



身体扫描正念训练在灼口综合征患者中应用效果评价*

何 静^{1,2}, 肖 宁¹, 胡明佳¹, 李 佳^{1,2}, 刘 帆^{1,2△}

1. 口腔疾病防治全国重点实验室 国家口腔医学中心 口腔疾病国家临床医学研究中心 四川大学华西口腔医院(成都 610041);

2. 四川大学华西护理学院 护理学四川省重点实验室(成都 610041)

【摘要】目的 通过应用身体扫描正念训练对灼口综合征(Burning mouth syndrome, BMS)患者进行干预,评价其临床应用效果。**方法** 本研究采用随机、对照、盲法评估的临床研究设计方案,利用随机数字表法将通过纳入排除标准筛选的BMS患者分为对照组和试验组。对照组采用药物治疗及常规心理护理措施,试验组在对照组基础上增加2周身体扫描正念训练。在干预前、干预后及干预后3个月采用视觉模拟评分法(Visual Analogue Scale, VAS)、失眠严重指数量表(Insomnia Severity Index, ISI)、广泛性焦虑量表(Generalized Anxiety Disorder-7, GAD-7)、患者健康问卷抑郁量表(Patient Health Questionnaire-9, PHQ-9)及口腔健康影响程度量表(Oral Health Impact Profile-14, OHIP-14)分别评估患者的疼痛程度、睡眠质量、焦虑程度、抑郁程度及口腔健康相关生活质量。通过比较两组干预前后主要结局指标(VAS)及次要结局指标(ISI、GAD-7、PHQ-9及OHIP-14)的变化差异,评估身体扫描正念训练对BMS患者的干预效果。**结果** 本研究共纳入80例研究对象,失访3例,最终77例(对照组38例,试验组39例)患者纳入分析。干预后试验组VAS、ISI、GAD-7及PHQ-9减少的差值中位数(P_{25}, P_{75})分别为2.00 (1.00, 3.00)、3.00 (0.00, 8.00)、3.00 (1.00, 6.75)和2.00 (0.00, 5.00),均大于对照组减少的差值[0.95 (0.00, 2.50)、0.00 (0.00, 3.00)、1.00 (0.00, 3.25)和1.00 (0.00, 2.00)],差异有统计学意义($P < 0.05$);两组OHIP-14减少的差值差异无统计学意义($P > 0.05$)。干预后及干预后3个月试验组VAS均低于对照组,差异有统计学意义($P < 0.05$)。**结论** BMS患者在常规药物治疗的基础上进行身体扫描正念训练,能有效缓解其口腔烧灼样疼痛程度,也有助于改善睡眠质量、缓解焦虑及抑郁情绪,值得在临床中推广应用。

【关键词】 灼口综合征 身体扫描 正念 疼痛

Evaluation of the Effects of Body Scan Mindfulness Training in Patients With Burning Mouth Syndrome

He Jing^{1,2}, Xiao Ning¹, Hu Mingjia¹, Li Jia^{1,2}, Liu Fan^{1,2△}. 1. State Key Laboratory of Oral Diseases & National Center for Stomatology & National Clinical Research Center for Oral Diseases & West China Hospital of Stomatology, Sichuan University, Chengdu 610041, China; 2. West China School of Nursing, Sichuan University & Nursing Key Laboratory of Sichuan Province, Chengdu 610041, China

△ Corresponding author

This study was supported by the research planning project of the Psychological Society of Sichuan Province (No. SCSXLXH2022005).

[Abstract] Objective To evaluate the clinical efficacy of body scan mindfulness training as an intervention for patients with burning mouth syndrome (BMS). **Methods** This randomized, controlled, single-blind clinical trial enrolled patients with BMS who met the inclusion and exclusion criteria. Participants were assigned to a control group or an intervention group using a random number table. The control group received pharmacological treatment and routine psychological care, while the intervention group additionally received two weeks of body scan mindfulness training. The Visual Analog Scale (VAS), Insomnia Severity Index (ISI), Generalized Anxiety Disorder-7 (GAD-7), Patient Health Questionnaire-9 (PHQ-9), and Oral Health Impact Profile (OHIP-14) were used to assess pain intensity, sleep quality, anxiety, depression, and oral health-related quality of life, respectively, at baseline, immediately after the intervention, and 3 months after the intervention. The efficacy of body scan mindfulness training for patients with BMS was evaluated by comparing changes in the primary outcome measure (VAS) and secondary outcome measures (ISI, GAD-7, PHQ-9, and OHIP-14) between the two groups before and after the intervention. **Results** A total of 80 patients were enrolled in this study; 3 were lost to follow-up, and 77 patients (38 in the control group and 39 in the intervention group) were included in the analysis. The median changes (P_{25}, P_{75}) in VAS, ISI, GAD-7, and PHQ-9 scores after the intervention in the

