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CHARACTERIZATION OF THE POPULATION AFFECTED BY CARPAL TUNNEL SYNDROME: FOCUS IN THE PREVENTION

CARACTERIZAÇÃO DA POPULAÇÃO ACOMETIDA PELA SÍNDROME DO TÚNEL DO CARPO: ENFOQUE NA PREVENÇÃO

CARACTERIZACIÓN DE LA POBLACIÓN AFECTADA POR EL SÍNDROME DEL TÚNEL CARPIANO: ENFOQUE EN LA PREVENCIÓN

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Among the manual affections of high epidemiological relevance**,** the Carpal Tunnel Syndrome (CTS) is nowadays considered the most recurrent neuropathy. The approached pathology is highly disabling and compromising of the patient's way of life. The present study aimed to characterize the population attended at the Occupational Therapy Clinic of the Worker´s Hospital of Curitiba, Paraná. Brazil, affected by CTS. This study is characterized as a quantitative research that was based on desk research to collect and analyze data. The results of the research demonstrated the connection between CTS and feminine gender, productive age and dominant or bilateral limb. It is important to point out that the association of this information with the address of the patients affected by CTS, as well as their work, allow the foundation of health promotion and disease prevention programs according to the characteristics and types of activities of the approached population.
Key words: Carpal tunnel syndrome; Health promotion; Disease prevention; Occupational therapy. Health profile.

Dentre as afecções manuais de grande relevância epidemiológica destaca-se a Síndrome do Túnel do Carpo (STC), considerada a neuropatia mais recorrente na atualidade. A patologia abordada é altamente incapacitante e comprometedora do modo de vida do sujeito afetado. O presente estudo tem como objetivo caracterizar a população acometida pela STC atendida no ambulatório de Terapia Ocupacional do Hospital do Trabalhador de Curitiba no Paraná. Caracterizou-se como um estudo quantitativo que se baseou na pesquisa documental para a coleta e análise dos dados. Os resultados da pesquisa apontam relação entre STC e gênero feminino, sendo este acometimento mais presente na idade produtiva e do membro dominante ou bilateralmente. A associação destas informações com a localização residencial dos usuários acometidos por STC, assim como sua atividade de trabalho, permitem o embasamento de diretrizes para ações de promoção da saúde e prevenção de agravos de acordo com as características desta população.
Descritores: Síndrome do túnel carpal; Promoção da saúde; Prevenção de doenças; Terapia ocupacional; Perfil de saúde.

Entre las afecciones manuales de gran relevancia epidemiológica está la síndrome del túnel carpiano (STC), considerada como la neuropatía más recurrente en la actualidad. La STC és altamente incapacitante y puede comprometer el modo de vida de la persona afectada. Esto estudio tuvo como objetivo caracterizar la población afectada por el STC en atendimiento en el Ambulatorio de Terapia Ocupacional del Hospital del Trabajador de Curitiba, Paraná, Brasil. Se caracterizó por ser un estudio cuantitativo que se basa en investigación documental para la recolección y análisis de datos. Los resultados del estudio apuntan relación entre STC y mujeres, siendo esto acometimiento más presente en la edad productiva y del miembro dominante o bilateralmente. La asociación de estas informaciones con la ubicación residencial de los usuarios afectados por la STC, así como su actividad laboral, permiten basar las directrices para acciones de promoción de la salud y prevención de enfermedades en función de las características de esta población.
Descriptores: Síndrome del túnel carpiano; Promoción de la salud; Prevención de enfermedades; Terapia ocupacional; Perfil de salud.

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INTRODUCTION

About 150 years after the first description of Carpal Tunnel Syndrome (CTS), it is still considered a disabling medical condition and challenging worldwide[1]. This syndrome is characterized by median nerve compression in the region through which the tendons flexors of the fingers and the median nerve of the forearm toward the finger[2,3].

It is estimated that CTS is responsible for 90% of the compressive neuropathy, affecting about 1.5% to 3.5% of the world population[4,5]. Although there is still controversy regarding the etiology of this syndrome, studies show that there is a correlation between "age, gender, improper positioning in flexion or extension of the wrist, repetitive movements, obesity, pregnancy, use of oral contraceptives and menopause"[4]. The main symptoms of CTS are pain and paresthesia in the hand and in the regions of the upper extremity innervated by the median nerve (thumb, index, middle and radial portion of the ring fingers). In long-term the subject shows loss of strength and hand function[4].

