· 流行病与统计方法 ·

云南民族地区中老年人睡眠问题调查及影响因素研究

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摘要:目的 本研究旨在调查云南民族地区中老年人的睡眠问题现状,探索其潜在影响因素,为构建具有针对性的干预策略,改善不同民族中老年人的睡眠质量提供科学依据。**方法** 研究将睡眠问题定义为节律紊乱(熬夜、早醒、晚起)、失眠(入睡困难、多次醒、多次起夜、睡眠时长 <7 h)、嗜睡(睡眠时长≥9 h)任一出现。对云南省 9 个州(市)≥45 岁人群实施分层随机整群抽样,以自编问卷收集睡眠、人口学、身心状况、行为与社会关系变量,采用 logistic 回归分析影响因素。**结果** 在 5 180 名中老年人中,睡眠问题检出率 76.54%,以失眠(63.82%)、节律紊乱(36.37%)和嗜睡(21.25%)依次递减;瑶族节律紊乱与失眠居首,傈僳族嗜睡最突出。logistic 回归提示,基诺族、傈僳族、佤族、怒族和布朗族的女性更容易发生睡眠问题(均 $P<0.05$);汉族、基诺族、彝族和傈僳族中患有慢性病的中老年人发生睡眠问题的可能性更大(均 $P<0.05$);经常疼痛是影响汉族、哈尼族、壮族、瑶族、基诺族、彝族和布朗族睡眠的主要因素(均 $P<0.05$);存在抑郁症状的汉族、瑶族、基诺族、傈僳族、拉祜族、佤族、怒族、布朗族更易发生睡眠问题(均 $P<0.05$);近 30 天内无社交活动的汉族、哈尼族、傣族、瑶族也易发生睡眠问题(均 $P<0.05$)。每天吸烟的汉族、彝族、傈僳族和布朗族更少出现睡眠问题(均 $P<0.05$)。**结论** 云南民族地区中老年人睡眠问题突出,慢性病、疼痛、抑郁与健康行为等多因素交织,需结合民族人口学特征与健康指标,制定精准化、差异化睡眠干预策略。

关键词:云南省;民族;睡眠问题;影响因素分析
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Sleep problems and influencing factors among middle - aged and elderly individuals in ethnic regions of Yunnan, China

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Abstract: Objective To investigate sleep problems among middle - aged and elderly individuals from ethnic regions in Yunnan Province, China, to identifiy associated factors, and to inform targeted interventions that improve their sleep quality. **Methods** Sleep problems were defined as the occurrence of any of the following: (1) rhythm disorders (e.g., late bedtime, early or late waking); (2) insomnia (e.g., difficulty falling asleep, frequent awakenings, nocturia, or <7 hours' sleep); or (3) hypersomnia (≥9 hours' sleep). We conducted a stratified random cluster survey among adults aged ≥45 years in 9 prefectures/cities in Yunnan Province. Data on sleep, demographics, physical/mental health, behaviors, and social relationships were collected via a self - developed questionnaire. Logistic regression identified associated factors. **Results** Among 5 180 middle - aged and elderly adults, 76.5% reported sleep problems: insomnia (63.8%), rhythm disorders (36.4%), and hypersomnia (21.3%). The Yao group had the highest rates of insomnia and rhythm disorders; the Lisu group had the highest hypersomnia rate. Logistic regression revealed that women from the Jinuo, Lisu, Wa, Nu, and Bulang groups were significantly more likely to report sleep problems (all $P<0.05$). Chronic conditions increased likelihood of sleep problems in the Han, Jinuo, Yi, and Lisu groups; frequent pain increased likelihood in the Han, Hani, Zhuang, Yao, Jinuo, Yi, and Bulang groups; depressive symptoms increased likelihood in the Han, Yao, Jinuo, Lisu, Lahu, Wa, Nu, and Bulang groups; lack of social activity in the past 30 days increased likelihood in the Han, Hani, Dai, and Yao groups; and daily smoking was associated with lower likelihood in the Han, Yi, Lisu, and Bulang groups (all $P<0.05$). **Conclusion** Sleep problems are highly prevalent among the middle - aged and elderly individuals in ethnic regions of Yunnan Province. A multitude of factors, including chronic diseases, pain, depression, and health behaviors, are interrelated. It is imperative to

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develop precise and differentiated sleep intervention strategies in conjunction with the demographic characteristics and health indicators of ethnic groups.

