

Exploring Obstacles for Dental Care among the SCI Population

Amy L Sullivan^{1*}, Ray Holder², Tracy Dellinger², Angelia Garner¹ and Jessica Bailey³

¹Dental Hygiene Program, School of Health Related Professions, University of Mississippi, Jackson, MS 5, Mississippi, USA

²School of Dentistry, Advanced General Dentistry Program, University of Mississippi, Jackson, MS 5, Mississippi, USA

³School of Health Related Professions, University of Mississippi, Jackson, MS 5, Mississippi, USA

Abstract

Study Design: Survey comparative analysis of SCI population with general population in terms of dental care.

Objectives: Examine differences between spinal cord injury (SCI) population and general population in a southeastern state to explore dental care issues.

Methods: Survey of 92 SCI patients with comparison to BRFSS data prevalence report.

Results: Significantly fewer SCI patients had teeth cleaned or a dental visit within the past year when compared to general population controls. People with SCI also had more teeth extracted, report worse general health, smoke more, and have a lower satisfaction of life when compared to the general population.

Conclusion: Individuals with SCI do not receive adequate oral care. Although many known obstacles for dental care have been researched, the obstacles for people with SCI to receive adequate dental care are multifaceted and warrant more study.

Keywords: Spinal cord injury; Oral health; Dental care; Obstacles; Insurance; Health

Introduction

Eighty-seven percent of people with spinal cord injury (SCI) report having difficulty accessing health care [1]. Among the services most difficult to access are dental services [2]. Obstacles that may limit maintenance of proper oral health include a lack of accessibility to the dental office [3], dental environment [3], lack of special needs dental professionals [4], poor quality of life, fear [5], lack of perceived need [6,7], and lack of financial assistance [8]. Dental offices are required to provide accessibility to the physically challenged and must follow the guidelines provided by the Americans with Disabilities Act (ADA) [9,10]. These guidelines include making reasonable modifications to facilitate access into the dental office by providing wheelchair ramps, spacious washrooms with grab bars at the correct level, raised toilets, widened paths and doorways, and handicapped parking [11,12].

The dental office environment inherently creates several factors which contribute to obstacles for SCI patients to receive dental care. Obstacles related to access include scheduling and keeping appointments, and dealing with dental staff who may not understand requirements unique to patients with an SCI. Additional environmental obstacles include enduring wait times, difficulty with filing insurance, and coping with the actual dental chair or operator. Dental offices typically maintain a tight, inflexible schedule and typically make appointments six months in advance. Some dental offices may restrict their service for special needs clients to specific days of the week. While excessive wait times are an inconvenience to most patients, they create special problems for SCI clients who commonly suffer from bladder, bowel, and pressure ulcer issues. Their special needs dictate being treated in a timely manner. Some SCI patients have reported a perception of office personnel as being rude, disrespectful, judgmental, and insensitive to their disability [3]. Others report after waiting for long periods of time that the dentist was rushed and did not spend adequate time treating them. Although some SCI persons can transfer themselves into the dental chair, some need assistance, and some need to be treated in their wheelchair, which makes the dental operator itself an obstacle to care.

Eighty-six percent of dentists say they are willing to treat the disabled population, but prefer treating them in the comfort of their

own private dental office [13]. Although willing to treat the disabled, many dentists are not adequately trained for treating patients with disabilities [14]. Several studies [15-18] report training for dental treatment of the disabled as severely lacking. Only fifty-three percent of dentists practicing in the United States have been provided with any special needs training from dental school. Of the fifty-three percent that did have special care training in dental school, less than five hours of didactic training and even less clinical training were provided [4].

In the state of Mississippi (MS) and surrounding area, eighty percent of all dental professionals (including dentists) report minimal emphasis or just a few lectures pertaining to special needs patients [15]. Most schools provide minimal exposure to patients with special needs. A curriculum that includes special care is generally reserved for an advanced degree or advanced education [19]. Specifically lacking in the dental curriculum, is the skill to help transfer the SCI patient into the dental chair for treatment [20,21]. In a recent study in MS, 72% of dental professionals report having no training when it comes to wheelchair transfers [15]. Surprisingly, few dental clinics are actually accessible to the disabled despite the guidelines set forth by the Americans with Disabilities Act (ADA) [22].

