

Quality of life in Korean patients  
with burning mouth syndrome

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Quality of life in Korean patients  
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생각만으로도 언제나 따뜻한 위안이 되어주는 사랑하는 동생들, 소현이, 재완이와, 마지막으로 무한한 사랑과 신뢰로 저를 보살펴 주시고 언제나 제 편이 되어 힘을 주시는 아버지와 어머니께 진심으로 감사드립니다.

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저자 씀

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## ABSTRACT

# Quality of life in Korean patients with burning mouth syndrome

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**Objectives:** To evaluate the perceived general and oral health-related quality of life in Korean patients with BMS, this study investigated using two questionnaires. One is the Medical Outcome Short Form Health Survey Questionnaire (SF-36) for evaluating self-perceived general health status and the other is the Oral Health Impact Profile (OHIP-49) indicating the self-rated oral health and oral health-related quality of life by comparing BMS patients with healthy controls.

**Methods:** This cross-sectional study included sixty subjects diagnosed with BMS (57 female, 3 male; mean ages  $60.25 \pm 11.86$  years) and sixty healthy subjects as controls (52 female, 8 male; mean ages  $52.65 \pm 10.30$  years). Each participant of BMS group underwent a comprehensive clinical examination of the oral cavity and dental status, and radiographic examinations to exclude organic findings. All subjects in this study completed standardized and widely used two questionnaires: the Medical Outcome Short Form Health Survey Questionnaire (SF-36) and the Oral Health Impact Profile (OHIP-49), which had been translated into Korean and subsequently validated for use in Korea.

**Results:**

1. All of the subscales in the SF-36 exhibited significantly lower scores in BMS patients than control groups ( $p < 0.001$ ).
2. Comparison of the mean SF-36 scores between the two groups revealed the greatest differences to be for the subscales of physical pain and role emotional (role limitations due to emotional problems), while the smallest difference to be for the subscale of physical functioning.
3. The mean score on each subscale of the OHIP-49 was significantly higher in BMS patients than control groups ( $p < 0.001$ ).
4. Comparison of the mean OHIP-49 scores between the two groups revealed the greatest difference to be for the subscale of physical pain and the smallest difference to be for the subscale of social disability.

**Conclusion:** These findings demonstrated that BMS had an impact on various components of a patient's quality of life. BMS patients exhibited more impaired results and a poorer quality of life than control groups.

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Key words : burning mouth syndrome, quality of life, SF-36, OHIP-49

# Quality of life in Korean patients with burning mouth syndrome

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## I. Introduction

Burning mouth syndrome (BMS) is defined by the International Association for the Study of Pain as burning pain in the tongue or other oral mucous membrane that is associated with normal signs and laboratory findings and lasts at least 4 - 6 months (Mersky & Bogduk, 1994). This condition

(ICHD-II:13.18.5) is described by the International Classification of Headache Disorders II (ICHD-II) of the International Headache Society as an intraoral burning sensation for which no medical or dental cause can be found.

There are as yet no definitive criteria for diagnosing BMS, and because various criteria are used in diagnosis, its prevalence ranges from 0.6% to 15% (Zakrzewska & Hamlyn, 1999). In 1989, the National Health Interview conducted a questionnaire survey of 45,711 members of the US civilian population. The prevalence of BMS at that time among the entire cohort was 0.7%; of these, 0.8% of female subjects and 0.6% of male subjects (Lipton et al., 1993). Bergdahl (1999) surveyed 1,427 randomly selected subjects (669 male and 758 female) who ranged in age from 20 to 69 years from a general population in Sweden. The prevalence of BMS in that population was 3.7%; of these, 42 were female (5.5% of the female subjects) and 11 were male (1.6% of the male subjects). BMS occurs more frequently among women, especially during middle and old age. (Scala et al., 2003).

The major complaints of BMS patients may be described as burning, tender, tingling, hot, scalding, and numb sensations of the oral mucosa. These symptoms are usually experienced bilaterally and are persistent, but do not disturb sleep. The pain most frequently affects the anterior two thirds of the tongue, followed by the dorsum and lateral borders, the anterior aspect of the hard palate, and the labial mucosa of the lips (Gorsky et al., 1991; Svensson et al., 1993). Patients who have BMS have more nonspecific physical problems and/or other psychogenic-related complaints than healthy controls, such as dry mouth, bad or altered taste, thirst, headaches, tenderness or pain in the neck, shoulder, and masticatory muscles, anxiety, depression, and personality disorders. However, it is unclear whether these symptoms are risk factors for the development of BMS or a consequence of the syndrome (Basker et al., 1978; Grushka, 1987; Vitkov et al., 2003; Suarez & Clark, 2006).

The underlying etiology of BMS has yet to be identified. It appears to be complex and multifactorial, involving interactions between local factors such as dentures, candidiasis, and parafunctional oral habits, and systemic factors such as various types of nutritional and hormonal deficiencies. The chronic pain experienced in conditions such as BMS is closely related to psychological factors like depression, anxiety, and somatic reactions to stress (Browning et al., 1987; Lamb et al., 1988; Lamey & Lamb; 1988).

Furthermore, it has recently been suggested that life components such as stressful events, functioning, and well-being play a role in chronic oral disorders and are etiologic factors (Craufurd et al., 1990; Stewart & Ware, 1992).

