

## DIABETES MELLITUS AND ORAL HEALTH: COMPLEX RELATIONSHIP OF THE ISSUE IN PRIMARY HEALTH CARE\*

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**ABSTRACT:** Current qualitative and evaluative research, based on the theory of Complex Thought, investigates how professionals in Primary Care develop assistance for the prevention of oral complications in people with diabetes. Twenty-eight participants in the Family Health Strategy took part. Three types of data retrieval techniques were employed: interview, observation and analysis of clinical charts. Analysis comprised triangulation of data, analytic stages of the Grounded Theory and analysis on protocols of the Ministry of Health, with ATLAS.ti. Professionals were unaware of oral issues as a chronic complexity of diabetes. Forwarding to the dentist followed complaint, without any reference to preventive treatment. Interdisciplinary work was not linked to care on the holistic evaluation of people with diabetes. Prevention of oral health in this section of the population showed great divergence from that established by the Ministry of Health.

**KEY WORDS:** Diabetes complications; Oral health; Primary health care; Health services research; Interprofessional relations.

### DIABETES MELLITUS E SAÚDE BUCAL: A COMPLEXA RELAÇÃO DESTA ASSISTÊNCIA NA ATENÇÃO PRIMÁRIA À SAÚDE

**RESUMO:** Avaliar como os profissionais da Atenção Primária desenvolvem a assistência para a prevenção das complicações bucais nas pessoas com *diabetes*. Trata-se de uma pesquisa avaliativa qualitativa, que teve como referencial teórico o pensamento complexo. Participaram 29 integrantes da Estratégia Saúde da Família. Utilizaram-se três técnicas de coleta de dados: entrevista, observação e análise a prontuários. Para a análise adotou-se a triangulação de dados, as etapas analíticas da *Grounded Theory* e a análise dirigida aos protocolos do Ministério da Saúde; com auxílio do *software* ATLAS.ti. Os profissionais desconheciam os problemas bucais, enquanto complicação crônica do *diabetes*; o encaminhamento para a odontologia ocorria mediante a queixa, sem referência a tratamento preventivo; e, o trabalho interdisciplinar encontrava-se desarticulado da atenção que visa a totalidade das pessoas com *diabetes*. A prevenção da saúde bucal nessa população apresentou grande divergência do estabelecido pelo Ministério da Saúde.

**PALAVRAS-CHAVE:** Complicações do *diabetes*; Saúde bucal; Atenção primária à saúde; Pesquisa sobre serviços de saúde; Relações interprofissionais.

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## INTRODUCTION

Diabetes mellitus (henceforth DM) is a high prevalence chronic disease which causes deaths in adults and elderly people worldwide. World prevalence of the disease reaches 8.5% with a 12% increasing estimate for 2030. In Brazil, the Ministry of Health has indicated that 7.6% of the population is self-referenced as bearer of the disease which afflicts people of both genders, people with low schooling and residents in less developed regions<sup>1-2</sup>.

Early diagnosis is one of the main issues for public health service due to the difficulty in perceiving the disease's clinical manifestations. Its treatment comprises nutrition re-education, restricted feeding habits featuring low sugar rates, practice of physical exercises, strict control of glycemic indexes, sustained by choice medicinal therapy for the decrease of subsequent complications due to its chronicity<sup>3</sup>.

DM is a disease difficult to control and causes numberless chronic complications within a short period of time. Several studies underscore that within an eight- or nine-year period from the onset of the disease, people with DM are incapable of maintaining stable their glycemic level and develop some type of chronic complication<sup>4-6</sup>. DM's chronic complications may include some twenty types of oral diseases in the population, with special reference to periodontal disease, oral neuropathy, salivary dysfunction, caries and loss of teeth<sup>5,7-8</sup>.