Keywords: Yunnan Province; Ethnic minorities; Sleep problems; Analysis of influencing factors

睡眠是维系身心健康不可或缺的生理环节[1]。随着现代生活节奏加快、工作学习压力增大等生活方式的改变,越来越多的人出现睡眠问题[2]。睡眠问题(sleep problems)是指机体昼夜节律的稳态失衡,从而引发过度觉醒、睡眠时长减少等表现,最终导致日间困倦或机体功能受损[3]。研究表明,中老年群体由于生理机能退化[4]、慢性病增多[5]等因素,更易引发睡眠问题,损害其认知与代谢功能,加剧慢病与照护负担[6]。当前,睡眠问题已成为中老年群体的普遍健康挑战,泰国[7]、英国[8]等多国报道显示,约有 35.91% ~54.7% 的中老年人受睡眠问题困扰。中国中老年人睡眠不足检出率为 57.1%[9],西部地区老年人睡眠障碍患病率为 43% ~47%[10],少数民族老年人的睡眠研究亦显示 48.4% 存在睡眠障碍[11]。

睡眠问题已引发政府和学界的高度关注。2019 年《健康中国行动(2019—2030)》首次将睡眠作为量化指标纳入“心理健康促进行动”[12];2025 年,国家卫生健康委《关于实施 2025 年卫生健康系统为民服务实事项目的通知》,要求每个地市至少有 1 家医院提供睡眠门诊服务。在学术界,已有学者对北京[13]、上海[14]等东部地区多年龄段的人群展开睡眠调查,而西部中老年人睡眠问题的调查不多见,尤其是民族地区的相关研究。本研究以云南民族地区的中老年人为调查对象,对其睡眠节律紊乱、失眠和嗜睡三类问题进行调查研究,并探索潜在的影响因素,为构建精准干预策略、改善不同民族中老年人睡眠质量提供依据。

1　资料与方法

1.1　*调查对象*　云南民族地区,年龄≥45 岁的常住居民。纳入标准:在当地居住 3 个月以上;具有一定的交流能力,能理解并配合调查;自愿参与,签署知情同意书。排除标准:存在语言理解困难、严重聋哑等情况。

1.2　*调查地点和抽样方法*　本研究为横断面研究,于 2022 年 7 月—2025 年 1 月间进行。采用分层随机整群抽样:第一阶段根据地理位置和民族人口分布情况,从东、中、西部抽取昆明市、红河哈尼族彝族自治州、文山壮族苗族自治州、楚雄彝族自治州、昭通市、临沧市、保山市、西双版纳傣族自治州和怒江傈僳族自治州 9 个州(市)作为调查地,第二阶段在每个州(市)内随机抽取 1 个县;第三阶段在每个县内随机选取 1 ~2 个乡镇;第四阶段在每个乡镇内随机选取 1 ~2 个行政村。最后,在每个行政村内调查当日所有≥45 岁的居民。

1.3　*样本量计算*　既往 Meta 分析显示,中国西部老年人睡眠障碍患病率为 43 % ~47 %[10]。取 p = 0.43 作为患病率,采用横断面调查样本量估算公式:

$$n = (\frac{Z_{\alpha/2}}{\delta})^2 \times p(1-p)$$

其中容许误差 δ 设为 0.05,$Z_{\alpha/2}$ = 1.96,代入公式得单调查点最小样本量 n = 377 例,9 个调查点至少需要 3 393 例。

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1.4　*调查工具*　采用自制问卷进行调查,内容包括基本人口学特征、身心健康状况、健康相关行为和社会关系。系统参考国内外睡眠研究的成熟指标体系[15]设计筛查问卷条目池,并结合专家意见及权威指南对条目进行优化,确保内容效度。将睡眠问题划分为熬夜、早醒、晚起、入睡困难、夜间多次醒、多次起夜、睡眠时长 <7 h 和睡眠时长≥9 h 8 类。根据《国际疾病和有关健康问题的统计分类(ICD - 10)》和《中国精神障碍分类与诊断标准(CCMD - 3)》,睡眠问题指过去 30 天内出现睡眠节律紊乱、失眠、嗜睡中的任意 1 种[16-17]。其中①节律紊乱指出现熬夜(每周至少 3 天就寝时间超过凌晨 12 点)、早醒(每周至少 3 天出现早醒)、晚起(每周至少 3 天觉醒时间显著延迟)中任意 1 种;②失眠指出现入睡困难(每周至少 3 天卧床后超过 30 分钟无法入睡)、夜间多次醒(每周至少 3 天夜间频繁觉醒)、多次起夜(每周至少 3 天夜间频繁起夜)、每周至少 3 天单天睡眠时长 <7h 中任意 1 种;③嗜睡指每周至少 3 天存在单天睡眠时长≥9 h。