In general, people with SCI are more prone to develop diabetes, hypertension, obesity, bladder infections, depression, and wounds such as pressure ulcers [23]. Individuals with an SCI must also learn to control or respond to autonomic dysreflexia, and to deal with psychosocial and quality of life issues. Their basic needs include management of urinary tract, gastrointestinal tract, integumentary system (pressure sores), cardiovascular system, and neurological system

***Corresponding author:** Amy L Sullivan, 2500 North State Street, SHRP Dental Hygiene, SH183, Jackson, Mississippi, 39216, USA, Tel: 601-984-6320; E-mail: asullivan@umc.edu

Received July 23, 2013; **Accepted** September 23, 2013; **Published** September 26, 2013

Citation: Sullivan AL, Holder R, Dellinger T, Garner A, Bailey J (2013) Exploring Obstacles for Dental Care among the SCI Population. Int J Phys Med Rehabil 1: 154. doi:10.4172/2329-9096.1000154

Copyright: © 2013 Sullivan AL, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

health issues. Healthcare issues pertaining to these body systems are taught and reinforced during rehabilitation [24]. In individuals with a C7 and higher SCI, the focus turns towards meeting primary goals such as self-care and bladder and bowel care [25]. In order to achieve these primary goals, individuals with an SCI need to be motivated and knowledgeable. Mulroy [26] emphasized that without motivation there is no further education. Research studies suggest people with SCI experience a more negative perspective on life satisfaction than the general population [27,28]. Specifically, when looking at self-care ability, satisfaction is worse among SCI patients with higher level injuries and less physical independence [29,30]. Approximately one-third of all SCI develop some form of depression [31], and we know that mental illness has a negative effect on oral health in the general population [28]. Additionally, smoking, which is a common habit among the SCI population, has been associated not only with high-risk alcohol use, risky driving, relational abuse, and less exercise, but also depression and increased utilization of mental health services [32].

Persons with disabilities report a high level of fear, anxiety, and nervousness towards dental visits [5,33]. Although it is a common misperception that this is true of the entire population, only twenty percent of the overall population report being nervous about dental visits versus thirty-four percent of the special needs population [5]. Perhaps this is due to the lack of regular dental care among the SCI population, or perhaps it is due to an unpleasant past dental experience. Gordon et al. [34] claims that many more dental appointments would be kept if sedation were offered to those who were anxious.

Perhaps, people with SCI do not seek dental care because they perceive their oral health as better than it actually is. In a recent study, people with SCI underwent an examination by a dental professional and at the conclusion of this exam, patients with SCI had more caries and gingivitis than they actually perceived. Since oral health may not be a priority for those with an SCI, it is the health care provider's responsibility to communicate the importance of oral health to this population [7].

Although having insurance is not a significant variable in receiving rehabilitation services [35], lack of finances and insurance are very important reasons for those with an SCI having difficulty accessing dental care. The most frequently cited reason for this difficulty was refusal of providers to accept Medicaid [8]. SCI patients are eligible for Medicaid, but it is difficult to find a dentist willing to take this form of payment. Moreover, patients perceive care as sub-standard when Medicaid is the source of payment [3] and only 50% of dentists report adequate financial compensation when Medicaid is the source of payment in treatment of the disabled population [36].

Underutilized dental services are to be expected among SCI patients who are typically deprived socioeconomically. In the general population most dental care that is provided is paid by the individual's personal insurance. Since personal insurance is often provided through work, many patients unemployed because of their SCI no longer have insurance coverage. However, even SCI individual's fortunate enough to have their own private insurance reported difficulty with the insurance filings [5].

Hypothesis

The purpose of this study was to explore differences between the SCI population and the general population of MS in terms of dental care. First, it was hypothesized that a lower proportion of people with SCI will have had a dental exam and oral prophylaxis by a dentist or hygienist in the last year compared to the 60% rate for the general

population of Mississippi. Secondly hypothesized, there is a greater occurrence of missing teeth in people with SCI when compared to the general population. Third, it was hypothesized that people with SCI will not have the health insurance obtained by the general population of MS. And finally, it was hypothesized that among the SCI population, general health and life satisfaction will be compromised and tobacco habits will be more prevalent when compared to the general population.

