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PERCEPTION OF SOCIAL SUPPORT OF ADULTS WITH TYPE 2 DIABETES *MELLITUS* IN PRIMARY CARE: CROSS-SECTIONAL STUDY

PERCEPÇÃO DO APOIO SOCIAL DE ADULTOS COM DIABETES *MELLITUS* TIPO 2 DA ATENÇÃO PRIMÁRIA: ESTUDO TRANSVERSAL

PERCEPCIÓN DEL APOYO SOCIAL DE ADULTOS CON DIABETES *MELLITUS* TIPO 2 DE LA ATENCIÓN PRIMARIA: ESTUDIO TRANSVERSAL

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Objective: to identify the perception of social support of adults with type 2 diabetes *mellitus* registered in primary health care. Method: observational, descriptive, cross-sectional study with 169 adults diagnosed with type 2 diabetes *mellitus* from six primary health care units in the metropolitan region of Curitiba, Paraná, Brazil. Data collection took place from July 2023 to March 2024. A sociodemographic and clinical questionnaire and the Medical Outcomes Study - Social Support Scale were used. Data were analyzed by frequencies, central trend, Cronbach's alpha and 95% confidence interval. Results: female predominance (58%) and married status (75.1%). The highest mean of social support perception was in the affective dimension (3.51±0.85), followed by material (3.12±1.10), positive social interaction (3.04±1.09) and emotional/informational (2.98±0.85). Conclusion: the participants felt loved by close people, but rarely shared their worries, fears and moments to relax.

Descriptors: Diabetes Mellitus, Type 2. Social Support. Nursing. Primary Health Care. Adult.

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Objetivo: identificar a percepção do apoio social de adultos com diabetes mellitus tipo 2 cadastrados na Atenção Primária à Saúde. Método: estudo observacional, descritivo, transversal, com 169 adultos diagnosticados com diabetes mellitus tipo 2, de seis unidades básicas de saúde da Região Metropolitana de Curitiba, Paraná, Brasil. A coleta de dados ocorreu de julho de 2023 a março de 2024. Utilizou-se questionário sociodemográfico e clínico e a Medical Outcomes Study - Social Support Scale. Analisou-se os dados por frequências, tendência central, alfa de Cronbach e Intervalo de Confiança de 95%. Resultados: predomínio do sexo feminino (58%) e estado conjugal casado (75,1%). A maior média da percepção do apoio social foi na dimensão afetiva (3,51±0,85), seguida do material (3,12±1,10), interação social positiva (3,04±1,09) e emocional/informacional (2,98±0,85). Conclusão: identificou-se que os participantes se sentiam amados e queridos pelas pessoas próximas, porém raramente compartilhavam suas preocupações, medos e momentos para relaxar.

Descritores: Diabetes Mellitus Tipo 2. Apoio Social. Enfermagem. Atenção Primária à Saúde. Adulto.

Objetivo: identificar la percepción del apoyo social de adultos con diabetes mellitus tipo 2 inscritos en la Atención Primaria de Salud. Método: estudio observacional, descriptivo, transversal, con 169 adultos diagnosticados con diabetes mellitus tipo 2, de seis unidades básicas de salud de la Región Metropolitana de Curitiba, Paraná, Brasil. La recolección de datos se llevó a cabo desde julio de 2023 hasta marzo de 2024. Se utilizó un cuestionario sociodemográfico y clínico y el Medical Outcomes Study - Social Support Scale. Se analizaron los datos por frecuencias, tendencia central, alfa de Cronbach e intervalo de confianza del 95%. Resultados: predominio del sexo femenino (58%) y estado conyugal casado (75,1%). La mayor media de percepción del apoyo social fue en la dimensión afectiva (3,51 0,85), seguida por el material (3,12 1,10), interacción social positiva (3,04 1,09) y emocional/informacional (2,98 0,85). Conclusión: se identificó que los participantes se sentían amados y queridos por las personas cercanas, pero rara vez compartían sus preocupaciones, miedos y momentos para relajarse.

Descriptores: Diabetes Mellitus Tipo 2. Apoyo Social. Enfermería. Atención Primaria de Salud. Adulto.

Introduction

Type 2 diabetes *mellitus* (T2DM) is the most common form of metabolic syndrome, accounting for about 90-95% of cases[1]. It occurs mainly in the age group between 40 and 59 years old, and the increase in incidence is largely related to the interaction between socioeconomic, demographic, environmental and genetic factors[2].