正式调查前,课题组开展了 40 人的预调查。结果显示受访者配合度良好,问卷理解无障碍,平均完成时间 30 ~40 分钟。问卷各维度的 Cronbach α 系数为 0.81 ~0.91,内部一致性良好。

1.5　*统计学分析*　采用 EpiData 3.1 进行数据录入和逻辑核查,StataMP 17 对调查数据进行统计描述和分析。采用频数和构成比[N(%)]对调查对象的人口学特征进行统计描述。为消除年龄结构差异的影响,以汉族年龄结构为参照,采用直接标准化法[18]对各民族睡眠问题发生率进行标准化。根据纳入了 22 项中老年女性睡眠质量及其影响因素研究的 Meta 分析[19],将睡眠问题的影响因素分为基本人口学特征、

身心健康状况、健康相关行为和社会关系五类，共 23 个，自变量赋值见表 1。最终效应量用表格和森林图对比值比(Odds Ratio, *OR*)及其 95% 置信区间(95% Confidence Interval, 95% *CI*)呈现。所有显著性检验均以双侧 $\alpha = 0.05$ 为检验水准。

表 1 多因素 logistic 回归分析自变量赋值

Table 1 Coding of independent variables for multivariate logistic regression analysis

维度	变量	赋值
基本人口学特征	性别	1 = 男,2 = 女
	年龄(岁)	1 = 45 ~ 59,2 = 60 ~ 74,3 = ≥75
	常住地	1 = 城市,2 = 农村
	婚姻状况	1 = 未婚/离婚/丧偶/其他,2 = 在婚
	受教育程度	1 = 文盲,2 = 小学及读完小学,3 = 初中及以上
	职业	1 = 公务员/企事业行管人员/专业技术人员/离退休人员,2 = 工人,3 = 农民,4 = 个体户/自由职业,5 = 待业/无业/其他
	家庭总月收入(元)	1 = <3 000,2 = ≥3 000
身体健康状况	BMI 分级	1 = 过瘦,2 = 正常,3 = 超重,4 = 肥胖
	患慢性病数量(种)	1 = 0,2 = 1,3 = ≥2
	近两周出现生病	1 = 是,0 = 否
	日常生活能力受损	1 = 无受损,2 = 轻度受损,3 = 重度受损
	认知功能受损	1 = 是,0 = 否
	衰弱	1 = 是,0 = 否
	经常发生疼痛	1 = 是,0 = 否
心理健康状况	抑郁	1 = 是,0 = 否
	近 30 天内感到紧张/焦虑	1 = 是,0 = 否
健康相关行为	吸烟	1 = 每天吸,2 = 不是每天吸,3 = 以前吸,但现在不吸(超过 2 年),4 = 以前吸,但现在不吸(未超过 2 年),0 = 否
	饮酒(过去 12 个月内)	1 = 是,0 = 否
	每周锻炼情况	1 = 不活跃,2 = 不足,3 = 达标,4 = 高度活跃
	久坐	1 = 轻度,2 = 中度,3 = 重度
社会关系	近 30 天内有无社交活动	1 = 是,0 = 否
	独居	1 = 是,0 = 否
	SSRS 水平	1 = 低水平,2 = 中水平,3 = 高水平

注：BMI：体质指数；SSRS：社会支持量表。

2 结 果

2.1 一般情况 研究最终纳入 5 180 名中老年人进行分析，包括汉族(2 553, 45.29%)和 11 个少数民族(哈尼族、傣族、壮族、瑶族、基诺族、彝族、傈僳族、拉祜族、佤族、怒族和布朗族)。具体人口学特征见表 2。

表 2 调查对象的基本人口学特征[*n*(%)]

Table 2 Basic demographic characteristics of the survey subjects [*n*(%)]