Methods

People with SCI who received care at Mississippi Methodist Rehabilitation Center (MRC) from January-August 2008 were asked to participate in a study which aimed to examine oral health status and need for improving oral care within this population. This study site was chosen due to a large volume of SCI people cared for by this facility. Once the University of Mississippi Medical Center (UMMC) and MRC Institutional Review Boards (IRBs) approved the study, SCI patients visiting MRC for scheduled appointments were approached by the study's principle investigator (a registered dental hygienist) in private rooms of the outpatient clinic. The PI obtained consent, administered survey questions, and performed a dental examination. In addition, residents of MRC's Specialty Care Center and that currently undergoing in-patient rehabilitation were also approached for inclusion in this study. Ninety-two patients with SCI (44%-cervical, 41%- thoracic, 10%- lumbar) participated in the study.

Survey questions were directly asked of the participants in the study in the same format as the annual Mississippi Behavioral Risk Factor Surveillance System (BFRSS) Prevalence Report in order to do a proper comparison between SCI participants in the study and the general population of the state. Questions for comparison included when was your last dental exam, your last dental cleaning, and how many teeth have been extracted, do you have health insurance and/or dental insurance, what is your general health, and do you use tobacco.

Results

In order to make appropriate comparisons, descriptive statistics were examined in detail. Socio-demographics of SCI subjects included age, gender, race, county of residence, and socioeconomic status (SES). Age of this population ranged from 18-71 years old, with a mean age of 41. The mean age of onset of injury for SCI subjects was 33. Gender of SCI participants, was mostly males (72%). Race included 55% Caucasians and 45% African Americans. Forty-six percent of subjects lived in rural counties, as defined by the Office of Management and Budget of the USDA Economic Research Service, 2003. The SES was broken down into current and past employment status, household income, and education level. Most participants (75%) were currently unemployed; however, 74% were employed before sustaining the SCI. The household income category placed 35% of participants in the lowest category of income at \$14,999 or less. Sixteen percent fell into the \$15,000 to \$34,999 bracket and another seventeen percent into the \$35,000 to \$64,999 bracket. Fewer than seven percent indicated their household income to be greater than \$65,000 per year. The remainder did not have a household income, did not know, or did not wish to answer this question (25%). Finally, educational level was examined. Most participants (57%) had completed high school, but over 30% had not completed high school. Only a small number (13%) had a university or trade school degree.

Several questions pertaining to the overall physical health were asked of participants. Factors indicative of general health include taking prescription medication, medical alerts, pressure sores, urinary tract infections (UTI), and nutrition status. Over 90% of SCI persons

interviewed were taking prescription medication. Over 54% stated during the interview that dry mouth was a problem. Seventy percent stated that other than having an SCI, there were no other medical concerns/conditions. However, the majority reported having problems with pressure sores and urinary tract infections which often required medications and treatment. Only 54% of the participants reported never having pressure sores and less than a fourth (21.7%) reported never having a UTI. Nutrition status related to SCI was obtained by simply asking these clients if they were able to eat anything they wanted. Eighty-six percent indicated they could (Figure 1).

Using SPSS version 19 (SPSS Inc., Chicago, IL), Chi-square test was used to determine whether there were significant differences between the SCI sample and control sample in terms of reporting a dental visit and teeth cleaning in the past year and never having a tooth extracted. Significantly less people with SCI (32%) had teeth cleaned within the past year compared to general population controls. Only 45% of people with an SCI had visited the dentist within the last year for any reason

compared to approximately 60% of the state's general population. In addition, only 27% of participants reported never having a tooth extracted compared to approximately 44% of the general population from the 2010 BRFSS survey (42% in both 2006 and 2008). This indicates that a lower percentage of people with SCI receive dental care compared to the general Mississippi population and have more extracted teeth (Figure 2).