Due to its asymptomatic nature, T2DM is often diagnosed when complications arise[3]. However, these can be prevented or mitigated when there is early diagnosis and appropriate treatment. This includes drug therapy and lifestyle changes, such as weight control, physical activity and healthy eating[4].

The maintenance of the new lifestyle can be challenging, considering that old behaviors can be resumed, causing uncontrolled glycemic rates and increased risk for complications of T2DM. In this context, the social support (SS) provided by health professionals and people close to them becomes a promising strategy that can help in the continuity of treatment and in the prevention of diseases[5].

The SS is defined as a network of care coming from close people, such as family members or health professionals, who provide knowledge and affections that contribute to learning and self-esteem, influencing adherence to treatment and maintenance of social interaction[6]. The SS acts as a psychological element, facilitating individual reactions and reducing negative feelings towards the psychosocial challenges faced in chronic illness, contributing to physical and mental health[7].

Therefore, the SS is recognized as an essential element for the integrality of care to people with T2DM, by offering hospitality in the face of the adversities of the disease and promoting changes in lifestyle[8]. It should be noted that SS is closely related to the development of skills for self-management of chronic diseases[9] and health literacy[10], which consolidate decision-making autonomy in the face of health conditions and treatment for the control of T2DM.

In a previous study with 33 adults diagnosed with T2DM, registered in the Primary Health Care (PHC) of a metropolitan region in southern Brazil, the Eight-Item Health Literacy Assessment Tool (HLAT-8) was applied to measure health literacy. The scale includes, among its structural

factors, questions related to social interaction that evaluate the informational help received and provided by family members and friends. The results showed high averages of social interaction, indicating that, from time to time or often, participants relied on the help of close people to provide advice or information about health, although they presented lack of control of the disease, characterized by increased levels of glycated hemoglobin (HbA1c ≥ 7%) and/or fasting blood glucose (≥ 126 mg/dL)[11].

Although HLAT-8 denotes the structural factor as social interaction, it is understood that the questions also cover the SS, since they refer to the receipt and provision of health information. Thus, it was considered necessary to carry out this study in order to know the perceptions related to SS, opting for the application of the Medical Outcomes Study – Social Support Scale (MOS-SSS), which has four dimensions: material, affective, emotional/informational and positive social interaction[12-13]. Given the above, the objective of this study was to identify the perception of social support of adults with type 2 diabetes *mellitus* registered in Primary Health Care.

Method

This is an observational, descriptive and cross-sectional study in the context of PHC from the metropolitan region of Curitiba, Paraná, Brazil. To describe the essential items of observational studies, we followed the recommendations of the guidelines of the Strengthening the Reporting of Observational Studies in Epidemiology (Strobe).

The research site was among the eight most populous cities in the state, with approximately 232,200 inhabitants. In the health sector, there were 35 services linked to the Unified Health System (UHS), with 25 Basic Health Units (BHU) distributed in 3 health districts.

The study population consisted of adults with a medical diagnosis of T2DM, registered in BHU. In 2021, there were about 11.2 thousand users diagnosed with the disease, registered in the Hypertension and Diabetes *Mellitus* (DM) Program (Hiperdia) of the Ministry of Health. Of these, 2,200 were followed-up by the teams of the 6 BHU drawn for this research, which represent 25% of municipal services in this segment, being 2 from each health district.

The inclusion criteria established were: users aged between 18 and 65 years diagnosed with T2DM and registered in the Hiperdia Program. The exclusion criteria applied were: cognitive and/or communication comorbidities described in the electronic chart.

For the sample calculation, the score on the MOS-SSS scale was considered as the main measure, whose expected standard deviation (SD) is 1.00, which represents 25% of the range of the scale. The precision for estimating the mean was set at 0.15. Thus, the minimum sample calculated was 169 participants.

The recruitment used lists provided by the BHU coordination, and a draw was made to make the sample random. Subsequently, the medical records were accessed to obtain telephone contacts and to verify eligibility criteria. After verification, telephone calls were made to the people on the list, following the order given by the draw. It should be noted that, on average, three calls were made, which occurred on different days and times. For those who had WhatsApp® messaging app, a standard text message was forwarded.