变量	人数(*N*)	构成比(%)
性别		
男	2 261	43.65
女	2 919	56.35
年龄		
45 ~ 59 岁	2 123	40.98
60 ~ 74 岁	2 335	45.08
75 岁及以上	722	13.94
民族		
汉族	2 553	45.29
少数民族	2 627	54.71
常住地		
城镇	2 108	40.69
农村	3 072	59.31
婚姻状况		
在婚	3 985	76.93
未婚/离婚/丧偶/其他	1 195	23.07
受教育程度		
文盲	1 795	34.65
小学及未读完小学	2 023	39.05
初中及以上	1 362	26.29
职业		
公务员/企事业行管人员/专业技术人员/离退休人员	782	15.10
工人	247	4.77
农民	3 305	63.80
个体户/自由职业	345	6.66
待业/无业/其他	501	9.67
家庭总月收入		
<3 000	2 258	43.59
≥3 000	2 922	56.41

2.2　睡眠问题发生情况　总体睡眠问题发生率为 76.54%。其中三类睡眠问题中,失眠问题的发生率最高,为 63.82%,其次是节律紊乱(36.37%)和嗜睡问题(21.25%)。其中节律紊乱与失眠发生率均以瑶族(标准化后发生率为 53.45% 和 77.77%)最高,嗜睡则以傈僳族(标准化后发生率为 43.44%)最突出,见表 3。

表 3　不同民族中老年人的睡眠问题发生现状(%)

Table 3　Incidence of sleep problems among middle – aged and elderly individuals across ethnic groups (%)

变量	总人群 (n=5 180)	汉族 (n=2 553)	哈尼族 (n=413)	傣族 (n=411)	壮族 (n=262)	瑶族 (n=262)	基诺族 (n=240)
睡眠问题发生率	76.54	80.26	69.98	78.10	70.61	78.24	72.08
标准化睡眠情况发生率		标准化组	71.35	79.02	71.16	79.77	72.09
各睡眠情况发生率							
节律紊乱	36.37	46.34	24.94	37.47	12.60	53.05	15.83
标准化后		标准化组	24.63	39.18	12.84	53.43	16.95
失眠	63.82	70.94	53.51	61.80	47.33	75.95	56.25
标准化后		标准化组	55.72	61.62	47.88	77.77	57.34
嗜睡	21.25	17.16	22.52	22.63	37.79	5.34	25.83
标准化后		标准化组	21.92	25.30	38.26	5.47	24.27

变量	彝族 (n=225)	傈僳族 (n=220)	拉祜族 (n=161)	佤族 (n=149)	怒族 (n=145)	布朗族 (n=139)
睡眠问题发生率	79.11	77.27	67.70	71.14	65.52	61.15
标准化睡眠情况发生率	78.80	76.35	71.30	75.51	63.04	63.62
各睡眠情况发生率						
节律紊乱	40.89	17.27	19.25	22.15	11.03	17.27
标准化后	40.87	17.09	24.44	30.28	12.45	19.63
失眠	68.00	52.27	48.45	56.38	46.90	46.04
标准化后	67.78	51.72	53.36	62.85	43.97	48.33
嗜睡	22.67	45.00	27.33	22.82	29.66	22.30
标准化后	22.80	43.44	26.38	29.97	28.60	21.95

2.3　睡眠问题的多因素分析　以中老年人是否出现睡眠问题作为因变量(是="1",否="0"),基本人口学特征等 23 个变量作为自变量,采用 logistic 回归,对不同民族睡眠问题的影响因素进行差异化分析。结果显示,婚姻状况、BMI 等因素与结局无显著关联,限于篇幅,图 1 和图 2 仅展示与结局显著相关的因素。

2.3.1　汉族和少数民族睡眠问题的 logistics 回归分析　研究发现,汉族中 60 ~ 74 岁(OR = 1.54)、≥75 岁(OR = 2.33)、患慢性病数量为 1 种(OR = 1.95)、患慢性病数量≥2 种(OR = 2.46)、存在衰弱(OR = 2.67)、经常发生疼痛(OR = 2.16)、存在抑郁(OR = 4.63)和近 30 天内无社交活动(OR = 1.44)的中老年人睡眠问题发生率更高(均 P < 0.05);每天吸烟(OR = 0.72)的中老年人睡眠问题发生率较低(P < 0.05)。少数民族中女性(OR = 1.69)、60 ~ 74 岁(OR = 1.50)、≥75 岁(OR = 1.91)、患慢性病数量为 1 种(OR = 1.30)、患慢性病数量≥2 种(OR = 2.00)、存在衰弱(OR = 1.40)、经常发生疼痛(OR = 1.71)、存在抑郁(OR = 3.27)和近 30 天内无社交活动(OR = 1.60)的中老年人与睡眠问题发生率高相关(均 P < 0.05);每天吸烟(OR = 0.65)的中老年人与睡眠问题发生率低相关(P < 0.05)。详见图 1。