Quality of life takes into account factors such as health, work, economic status, leisure activities, environment, and social relationships (Burckhardt et al., 1993). As stated above, various general, psychosocial, and psychological well-being factors may be associated with symptoms in BMS patients. In this context, health-related quality of life (HRQoL) is particularly important for evaluating chronic oral disorders like BMS. Lopez-Jornet et al. (2008) studied HRQoL in BMS patients using two questionnaires, the Medical Outcome Short Form Health Survey Questionnaire (SF-36) for evaluating self-perceived general health status and the Oral Health Impact Profile (OHIP-49), which assesses the self-rated oral health and oral HRQoL. Meanwhile, Strömbeck et al. (2000) studied the HRQoL in primary Sjögren's syndrome, rheumatoid arthritis, and fibromyalgia using the SF-36 in Sweden, and McMillan et al. (2004) studied the impact of Sjögren's syndrome on oral HRQoL using the SF-36 and the OHIP-49 in a southern Chinese population. According to these studies, it is possible to compare the quality of life in patients and healthy people. However, the quality of life in Korean BMS patients has not been studied yet.

The purpose of this study was to evaluate the individually perceived quality

of life in Korean patients with BMS, a typical chronic oral disorder, using two questionnaires that were designed to assess quality of life: the validated Korean version of the SF-36 questionnaire and the validated Korean version of the OHIP-49.

## II. Subjects and methods

### 1. Subjects

Sixty subjects of both genders (female = 57, male = 3) diagnosed with BMS were enrolled in this study. All subjects were registered voluntarily at the Department of Oral Medicine of the Dental Hospital of Yonsei University. According to the ICHD-II of the International Headache Society, the diagnostic criteria for BMS states that patients have normal appearance of the oral mucosa, pain in the mouth that is present daily, persists for most of the day, and lasts at least 4 months, and are without local and systemic disease. Subjects who had taken medications that can cause an oral burning sensation (e.g., angiotensin-converting enzyme inhibitors) and had organic causes of this symptom (candidiasis, dermatoses such as lichen planus, hormonal problems such as diabetes and hypothyroidism) were excluded for this study. All patients underwent a comprehensive clinical examination of the oral cavity and dental status, and radiographic examination to exclude organic findings. Sixty healthy subjects of both genders (female = 52, male = 8) or who had not sought any medical treatment were enrolled as a control group.

## **2. Methods**

### **2.1. Medical Outcome Short Form Health Survey Questionnaire (SF-36)**

At the first visit, the subjects from both groups completed the Korean version of the SF-36, which had been translated and subsequently validated (Koh et al., 1997). The SF-36 was originally designed to survey subjective health status in the Medical Outcomes Study and was specifically designed for clinical practice, research, health-policy evaluations, and general-population surveys (Ware & Sherbourne, 1992). The SF-36 includes eight multi-item variables: physical functioning, social functioning, role limitations due to physical problems, role limitations due to emotional problems, general mental health (psychological distress and psychological well-being), vitality, physical pain, and general perception of health. There is also an additional unscaled single item on changes in health over the previous year. Each item is coded, summed using the Likert method of summated ratings, and transformed to a scale from 0 to 100, whereby a higher score indicates a better subjective health status (Likert, 1932).

Table 1. Conceptual subscales and items of SF-36

SF-36 subscales	Number of Items	Item Numbers
Physical functioning	10	3,4,5,6,7,8,9,10,11,12
Role physical*	4	13,14,15,16
Physical pain	2	21,22
General health	5	1,33,34,35,36
Vitality	4	23,27,29,31
Social functioning	2	20,32
Role emotional**	3	17,18,19
Mental health	5	24,25,26,28,30

\* Role physical : role limitations due to physical problems

\*\* Role emotional : role limitations due to emotional problems

## **2.2. Oral Health Impact Profile (OHIP-49)**

At the first visit, OHIP-49 was carried out with SF-36 to subjects in both groups. The Korean version of the English-language OHIP with 49 items was constructed originally by Slade and Spencer, and was translated and validated for use in a Korean population (Slade & Spencer, 1994; Bae et al., 2007). Each question in the questionnaire was related to how frequently each event was experienced during the past 3 months. The items were arranged in the form of seven subscales, as follows: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and handicap. The subjects were required to answer in the form of a five-point Likert scale, whereby 0= 'never' , 1= 'hardly ever' , 2= 'occasionally' , 3= 'fairly often' , and 4= 'very often' .By summing the scores of the responses to the 49 items and items corresponding to the subscales, the OHIP-49 and the OHIP subscale scores were calculated. The overall OHIP score ranged from 0 to 196, a higher score indicating a poorer state of health.

Table 2. Conceptual subscales and items of OHIP-49

Subscales and items	Subscales and items
Functional limitation	Q25. Others misunderstood
Q1. Difficulty chewing	Q26. Less flavor in food
Q2. Trouble pronouncing words	Q27. Unable to brush teeth
Q3. Noticed tooth that doesn't look right	Q28. Avoid eating
Q4. Appearance affected	Q29. Diet unsatisfactory
Q5. Breath stale	Q30. Unable to eat (dentures)
Q6. Taste worse	Q31. Avoid smiling
Q7. Food catching	Q32. Interrupts meals
Q8. Digestion worse	Psychological disability
Q9. Dentures not fitting	Q33. Sleep interrupted
Physical pain	Q34. Upset
Q10. Painful aching	Q35. Difficult to relax
Q11. Sore jaw	Q36. Depressed
Q12. Headaches	Q37. Concentration affected
Q13. Sensitive teeth	Q38. Been embarrassed
Q14. Toothache	Social disability
Q15. Painful gums	Q39. Avoid going out
Q16. Uncomfortable to eat	Q40. Less tolerant to family members
Q17. Sore spot	Q41. Trouble getting on with others
Q18. Discomfort (dentures)	Q42. Irritable with others
Psychological discomfort	Q43. Difficulty doing job
Q19. Worried	Handicap
Q20. Self-conscious	Q44. Health worsened
Q21. Miserable	Q45. Financial loss
Q22. Appearance unsatisfied	Q46. Unable to enjoy people's company
Q23. Tense	Q47. Life unsatisfying
Physical disability	Q48. Unable to function
Q24. Speech unclear	Q49. Unable to work