The third hypothesis, pertaining to insurance status, varied greatly among this population. Hardly any (fewer than 3%), reported having no health care coverage when compared to the general population of nearly 23% reporting no health care coverage. Approximately 23% of the SCI population in the study reported having private insurance. This affirms that only 26% of this population was responsible for their own health care. The remaining 75% relied on Medicare, Medicaid, or some kind of combination. When asked specifically about dental insurance, 76% reported they did not have any dental insurance (Figure 3).

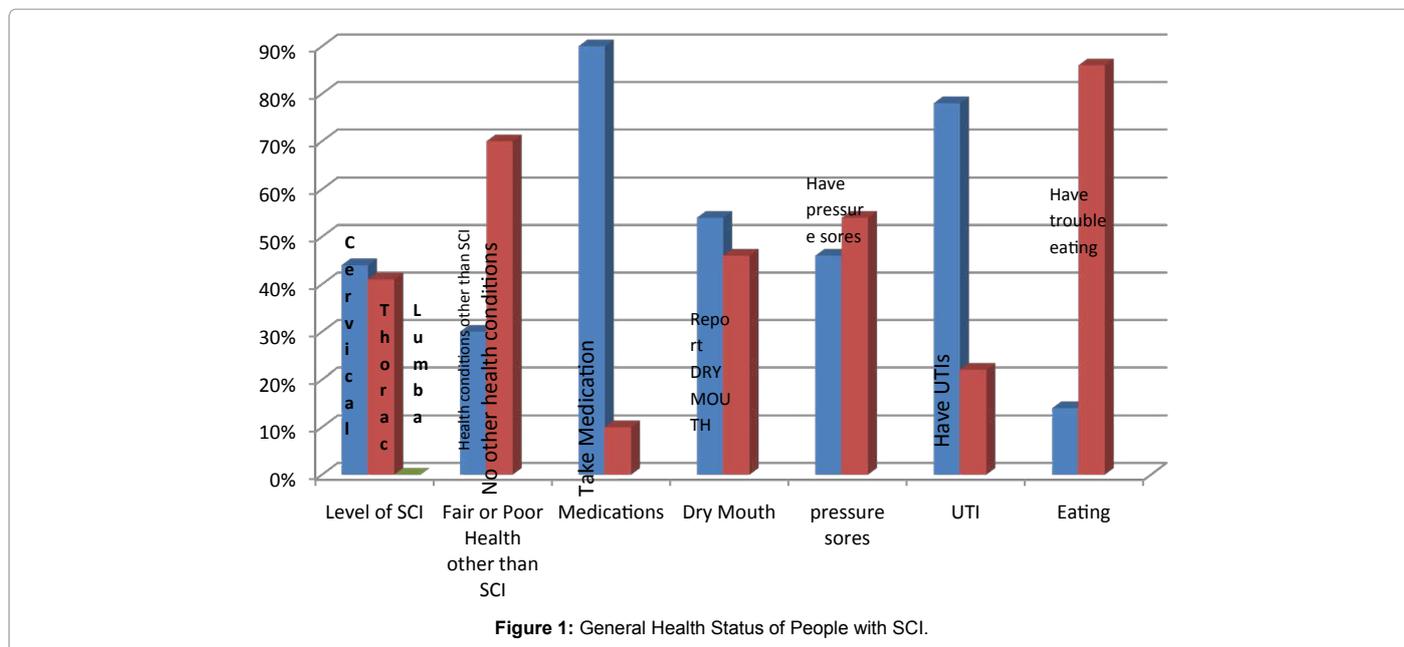


Figure 1: General Health Status of People with SCI.