Metabolic disorders caused by DM have a direct influence on the mouth, particularly on pulp and periapical tissues which cause mucus inflammation, followed by infection, which may become severe due to high glycemic rates. They have a direct effect on pulp healing since they act on the stages of microphagous activities and culminate in the loss of teeth fixation on the alveolar arch. However, the inflammatory process resists insulin in the tissues, when diabetes is uncontrolled. The intervention of health professionals, within an interdisciplinary basis, in the detection and management of clinical cases, becomes necessary<sup>9-10</sup>.

In Brazil, the primary model of health care follows the guidelines of Resolution 1555, published on the 30th June 2013, addressed to people with chronic diseases, to control DM, undertaken as prescribed, that warrant the

right to health and decrease in DM-associated morbidity-mortality. The prevention of complications related to the disease with systematic evaluation of the oral cavity is one of the several stances to be taken<sup>11-12</sup>.

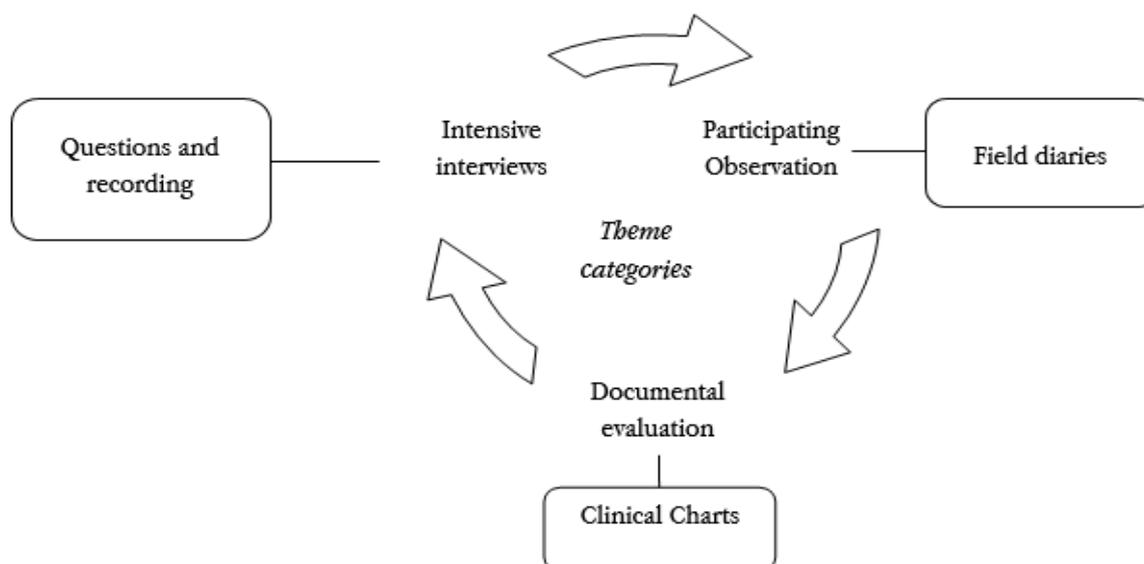
The prevention of DM chronic complications integrates a multifaceted, complex context and a plurality of interrelated situations. Within a systemic point of view, the Complex Thought<sup>13</sup> becomes a reference for the understanding of inter-connected and intervention relationships in the care of people with DM in Primary Health Care (henceforth PHC) to prevent oral complications.

Current study is relevant due to gaps in the literature with regard to follow-up in oral care for people with DM in PHC. The following question is asked: How APS health professionals deal with prevention, control and management of oral complications in people with DM? Analysis evaluates the manner PHC professionals develop care for the prevention of oral complications in DM people attended to at this care level.

## MÉTODOS

Based on Complex Thought<sup>13</sup>, current evaluative and quantitative research has been developed in a mid-sized town in the southern region of Brazil. Since PHC is the door for health services to the population with DM, twenty-nine health professionals from five Family Health Strategy Teams (henceforth Teams FHS) participated, comprising<sup>5</sup> nurses, five physicians, four assistant nurses and fifteen Health Community Agents (henceforth HCA). Participants were selected by theoretical sampling from databases of the Municipal Health Secretary of the municipality under analysis. They integrated Teams FHS professionals with more DM patients listed in their area.