For those who answered the calls and text messages, the study proposal was presented and questions were clarified, with dates and times available for nursing consultation at home or in the BHU, according to preference. To those who did not attend the consultation, new contacts were made, questioning them about the interest of participating in the study and a new date was rescheduled.

The data collection occurred during the nursing consultation, in the months of July 2023 to March 2024, and was carried out by the main researcher together with nursing students previously trained and linked to the program of scientific initiation and university extension of public higher education institution in the state of Paraná. The sociodemographic and clinical questionnaire was applied with self-declared

variables of sex, age, marital status, number of people living in the household, schooling time, number of children, time of diagnosis of the disease and family income. The variables of Hb1Ac and fasting glycaemia were collected in the participants' medical records, being valid until the year before data collection.

The measurement of the perception of SS occurred by the application of MOS-SSS translated and adapted transculturally for Brazil[12]. This scale comprises 19 questions - divided into four dimensions: material support (questions 1 to 4), affective support (questions 5 to 7), emotional/ informational support (questions 8 to 15) and positive social interaction (questions 16 to 19) - and is available for public use. Its application comes after the initial instruction – "If you need, how often do you have someone..." – with the option to mark one of the five answers of the Likert scale, which is associated with scores from zero to four points: 0 (never), 1 (rarely), 2 (sometimes), 3 (almost always) and 4 (always) [12-13]. It is noteworthy that the scale was self-applied, but for participants with low vision and reading difficulties, the application occurred in the oral form.

The score obtained in each item and dimension of MOS-SSS was added. In the classification of material support perception, it was considered as low (≤ 6), average (7 to 13) and high (≥ 14); low emotional support perception (≤ 4), average (5 to 10) and high (≥ 11); low emotional/ informational support perception (≤ 12), average (13 to 28) and high (≥ 29); and the low positive social interaction (≤ 6), average (7 to 13) and high (≥ 14)[12-13]. In addition to the measurement on a categorical scale, the numerical scale was also used, showing the average and SD of each item and dimension. The results were presented as a point and estimated measure, with a 95% confidence interval (CI).

The data were typed in Microsoft Excel 365® spreadsheets by two independent researchers, and compared by a statistical professional. To assist the analysis, the IBM® Statistical Package for the Social Sciences (SPSS) v.29.0.0 Computational Program was used. The nominal variables sex (male / female) and marital status (single / married or consensual union / separated or divorced / widowed) were presented by simple (n) and relative (%)frequency.

The continuous quantitative variables were categorized into age (40-59 and 60-65 years), number of residents in the household (1 / 2 - 3 / 4 - 5 / > 5), number of children (no children / 1 - 3 / > 3), family income (> 1,320 / 1,320 - 3,960 / > 3,960 BRL/month), time of T2DM diagnosis (< 1 / 1 - 5 / 6 - 10 / > 10 years), HbA1c (< 7% and ≥ 7%) and fasting blood sugar (≤ 130mg/dL and > 130mg/dL). These variables were analyzed by simple and relative frequency, and central trend – mean and standard deviation (SD). For family income, the value of the Brazilian minimum wage was considered at the beginning of data collection. It should be noted that one of the participants did not know or did not want to inform this datum. For the variables of HbA1c and fasting glycaemia, the examinations of 165 participants were counted.

To evaluate the internal consistency of MOS-SSS for adults with T2DM, Cronbach's alpha coefficients (α) were calculated. This coefficient measures the reliability of a questionnaire, with values ranging from 0 to 1. To be considered reliable, the minimum acceptable value is 0.7. Values greater than 0.9 indicate redundancy, suggesting that items may be measuring the same concept. Thus, the optimum reliability range is between 0.8 and 0.9.

The study was approved by the Research Ethics Committee of the Federal University of Paraná under Opinion n. 6.138.731 and Certificate of Presentation of Ethical Appreciation (CAAE) 68471723.6.0000.0102. The ethical guidelines of Resolution no 466, of 12 December 2012, of the National Health Council were followed.

Results

There was a predominance of female participants (n=98; 58%), married or in a consensual union (n=127; 75.1%), with low schooling (n=63; 37.3%), family income between one and three monthly minimum wages (n=78;

46.4%) and diagnosis of T2DM for more than 10 years (n=79; 46.7%). Table 1 shows the sociodemographic and clinical characteristics of the participants.