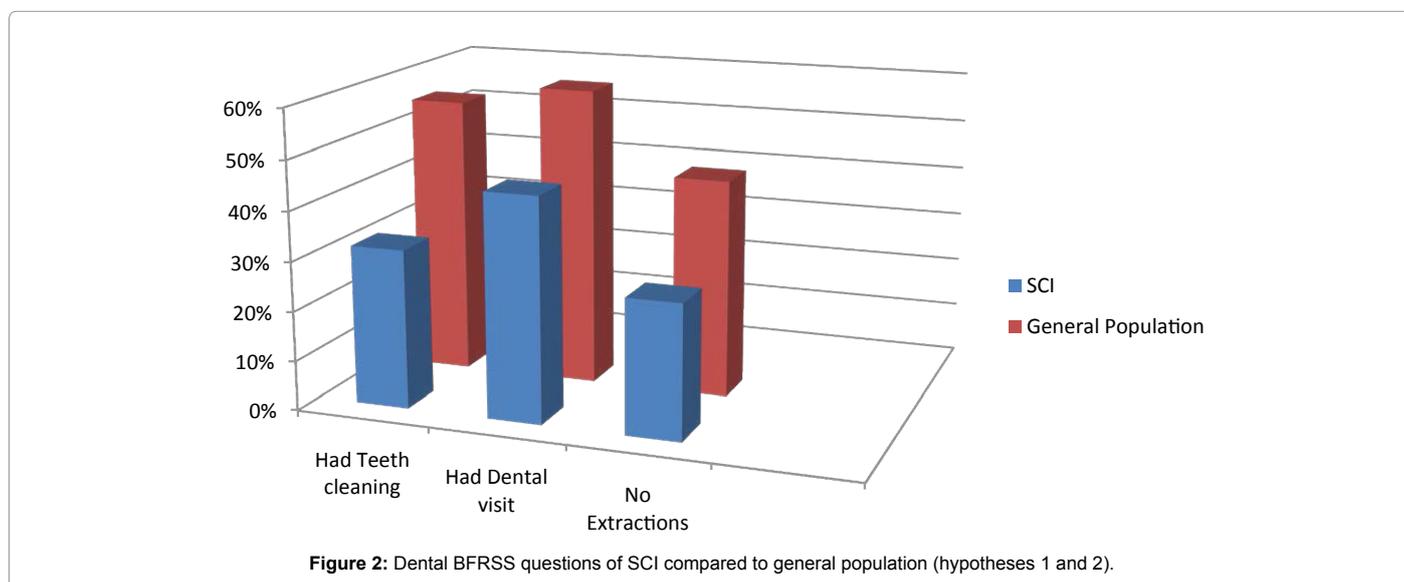


Figure 2: Dental BFRSS questions of SCI compared to general population (hypotheses 1 and 2).

Finally, general health and life satisfaction are poorer in the SCI population than the general population and their usage of tobacco is higher. Thirty %report health problems unrelated to SCI, indicating their health was fair to poor when compared to nearly 24% of the general population. For the question, *In general how satisfied are you with your life?*, 38% of SCI participants reported dissatisfaction with life when compared to the general population of only 5.7% reporting dissatisfaction with life. According to BRFSS data in 2010, nearly 23% of Mississippians were current smokers, compared to 33% of the SCI population in the study. See Figure 3 for these results. To view the synopsis of all hypotheses results, view Table 1.

Discussion

The need for better preventive care for people with SCI emerged out of our first hypothesis because a significantly lower proportion of people with SCI (32%) had a prophylactic teeth cleaning in the past year compared to the general population living in the same area (56%) [2]. The latter rate in the general population has been relatively stable over several years (60% in 2008, 58% in 2006), which validates the difference found in the SCI population. Moreover, the same findings are in agreement with previous observations made in a smaller sample that people with SCI are less likely to have annual dental cleanings [37].

The second hypothesis was also confirmed because only 27% of people with SCI reported never having a tooth extracted compared to approximately 44% of the general population from 2010 survey (42% in both 2006 and 2008). However, the latter finding has to be interpreted with caution because the tooth extraction question reflects the period before and after the SCI. Therefore, it may be more suggestive of an individual life-long attitude toward oral health than representative of the SCI population. The overall results of the first hypothesis suggest

that this population is not receiving the recommended prophylactic dental care and also has more teeth extracted. It remains to be determined, however, whether receiving more frequent dental care would translate into better oral health in people with SCI.