### **2.3. Statistical analysis**

Statistical analyses were performed to compare the SF-36 and OHIP-49 scores between the BMS and control group. The Kolmogorov-Smirnov normality test was applied to check the normality of distribution. Groups were compared using the two sample *t*-test. SPSS Version 12.0 statistical package (SPSS<sup>®</sup> Inc., Chicago, IL, USA) was used for all statistical analyses. Statistical significance was established at 95%.

## III. Results

### 3.1. Subject demographics

Table 3. Demographic characteristics in BMS and control group

Age (years)	BMS group (n=60)		Control group (n=60)	
	n	%	n	%
21 - 30	2	3.33	2	3.33
31 - 40	1	1.67	2	3.33
41- 50	8	13.33	21	35.00
51 - 60	15	25.00	24	40.00
61 - 70	22	36.67	7	11.67
71 -	12	20.00	4	6.67
Mean	60.25 ± 11.86		52.65 ± 10.30	

The demographic data of the BMS and control group are shown in Table 3. The study included 120 subjects. Of the 60 BMS patients, 57 (95%) were female and 3 (5%) were male, with a mean age of 60.25 ( $\pm$  11.86) years. Of the 60 healthy controls, 52 (86.67%) were female and 8 (13.33%) were male, with a mean age of 52.65 ( $\pm$  10.30) years.

### 3.2. Results for the Medical Outcome Short Form Health Survey Questionnaire (SF-36)

Table 4. Mean SF-36 scores\*

SF-36 subscales	BMS group (n = 60)	Control group (n = 60)	<i>P</i> -value**
Physical functioning	62.78 ± 25.87	88.92 ± 10.42	<0.001
Role physical	44.53 ± 35.77	86.67 ± 20.82	<0.001
Physical pain	37.10 ± 22.51	83.72 ± 16.48	<0.001
General health	30.48 ± 18.14	68.42 ± 16.04	<0.001
Vitality	33.17 ± 19.72	69.48 ± 15.30	<0.001
Social functioning	51.25 ± 22.86	87.92 ± 13.80	<0.001
Role emotional	49.98 ± 40.49	96.11 ± 12.41	<0.001
Mental health	38.32 ± 24.09	77.30 ± 14.25	<0.001

\* Values are given as mean ± SD.

\*\* Statistically significant at significance level of 95%

Table 4 presents the SF-36 questionnaire scores for each group. All the SF-36 subscales exhibited significantly lower scores in BMS patients than controls. There were significant differences between BMS group and control group in all of the subscales ( $p < 0.001$ ).

Figure 1 illustrates mean scores of the SF-36 subscales in BMS patients compared with controls. Comparison of the mean SF-36 scores between the two groups revealed the greatest differences to be for the subscales of physical pain and role emotional (role limitations due to emotional problems), and the

smallest difference to be for the subscale of physical functioning.

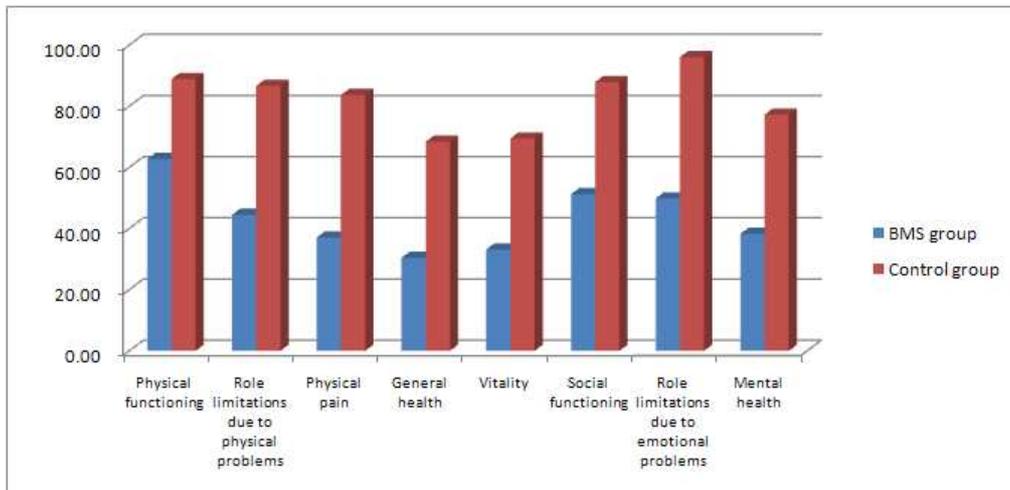


Fig 1. Mean SF-36 scores

### 3.3. Results for the Oral Health Impact Profile (OHIP-49)

Table 5. Mean OHIP-49 scores\*

OHIP-49 subscales	BMS group (n = 60)	Control group (n = 60)	P-value**
Functional limitation	17.67 ± 5.75	5.45 ± 5.57	<0.001
Physical pain	20.32 ± 6.28	5.45 ± 5.23	<0.001
Psychological discomfort	9.97 ± 3.99	2.63 ± 3.24	<0.001
Physical disability	16.03 ± 7.83	2.90 ± 4.01	<0.001
Psychological disability	12.87 ± 5.83	3.27 ± 3.93	<0.001
Social disability	7.67 ± 4.28	1.42 ± 2.26	<0.001
Handicap	10.07 ± 5.00	1.75 ± 2.69	<0.001
all items	94.08 ± 31.16	23.10 ± 22.24	<0.001

\* Values are given as mean ± SD.