* 四川省心理学会科研规划项目(No. SCSXLXH2022005)资助

△ 通信作者

出版日期: 2026-07-20

experimental group were 2.00 (1.00, 3.00), 3.00 (0.00, 8.00), 3.00 (1.00, 6.75), and 2.00 (0.00, 5.00), respectively. These were all greater than the corresponding changes in the control group (0.95 [0.00, 2.50], 0.00[0.00, 3.00], 1.00 [0.00, 3.25], and 1.00 [0.00, 2.00]), with statistically significant differences. ($P < 0.05$). No significant difference was observed in the reduction of OHIP-14 scores between the two groups ($P > 0.05$). Both immediately after the intervention and at 3 months post-intervention, the VAS score remained significantly lower in the intervention group than in the control group ($P < 0.05$). **Conclusion** For patients with BMS, implementing body scan mindfulness training alongside conventional drug treatment has proven effective in alleviating the intensity of oral burning pain, improving sleep quality, and reducing anxiety and depression. These findings suggest that body scan mindfulness training is a promising adjuvant therapy for patients with BMS receiving conventional drug treatment, and warrants broader clinical adoption.

[Key words] Burning mouth syndrome Body scan Mindfulness Pain

灼口综合征(burning mouth syndrome, BMS)是临床最常见的口腔黏膜病之一,是以口腔黏膜烧灼样疼痛为主要临床表现的一组症候群,但患者口内无明显的临床损害体征^[1]。据报道,普通人群中BMS的患病率为1.73%,临床患者中为7.72%,围绝经期和绝经后女性是最主要的患病人群^[2]。长期慢性疼痛易引发患者身心消耗,且BMS容易引起患者睡眠障碍^[3]及焦虑、抑郁等情绪困扰^[4],对患者生活质量产生负面影响^[5]。BMS的病因及发病机制目前尚不明确,其治疗及管理仍是一个重要的临床挑战^[6-7]。心理干预在慢性疼痛患者管理中发挥着重要的作用,其中正念已成为应用广泛的干预措施之一^[8]。身体扫描是正念减压疗法的核心组成部分,它以接纳、非评判的方式觉察身体及调节压力^[9]。目前已有学者将身体扫描正念训练应用于慢性疼痛患者中,可改善疼痛症状,降低疼痛对患者的影响^[9-10]。其在改善睡眠质量和缓解焦虑、抑郁等情绪困扰方面也具有一定的效果^[11-13]。前期研究显示,BMS患者的疼痛程度与正念水平存在一定相关性,焦虑、抑郁水平与正念的不同维度之间也存在一定相关性,提示基于正念的干预措施可能成为BMS管理的有效干预方式^[14]。因此本研究拟对BMS患者进行身体扫描正念训练干预,并评价其临床应用效果,以期对BMS患者临床管理提供参考。

1 资料与方法

1.1 研究对象

采用便利抽样的方法选择2023年3—8月在四川大学华西口腔医院口腔黏膜病科依据第1版国际口腔面部疼痛分类^[15]被诊断为BMS的患者为研究对象,所有参与者均自愿参加并签署了知情同意书。本研究已通过四川大学华西口腔医院医学伦理委员会的审批(批件号:WCHSIRB-CT-2022-474)。在研究开始前在中国临床试验注册中心完成了注册(注册号:ChiCTR2300068093)。纳入标准:①符合BMS的诊断标准;②18~80岁;③能独

立使用智能手机;④无听力障碍,具备正常交流理解能力;⑤经研究者解释后,理解研究内容,自愿参加本研究。排除标准:①同时患有其他口腔黏膜病;②有明显口腔局部刺激因素;③患有较严重的全身系统性疾病或长期服用药物;④患有邻近器官疾病;⑤患有其他引起疼痛的疾病;⑥患有已确诊的精神心理疾病,1个月内服用过抗焦虑、抗抑郁药或接受过心理治疗/干预;⑦有正念训练经历;⑧无法配合完成研究内容。