It is known that occupational therapists are trained to work with several populations and age groups using the resource activity in order to improve the welfare and quality of life of their clients. The focus of the intervention is to assist in the optimization of the functional abilities of the subject to achieve his independence in meaningful activities, promoting therefore the client´s effective participation in his own life[6].

The hand therapy, considered a specialization area of the Occupational Therapy, has mainly focused on the treatment of orthopedic injuries of the upper limbs extremity in order to optimize the function of the hand, so important to carry out different activities, including for social engagement. It is noteworthy that inadequate behavior patterns in day-to-day are the main factors that lead to get ill[7]. Occupational therapists identify changes in habits that can benefit the client in maintaining and improving their health. Thus, important activities left out in life of a specific subject due to pain, or other problems may be resumed by "postural adaptation, environmental modifications and equipment or guidance provided by the professional"[7]. Similarly, guidelines, environmental modifications and equipment, postural adaptations, whether in everyday or work activities, aimed at preventing the development of diseases should be the focus of performance of this professional.

It is known that the Unified Health System (SUS) professes for the organization of the national health system in territorial basis, and that regionalization is the main structural policy of that process[8]. This form of administration was chosen because of the wide variety of social, political, economic and cultural characteristics present within national territory. After all, "due to historical social constitution, it is possible to observe in the present complex human relations in many different places".[8] In this way, the health system planning should be constituted in a continuous process, integrated into all levels of assistance to enable the best decisions taken in favor of the national population.

From this, there is the importance of the health system to focus on not only the hegemonic model centered on the treatment of disease, but in a model that fully meets the population´s health through Health Promotion actions and Risk and Diseases Prevention[9].

Thus, the research of the main characteristics of the affected population by CTS is essential to identify demands and establishment of actions compatible with the reality of this population, which may increase the effectiveness of the implemented actions and reduce national health costs and rates of the illnesses. It is from appropriate and consistent performances with the reality of the population that preventive actions have great ability to avoid the appearance of specific illnesses, reducing their incidence and prevalence in populations[9].

This study aims to characterize the population affected by carpal tunnel syndrome treated at Occupational Therapy Clinic of Curitiba Worker's Hospital in Paraná.

METHOD

This study was conducted at the Occupational Therapy Clinic of Worker's Hospital in the city of Curitiba/PR, member of the Rehabilitation Unit. The clinic has ties to the Federal University of Paraná, and the Occupational Therapy course offers the Practice of Supervised Stage at this place.

Submitted and approved by the Worker Hospital Ethics Committee, this research is based on documental analysis methodology. It is known that this kind of research refers to any material that has not received analytical treatment yet[10]. Company reports, briefing papers, photographs and original works of any nature11 can exemplify this type of sample. Records are also classified as primary sources and therefore their assessment is conceptualized as document analysis. Due to be based on documentary analysis the Consent Term (TCLE) was requested and granted by the Ethics Committee.

It is emphasized that this study also shows the quantitative of research character that uses the collection of large amounts of data to confirm certain hypothesis.

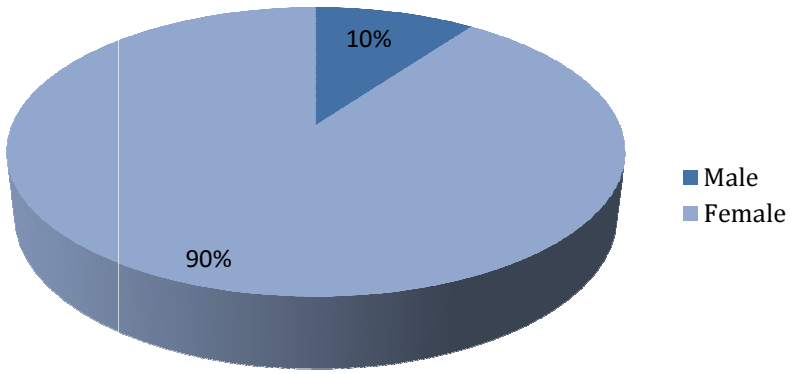
The work consisted of the survey, tabulation and analysis of the medical records of people assisted from January 2010 to March 2012 at the Occupational Therapy Clinic at the Worker´s Hospital.