\*\* Statistically significant at significance level of 95%

Data for the OHIP-49 subscales between the two groups are described in Table 5, which exhibits the significant differences observed between groups in all of the subscales. The BMS group's scores (94.08 ± 31.16,  $p < 0.001$ ) were significantly higher than the control group (23.10 ± 22.24,  $p < 0.001$ ) in all of the subscales.

Comparison of the mean OHIP-49 scores between the two groups revealed the greatest difference to be for the subscale of physical pain and the smallest difference to be for the subscale of social disability. (Fig. 2).

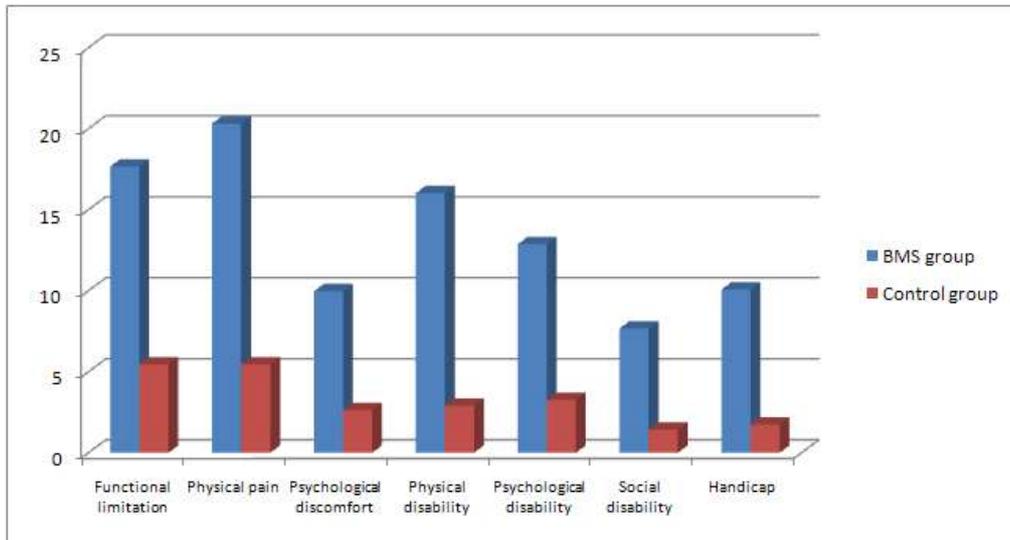


Fig 2. Mean OHIP-49 scores

## IV. DISCUSSION

HRQoL refers to the individual's perceived physical and mental status in their daily life, and is increasingly being recognized as an applicable and significant measure of intervention outcomes and service need in public health research and in practice. A thorough understanding of how a patient's life is impaired by disease and its influences on clinical decision making regarding the various treatment possibilities for a particular disease have been achieved through various measures of HRQoL designed to assess the detailed picture of chronic disorders in various groups of patients. However, most traditional HRQoL questionnaires ignore the perceptions and feelings of the individual-based assessments and the effect of the oral status on the psychosocial well-being of the patient. There is thus a need for measures that consider patient-perceived multiple outcomes based on the physical, social, and psychological factors of oral health that influence quality of life (McGrath & Bedi, 1999).

Functional scales of quality of life, such as the SF-36, have been validated for use in the assessment of numerous chronic oral diseases. Indeed, the SF-36 has been used to compare the general state of health in patients. Despite its lack of sensitivity in relation to oral health status, this questionnaire is currently accepted as a good measure of general health status.

The awareness of oral HRQoL has increased, and its measurement is a commonly accepted method of specialized assessment of individual-perceived oral health in dentistry (Guyatt et al., 1993; Schierz et al., 2008). Since Locker's conceptual framework for measuring oral health was published (McGrath & Bedi, 1999), various methods of measuring oral HRQoL have been developed (Locker, 1988). One of the most widely used, comprehensive instruments is the OHIP-49, which allows a detailed measurement of

the levels of dysfunction, discomfort and disabilities associated with oral health status (Slade & Spencer, 1994). Several possible benefits of using these instruments have been described (Locker & Jokile, 1996). These include finding out subgroups within the population that require medical service, monitoring of risk groups, outcomes of clinical interventions and targeting of financial resources. At the present time, these measures have been used mainly in descriptive population studies, and predominantly in elderly groups (Slade et al., 1998).

In this study, the quality of life of the BMS and control groups was compared with the aid of two questionnaires, the SF-36 and the OHIP-49, which are standardized and widely used. Both have been translated into Korean and validated for use in Korea. According to previously published studies, BMS patients exhibit more impaired results and a poorer quality of life than control groups. A reduced quality of life has been demonstrated previously in Spanish patients with BMS using these two questionnaires (Lopez-Jornet et al., 2008). A poorer HRQoL in Italian BMS patients was also described by Tabolli et al (2008). The BMS patients in my study exhibited similar results, with a relatively poorer quality of life than those described in the previous studies.