1.2 研究设计

本研究采用随机、对照、盲法评估的临床研究设计方案。以主要结局指标疼痛程度(visual analogue scale, VAS)评分为计算指标,根据预试验结果:干预后相较于干预前试验组VAS比对照组多降低了2.28分(试验组标准差=1.88,对照组标准差=1.82)。利用PASS 15软件,选择Power = 0.9, $\alpha = 0.05$ 进行计算,并考虑20%的失访率,最终确定每组样本量为40例。由一名未参与研究实施过程的研究人员采用随机数字表法将患者随机分为对照组和试验组。

1.3 干预方案

1.3.1 对照组干预方案

对照组采用药物治疗及常规心理护理措施。药物选用BMS治疗常用药物硫辛酸^[16]。常规心理护理措施包括:在治疗后向患者进行健康宣教,重点介绍心理因素与疾病的关系,引导患者正确面对疾病,保持良好的心态,舒缓紧张情绪。常规心理护理由一名主管护师专人负责,并与患者建立微信联系,患者可通过微信咨询疾病及用药等相关问题。

1.3.2 试验组干预方案

试验组在对照组干预方案基础上增加2周身体扫描正念训练。身体扫描正念训练由同一主管护师负责,其具有三级心理咨询师资质。根据Kabat-Zinn创立的经典训练内容^[17],结合前期研究结果^[14]及BMS患者特点制定训练指导语,并录制成音频。护士首先为患者介绍身体

扫描正念训练的内容、作用、训练时的态度及注意事项等,让患者充分认识身体扫描正念训练。随后指导患者进行训练,训练时长约15 min,指导语与录音一致,结束后鼓励患者分享练习中的感受,针对练习中的问题进行答疑。与患者建立微信联系,将录音发送到患者手机,指导患者使用。要求患者每日跟随音频练习1次,连续练习2周。因BMS患者疼痛症状呈现晨轻晚重的时间节律性改变^[18],且大部分患者晚上时间相对充足,因此推荐患者每日练习时间为18:00–22:00。同时鼓励其在练习结束后分享感受并进行答疑,记录患者练习天数。练习时间 ≥ 12 d,视为完成干预。

1.4 观察指标

由经过培训的一名独立评估员负责患者资料收集及结局指标评估,该评估人员不知晓分组情况,不参与患者干预及管理,以尽量减少评估人员对试验结果的主观影响。在干预前收集患者的基线特征信息,包括年龄、性别、婚姻状况、文化程度、工作状态、患病时间、近1年是否存在有压力的生活事件及近1个月是否服药。在干预前、干预后及干预后3个月评估患者结局指标,干预前及干预后由患者自行填写纸质版问卷,干预后3个月由评估员进行电话随访,根据患者描述填写问卷。通过比较两组干预前后结局指标的变化差异,评估身体扫描正念训练对BMS患者的干预效果。

1.4.1 主要结局指标

采用VAS评估患者当日的平均疼痛程度,具体操作方法参考文献^[19]。评分范围0~10分。0分无疼痛,10分疼痛最严重。

1.4.2 次要结局指标

采用失眠严重指数量表(Insomnia Severity Index, ISI)评估患者的睡眠质量,总分为0~28分,得分越高提示失眠程度越严重^[20]。采用广泛性焦虑量表(Generalized Anxiety Disorder-7, GAD-7)/患者健康问卷抑郁量表(Patient Health Questionnaire-9, PHQ-9)分别评估患者的焦虑/抑郁程度,总分为0~21分/0~27分,分值越高焦虑/抑郁程度越严重^[21]。采用口腔健康影响程度量表(Oral Health Impact Profile, OHIP-14)评估患者的口腔健康相关生活质量,总分为0~56分,得分越高表明口腔健康相关生活质量越差^[22]。

1.5 统计学方法

利用SPSS 24.0软件对数据进行统计分析,干预后效果比较采用改良意向性治疗(modified intention-to-treat, mITT)分析^[23],随访结果比较采用符合方案(Per protocol, PP)分析。计数资料以频数或率(%)进行统计描述,计量

资料采用 $\bar{x} \pm s$ 或中位数(P_{25} , P_{75})进行统计描述。计数资料比较采用Pearson卡方检验,计量资料采用 t 检验或Mann-Whitney U 检验, $P < 0.05$ 为差异有统计学意义。

2 结果

2.1 一般资料比较

研究过程中有3例患者失访(对照组2例,试验组1例)、3例未按计划完成干预。根据mITT分析,失访患者被排除,因此干预后纳入分析的患者为77例(对照组38例,试验组39例)。3个月后对照组1例患者失访,试验组未按计划完成正念训练的3例患者未进行随访,纳入随访结果分析的患者为73例(对照组37例,试验组36例)。两组患者年龄、性别、婚姻状况、文化程度、工作状态、患病时间、近1年是否存在有压力的生活事件及近1个月内是否服药差异均无统计学意义($P > 0.05$),见表1。