The third hypothesis pertaining to insurance was a little more difficult to rationalize. It appears this hypothesis must be rejected since so few with SCI report having no health care coverage. Health care funding sources provide widely imbalanced coverage for physical rehabilitation services to persons with disabling conditions [38], but the majority, in this case (75%) rely on Medicare, Medicaid, or some kind of combination to fund health care. Only 23% of SCI participants reported having private insurance, possibly due to the lack of employment that may be injury related. Future research could further investigate if lack of dental insurance is considered an obstacle for dental treatment.

The final hypothesis was focused on general health status, life satisfaction, and tobacco use. Thirty percent report health problems unrelated to SCI, indicating their health was fair to poor when compared to nearly 24% of the general population. If SCI related health issues were added to general health issues, those numbers would drastically increase. Nearly 80% of participants had at least one urinary tract infection and about a half reported at least one pressure sore since the SCI occurred. Almost all took daily medication and about a half reported dry mouth. Predicting this increase in poor health also substantiates the need to follow up with oral health, since poor general health also contributes to poor oral health [39,40]. Quality of life is also of utmost concern among individuals with SCI. Quality of life in rehabilitation includes health status, societal participation, the level of the disability, independent living, and employment [41]. If one component is missing, the satisfaction level of that individual is decreased. This

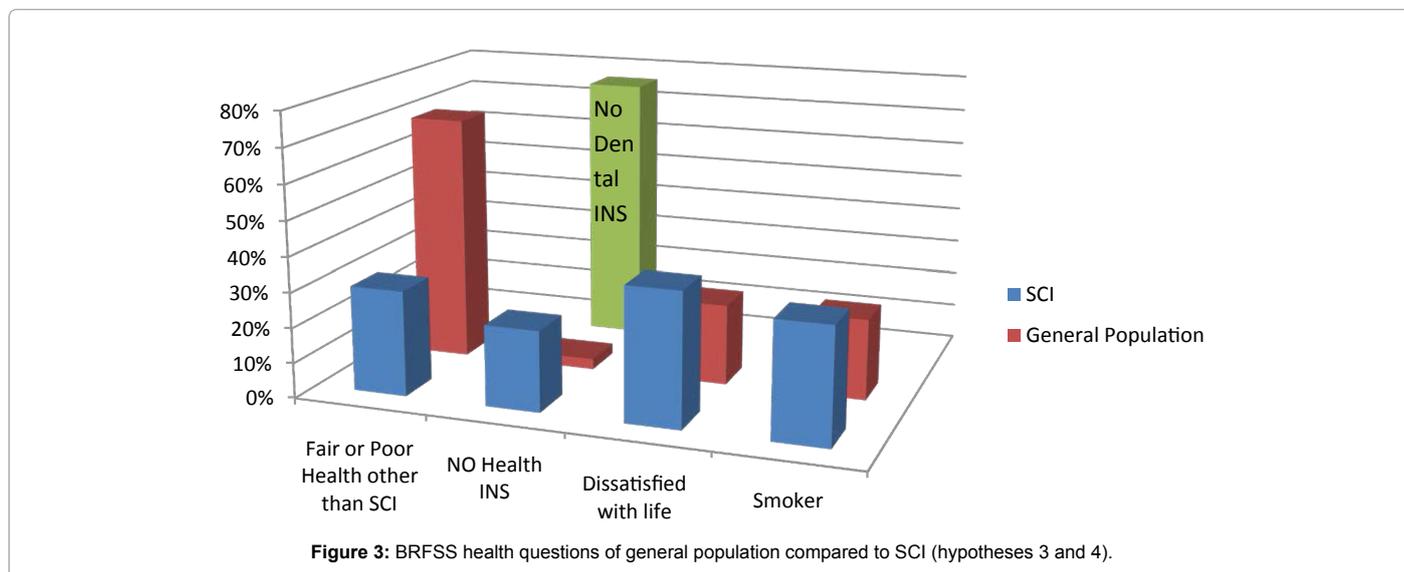


Figure 3: BRFSS health questions of general population compared to SCI (hypotheses 3 and 4).