We observed statistically significant differences between the BMS group and the control group in all of the subscales. Comparison of the mean SF-36 scores between the two groups revealed the greatest differences to be for the subscales of physical pain and role emotional (role limitations due to emotional problems). In other words, the BMS patients experienced not only more severe physical pain, but also problems with work or other daily activities as a result of emotional problems. Similarly, comparison of the mean OHIP-49 scores between the two groups revealed the greatest difference to be for the subscale of physical pain. These findings demonstrate that oral diseases such as BMS

have an impact on various components of a patient's quality of life, and in particular the physical pain and role-emotional subscales.

There were some limitations to the present study. First, the cohort was fairly small, which resulted in difficulty controlling external factors such as the age and gender distributions. A larger sample is required to elucidate the association between quality of life and BMS. In addition, this is a cross-sectional study that was carried out at a single point of time and without long-term follow-up. Improvements in oral status may result in an improvement in HRQoL; close follow-up is needed to establish this possibility.

The possible etiological factors underlying BMS are many and varied. The multifactorial characteristics of BMS render it important to identify the sources of the symptoms for every BMS patient to enable provision of the most effective treatment. A treatment protocol should include dental and medical aspects, further psychological factors, general health, and life to manage the varying conditions of BMS patients. As stated above, the evaluation of quality of life plays a significant role in the assessment of BMS patients, and so it is important to identify and manage these factors using reliable and validated measurement methods. Depending upon the characteristics identified, extended treatment can be provided to these patients with disturbances of quality of life. Administration of specific and generic quality-of-life questionnaires to patients provides detailed information regarding the complex issues of other chronic oral diseases. Such questionnaires may be useful in clinical practice.

In summary, differences in individual-perceived HRQoL were found between BMS patients and controls. The present study thus confirms the findings of previous studies suggestive that there is a significant association between quality of life and BMS. Therapeutic goals toward reducing the development of disease and the negative impact on quality of life are required, and these may be achieved via the management of physical and emotional aspects. Close

cooperation among practitioners is needed to optimize the management of these patients.

## V. Conclusion

In this study, the quality of life of the BMS and control groups was compared with the aid of two questionnaires, the SF-36 and the OHIP-49, which had been translated into Korean and validated for use in Korea. And it investigated the association between BMS and quality of life. The results are summarized as follows.

1. All of the subscales in the SF-36 exhibited significantly lower scores in BMS patients than control groups ( $p < 0.001$ ).
2. Comparison of the mean SF-36 scores between the two groups revealed the greatest differences to be for the subscales of physical pain and role emotional (role limitations due to emotional problems), while the smallest difference to be for the subscale of physical functioning.
3. The mean score on each subscale of the OHIP-49 was significantly higher in BMS patients than control groups ( $p < 0.001$ ).
4. Comparison of the mean OHIP-49 scores between the two groups revealed the greatest difference to be for the subscale of physical pain and the smallest difference to be for the subscale of social disability.

These findings demonstrated that BMS had an impact on various components of a patient's quality of life. BMS patients exhibited more impaired results and a poorer quality of life than control groups.

## References

Bae KH, Kim HD, Jung SH, Park DY, Kim JB, Paik DI, Chung SC: Validation of the Korean version of the oral health impact profile among the Korean elderly. *Community Dent Oral Epidemiol.* 35: 73-79, 2007.

Basker RM, Sturdee DW, Davenport JC: Patients with burning mouths: A clinical investigation of causative factors, including the climacteric and diabetes. *Br Dent J.* 145: 9-16, 1978.

Bergdahl M, Bergdahl J: Burning mouth syndrome : prevalence and associated factors. *J Oral Pathol Med.* 28(8): 350-354, 1999.

Browning S, Hislop S, Scully C, Shirlaw P: The association between burning mouth syndrome and psychosocial disorders. *Oral Surg Oral Med Oral Pathol.* 64: 171-174, 1987.

Burckhardt CS, Archienholtz B, Mannerkorpi K, Bjelle A: Quality of life of Swedish women with fibromyalgia syndrome, rheumatoid arthritis and systemic lupus erythematosus. *J Musculoskel Pain.* 1: 199-207, 1993.

Craufurd DIO, Creed F, Jayson MIV: Life events and psychological disturbances in patients with low-back pain. *Spine.* 15: 490-494, 1990.

Gorsky M, Silverman S Jr, Chinn H: Clinical characteristics and management outcome in the burning mouth syndrome. An open study of 130 patients. *Oral Surg Oral Med Oral Pathol.* 72: 192-195, 1991.

Grushka M: Clinical features of burning mouth syndrome. *Oral Surg Oral Med Oral Pathol.* 63(1): 30-36, 1987.

Guyatt GH, Feeny DH, Patrick DL: Measuring health-related quality of life. *Ann Intern Med.* 118: 622-629, 1993.

Headache Classification Subcommittee of the International Headache Society. The international classification of headache disorders, 2nd Ed. *Cephalgia.* 24(S1): 9-160, 2004.

Lamb AB, Lamey P-J, Reeve PE: Burning mouth syndrome: Psychological aspects. *Br Dent J.* 165: 256-260, 1988.

Lamey P-J, Lamb AB: Prospective study of aetiological factors in burning mouth syndrome. *Br Med J.* 296: 1243-1246, 1988.

Likert R: A technique for the measurement of attitudes. *Archives of Psychology.* 140: 1-55, 1932.