表1 两组一般资料比较
Table 1 Comparison of general data between the two groups

Item	Control group (<i>n</i> = 38)	Test group (<i>n</i> = 39)	t/χ^2	<i>P</i>
Age/yr.	58.32 $\pm$ 10.22	54.82 $\pm$ 8.90	-1.602	0.113
Sex				
Male	3 (7.9)	4 (10.3)	0.130	0.719
Female	35 (92.1)	35 (89.7)		
Marital status			0.130	0.719
Unmarried/Divorced/ widowed	3 (7.9)	4 (10.3)		
Married	35 (92.1)	35 (89.7)		
Education level			3.065	0.398
Primary school or less	19 (50.0)	13 (33.3)		
Junior high school	10 (26.3)	10 (25.6)		
High school to college	7 (18.4)	12 (30.8)		
Bachelor's degree or higher	2 (5.3)	4 (10.3)		
Occupation category			2.522	0.112
Unemployed or retired	28 (73.7)	22 (56.4)		
Employed	10 (26.3)	17 (43.6)		
Duration of symptoms			2.037	0.361
< 1 year	17 (44.7)	20 (51.3)		
1-3 years	18 (47.4)	13 (33.3)		
> 3 years	3 (7.9)	6 (15.4)		
Stressful life events in the last year			1.141	0.285
No	25 (65.8)	21 (53.8)		
Yes	13 (34.2)	18 (46.2)		
Taken medication in the last month			0.024	0.877
No	25 (65.8)	25 (64.1)		
Yes	13 (34.2)	14 (35.9)		

Data are presented as $\bar{x} \pm s$ or case (%).

2.2 两组间疗效比较

试验组干预后VAS、ISI、GAD-7及PHQ-9较干预前减少的差值均大于对照组, 差异有统计学意义($P < 0.05$), 两组OHIP-14减少的差值无明显差异($P > 0.05$), 见表2。

2.3 两组结局指标比较

干预前两组VAS、ISI、GAD-7、PHQ-9及OHIP-14差异没有统计学意义($P > 0.05$)。干预后及干预后3个月, 试验组VAS低于对照组, 差异有统计学意义($P < 0.05$); 两组ISI、GAD-7、PHQ-9及OHIP-14差异无统计学意义($P > 0.05$)。详见表3。

表 2 两组干预后与干预前结局指标的差值比较

Table 2 Comparison of changes in outcome indicators between the two groups before and after the intervention

Outcomes	Control group (n = 38)	Test group (n = 39)	Z	P
VAS	0.95 (0.00, 2.50)	2.00 (1.00, 3.00)	-2.570	0.010
ISI	0.00 (0.00, 3.00)	3.00 (0.00, 8.00)	-2.770	0.006
GAD-7	1.00 (0.00, 3.25)	3.00 (1.00, 6.75)	-2.331	0.020
PHQ-9	1.00 (0.00, 2.00)	2.00 (0.00, 5.00)	-2.560	0.010
OHIP-14	3.00 (1.00, 6.25)	5.00 (2.00, 8.00)	-0.804	0.401

Data are presented as Median(P₂₅, P₇₅). VAS: visual analog scale; ISI: insomnia severity index; GAD: generalized anxiety disorder; PHQ: patient health questionnaire; OHIP: oral health impact profile-14.

表 3 两组干预前后及干预后3个月结局指标比较

Table 3 Comparison of outcome indicators between the two groups before and after intervention, as well as at 3 months post-intervention