		SCI in MS	General MS
Hypothesis 1	No dental exam	55%	41.9%
	No oral prophylaxis	68%	43.6%
Hypothesis 2	No missing teeth	27%	44%
Hypothesis 3	No health care coverage	<3%	21%
	No dental insurance	76%	42% Americans (no current MS data)
Hypothesis 4	Dissatisfied with life	38%	5.7%
	No tobacco use	67%	77%

Table 1: Summary of Results.

explains why people with SCI report more dissatisfaction (38%) with life when compared to the general population (5.7%). Additionally, the prevalence of smoking rises among those with lower life satisfaction scores and often contributes to even more chronic illness and poorer overall health [41]. Since it appears that tobacco is more prominent among people with SCI (33%) than the general population (23%), this is yet another reason oral health should be further examined among people with SCI. This increase of tobacco use in the SCI population is remarkable, considering that 19% are unable to bring at least one hand up to their mouth.

Conclusions

This study reveals that individuals with SCI do not receive adequate oral care. Although obstacles for dental care among the disabled population have been researched, this study brings new light to the challenges the SCI population face in accessing adequate oral health care are multifaceted. General health status (to include life satisfaction and tobacco use) should be investigated further to determine the significance they plan as deterrents for people with SCI.

References

1. Mississippi Department of Rehabilitation Services (2005) Traumatic Brain Injury/Spinal Cord Injury Trust Fund Program.
2. Mississippi State Department of Health (2010) Behavioral Risk Factor Surveillance System Mississippi Annual Prevalence Report.
3. Mofidi M, Rozier RG, King RS (2002) Problems with access to dental care for Medicaid-insured children: what caregivers think. *Am J Public Health* 92: 53-58.
4. Romer M, Dougherty N, Amores-Lafleur E (1999) Predoctoral education in special care dentistry: paving the way to better access? *ASDC J Dent Child* 66: 132-135, 85.
5. Stiefel DJ (2002) Dental care considerations for disabled adults. *Spec Care Dentist* 22: 26S-39S.
6. Lester V, Ashley FP, Gibbons DE (1998) Reported dental attendance and perceived barriers to care in frail and functionally dependent older adults. *Br Dent J* 184: 285-289.
7. Sullivan AL (2012) Perception of oral status as a barrier to oral care for people with spinal cord injuries. *J Dent Hyg* 86: 111-119.
8. Shigaki CL, Hagglund KJ, Clark M, Conforti K (2002) Access to health care services among people with rehabilitation needs receiving Medicaid. *Rehabilitation Psychology* 47: 204-218.
9. Mouradian WE, Corbin SB (2003) Addressing health disparities through dental-medical collaborations, part II. Cross-cutting themes in the care of special populations. *J Dent Educ* 67: 1320-1326.
10. Americans with Disabilities.
11. Tesini DA, Fenton SJ (1994) Oral health needs of persons with physical or mental disabilities. *Dent Clin North Am* 38: 483-498.
12. Shuman SK, Bebeau MJ (1994) Ethical and legal issues in special patient care. *Dent Clin North Am* 38: 553-575.
13. Oliver CH, Nunn JH (1996) The accessibility of dental treatment to adults with physical disabilities in northeast England. *Spec Care Dentist* 16: 204-209.
14. Merry AJ, Edwards DM (2002) Disability part 1: the disability discrimination act (1995)—implications for dentists. *Br Dent J* 193: 199-201.
15. Sullivan AL, Morgan C, Bailey J (2009) Dental professionals' knowledge about treatment of patients with spinal cord injury. *Spec Care Dentist* 29: 117-122.
16. Casamassimo PS, Seale NS, Ruehs K (2004) General dentists' perceptions of educational and treatment issues affecting access to care for children with special health care needs. *J Dent Educ* 68: 23-28.
17. Johnson TL (2000) Pilot study of dental hygienists' comfort and confidence levels and care planning for patients with disabilities. *J Dent Educ* 64: 839-846.