Lipton JA, Ship JA, Larach-Robinson D: Estimated prevalence and distribution of reported orofacial pain in the United States. *J Am Dent Assoc.* 124: 115-121, 1993.

Locker D: Measuring oral health: a conceptual framework. *Community Dent Health.* 5: 3-18, 1988.

Locker D, Jokovic, A: Using subjective oral health status indicators to screen for dental in older adults. *Community Dent Oral Epidemiol.* 24: 398-402, 1996.

Lopez-Jornet P, Camacho-alonso F, Lucero-Berdugo M: Quality of life in patients with burning mouth syndrome. *J Oral Pathol Med* 37: 389-394, 2008.

McGrath C, Bedi R: The value and use of 'quality of life' measures in the primary dental care setting. *Primary Dental Care* 6: 53-57, 1999.

McMillan AS, Leung KC, Leung WK, Wong MC, Lau CS, Mok TM: Impact of Sjögren's syndrome on oral health-related quality of life in southern Chinese. *J Oral Rehabil* 31: 653-659, 2004.

Mersky H., and Bogduk N. 1994. *Classification of chronic pain : Descriptions of chronic pain syndromes and definitions of pain terms*, 2nd ed. Seattle : IASP press.

Koh SB, Chang SJ, Kang MG, Cha BS, Park JK: Reliability and validity on measurement instrument for health status assessment in occupational workers. *Korean J of Preventive Medicine* 30(2): 251-266, 1997.

Scala A, Checchi L, Montecvecchi M, Marini I, Giamberardino MA: Update on burning mouth syndrome: overview and patient management. *Crit Rev Oral Biol Med* 14: 275-291, 2003.

Schierz O, John MT, Reibmann DR, Mehrstedt M, Szentpetery A: Comparison of perceived oral health in patients with temporomandibular disorders and dental anxiety using oral health-related quality of life profiles. *Qual Life Res* 17: 857-866, 2008.

Slade GD: Derivation and validation of a short-form oral health impact profile. *Community Dent Oral Epidemiol* 25: 284-290, 1997.

Slade GD, Spencer AJ: Development and evaluation of the Oral Health Impact Profile. *Community Dent Health*. 11: 3-11, 1994.

Slade GD, Strauss R, Atchison KA, Kressin NR, Locker D, Reisine ST: Conference summary: assessing oral health outcomes-measuring health status and quality of life. *Community Dent Health*. 15: 3-7, 1998.

Steele JG, Sanders AE, Slade GD, Allen PF, Lahti S, Nuttall N: How do age and tooth loss affect oral health impacts and quality of life? A study comparing two national samples. *Community Dent Oral Epidemiol*. 32: 107-114, 2004.

Stewart A., and Kamberg CJ. 1992. *Measuring functioning and well being : the medical outcomes study approach*, Durham, North Carolina : Duke University Press.

Strömbeck B, Ekdahl C, Manthorpe R, Wilkström I, Jacobsson L: Health-related quality of life in Sjögren's syndrome, rheumatoid arthritis and fibromyalgia compared to normal population data using SF-36. *Scand J Rheumatol*. 29: 20-28, 2000.

Suarez P, Clark GT: Burning mouth syndrome: an update on diagnosis and treatment methods. *J Calif Dent Assoc*. 34(8): 611-622, 2006.

Svensson P, Bjerring P, Arendt-Nielsen L, Kaaber S: Sensory and pain thresholds to orofacial argon laser stimulation in patients with chronic burning mouth syndrome. *Clin J Pain*. 9(3): 207-215, 1993.

Tabolli S, Bergamo F, Alessandrini L, Pietro C, Sampogna F, Abeni D: Quality of life and psychological problems of patients with oral mucosal disease in dermatological practice. *Dermatology*. 218(4): 314-320, 2009.

Vitkov L, Weitgasser R, Hannig M, Fuchs K, Krautgartner WD: Candida-induced stomatopyrosis and its relation to diabetes mellitus. *J Oral Pathol Med*. 32(1): 46-50, 2003.

Ware JE, Sherbourne CD: The MOS 36-item short-form health survey (SF-36). *Med Care*. 30(6): 473-483, 1992.

Zakrzewska JM., and Hamlyn PJ. 1999. *Facial pain*, Edited by Crombie IK. Seattle(W.A.) : IASP press.

## 국문요약

# 한국인을 대상으로 한 구강작열감증후군 환자의 삶의 질의 평가

만성 통증의 양상을 보이는 구강작열감증후군은 환자들의 신체적, 심리적인 면 뿐만 아니라 전반적인 삶의 질과의 연관성도 많은 연구들에서 보고되어 왔다. 하지만 현재까지의 대부분의 연구들에서는 구강작열감증후군 환자에게 있어서 총괄적인 건강 상태와 관련된 삶의 질을 평가하는 데에는 부족한 면이 있고, 이들의 관계에 대한 연구가 아직은 미흡한 상태이다.

이에 본 연구에서는 구강내과에 내원한 구강작열감증후군 환자를 대상으로 Medical Outcome Short Form Health Survey Questionnaire (SF-36)과 Oral Health Impact Profile (OHIP-49)를 이용한 평가를 시행하여, 시행 결과를 대조군의 결과와 비교, 분석하여 삶의 질과의 관계를 분석해 보고자 하였다.