Outcomes	Before intervention				After intervention				3 months post-intervention			
	Control group (n = 38)	Test group (n = 39)	Z/t	P	Control group (n = 38)	Test group (n = 39)	Z/t	P	Control group (n = 37)	Test group (n = 36)	Z/t	P
VAS	5.00 (3.50, 7.08)	5.00 (4.00, 6.00)	-0.571	0.569	4.00 (2.30, 5.10)	2.50 (0.50, 4.40)	-2.308	0.021	2.00 (1.00, 4.25)	0.75 (0.00, 2.48)	-2.167	0.030
ISI	4.00 (1.00, 9.25)	8.00 (3.00, 11.00)	-1.861	0.063	2.50 (1.00, 8.00)	4.00 (2.00, 6.00)	-0.072	0.943	2.00 (1.00, 5.00)	2.00 (1.00, 4.00)	-0.158	0.875
GAD-7	3.50 (1.00, 6.25)	4.00 (2.00, 10.00)	-1.213	0.225	1.00 (0.00, 3.00)	1.00 (0.00, 4.00)	-0.383	0.702	0.00 (0.00, 2.00)	0.00 (0.00, 1.00)	-0.126	0.899
PHQ-9	2.00 (1.00, 3.00)	3.00 (2.00, 8.00)	-1.918	0.055	1.00 (0.00, 2.00)	1.00 (0.00, 4.00)	-0.717	0.473	0.00 (0.00, 2.00)	0.00 (0.00, 1.00)	-1.242	0.214
OHIP-14	8.50 (5.00, 15.00)	9.00 (6.00, 14.00)	-0.495	0.621	4.50 (2.00, 10.25)	4.00 (2.00, 9.00)	-0.916	0.360	2.00 (1.00, 5.50)	1.00 (0.00, 4.75)	-1.919	0.055

Data are presented as Median(P₂₅, P₇₅). The abbreviations are explained in the note to Table 2.

3 讨论

3.1 身体扫描正念训练能有效缓解BMS患者口腔疼痛程度

BMS是一种以口腔黏膜烧灼样疼痛为主要特征的顽固性慢性疼痛性疾病, 因此缓解患者的口腔疼痛感是BMS疾病管理的重点^[1]。本研究首次将身体扫描正念训练引入BMS患者群体, 结果显示试验组干预后较干预前VAS减少的差值大于对照组, 干预后及干预后3个月试验组疼痛程度均低于对照组。说明身体扫描正念训练能有效缓解BMS患者的疼痛程度, 与前期研究结果一致^[9-10]。疼痛是一种多维度的复合感觉, 其痛苦体验涉及认知、情感、感觉等多个维度^[24]。目前认为正念干预缓解疼痛的机制是多方面和复杂的^[25-26]。BMS患者存在明显的疼痛灾难化认知, 影响患者疼痛体验及口腔症状^[27], 而基于正念的干预可显著改善患者疼痛灾难化认知^[28]。身体扫描正念训练引导患者以一种不反应的态度面对口腔疼痛, 接纳疼痛带来的情绪和感受, 有助于帮助患者摆脱对疼痛的灾难化思维模式, 从而改善疼痛体验。另一方面, 身体扫描正念训练通过“扫描”整个身体, 可弱化个体对口腔内疼痛的关注度, 也有助于缓解患者的口腔疼痛感。

3.2 身体扫描正念训练有助于改善BMS患者睡眠质量

研究结果显示试验组干预后较干预前ISI减少的差值大于对照组, 说明身体扫描正念训练有助于改善BMS患者的睡眠质量, 与前期研究结果一致^[11, 13]。推测原因可能是因为身体扫描正念训练过程中, 带领者引导患者以不判断的态度关注身体不同部位及当下的感觉。不判断的态度有助于帮助个人放下思想、心理负担和情绪, 从而减少反刍思维, 提高睡眠质量^[29]。有研究提示身体扫描正念练习是一种能够帮助更快入睡的有效工具, 效果持久且没有副作用^[30], 所以在临床中可以考虑应用身体扫描正念训练改善BMS患者的睡眠问题。

3.3 身体扫描正念训练有助于改善BMS患者焦虑/抑郁情绪

本研究试验组干预后较干预前GAD-7及PHQ-9减少的差值均大于对照组, 提示身体扫描正念训练可帮助患者缓解焦虑及抑郁情绪。身体扫描正念训练强调重复性与专注性, 有助于重塑BMS患者对口腔不适的感知模式, 减少情绪放大效应。通过正念训练可增强患者的痛苦耐受能力, 从而缓解抑郁和焦虑^[31]。有研究显示身体扫描正念训练有助于降低焦虑及抑郁程度^[11-13]。但也有研究认为仅进行身体扫描正念训练对情绪的改善作用有限^[32]。

因不良情绪的形成是一个复杂的过程,受多方面影响,特别是中到重度的焦虑/抑郁情绪,需要专业的心理治疗及干预。因此在临床中若发现BMS患者合并中到重度的焦虑/抑郁情绪,应做好心理健康教育,指导患者进一步寻求专业帮助。