2.3.2　多个民族睡眠问题的 logistics 回归分析　基本人口学特征方面,基诺族(OR = 3.26)、傈僳族(OR = 2.68)、佤族(OR = 3.00)、怒族(OR = 2.41)和布朗族(OR = 2.34)的女性出现睡眠问题的几率显著增加(均 P < 0.05);汉族(OR = 1.54)和傣族(OR = 2.13)的 60 ~ 74 岁的老年人睡眠问题发生率更高(均 P < 0.05);≥75 岁的汉族老年人与睡眠问题发生率呈显著正相关(OR = 2.33, P < 0.05)。

身体健康状况方面,汉族(OR = 2.46)、基诺族(OR = 8.24)、彝族(OR = 2.56)和傈僳族(OR = 3.54)中患慢性病数量在两种及以上的中老年人发生睡眠问题的几率更高(均 P < 0.05);经常发生疼痛与汉族(OR = 2.16)、傣族(OR = 1.81)、壮族(OR = 1.88)、瑶族(OR = 3.13)、基诺族(OR = 1.96)、彝族(OR = 2.91)和布朗族(OR = 4.18)的中老年人的睡眠问题存在统计学关联(均 P < 0.05)。

心理健康状况方面,存在抑郁症状在汉族(OR = 4.63)、瑶族(OR = 5.36)、基诺族(OR = 4.65)、傈僳族(OR = 3.30)、拉祜族(OR = 9.42)、佤族(OR = 2.93)、怒族(OR = 3.84)和布朗族(OR = 6.33)的中老年人中与睡眠问题呈显著正相关(均 P < 0.05)。

健康相关行为方面,研究发现每天吸烟的汉族

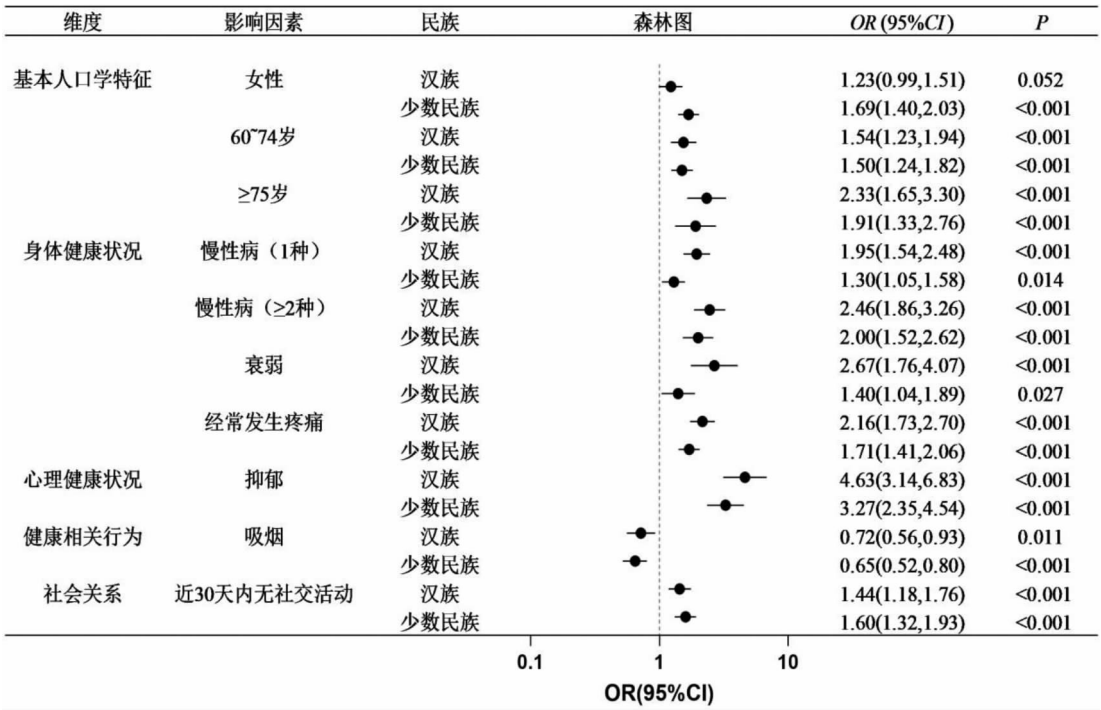


图 1 汉族和少数民族睡眠影响因素 logistic 回归分析[*OR*(95%)*CI*]