Inclusion criterion for Teams FHS professional comprised teams with the physician and nurse at the instance of data collection. This is due to the importance of these two professionals for the development of routine activities with regard to DM patients' care. Exclusion criterion comprised professionals on health leave or on maternity furlough.



**Figure 1.** Methodological route based on data triangulation. Florianopolis, Santa Catarina, Brazil, 2015. Based in study by Scherer<sup>12</sup>.

Data were collected in January 2015, involving three techniques: individual intensive interview with each participant, featuring in-depth data saturation<sup>14</sup>; moderate observation of activities that the professional performed with DM patients; analysis of clinical charts of people with DM attended by the participating professionals.

All interviews, undertaken individually on the spot Health Basic Units (henceforth HBU) and at the time scheduled by the participants, were recorded on electronic audio, for an average duration of one hour. Data from interview were transcribed and transported to ATLAS.ti (licence n. 58118222), which helped in data organization and analysis.

Observation data registered in field diaries and data from clinical charts registered on specific sheet prepared by the researchers, provided support and confirmation of data from the interviews within a data triangulation process<sup>15</sup>. Moreover, interview data were analyzed by the Grounded Theory analytic technique<sup>14</sup>, which comprised stages of open codification, based on the activities of Teams FHS professionals for the prevention and follow-up of oral health in people with DM, and axial codification which linked codes around a central axis of the theme with the construction of the given categories. Directed data analysis was undertaken due to the research's assessment characteristics, with

reference to protocol by the Ministry of Health for the care of people with DM in PHC: Basic Care Manuals – Strategies for the Care of People with Chronic Diseases – Diabetes Mellitus<sup>11</sup>. Development of current study complied with national and international norms on research ethics involving humans and was approved by the Committee for Ethic in Research of the Universidade Federal de Santa Catarina (number 466.855). Participants were identified by profession followed by the letter P and the sequence number of the interview.

## RESULTS

Three categories emerged from data analysis: “Unawareness of oral issues as a chronic complication feature of DM”; “Complaint as reference for forwarding of person with oral complications”; “Disarticulation among health professionals of FHS and Dentistry”. A scenario was revealed in which there was a lack of awareness by health professionals on oral issues as a DM chronic complication. Further, forwarding of people with DM to the dentist occurred due to people's complaints, without any reference to preventive treatment. Interdisciplinary work was disarticulated within the PHC.

## UNAWARENESS OF ORAL ISSUES AS A CHRONIC COMPLICATION OF DM

In the case of oral health of people with DM, participants stated that no planning was available for the chronic complication of the disease. They even underscored that oral complications are not acknowledged in the care.

*Sincerely I knew nothing on this particular complication with diabetes. I do not investigate or give guidelines on oral issues to my patients with DM (Nurse - P3).*

*[...] I do not know anything on such issues (Assistant nurse - P5).*

In the wake of such unawareness of oral issues, health professionals failed to develop any care involving the oral situation of people with DM during evaluation, within a context that devalues the existence of such complications.

*We have not forwarded diabetic patients to the dentist. The patient has to go to the dentist's and schedule a visit (Female physician – P26).*

## COMPLAINT AS A REFERENCE FOR FORWARDING ORAL COMPLICATIONS

Participants mention the lack of prevention for oral complexities in people with DM, even though complaint triggers the forwarding of DM people for the dentist's assessment.

Dentistry care only occurs when the issue has already been established, posterior to complaint, without any commitment with preventive follow-up for oral complications of people with DM.

*When patients complain, I start investigating. Sincerely, I do not investigate all patients. Frequently I am unaware of the issue (Male physician-P9).*

*We do not forward them spontaneously. We have a dentist, but forwarding occurs as from the patient's complaint (Male physician-P10).*

## LACK OF ARTICULATION BETWEEN HEALTH PROFESSIONALS AND DENTISTS

Another detected condition was the lack of cooperation between health services. Dentistry as a specialty for the care of people with DM is not acknowledged by FHS health professional as crucial for the prevention of DM complications. There is also a lack of articulation within PHC.