综上所述,BMS患者在常规药物治疗的基础上进行身体扫描正念训练,能有效缓解其口腔烧灼样疼痛程度,有助于改善睡眠质量、缓解焦虑及抑郁情绪。身体扫描正念训练可借助音频引导患者在家完成标准化训练,简单易行,患者自主参与可提升其对疾病管理的主动性,也有助于降低治疗成本,而目前BMS缺乏有效的治疗及管理手段^[18],因此,身体扫描正念训练值得在BMS患者群体中推广应用。本研究仍存在一定的局限性:首先,本研究仅在单中心开展,后续可多中心开展并验证身体扫描正念训练在BMS患者中的应用效果;其次,本研究控制了实施人员以减少偏差,但常规心理护理未限定干预时长与频率,可能对结果稳定性有一定影响,未来研究可进一步规范常规心理护理的干预细节,以提高组间可比性。最后,在3个月随访期间未对患者进行严格管理,试验组部分患者未能坚持练习或仅偶尔进行练习,对随访结果存在一定影响,后续可进一步探索身体扫描正念训练对BMS患者的远期干预效果。

* * *

作者贡献声明 何静负责论文构思、正式分析、经费获取、调查研究、研究方法、研究项目管理、可视化和初稿写作,肖宁和李佳负责数据审编和研究方法,胡明佳负责调查研究和研究项目管理,刘帆负责提供资源、监督指导和审读与编辑写作。所有作者已经同意将文章提交给本刊,且对将要发表版本进行最终定稿,并同意对工作的所有方面负责。

Author Contribution He Jing is responsible for conceptualization, formal analysis, funding acquisition, investigation, methodology, project administration, visualization, and writing--original draft. Xiao Ning and Li Jia are responsible for data curation and methodology. Hu Mingjia is responsible for investigation and project administration. Liu Fan is responsible for resources, supervision, and writing--review and editing. All authors consented to the submission of the article to the Journal. All authors approved the final version to be published and agreed to take responsibility for all aspects of the work.

利益冲突 所有作者均声明不存在利益冲突

Declaration of Conflicting Interests All authors declare no competing interests.