Fig. 1 Analysis of sleep influencing factors in Han and ethnic minority populations using logistic regression[*OR* (95%) *CI*]

(*OR* = 0.72)、彝族(*OR* = 0.36)、傈僳族(*OR* = 0.25)和布朗族(*OR* = 0.40)的中老年人睡眠问题发生率较低(均 $P < 0.05$);

社会关系方面,近 30 天内无社交活动的汉族(*OR* = 1.44)、哈尼族(*OR* = 2.13)、傣族(*OR* = 2.05)和瑶族(*OR* = 2.39)的中老年人与睡眠问题发生率高相关(均 $P < 0.05$)。详见图 2。

3 讨 论

本研究显示,云南民族地区的总体睡眠问题发生率为 76.54%,高于 2025 年中国睡眠研究报告发布的 65.91%[3]。其中,失眠最常见(63.82%),显著高于节律紊乱(36.37%)和嗜睡(21.25%)。节律紊乱与失眠发生率均以瑶族最高,嗜睡则以傈僳族最为突出。

多因素分析显示,各民族中老年睡眠问题的影响因素并不一致。在基诺、傈僳等 5 个民族中,女性睡眠问题的发生率显著高于男性,与既往研究相符[20]。民族女性因承担农业劳动、家务等多重负荷,易引发颈肩劳损[21]等不适,进而间接影响睡眠质量。此外,汉族和傣族表现为睡眠问题发生率随增龄而出现明显升高,其机制可能是老年人夜间褪黑素分泌延迟、生物钟调控基因表达减弱,导致深度睡眠结构与连续性受损[22]。

身体健康方面,汉、彝等 4 个民族中,患有 1 种及以上慢性病的中老年人睡眠问题发生率更高。多项研究表明慢性病与睡眠问题互为因果:慢性病可加快机体衰退、降低应激阈值,诱发或加重失眠;而睡眠过长(>7.46 h)或过短(<7.46 h)也会增加慢性病患病风险[23]。此外,衰弱老年人睡眠问题发生率显著升高,可能与衰弱导致生物钟紊乱、慢性应激引发过度觉醒有关[24]。

本研究还显示,在汉、哈尼等 7 个民族中,经常疼痛的中老年人与睡眠问题高发生率相关。Finan[25]等人以生物 - 心理 - 社会框架整合疼痛致眠差的机制进行解释:在生物层面,疼痛激活交感 - 下丘脑 - 垂体 - 肾上腺轴致皮质醇升高,推迟褪黑素相位并增强觉醒系统;在心理层面,疼痛诱发抑郁等负性情绪,延长入睡潜伏期;在社会层面,疼痛限制活动致昼夜节律后移。

心理健康方面,瑶、基诺等 8 个民族伴抑郁症状的中老年人睡眠问题显著升高。负性情绪可激活神经—内分泌轴与炎症反应,加之对睡眠问题的过度担忧及反复负性思维导致高觉醒,引发入睡困难、频繁夜醒等[26]。同时,部分民族对抑郁存在病耻感,常将其归为“想不开”而延误就医,进一步影响睡眠[27]。

本研究还提示,社会关系对睡眠的影响存在民族差异。哈尼、傣等 4 个民族中,缺乏社交活动者睡眠问题更多,可能与孤独感、负性情绪导致昼夜节律紊乱、入睡困难等有关[28],而民族集体节庆可通过社交支持与情绪宣泄缓解心理压力,改善睡眠[29]。