Table 1 – Characterization of adults with type 2 diabetes mellitus, according to sociodemographic and clinical aspects. Metropolitan Region of Curitiba, Paraná, Brazil – 2023-2024. (N=169)

Variable	n	%	Mean ± Standard Deviation
Age (years)			56.5 ± 6.2
40 - 59	106	62.7	
60 - 65	63	37.3	
Sex			
Female	98	58.0	
Male	71	42.0	
Marital status			
Single	15	8.9	
Married/Consensual union	127	75.1	
Separated/divorced	19	11.2	
Widowed	8	4.7	
Number of people living in the house			2.8 ± 1.4
1	23	13.6	
2 - 3	110	65.1	
4 - 5	26	15.4	
> 5	10	5.9	
Education (years)			7.6 ± 4.7
Illiterate	10	5.9	
≤ 5 years	63	37.3	
6 - 9 years	33	19.5	
10 - 12 years	41	24.3	
> 12 years	22	13.0	
Number of children			2.6 ± 1.6
No children	13	7.7	
1 - 3	113	66.9	
> 3	43	25.4	
Family income (BRL)			4032 ± 3021
< 1.320 (1)	17	10.1	
1.320 - 3.960	78	46.4	
> 3.960	73	43.5	
Time of diagnosis of T2DM			11.8 ± 8.6
< 1 year	1	0.6	
1 - 5 years	48	28.4	
6 - 10 years	41	24.3	
> 10 years	79	46.7	
HbA1c (%)			8.7 ± 2.1
< 7	35	21.2	
≥ 7	130	78.8	
Fasting glycaemia (mg/dL)			173.6 ± 81.7
≤ 130	60	36.4	
> 130	105	63.3	

Source: created by the authors.

(1) Minimum wage value for mid-2023.

Table 2 shows the frequency distribution of participants' classification of SS perception.

Table 2 – Distribution of levels of perception of social support among adults with type 2 diabetes *mellitus*. Metropolitan Region of Curitiba, Paraná, Brazil – 2023-2024. (N=169)

MOS-SSS Dimensions	n	%	95% Confidence Interval
Perception of material support			
Low	22	13.0	7.9; 18.1
Average	54	31.9	24.9; 39.0
High	93	55.0	47.5; 62.5
Perception of emotional support			
Low	13	7.7	3.7; 11.7
Average	39	23.0	16.7; 29.4
High	117	69.2	62.3; 76.2
Perception of emotional / informational support			
Low	20	11.8	7.0; 16.7
Average	86	50.8	43.3; 58.4
High	63	37.3	30.0; 44.6
Perception of positive social interaction			
Low	20	12.4	7.0; 16.8
Average	60	35.5	28.5; 43.0
High	88	52.0	44.8; 59.9

Source: created by the authors.

There was a high perception of affective support (3.51 ± 0.85) and average emotional/ informational support (2.98 ± 1.02) of adults with T2DM. In relation to the questions of MOS-SSS, higher averages were found in the questions related to receiving love and affection (3.56 ± 0.89) and about feeling loved by people around them (3.54 ± 0.94). The questions that obtained the lowest averages were related to have someone to relax (2.76 ± 1.35) and share

the worries and fears more intimate (2.84 ± 1.39). The distribution of the means and SD of the questions of the MOS-SSS and the Cronbach's alpha of the dimensions are in Table 3.

Table 3 – Measure of central tendency and dispersion of data obtained in the Medical Outcomes Study - Support Social Scale by adults with type 2 diabetes mellitus and reliability values of the scale dimensions. Metropolitan Region of Curitiba, Paraná, Brazil - 2023-2024. (N=169)