The medical records of individuals who had carpal tunnel syndrome were selected and there was consistent statistical apartment between the amount of care provided in general and specifically to such a syndrome, followed by analysis as the socio-demographic profile, work activity performed, gender, age, address, productive activity, type of treatment and use of orthesis. The results were analyzed related to international and national research.

RESULTS

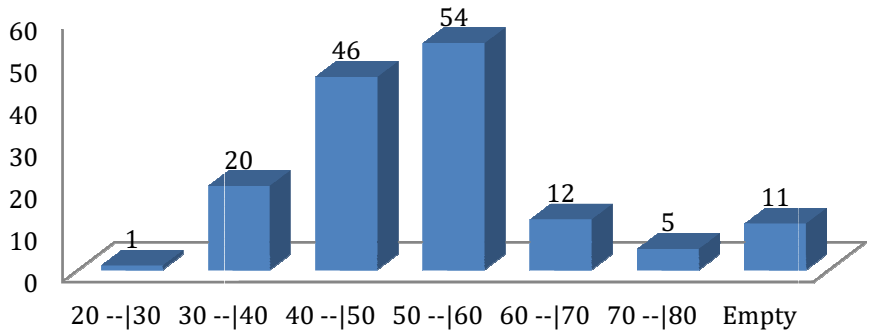
Out of 1,723 attended, one hundred forty nine (149) subjects were affected by CTS from 2010 to 2012, totaling 8.5% of all assistances. By them, it was possible to observe the prevalence of female involvement, as shown in Figure 1.

Figure 1. Users affected by CTS according to gender assisted at the Occupational Therapy Clinic of Worker´s Hospital, Curitiba, Paraná. 2010-2012.



The Figure 2 divides the people diagnosed with CTS assisted in the period analyzed, according to age group. The division was considering with the range of ten in ten years. It was observed prevalence in the age groups of 50 to 60, and then 40 to 50.

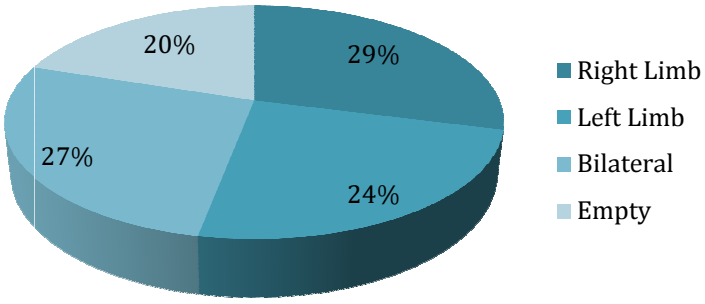
Figure 2. Users affected by CTS according to age group assisted at the Occupational Therapy Clinic of Worker´s Hospital, Curitiba, Paraná. 2010-2012.



* **Empty** – lack of information in the records

The identification of which limb was affected by CTS of users assisted are in the Figure 3. It is noteworthy that most of the patients had involvement of the bilateral or right member. The average length of involvement by CTS of subjects treated at the Occupational Therapy clinic of the Worker´s Hospital ranged from one (1) to 30 (years), with a prevalence of 4.3 years.

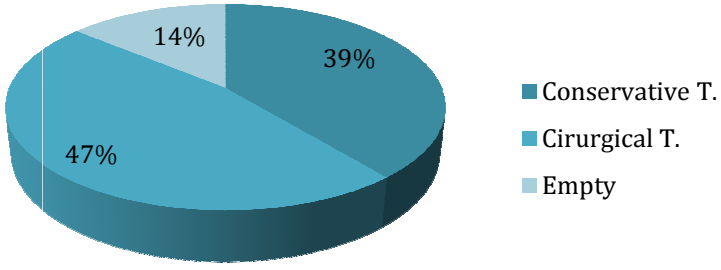
Figure 3. Users affected by CTS according to the dominant member assisted at the Occupational Therapy Clinic of Worker´s Hospital, Curitiba, Paraná. 2010-2012.



* **Empty –** lack of information in the records

The figure 4 refers to the type of treatment received by the subjects affected by CTS. It was identified prevalence of surgical treatment. It is noteworthy that 24 subjects used orthesis.