本研究发现每日吸烟与低睡眠问题发生率相关,

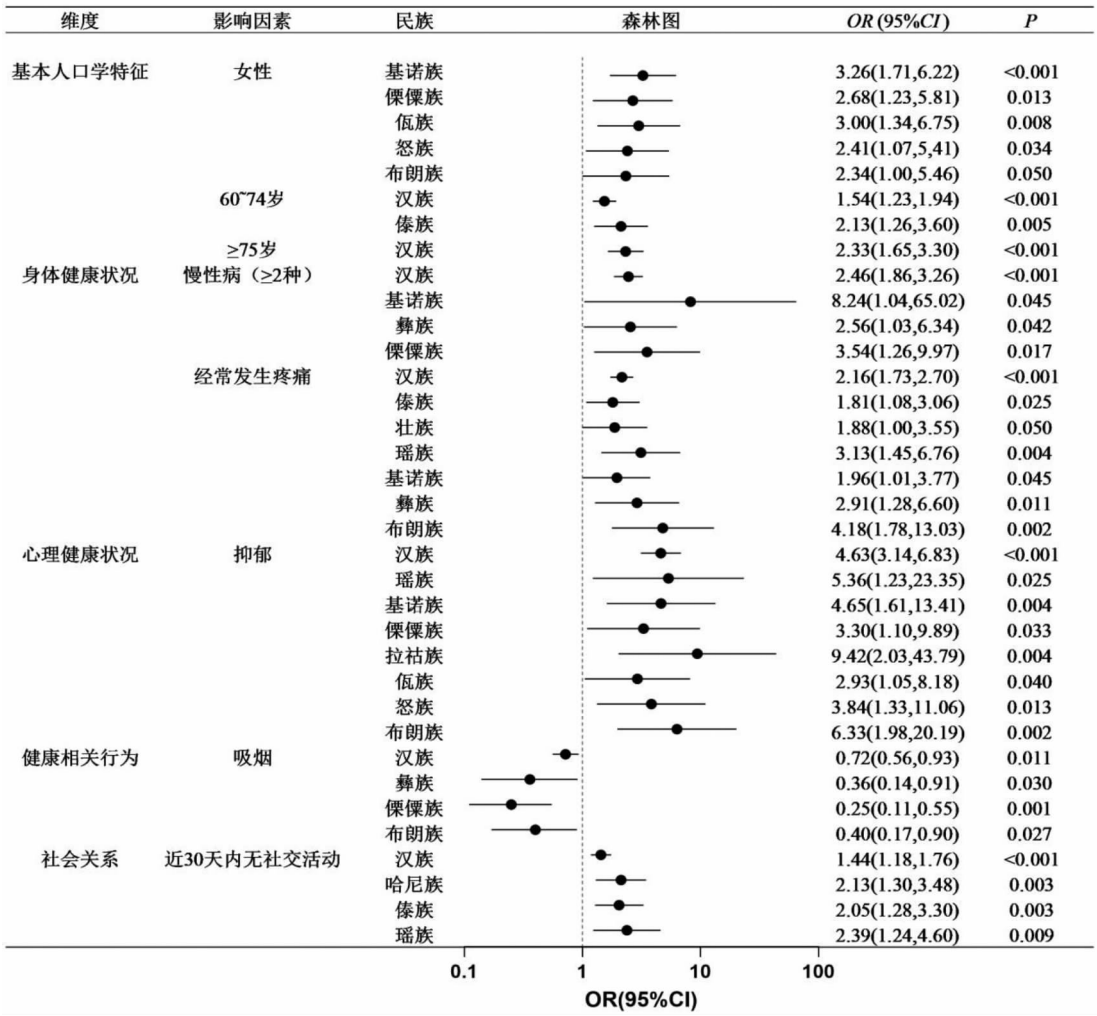


图 2　各民族睡眠影响因素 logistic 回归分析[*OR*(95%)*CI*]

Fig. 2　Analysis of sleep influencing factors among various ethnic groups using logistic regression[*OR* (95% *CI*)]

与既往研究不一致[20]，可能与我国中老年人吸烟常伴社交活动有关[30]，社交可通过降低孤独感改善睡眠[31-32]。

综上，云南民族地区中老年人睡眠问题突出，慢性病、疼痛、抑郁与健康行为等多因素交织，需结合民族人口学特征与健康指标，制定精准化、差异化睡眠干预策略。本研究存在局限：横断面设计无法确定因果关系，数据源于主观报告；未来可开展纵向研究深入验证，并结合客观测量方法进一步完善。

利益冲突声明　本研究不存在任何利益冲突

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