参 考 文 献

- [1] Lu C, Jiang M, Li X, *et al.* Burning Mouth Syndrome: A Narrative Review of Neurobiological Mechanisms and Management Strategies[J]. *J Oral Rehabil*, 2025, 52(11): 2152. DOI: [10.1111/joor.70020](https://doi.org/10.1111/joor.70020).
- [2] Wu S, Zhang W, Yan J, *et al.* Worldwide prevalence estimates of burning mouth syndrome: A systematic review and meta-analysis[J]. *Oral Dis*, 2022, 28(6): 1431. DOI: [10.1111/odi.13868](https://doi.org/10.1111/odi.13868).
- [3] Alhend I F, Ko E, Graham L, *et al.* The association of sleep disturbances with burning mouth syndrome: An overlooked relationship-A qualitative systematic review[J]. *Oral Dis*, 2023, 29(1): 6. DOI: [10.1111/odi.14051](https://doi.org/10.1111/odi.14051).
- [4] Zhang Y, Ye S, Zhang Y, *et al.* Potential salivary and serum biomarkers for burning mouth syndrome and their relationship with anxiety/depression[J]. *J Dent Sci*, 2024, 19(2): 1052. DOI: [10.1016/j.jds.2023.06.003](https://doi.org/10.1016/j.jds.2023.06.003).
- [5] Zhao H, Ran S, Gan K, *et al.* Pain sensitivity and quality of life of patients with burning mouth syndrome: a preliminary study in a Chinese population[J]. *BMC Oral Health*, 2023, 23(1): 951. <https://link.springer.com/article/10.1186/s12903-023-03689-2>.
- [6] Lin J, Wan J, Zha T, *et al.* Burning mouth syndrome: Unraveling multifactorial etiologies and advancing management strategies[J]. *Oral Dis*, 2026, 32(3): 602. DOI: [10.1111/odi.70116](https://doi.org/10.1111/odi.70116).
- [7] Sangalli L, Mirfarsi S, Kramer J M, *et al.* Managing burning mouth syndrome: Current and future directions[J]. *Drugs*, 2025, 85(9): 1109. DOI: [10.1007/s40265-025-02220-x](https://doi.org/10.1007/s40265-025-02220-x).
- [8] Ussher M, Spatz A, Copland C, *et al.* Immediate effects of a brief mindfulness-based body scan on patients with chronic pain[J]. *J Behav Med*, 2014, 37(1): 127. DOI: [10.1007/s10865-012-9466-5](https://doi.org/10.1007/s10865-012-9466-5).
- [9] Halbedl H, Pfabigan D M, Ebhardt I, *et al.* Mindfulness-based body scan training in multimodal physiotherapy for vulvodynia: a randomized controlled feasibility study[J/OL]. *J Psychosom Obstet Gynaecol*, 2025, 46(1): 2531057. <https://doi.org/10.1080/0167482x.2025.2531057>.
- [10] Zhou J, Peng P, Xie X. Prevalence of pain and effects of a brief mindfulness-based intervention on chinese community-dwelling older adults with chronic pain[J]. *J Community Health Nurs*, 2018, 35(1): 19. DOI: [10.1080/07370016.2018.1404831](https://doi.org/10.1080/07370016.2018.1404831).
- [11] Huang X, Hou G, Li H, *et al.* Impact of Brief Mindfulness Intervention on Emotions, Sleep and Quality of Life in Patients with Newly Diagnosed Amyotrophic Lateral Sclerosis: A Prospective Study[J]. *Neurol Ther*, 2025, 14(6): 2375. DOI: [10.1007/s40120-025-00816-9](https://doi.org/10.1007/s40120-025-00816-9).
- [12] Bouchard G, Gallant J. Differential effects of a brief body scan session on pain and anxiety levels[J]. *Couns Psychother Res*, 2024, 24(3): 1069. DOI: [10.1002/capr.12785](https://doi.org/10.1002/capr.12785).
- [13] Johles L, Norell A, Lundqvist C, *et al.* Is a Brief Body Scan Helpful for Adolescent Athletes' Sleep Problems and Anxiety Symptoms[J]? *Mindfulness*, 2023, 14: 1522. DOI: [10.1007/s12671-023-02149-w](https://doi.org/10.1007/s12671-023-02149-w).
- [14] He J, Liu J, Ye X, *et al.* Associations between pain, anxiety and depression and mindfulness in patients with burning mouth syndrome: a cross-sectional study[J]. *J Oral Facial Pain Headache*, 2025, 39(3): 113. DOI: [10.22514/jofph.2025.053](https://doi.org/10.22514/jofph.2025.053).
- [15] International Classification of Orofacial Pain, 1st edition (ICOP)[J]. *Cephalalgia*, 2020, 40(2): 129. DOI: [10.1177/0333102419893823](https://doi.org/10.1177/0333102419893823).
- [16] Tan H L, Smith J G, Hoffmann J, *et al.* A systematic review of treatment for patients with burning mouth syndrome[J]. *Cephalalgia*, 2022, 42(2): 128. DOI: [10.1177/03331024211036152](https://doi.org/10.1177/03331024211036152).
- [17] Kabat-Zinn J. Foreword: Seeds of a necessary global renaissance in the making: the refining of psychology's understanding of the nature of mind, self, and embodiment through the lens of mindfulness and its origins at a key inflection point for the species[J/OL]. *Curr Opin Psychol*, 2019, 28: xi. <https://doi.org/10.1016/j.copsyc.2019.02.005>.
- [18] 陈谦明. 口腔黏膜病学(第五版)[M]. 北京: 人民卫生出版社, 2020: 134-135.
- [19] Chen Q M. Oral mucosal diseases (5th Edition)[M]. Beijing: People's Medical Publishing House, 2020: 134-135.
- [19] Canfora F, Calabria E, Pecoraro G, *et al.* The use of self-report questionnaires in an analysis of the multidimensional aspects of pain and a correlation with the psychological profile and quality of life in patients with burning mouth syndrome: A case-control study[J]. *J Oral Rehabil*, 2022, 49(9): 890. DOI: [10.1111/joor.13343](https://doi.org/10.1111/joor.13343).
- [20] Bastien C H, Vallieres A, Morin C M. Validation of the Insomnia Severity Index as an outcome measure for insomnia research[J]. *Sleep Med*, 2001, 2(4): 297. DOI: [10.1016/s1389-9457\(00\)00065-4](https://doi.org/10.1016/s1389-9457(00)00065-4).
- [21] Ong C W, Pierce B G, Klein K P, *et al.* Longitudinal measurement