총 60명의 구강작열감증후군 환자 및 60명의 건강한 대조군이 본 연구에 참여하였다. 각 군을 대상으로 전반적인 삶의 질을 평가하기 위해 고안된 설문인 SF-36과 구강 건강과 관련한 삶의 질을 평가하기 위해 고안된 설문인 OHIP-49를 시행하였고, 다음의 결과를 얻었다.

1. 구강작열감증후군과 전반적인 삶의 질 사이에는 유의한 상관관계가 관찰되었다. SF-36의 모든 항목에서 구강작열감증후군 환자군은 대조군에 비하여 현저히 낮은 점수를 보여 전반적인 삶의 질이 떨어지는 것으로 나타났다 ( $p < 0.001$ ).

2. 구강작열감증후군 환자군과 대조군 사이의 SF-36의 항목 당 평균 점수를 비교해 보았을 때, 신체적 통증 항목과 감정적 역할제한 항목에서 가장 큰 차이를 보였고, 신체적 기능 항목에서 가장 적은 차이를 보였다.

3. OHIP-49 설문지의 결과, 구강작열감증후군과 구강 건강과 관련한 삶의 질 사이에는 유의한 연관성이 관찰되었다. OHIP-49 각 항목의 평균에서 구강작열감증후군 환자군은 대조군에 비하여 현저히 높은 점수를 보여 구강 건강과 관련한 삶의 질이 떨어지는 것으로 나타났다 ( $p < 0.001$ ).

4. 구강작열감증후군 환자군과 대조군 사이의 OHIP-49의 항목 당 평균 점수를 비교해 보았을 때, 신체적 통증 항목에서 가장 큰 차이를 보였고, 사회적 결함 항목에서 가장 적은 차이를 보였다.

상기 연구 결과, 구강작열감증후군 환자에서 전반적인 삶의 질이 저하된 것으로 보인다. 두 설문지의 모든 항목에서 구강작열감증후군 환자군과 대조군 사이에서 유의한 차이를 보였지만, 특히 신체적 통증 항목에서 가장 큰 차이를 보였고, 감정적 역할제한 항목에서 또한 큰 차이를 보였다.

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핵심되는 말 : 구강작열감증후군, 삶의 질, 구강건강 관련 삶의 질

## APPENDIX

## Questionnaire for Medical Outcome Short Form Health Survey (SF-36)

다음은 건강에 대한 당신의 견해를 묻기 위한 것입니다. 당신이 어떻게 느끼고 평상 시에 어떻게 지내고 있는지를 기록하게 됩니다. 질문에 대한 대답이 해당되지 않을 경우 가장 비슷하다고 생각되는 란에 표시하여 주시기 바랍니다.

1. 평소 당신의 건강 상태는 어떻다고 생각하십니까?

- ① 최상이다      ② 매우 좋다      ③ 좋다      ④ 그저 그렇다      ⑤ 나쁘다

2. 작년과 비교하여 현재의 당신의 건강은 어떤 상태라고 생각하십니까?

- ① 작년보다 훨씬 좋다      ② 작년보다 조금 좋다      ③ 작년과 비슷하다  
④ 작년보다 조금 나빠졌다      ⑤ 작년보다 많이 나빠졌다.

3. 다음은 평상 시 당신의 활동에 관한 항목들입니다.

이러한 활동을 할 때 지장이 있으십니까? 있다면 어느 정도입니까?

항 목	지장이 많이 있다	지장이 약간 있다	지장이 전혀 없다
달리기, 무거운 물건 들어올리기, 격렬한 운동을 할 때	1	2	3
탁자 옮기기, 집안 청소, 배드민턴 치기	1	2	3
시장보기	1	2	3
한꺼번에 두 세 계단씩 오르기	1	2	3
한 계단씩 오르기	1	2	3
허리 구부리기 또는 무릎 꿇기	1	2	3
16km정도 걷기	1	2	3
마을 주변 산책, 동네 한 바퀴 걷기	1	2	3
집 주변 걷기	1	2	3
혼자 목욕이나 옷입기	1	2	3

4. 지난 한 달간 당신의 신체적인 어려움으로 일상 생활이나 직장에서 다음과 같은 어려움이 있었습니까?

	예	아니오
일하는 시간을 줄여야만 했다	1	2
원하는 만큼 일을 하지 못 했다	1	2
어떤 일을 할 때 힘이 들 때가 있었다	1	2
대부분의 일을 할 때 어려움이 있었다	1	2

5. 지난 한 달간 감정적인 어려움으로 일상 생활이나 직장에서 다음과 같은 어려움이 있었습니까?

	예	아니오
일하는 시간을 줄여야만 했다	1	2
원하는 만큼 일을 하지 못 했다	1	2
보통 때만큼 일에 집중할 수 없었다	1	2

6. 지난 한 달간 신체상의 어려움이나 감정상의 어려움으로 사회생활 (가족간, 친구간, 이웃간)에 어려움이 있었다면 어느 정도입니까?

- ① 어려움이 전혀 없었다
- ② 어려움이 약간 있었다
- ③ 어려움이 보통 정도 있었다
- ④ 어려움이 많았다
- ⑤ 어려움이 아주 많았다

7. 지난 한 달간 당신의 신체적인 아픔은 어느 정도였습니까?

- ① 전혀 없었다
- ② 아주 조금 아팠다
- ③ 보통 정도 아팠다
- ④ 보통이었다
- ⑤ 심했다
- ⑥ 매우 심했다

8. 지난 한 달간 신체적인 아픔으로 인해 정상적인 생활(집 밖의 일, 집안 일)에 지장이 있었습니까?

