ADA. Diagnosis and Classification of Diabetes Mellitus. *Diabetes Care*. 2014 jan; 37:S14-S80.
2. World Health Organization (WHO). Global status report on non communicable diseases. 2011 apr.
3. Shaw JE, Sicree RA, Zimmet PZ. Global estimates of the prevalence of diabetes for 2010 and 2030. *Diabetes Res Clin Pract*. 2010 nov; 87:S4-14.
4. Peyrot M, Rubin RR, Funnell MM, Siminerio LM. Access to diabetes self-management education: results of national surveys of patients, educators, and physicians. *Diabetes Educator*. 2009 Mar/Apr; 35(2):246-263.
5. Funnell MM, Anderson RM, Austin A, Gillespie SJ. Individualization of diabetes self-management education. American Association of Diabetes Educators-AADE. *Diabetes Educator*. 2007 Jan/Feb; 33(1):45-49.
6. Pereira FRL, Torres HC, Cândido NA, Alexandre LR. Promovendo o autocuidado em diabetes na educação individual e em grupo. *Cienc Cuid Saúde*. 2009 out/dez; 8(4):594-599.
7. Rodriguez P, Godoy MC, Mazzo S, Nogueira A, Trevisan PC, Mendes MA, et al. Cuidado com os pés diabéticos antes e após intervenção educativa. *Enfermaria Global*. 2013 jan; (29):53-62.

8. Hollanda E, Siqueira SAVD, Andrade GRBD, Molinaro A, Vaitsman J. Satisfação e responsividade em serviços de atenção à saúde da Fundação Oswaldo Cruz. *Ciênc Saúde Coletiva*, 2012; 17(12):3343-52.
9. Gomes-Villas Boas LC, Foss MC, Freitas MCF, Pace AE. Relação entre apoio social, adesão aos tratamentos e controle metabólico de pessoas com diabetes mellitus. *Rev. Latino-Am. Enfermagem*. 2012; 20(1):52-58.
10. Fontenele AMM, Alves SMA, Câmara JT. Avaliação do programa nacional de atenção à hipertensão e diabetes: satisfação dos usuários de uma unidade básica de saúde em Caxias-MA. *Cad Pesq*. 2012 jan/abr; 19(1):81-87.
11. Becker TAC. O uso do suporte telefônico no controle metabólico de pessoas com diabetes mellitus no Distrito Oeste de Saúde do município de Ribeirão Preto - SP. 2014. Tese (Doutorado em Enfermagem Fundamental), Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo, Ribeirão Preto; 2014.
12. Sociedade Brasileira de Diabetes – SBD. Diretrizes da Sociedade Brasileira de Diabetes: métodos para avaliação do controle glicêmico. São Paulo; 2014.
13. Piette JD. Satisfaction with automated telephone disease management calls and its relationship to their use. *Diabetes Educator*. 2000 nov/dec; 26(6):1003-10.
14. Balamint T, Landim CAP, Becker TAC, Santos ECB, Olivatto GM, Zanetti ML, et al. Adaptação cultural e confiabilidade para o Brasil do Automated Telephone Disease Management: resultados preliminares. *Acta paul enferm*. 2012 out; 25(5):795-801.
15. Alves, TOS et al. Health-related quality of life of people with Diabetes Mellitus. *Revista Mineira de Enfermagem*, 2013 jan/mar; 17(1):135-140
16. Landim CA, Zanetti ML, Santos MA, Andrade TA, Teixeira CR. Self-care competence in the case of Brazilian patients with diabetes mellitus in a multiprofessional educational programme. *J Clin Nurs*. 2011 Dec; 20(23):S3394-403.
17. Becker TAC, Teixeira CRS, Zanetti ML. Nursing intervention in insulin administration: telephone follow-up. *Acta paul. enferm*. 2012 Sup1; 25(1):67-73.
18. Sumita NM, Andriolo A. Importância da hemoglobina glicada no controle do diabetes mellitus e na avaliação de risco das complicações crônicas. *J Bras Patol*. 2008 jun; 44(3):169-74.
19. Vasconcelos HCA, Freitas RWJF, Marinho NBP, Damasceno MMC, Araújo TL, Lima FET. Eficácia de intervenções que utilizam o telefone como estratégia para o controle glicêmico: revisão integrativa da literatura. *Texto Contexto Enferm*. 2013 jan/mar; 22(1):239-46.
20. Piette JD, Weinberger M, Kraemer FB, Mcphee SJ. Impact of automated calls with nurse follow-up on diabetes treatment outcomes in a Department of Veterans Affairs Health Care System: a randomized controlled trial. *Diabetes Care*. 2001 feb; 24(2):202-08.

---

**Corresponding author:** Gabriela Marsola Olivatt. Rua Fagundes Varela, 391, Vila Marcelino. CEP 13570-594. Ribeirão Preto, São Paulao, Brasil. Telefone (16) 99774-5007. E-mail: ibagabi@hotmail.com

**Submitted:** 27/01/2015

**Accepted:** 22/02/2016