- invariance of the PHQ-9 and GAD-7[J]. *Assessment*, 2022, 29(8): 1901. DOI: [10.1177/10731911211035833](https://doi.org/10.1177/10731911211035833).
- [22] 辛蔚妮, 凌均策. 口腔健康影响程度量表的验证研究[J]. *中华口腔医学杂志*, 2006, 41(4): 242. DOI: [10.3760/j.issn:1002-0098.2006.04.016](https://doi.org/10.3760/j.issn:1002-0098.2006.04.016).
Xin W N, Ling J Q. Validation of a Chinese version of oral health impact profile-14[J]. *Chin J Stomatol*, 2006, 41(4): 242. DOI: [10.3760/j.issn:1002-0098.2006.04.016](https://doi.org/10.3760/j.issn:1002-0098.2006.04.016).
- [23] Dossing A, Tarp S, Furst D E, *et al*. Modified intention-to-treat analysis did not bias trial results[J]. *J Clin Epidemiol*, 2016, 72: 66. DOI: [10.1016/j.jclinepi.2015.11.003](https://doi.org/10.1016/j.jclinepi.2015.11.003).
- [24] 计昱岐, 周福庆. 慢性疼痛病人动态疼痛连接组的功能MRI研究进展[J]. *中国疼痛医学杂志*, 2023, 29(1): 38. DOI: [10.3969/j.issn.1006-9852.2023.01.008](https://doi.org/10.3969/j.issn.1006-9852.2023.01.008).
Ji Y Q, Zhou F Q. Advances in functional mri studies of dynamic pain connectivity in chronic pain patients[J]. *Chin J Pain Med*, 2023, 29(1): 38. DOI: [10.3969/j.issn.1006-9852.2023.01.008](https://doi.org/10.3969/j.issn.1006-9852.2023.01.008).
- [25] Riegner G, Posey G, Oliva V, *et al*. Disentangling self from pain: mindfulness meditation-induced pain relief is driven by thalamic-default mode network decoupling[J]. *Pain*, 2023, 164(2): 280. DOI: [10.1097/j.pain.0000000000002731](https://doi.org/10.1097/j.pain.0000000000002731).
- [26] Estave P M, Margol C, Beeghly S, *et al*. Mechanisms of mindfulness in patients with migraine: Results of a qualitative study[J]. *Headache*, 2023, 63(3): 390. DOI: [10.1111/head.14481](https://doi.org/10.1111/head.14481).
- [27] Chana P, Smith J G, Karamat A, *et al*. Catastrophising, pain self-efficacy and acceptance in patients with Burning Mouth Syndrome[J]. *J Oral Rehabil*, 2021, 48(4): 458. DOI: [10.1111/joor.13136](https://doi.org/10.1111/joor.13136).
- [28] Kruse J A, Seng E K. Changes in cognitive appraisal in a randomized controlled trial of mindfulness-based cognitive therapy for patients with migraine[J]. *Headache*, 2023, 63(10): 1403. DOI: [10.1111/head.14627](https://doi.org/10.1111/head.14627).
- [29] Ioverno S, Pallini S, Farina F, *et al*. The less you judge, the better you sleep: The benefits of mindfulness and forgiveness for insomnia and sleep problems[J]. *Bull Menninger Clin*, 2022, 86(4): 324. DOI: [10.1521/bumc.2022.86.4.324](https://doi.org/10.1521/bumc.2022.86.4.324).
- [30] Hubbling A, Reilly-spong M, Kreitzer M J, *et al*. How mindfulness changed my sleep: focus groups with chronic insomnia patients[J/OL]. *BMC Complement Altern Med*, 2014, 14: 50. <https://pmc.ncbi.nlm.nih.gov/articles/PMC3927626/>. DOI: [10.1186/1472-6882-14-50](https://doi.org/10.1186/1472-6882-14-50).
- [31] Li Y, Ju R, Hofmann S G, *et al*. Distress tolerance as a mechanism of mindfulness for depression and anxiety: Cross-sectional and diary evidence[J/OL]. *Int J Clin Health Psychol*, 2023, 23(4): 100392. <https://doi.org/10.1016/j.ijchp.2023.100392>.
- [32] Gan R, Zhang L, Chen S. The effects of body scan meditation: A systematic review and meta-analysis[J]. *Appl Psychol Health Well Being*, 2022, 14(3): 1062. DOI: [10.1111/aphw.12366](https://doi.org/10.1111/aphw.12366).

(2025-07-25收稿, 2026-06-15修回)

编辑 汤洁



开放获取 本文使用遵循知识共享署名—非商业性使用4.0国际许可协议(CC BY-NC 4.0), 详细信息请访问

<https://creativecommons.org/licenses/by-nc/4.0/>。

OPEN ACCESS This article is licensed for use under Creative Commons Attribution-NonCommercial 4.0 International license (CC BY-NC 4.0). For more information, visit <https://creativecommons.org/licenses/by-nc/4.0/>.

© 2026《四川大学学报(医学版)》编辑部

Editorial Office of *Journal of Sichuan University (Medical Sciences)*