- ① 전혀 없었다    ② 약간 있었다    ③ 보통이었다    ④ 많았다    ⑤ 매우 많았다

9. 다음의 질문들은 지난 한 달간 여러분이 어떻게 느꼈고 어떤 일이 있었는지에 관한 것입니다.

항 목	항상 그렇다	대부분 그렇다	상당히 그렇다	가끔 그렇다	약간 그렇다	전혀 아니다
의욕이 넘쳤다	1	2	3	4	5	6
신경질적이었다	1	2	3	4	5	6
의기소침했었다	1	2	3	4	5	6
안정되고 평온했다	1	2	3	4	5	6
힘이 넘쳤다	1	2	3	4	5	6
우울하고 상심했었다	1	2	3	4	5	6
지쳤었다	1	2	3	4	5	6
행복했었다	1	2	3	4	5	6
피곤했었다	1	2	3	4	5	6

10. 지난 한 달간 몸이 불편하다든지 아니면 기분이 내키지 않아서 친척이나 친구 등을 방문하는 것과 같은 일들을 하는데 어려움이 어느 정도였습니까?

- ① 항상 어려웠다    ② 대부분 어려웠다    ③ 때때로 어려웠다  
 ④ 약간 어려웠다    ⑤ 전혀 어렵지 않았다

11. 다음의 질문에 대해 답해 주십시오.

항 목	확실히 그렇다	그런 것 같다	모르겠다	그런 것 같지 않다	전혀 그렇지 않다
나는 다른 사람들보다 더 쉽게 병에 걸리는 것 같다	1	2	3	4	5
나는 누구보다도 건강하다	1	2	3	4	5
나의 건강은 점점 나빠질 것이다	1	2	3	4	5
나의 건강은 매우 좋다	1	2	3	4	5

### Questionnaire for Oral Health Impact Profile (OHIP-49)

※ 매우: 1주일에 2-3회 이상    자주: 1주일에 1회 정도    가끔: 한 달에 2-3회 정도 거의: 한 달에 1회 이하    전혀: 경험한 적이 없음					
지난 3개월 동안 치아나 잇몸 때문에 아래의 경험을 얼마나 자주 겪으셨습니까?	매우	자주	가끔	거의	전혀
1. 음식을 씹기 힘들었던 경험이 있으십니까? 있다면 얼마나 자주 그러셨습니까?					
2. 발음이 잘 안되어 불편했던 적이 있으십니까? 있다면 얼마나 자주 그러셨습니까?					
3. 치아가 보기에 흉하다고 느끼신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
4. 외모를 나빠 보이게 한다고 느끼신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
5. 입냄새가 난다고 느끼신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
6. 맛을 느끼는 감각이 예전보다 나빠졌다고 느끼신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
7. 음식물이 이, 틀니나 보철물에 낀 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
8. 소화가 잘 안 된다고 느끼신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
9. 틀니나 해 넣은 이가 잘 안 맞는다고 느끼신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
10. 혀나 혀밑, 뺨 입천정 등이 아픈 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
11. 가만히 있거나 입을 벌리거나 다물 때, 또는 음식을 씹을 때 턱이 아픈 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
12. 두통을 겪으신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
13. 차거나 뜨거운 음식이나 음료수 때문에 이가 시리거나 아픈 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
14. 이가 아픈 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
15. 잇몸이 아픈 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					

16. 아프거나 거북스러운 입안의 문제 때문에 음식 먹기가 불편한 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
17. 입안을 건드리면 아픈 곳이 생긴 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
18. 틀니나 해 넣은 이가 불편하신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
19. 걱정을 하신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
20. 창피해서 다른 사람을 만나기가 꺼려지신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
21. 자신이 딱하다고 생각하신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
22. 입안이 보기 흉해서 언짢았던 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
23. 신경이 많이 쓰인 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
24. 또렷하게 이야기하기가 어려웠던 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
25. 하시는 말씀을 다른 사람들이 잘못 알아들은 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
26. 예전에 드시던 음식들이 덜 맛있게 느껴지신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
27. 이를 제대로 닦지 못한 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
28. 특정한 음식을 피하게 된 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
29. 식생활이 불만스러운 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
30. 틀니나 해 넣은 이로 음식을 씹어드실 수 없었던 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
31. 보기 흉할까봐 웃는 것을 꺼려하신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
32. 식사를 도중에 중단하신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					

33. 신경이 쓰여서 잠을 설치신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
34. 울화가 치민 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
35. 편안하게 쉬지 못하신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
36. 우울해 진 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
37. 정신집중을 하는 데 방해받은 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
38. 난처하거나 당황스러웠던 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
39. 외출이 꺼리시던 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
40. 가족이나 배우자에게 베풀었던 너그러움이 줄어든 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
41. 다른 사람들과 어울려 지내기에 어려움을 느끼신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
42. 다른 사람들에게 화를 잘 내게 되신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
43. 평소 하시던 일을 하기가 어려웠던 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
44. 몸건강이 나빠졌다고 느끼신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
45. 경제적으로 어려우셨던 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
46. 다른 사람과 한 자리에서 어울리는 것이 예전만큼 즐겁지 않게 된 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
47. 살아가는 것이 예전에 비해서 덜 만족스럽다고 느끼신 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
48. 정신적 신체적 사회적으로 전혀 제 몫을 할 수 없었던 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					
49. 일할 때의 본인의 능력을 최대한 발휘할 수 없었던 적이 있습니까? 있다면 얼마나 자주 그러셨습니까?					