18. Stoltenberg JL, Walker PO (1989) Student dental hygienists' and dental hygiene educators' attitudes toward the handicapped. *J Dent Hyg* 63: 117-123.
19. Surabian SR (2001) General dental practice in the hospital. *Journal of the California Dental Association* 24: 51-54.
20. Felder RS, Gillette VM, Leseberg K (1988) Wheelchair transfer techniques for the dental office. *Spec Care Dentist* 8: 256-259.
21. Spencer PR (1988) Techniques for transporting the handicapped patient in the dental setting. *Dent Assist* 57: 16-18.
22. Edwards DM, Merry AJ (2002) Disability part 2: access to dental services for disabled people. A questionnaire survey of dental practices in Merseyside. *Br Dent J* 193: 253-255.
23. Galea M, Tumminia J, Garback LM (2006) Telerehabilitation in spinal cord injury persons: a novel approach. *Telemed J E Health* 12: 160-162.
24. Johnson K, Lammertse DP (1998) Primary care for individuals with spinal cord injury. *CNI Review* 9: 1-8.
25. Schönherr MC, Groothoff JW, Mulder GA, Eisma WH (1999) Functional outcome of patients with spinal cord injury: rehabilitation outcome study. *Clin Rehabil* 13: 457-463.
26. Mulroy R (1985) General practitioner and long term care of patients with a spinal injury. *Br Med J (Clin Res Ed)* 291: 575-577.
27. Putzke JD, Richards JS, Hicken BL, DeVivo MJ (2002) Predictors of life satisfaction: a spinal cord injury cohort study. *Arch Phys Med Rehabil* 83: 555-561.
28. Post MW, van Leeuwen CM (2012) Psychosocial issues in spinal cord injury: a review. *Spinal Cord* 50: 382-389.
29. Lidal IB, Veenstra M, Hjeltnes N, Biering-Sørensen F (2008) Health-related quality of life in persons with long-standing spinal cord injury. *Spinal Cord* 46: 710-715.
30. Saikkonen J, Karppi P, Huusko TM, Dahlberg A, Mäkinen J, et al. (2004) Life situation of spinal cord-injured persons in Central Finland. *Spinal Cord* 42: 459-465.
31. Sjogren R, Nordström G (2000) Oral health status of psychiatric patients. *J Clin Nurs* 9: 632-638.
32. Halperin AC, Smith SS, Heiligenstein E, Brown D, Fleming MF (2010) Cigarette smoking and associated health risks among students at five universities. *Nicotine Tob Res* 12: 96-104.
33. Stiefel DJ, Truelove EL, Martin MD, Mandel LS (1997) Comparison of incoming dental school patients with and without disabilities. *Spec Care Dentist* 17: 161-168.
34. Gordon SM, Dionne RA, Snyder J (1998) Dental fear and anxiety as a barrier to accessing oral health care among patients with special health care needs. *Spec Care Dentist* 18: 88-92.
35. Tate DG, Forchheimer M, Daugherty J (1993) Insurance benefits coverage: Does it affect rehabilitation outcomes? *Journal of Rehabilitation* 59: 6-10.
36. Milnes AR, Tate R, Perillo E (1995) A survey of dentists and the services they provide to disabled people in the Province of Manitoba. *J Can Dent Assoc* 61: 149-152, 155-8.
37. Yuen HK, Azuero A, London S (2011) Association between seeking oral health information online and knowledge in adults with spinal cord injury: a pilot study. *J Spinal Cord Med* 34: 423-431.
38. Elrod CS, DeJong G (2008) Determinants of utilization of physical rehabilitation services for persons with chronic and disabling conditions: an exploratory study. *Arch Phys Med Rehabil* 89: 114-120.
39. Allukian M Jr (2000) The neglected epidemic and the surgeon general's report: a call to action for better oral health. *Am J Public Health* 90: 843-845.
40. Tate DG, Kalpakjian CZ, Forchheimer MB (2002) Quality of life issues in individuals with spinal cord injury. *Arch Phys Med Rehabil* 83: S18-25.
41. Strine TW, Chapman DP, Balluz LS, Moriarty DG, Mokdad AH (2008) The associations between life satisfaction and health-related quality of life, chronic illness, and health behaviors among U.S. community-dwelling adults. *J Community Health* 33: 40-50.

Citation: Sullivan AL, Holder R, Dellinger T, Garner A, Bailey J (2013) Exploring Obstacles for Dental Care among the SCI Population. *Int J Phys Med Rehabil* 1: 154. doi:10.4172/2329-9096.1000154