Figure 4. Users affected by CTS according to type of treatment assisted at the Occupational Therapy Clinic of Worker´s Hospital, Curitiba, Paraná. 2010-2012.



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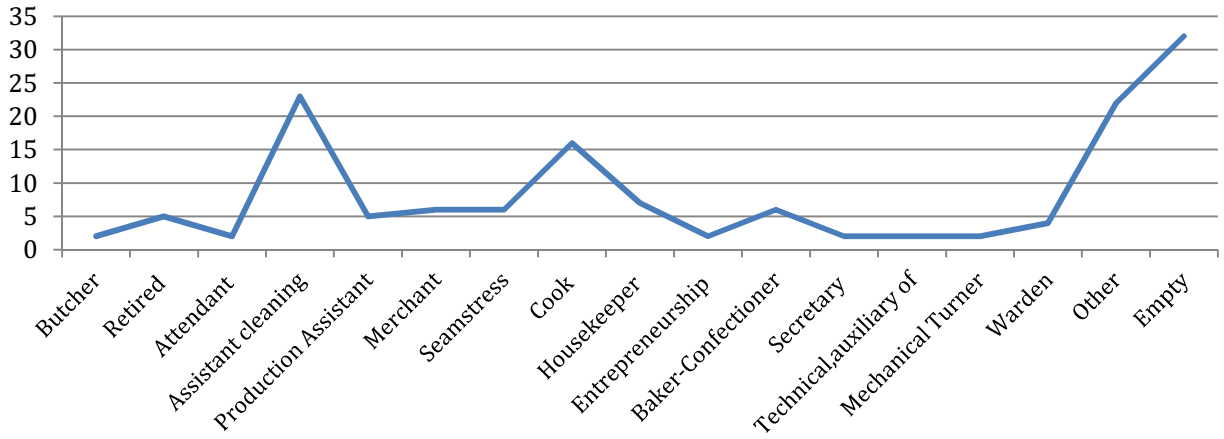
User´s professions with CTS are shown in Figure 5. It is observed that the most prevalent occupations are cleaning assistants and cooks, typically feminine activities. Regarding the place of residence of the patients treated, it was observed that the regions with higher rates of involvement by carpal tunnel syndrome was Sítio Cercado with eight, and the regions of Boqueirão and CIC with nine each one.

Figure 5. Users affected by CTS according to their profession assisted at the Occupational Therapy Clinic of Worker´s Hospital, Curitiba, Paraná. 2010-2012.



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DISCUSSION

The overall incidence of compressive neuropathy of CTS was 8.5% of manual pathologies, emphasizing therefore the third most common complications seen at the Occupational Therapy Clinic at the worker´s Hospital in the period studied. The findings are different from another study because currently this is the most frequent compression syndrome[4].

Regarding to gender, it is emphasized that the wide prevalence of involvement are females, with a percentage of 90% and similar to the national research that showed higher prevalence to 85% in women in cases of CTS[5-7,12]. From the female involvement rate much higher than in other manuals pathologies, it is noticeable the relationship between female and CTS. It is known that specific features of this population as menopause and use of oral contraceptives[13,14] can lead to this disease and may explain the high incidence in women.

The type of involvement is similar with data from other studies that indicate that most of the CTS are bilateral or right members[14-17]. As the present study limitation, there is the lack of information regarding the manual of each subject attended dominance, as important to detect the level of impairment in everyday activities of users, this then the dominant member is mainly used in object manipulation .

The average time by CTS in this study is 4.3 years. There is then great potential disability generated by this disease that extends generally for several years, significantly compromising the quality of life and the individual´s performance in their daily activities[18].

Regarding the type of treatment, a predominance of surgical treatment was identified. The choice between the two types of treatment is based on many factors, considering gravity and time of evolution of the symptoms, atrophy in the affected muscles, presence or absence and sensitive and deficits motor[19]. Current evidence shows that surgical treatment provides better results when compared to patients treated conservatively. However, it is known that in the clinical treatment of patients with mild symptoms, favorable results are obtained only with correcting the posture of the hand[20].

Regarding the use or not of orthesis by users, immobilization of the wrist in a neutral position or soft extension with splint either continuously or at night provides improved symptoms of CTS and the hand´s function[21-22]. These devices could not be used most of the time due to the high cost of production and the predominance of surgical treatment.