*There is no planned attendance for diabetic patients. The dentist works on the premise but only recently I learned her name. I did not know her name. It's a service in the health unit but there is no link with us. It's a different service (Nurse-P1).*

However, several participants mentioned that, when there is good planning, dentists provide a differentiated attendance, meeting people's needs. The previous deposition intimates that there is a possibility of establishing this type of care. Together they would be able to plan the attendance of people with DM for the prevention, management and follow-up of oral care.

*There is no service for the diabetic person. However, cases sent to the dentist are attended to. He is a very good dentist; he even went to the home of a bed-ridden patient. He went to the house of a quadriplegic patient and to another one who had suffered an accident. He does so easily. However, with regard to diabetes, no guidelines exist for them to attend to (HCA-P22).*

## DISCUSSION

In the wake of the above results, the need for a greater involvement and a greater valorization of Teams FHS professionals with regard to oral issues in people with DM are underscored so that, based on the relevance

of prevention of such complication, the dentist's care would be integrated. According to the Ministry of Health, the prevention of oral complications should be monitored by Teams FHS health professionals to prepare people to self-manage their oral health and identify any changes in the mouth at an early stage<sup>11,16-17</sup>.

A study that assessed the interaction between Oral Health teams (henceforth Teams OH) and Teams FHS in the Federal District revealed that integration between the teams was limited and incipient. Teams OH kept themselves apart due to the physical structure of the HBU, where they were more active in social activities, educational at best, as in schools. Further, the authors concluded that there were normative conflicts and that the organization of the work process rather impaired the efficaciousness of activities on oral health<sup>12</sup>.

In the case of dentistry attendance supplied to people in a chronic condition, such as DM, a study from Minas Gerais showed that most interviewed people evaluated positively oral health services in the municipality. The program's critical points comprised access, fastness in attendance, equipments used in the clinic, follow-up and the relationship between professionals and patients<sup>18</sup>.

When one takes into account the clinical situation of people with DM, a different behavior is required, involving focus in planning of activities, monitoring, analysis of indexes and information on oral health, integral schedule to comply with programmed or spontaneous demand, longitudinality and the adoption of essential factors for the control of disease related to DM, such as periodontal issues<sup>19</sup>.

Basic attitudes for the prevention of periodontal disease comprise maintenance of glycemic control, oral hygiene with teeth brushing and floss at least twice a day, and constant follow-up to prevent loss of teeth. At least a yearly visit to the dentist's should be guaranteed for this population<sup>5,11</sup>. These measures are simple within the complex context of prevention and control of DM. All health professional in PHC have the possibility to guide people with DM to take care of their oral health effectively within a preventive perspective.

Several studies demonstrate that people with DM have a high prevalence of lost teeth, lack of knowledge

on mouth care, the relationship between periodontal disease and DM, and the lack of regular follow-up by dentists<sup>20-21</sup>. Another study shows that, in spite of several oral manifestations associated with DM, the awareness of health professionals with regard to associations with oral health and general health are deficient. This boils down to the fact that physicians, nurses and dentists should know the several oral manifestations of people with DM so that an early diagnosis could be had<sup>8</sup>.

Interdisciplinary attendance is crucial for the integrality of health activities to enhance oral health in people with DM. A holistic approach is a challenge within health services for many health professionals who hold prominent the biomedical health model<sup>22-23</sup>. The motto of the Brazilian Policy for Oral Health is the qualification of PHC professionals to attend to the demands of the population and the needs of their oral health. It should be underscored that dentists receive qualifications on primary care to employ epidemiological indexes for strategic planning as an acting professional within APS<sup>24-25</sup>.

Current analysis reveals that, in the case of dentists, PHC/FHS is an enormous challenge. These professionals should develop competences beyond their nucleus of knowledge and emerge from the isolation of clinical practice to take on a new role in teamwork and in health promotion activities. Particularly, the practice of these professionals should be integrated within a scenario marked by fragmentation in which specialty labors<sup>26</sup>.