MOS-SSS Questions	Mean ± Standard Deviation (95% Confidence Interval)	Cronbach's alpha
Material Support	3.12 ± 1.10 (2.95; 3.28)	0.88
1. Is there someone to help you if you are bedridden?	3.20 ± 1.21 (3.02; 3.39)	
2. Is there someone to take you to the doctor?	3.10 ± 1.36 (2.89; 3.31)	
3. Is there someone to help you with daily tasks if you are sick?	3.02 ± 1.23 (2.84; 3.32)	
4. Is there someone to prepare your meals if you are unable to prepare them yourself?	3.13 ± 1.29 (2.93; 3.33)	
Affective Support	3.51 ± 0.85 (3.38; 3.64)	0.87
5. Is there someone who shows you love and affection?	3.56 ± 0.89 (3.43; 3.70)	
6. Is there someone who gives you a hug?	3.41 ± 1.00 (3.26; 3.57)	
7. Is there someone who you love and makes you feel loved?	3.54 ± 0.94 (3.40; 3.69)	
Emotional / Informational Support	2.98 ± 1.02 (2.82; 3.13)	0.93
8. Is there someone to listen to you when you need to talk?	3.04 ± 1.20 (2.86; 3.22)	
9. Is there someone you can trust to talk about yourself or your problems?	3.09 ± 1.17 (2.92; 3.27)	
10. Is there someone to share your innermost worries and fears with?	2.84 ± 1.39 (2.63; 3.05)	
11. Is there someone who understands your problems?	2.97 ± 1.23 (2.78; 3.16)	
12. Is there someone to give you good advice in a crisis situation?	3.07 ± 1.16 (2.90; 3.25)	
13. Is there someone to give you information that will help you understand a particular situation?	3.02 ± 1.10 (2.86; 3.19)	
14. Is there someone you really want advice from?	2.88 ± 1.33 (2.68; 3.09)	
15. Is there someone to give you suggestions on how to deal with a personal problem?	2.90 ± 1.29 (2.71; 3.10)	
Positive Social Interaction	3.04 ± 1.09 (2.88; 3.21)	0.93
16. Is there someone to do fun things with?	3.20 ± 1.13 (3.04; 3.38)	
17. Is there someone to take your mind off things with?	3.10 ± 1.16 (2.92; 3.28)	
18. Is there someone to relax with?	2.76 ± 1.35 (2.56; 2.97)	
19. Is there someone to have fun with?	3.09 ± 1.19 (2.91; 3.28)	

Source: created by the authors.

Discussion

It was identified that the participants, predominantly female, were married or in a consensual union, and had high levels of perception of affective SS, which obtained higher average and lower SD. These findings are consistent with the results of a Brazilian survey with 160 participants with T2DM, in which there was a higher concentration of women and a higher average of affective SS[14], diverging from a survey conducted in South Korea with 240 participants, aged > 65 years, with predominance of males and lower perception in the affective dimension of MOS-SSS[15].

Affective SS refers to the perception of love, affection and affection that a person receives, and is related to the feeling of being loved and cared for by people around them[16]. With the findings of this study, it is believed that the affective dimension obtained the highest average of the scale due to the predominance of participants married or in consensual union, and who had children, who always or almost always showed

affection, through hugs and actions that allowed people with T2DM to feel loved.

In the same direction, it is considered that the concentration of participants with a nuclear family composed of up to three people and with family income between one and three minimum wages may have resulted in the perception of material AS in the background. This type of SS is defined as the practical and material assistance received, such as financial aid or support to perform daily tasks[16]. The findings of this research allowed us to conclude that the high perception of affective and material SS did not influence the control of T2DM, since the mean HbA1c and fasting glycaemia were high.

Studies reinforce the importance of the active involvement of family members in health care and DM control[17], however, there is a need for their participation in educational activities and therapeutic decisions, so that there is a better result in the treatment and in the reduction of the risk of complications[18]. Mexican study with 126 people revealed that the material dimension had a negative effect on self-management of DM, especially those who needed other people to prepare their meals, causing failures in the nutritional recommendations for disease control[19].

The SS coming from relatives tends to focus on physical gestures and basic orientations, such as dietary maintenance and assistance in drug administration, however, there is a gap in emotional support and active listening[20]. Similar conditions were found in this study, when the participants stated that although they felt loved and supported by the help of others, they had needs for understanding, active listening and advice from people close to them.

The emotional/informational SS, in this study, obtained the lowest average of the dimensions of MOS-SSS, pointing out that rarely or sometimes adults with T2DM counted on someone to support them, especially for hearing them, understanding them and providing information and/or guidance that would help them in certain situations. This can be observed by the lower averages of questions regarding sharing more intimate fears, understanding problems, helping with suggestions on how to deal with a personal problem and about someone to give advice. This result also suggests the lack of depth in SS aligned with the idea that, despite good intention, the support offered by people around did not always meet emotional and informational needs.