Variables involvement of time for CTS, type of treatment received and use or not of orthesis was not found in national or international literature for comparisons. Thus, studies on the characteristics of the population affected by the CTS is necessary,

in order to contribute to actions against such illness.

Work activities performed by the subjects of this study are linked to household chores (16%) and kitchen (11%), typically female roles. The findings are consistent with another study that points out those housewives or day laborers are the professions most exercised by the individuals affected by CTS[13]. The relation between CTS, female and work and leisure activities that use repetitive motions of the hand and handle, increasing the incidence rate in the general population of 1% to 15%, can be used to explain the high levels in housewives, maids and cooks[12-21]. It is necessary, therefore, that the population affected by CTS receives guidance to maintain the wrist in a neutral position during everyday activities, minimizing the pressure within the carpal tunnel and reducing development risks[22].

Occupational therapy (OT) is a health care profession that aims to allow the clients full participation in their activities of daily living by training, qualification or rehabilitation[7]. The OT identifies changes in habits that can benefit the clients in maintaining their health, offering solutions to existing challenges in carrying out their daily tasks[7].

The residential location of users has shown that certain regions of Curitiba have indexes up to nine times higher than other places. Thus, including the study of residential locations will enable the power of the SUS database, allowing preventive actions (collective and individual) in locations that had higher rates affected.

The importance of organizing care practices aimed at comprehensive care of each user, avoiding the illness and subsequent rehabilitation was verified. Regarding the programs aimed at promoting health, it is known that they have focus on developing healthy practice, social participation and respect for cultural diversity existing within a specific population[23].

It is highlighted as the aim of Occupational Therapy to enable participation and promote independence, contributing therefore to human health and the effectiveness of multidisciplinary actions to promote health[24].

CONCLUSION

The occupational therapist can integrate the multidisciplinary team of health promotion through guidelines that involve the performance of household chores or home care and meal preparation, allowing this population find solutions to existing challenges in their day-to-day routine and engage in activities that were left out due to pain and complications of CTS.

Data from this study may support the hand therapist in their work practice from the use of everyday activities of their clients, already aware to the profile of the population.

Therefore, it is expected that the observations and information contained in this work can be used for foundation of health promotion and disease prevention from the actual characteristics of this population. The aim is to prevent and reduce the incidence of the disease in the population, increasing well-being of people with chronic conditions of life and promoting healthy lifestyles as well as greater social participation.

REFERENCES

1. Mccabe SJ, Uebele AL, Vasyl P, Rosales RS, Atroshi I. Epidemiologic associations of carpal tunnel syndrome and sleep position: is there a case for causation? Hand [Internet]. 2007 [citado em 10 jun 2012]; 2(1): 127-32. Avaliable in: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2527141/pdf/11552_2007_Article_9035.pdf.

2. Fernandes CH, Meirelles LM, Carneiro RS, Faloppa F, Albertoni WM. Tratamento cirúrgico da síndrome do canal do carpo por incisão palmar e utilização do instrumento de Paine. Rev Bras Ortop. 1999; 34(1):260-70.

3. Kang S, Know HK, Kim KH, Yun HS. Ultrasonography of median nerve and electrophysiologic severity in carpal tunnel syndrome. Ann Rehabil Med. [Internet]. 2012 [citado em 30 fev 2012]; 36(1): 72-9. Avaliable in: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3309326/pdf/arm-36-72.pdf.

4. Ibrahim I, Khan WS, Goddard N, Smitham P. Carpal tunnel syndrome: a review of the recent literature. Open Orthop J. [Internet]. 2012 [citado