The fragmentation in this type of care – which fails in integrating the parts into a whole – should be discussed and analyzed by health professional within the perspective of interdisciplinary and integral care. From the perspective of the Complex Thought, fragmentation experienced in medical specialties is the outcome of a historical educational system which, throughout the years, fragmented the contents. Decontextualized facts did not teach people to think within an integrated form<sup>13</sup>.

Priority established for dentist attendance was scheduled for urgent needs in the wake of cure and assistance and not for prevention. Consequently, forwarding to the dentist by Teams OH health professionals only occurs when there are complaints by people with DM.

Studies undertaken in PHC identified that the supply of dentist service is insufficient for the repressed demand and this fact contributes towards a contradictory practice to the idea of accessibility and hosting by FHS<sup>27-28</sup>. However, current study shows that the greatest deficiency for the lack of follow-up of people with DM by the dentist was the absence of awareness and the non-valorization of care by Teams FHS health professionals.

Another study also identifies that health professionals do not normally evaluate periodontal conditions and fail to forward the patient for treatment when DM is diagnosed<sup>20</sup>. Proper guidelines on hygiene and care are fast, simples and low-cost procedures which may reduce periodontal complications associated with the disease and provide a better life style to these people<sup>5,11,29</sup>.

Reinforcing the importance of prevention and follow-up of people with DM, several studies suggest that, mainly, periodontal care has, within a short term, a beneficent influence on metabolic results with a significant improvement in glycemic control<sup>3,27-30</sup>.

The lack of interdisciplinary work may be surmised from the fact that people with DM do not have specific dental care for the prevention of oral complications and its correlation with DM, although there is a dental reference clinic in every HBU. This integration should be investigated by Teams FHS health professionals within more integrative dynamics between the different services that make up the care network for people in chronic conditions<sup>11</sup>.

Another study that dealt with the National Policy of Oral Health infers that, in spite of progress in this policy, great efforts should be done by those responsible so that health care should be integrated. Work between the PHC teams is not strengthened and the effectiveness of activities, mainly, health promotion is restricted<sup>26</sup>.

People with DM seek dentist care only when strictly required. It is a cultural issue and should be corrected by health professionals so that a good response in health activities in primary care should be obtained. The construction of a bond and agreement within the therapeutic plan in dentistry is a facilitating method for the adherence and continuity of treatment, with constant reconstruction. It may also strengthen self-care practices<sup>30</sup>.

Agreement between dentist and clinical charts analyzed in several studies reinforces the practice as a feasible model to decrease assistance iniquities and promote intensive practices for the prevention of oral complications caused by DM chronicity. Consequently, a more precise clinical evaluation may be highlighted by professionals, capacitating the integration between Teams FHS and Teams OH<sup>12,18-19,24,30</sup>.

The perception of the complex context of oral complications in people with DM and the identification of its simplification by Teams FHS health professionals underscore the need for a reformulation of the mind of the social agents involved in this care, especially in the wake of a disarticulated, fragmented and compartmented knowledge. Complexity contributes towards the acknowledgement and the necessity of a new order opened to new paradigms which integrate all the parts within the whole. Or rather, the importance of the parts planned within a type of care that attends to people in their multiplicity and totality<sup>13</sup>.

## CONCLUSION

Assessing the manner PHC health professional develop care for the prevention of oral complications in people with DM revealed a scenario with a great deal of divergences from that established by the Ministry of Health to attend this population and from what is expected for a care focused on a holistic approach for people with DM..

Although the insertion of the dentist within Teams FHS context is a fact, it is still a project in construction, especially with regard to the care of people with DM. Discussion on changes in the paradigm should be suggested, particularly with regard to strategies that bond and integrate the dentist with health promotion of people attended by PHC.

Although current study was undertaken in a single town, its results may contribute towards the qualification of care in oral health of people with DM at PHC. This is due to the importance that these professionals should give to oral issues within the list of DM's chronic complications and assist these people in their wholeness through the employment of all PHC resources, such as the dentist clinic.

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