Although the SS acts as a moderator element, which helps to minimize the negative impact of anxiety, providing conditions for resilience in the face of bad weather T2DM[21], in coping with suffering and in the development of self-management skill[22], it was found in this study that rarely the suffering of living with the disease was shared, although a large portion of the participants had more than 10 years of diagnosis. In this context, it can be inferred that, over time, the disease becomes part of everyday life, being naturalized by the person and family members, a factor that may contribute to the difficulty of managing T2DM, increasing the risk of complications.

It is emphasized that this study used the proposal of standardization of MOS-SSS that combined the emotional and informational dimensions[13], and the low level of education of the participants should be considered, since the information and guidance provided may not be coded due to the type of approach used. This is mainly for health professionals who sometimes use technical vocabulary and plan care focused on the disease and not on the person.

In this aspect, qualitative research called "I wish my health professionals understood that it's not just all about your HbA1c", conducted in Australia with 1,316 participants, explored people's feelings about the behavior of health professionals, indicating the discontent of judgments, assumptions, negative perspectives and impositions on changes in habit. Participants wished that professionals better understand the social and emotional impact caused by chronic illness[23].

Health professionals, when planning care and guidance for people with DM, should consider the emotional burden of living and managing the disease[24]. Thus, when analyzing the dimension of positive social interaction in this research, it

was found that the lower averages and higher SD occurred in questions regarding having someone to relax and have fun, and it can be deduced that leisure times were scarce.

A cross-sectional descriptive study conducted with 325 adults, with an average age of 40.5 years, aimed to evaluate the buffer role of SS in the relationship between DM suffering, self-care and depressive symptoms, showing that emotional, material, affective and positive social interaction minimized the symptoms of depression and assisted in self-care skills[22]. Leisure and socialization activities can improve the health status of people with DM, resulting in expectation and quality of life, promoting physical and mental health[25].

The applicability of MOS-SSS to the adult population with T2DM showed good consistency. The values by Cronbach's alpha coefficient were similar to those obtained in the validation of the instrument for Brazilian Portuguese, although the research that validated the scale used five dimensions, which presented the following values in the test and retest: material (α = 0,75; 0,86), affective (α = 0,81; 0,91), positive social interaction (α = 0,89; 0,93) and emotional (α = 0,95; 0,97)[12].

A limitation of the study concerns the interference of companions in the answers to the questions of MOS-SSS, especially when the instrument was applied in oral form, which may have inhibited the freedom of expression of participants. The descriptive nature of the study limits the possibility to generalize the results and establish causal relationships, as well as the lack of analysis on the origin of the SS received by the participants, what could provide a more detailed understanding of the sources and their implications in T2DM management.

Conclusion

The results of this study allowed the identification of the importance of SS for adults with T2DM, since they felt loved by people in their surroundings, with the frequent availability to assist them in daily activities, such as food preparation, and even accompany them in medical appointments. However, the perceptions regarding emotional and informational support were low, especially concerning understanding the problems and providing guidance and information that would help them.

Although the application of MOS-SSS does not allow the identification of the origin of SS, it is essential to recognize the perceptions of adults with T2DM for the formulation and implementation of actions that improve socialization and access to leisure, information and health services, in order to mitigate complications and optimize the quality of life.

Future studies should explore the different sources and types of SS, using valid measurement instruments, and analyze their impact on glycemic control. This understanding can guide interventions that strengthen the SS, promoting the development of skills for self-management and the consolidation of the protection network of the person with T2DM.

Collaborations:

1 – conception and planning of the project: Robson Giovani Paes, Shirley Boller and Maria de Fátima Mantovani;

2 – analysis and interpretation of data: Robson Giovani Paes, Luciane Lachouski, Ricardo Castanho Moreira, Shirley Boller and Maria de Fátima Mantovani;

3 – writing and/or critical review: Robson Giovani Paes, Luciane Lachouski, Isabella Bueno Fusculim, Ricardo Castanho Moreira, Fernanda Moura D'Almeida Miranda, Shirley Boller and Maria de Fátima Mantovani;

4 – approval of the final version: Robson Giovani Paes, Luciane Lachouski, Isabella Bueno Fusculim, Ricardo Castanho Moreira, Fernanda Moura D'Almeida Miranda, Shirley Boller and Maria de Fátima Mantovani.

Competing interests

There are no competing interests.

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