em 10 fev 2012]; 6(1):69-76. Avaliable in: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3314870/pdf/TOORTHJ-6-69.pdf.
5. Palmer BN. Carpal tunnel syndrome, active component, U.S. Armed Forces, 2000-2010. MSMR. [Internet]. 2011 Jul [citado em 10 fev 2012]; 18(7):12-5. Avaliable in: http://www.afhsc.mil/documents/pubs/msmrs/2011/v18_n07.pdf#Page=12.
6. Queensland Government. Occupational therapist: a career in health. [Brisbane]: Queensland Health; 2012. [citado em 10 fev 2012]; Avaliable in: http://www.health.qld.gov.au/townsville/Services/occ_therapy.asp
7. The American Occupational Therapy Association. The unique role of occupational therapy in rehabilitation of the hand. Bethesda: AOTA; 2011. 2p.
8. Ministério da Saúde (Br); Secretaria de Vigilância em Saúde; Diretoria de Apoio à Gestão em Vigilância em Saúde. Manual de gestão da vigilância em saúde. Brasília: Ministério da Saúde; 2009.
9. Agência Nacional de Saúde Complementar. Cidades@: promoção da saúde e prevenção de riscos e doenças na saúde suplementar. 2ed. Rio de Janeiro: ANS; 2007. 168p.
10. Sá-Silva JR, Almeida CD, Guindani JF. Pesquisa documental: pistas teóricas e metodológicas. Rev Bras Hist Ciênc Soc. 2009; 1(1):1-15.
11. Santos AR. Metodologia científica: a construção do conhecimento. 5ed. Rio de Janeiro: DP e A; 2002.
12. Turrini E, Rosenfeld A, Juliano Y, Fernándes AR, Natouri J. Diagnóstico por imagem do punho na síndrome do túnel do carpo. Rev Bras Reumatol. 2005; 45(1):81-3.
13. Ficagna ACB, Duarte EP. Perfil dos portadores da síndrome do túnel do carpo, submetidos ao exame de eletroneuromiografia da região da Associação dos Municípios do Meio-Oeste Catarinense (AMMOC). Unoesc&Ciência. ACBS. 2012; 3(1):85-94.
14. Wolf JM, Mountcastle S, Owens BD. Incidence of carpal tunnel syndrome in the US military population. Hand [Internet]. 2009 [citado em 20 maio 2012]; 4(3):289-93. Avaliable in: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2724617.
15. Fukushima WY. Síndrome do túnel carpal: resultados do tratamento cirúrgico com a técnica de mini-incisão. Arq. Bras. Ciênc. Saúde. 2009; 35(1):1-3.
16. Shi Q, Macdermid JC. Is surgical intervention more effective than nonsurgical treatment for carpal tunnel syndrome? a systematic review. J Orthop Surg Res. [Internet]. 2011 apr [citado em 15 maio 2012]; 6:17. Avaliable in: http://www.josr-online.com/content/pdf/1749-799X-6-17.pdf.
17. Monteiro CGZ, Dib CC, Gervais J, Martinez MMA, Pimentel RAP. Estudo comparativo do retorno da força da pinça após o tratamento da síndrome do túnel do carpo crônica associado a oponentoplastia. Rev Bras Cir Plást. 2009; 24(3):265-8.
18. Karolczak APB, Vaz APB, Freitas CR, Merlo ARC, et al. Síndrome do túnel do carpo. Rev bras fisioter. 2005; 9(2):117-22.
19. Hockmuller M, Castro VR, Antunes ACM, Stefani MA, Rodrigues TH. Diagnóstico e tratamento da síndrome do túnel do carpo: uma revisão. J Bras Neurocirurg. 2011; 22(1): 82-5.
20. Associação Médica Brasileira, Agência Nacional de Saúde Suplementar. Síndrome do túnel do carpo: tratamento. São Paulo: ANS; 2011, 10p.
21. Custódio GA, Xavier MH. Reabilitação de síndrome do túnel do carpo através de mobilização neural. [Trabalho de Conclusão de Curso]. Batatais (MG): Centro Universitário Claretiano; 2006. 49p.
22. Rosati P. Carpal tunnel syndrome: is it work related? Guelph, Ontario: Options Incorporated; 2009.
23. Scaffa ME, Slyke NV, Brownson CA. Occupational therapy services in the promotion of health and the prevention of disease and disability. Am. J. Occup. Ther. [Internet]. 2008 [citado em 09 ago 2012]; 62(6):40-4. Avaliable in: http://ajot.aotapress.net/content/62/6/694.full.pdf.
24. Jones-Phipps M, Craik C. Occupational therapy students' views of health promotion. Br. J. Occup. Ther. [Internet]. 2008 Dec [citado em 09 ago 2012]; 71(12):540-44. Avaliable in: http://bura.brunel.ac.uk/bitstream/2438/2915/1/Jonesand_CRAIK.pdf.

CONTRIBUTIONS
Aline Costa de Sousa Kawamura was responsible by text production and edition, research, organization and discussion. **Ângela Paula Simonelli** developed advising, analysis and final text review.