

综述

认知行为疗法应对体重反弹的研究进展

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[摘要] 超重和肥胖是全球范围内重要的公共卫生问题。尽管常规的综合干预手段能使许多超重和肥胖人群实现短期减重, 但体重反弹问题依然普遍存在。认知行为疗法 (cognitive behavioral therapy, CBT) 作为一种以认知和行为改变为核心的心理干预手段, 在体重管理研究中可使超重和肥胖的受试者更高效且健康地减轻体重, 被视作减重的核心循证治疗模式之一。从神经机制角度, CBT 能够加强超重和肥胖人群的大脑功能, 调节奖赏系统, 改变神经可塑性, 从而显著延长减重后体重的维持时间。同时, CBT 能够帮助超重和肥胖人群识别和改变不利于健康的思维模式, 促进健康饮食和运动习惯的养成, 有效抑制体重反弹的发生。随着 CBT 干预策略在减重研究中被广泛采纳, CBT 的应用形式也在不断演变——从传统的面对面干预逐渐扩展到基于信息和通信技术的数字化干预; 这不仅提高了干预的可及性和参与度, 还为个体提供了更加个性化和便捷的减重支持。未来的研究应更多关注 CBT 的本土化和技术创新, 使 CBT 拥有更强的可推广性, 成为肥胖防控的重要工具, 为改善公共健康作出更大贡献。

[关键词] 认知行为疗法; 体重反弹; 减重; 体重维持

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Research progress on cognitive behavioral therapy in addressing weight regain

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[Abstract] Overweight and obesity are among the major public health concerns worldwide. Although conventional comprehensive interventions often enable short-term weight loss, weight regain remains prevalent. Cognitive behavioral therapy (CBT), a psychological intervention focused on modifying cognitions and behaviors, has been shown to help individuals with overweight or obesity achieve weight loss more effectively and healthily. It is regarded as one of the core evidence-based treatment modalities for weight management. From a neurobiological perspective, CBT enhances brain function, modulates the reward system, and alters neuroplasticity in individuals with excess weight, thereby significantly extending weight maintenance duration after intervention. Furthermore, CBT assists this population in identifying and modifying health-impairing thought patterns, fostering the adoption of healthy eating and physical activity habits, and effectively curbing weight regain. As CBT strategies are increasingly integrated into weight loss research, their application continues to evolve—shifting from traditional face-to-face sessions to digitally enabled interventions based on information and communication technologies. This transition not only improves intervention accessibility and engagement but also offers more personalized and convenient support for weight management. Future research should prioritize the local adaptation and technological innovation of CBT to enhance its scalability, positioning it as a vital tool in obesity prevention and control and thereby contributing substantially to improve public health outcomes.

[Key words] cognitive behavioral therapy (CBT); weight regain; weight loss; weight maintenance

超重和肥胖, 即由异常或过多脂肪堆积引起的健康问题, 已成为全球范围内的主要公共卫生挑战之一。世界卫生组织的统计数据显示, 超重和肥胖目前已经影响全球约 39% 的成年人, 且这一比例在部分高收入国家甚至超过了 50%^[1]。我国全年龄段人群

超重和肥胖率分别为 34.3% 和 16.4%, 并呈现持续上升趋势; 尤其是在城市地区和青少年群体中, 肥胖率的增长速度尤为显著^[2]。各类研究的证据表明, 超重和肥胖是包括糖尿病、各种癌症、心血管疾病和高血压在内的多种非传染性慢性疾病的重要风险因

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素^[3]。而根据全球疾病负担研究的数据,在我国超重和肥胖导致的2型糖尿病、卒中、高血压、心脏病的负担呈现逐年上升的趋势^[4]。

证据^[5]表明,体重减轻,尤其是进行性和持续性的体重减轻,对患有一系列与超重和肥胖有关的并发症的患者都能够起到改善健康结局的作用。近年来,基于饮食控制、运动干预、行为改变以及药物治疗的综合干预方案被广泛应用,并取得了一定成效。然而,大多数人在成功减重后仍面临体重反弹的问题,这一现象在长期随访研究中尤为突出。研究^[6-7]表明,超过80%的减重者在减重后的1~2年内会出现不同程度的体重反弹,其中约50%的人甚至恢复到减重前的体重水平。研究^[8]发现,体重反弹会导致脂肪组织的重新分布,尤其是内脏脂肪的增加,进而加剧胰岛素抵抗、血脂异常和慢性炎症反应。此外,体重反弹还有可能进一步增加焦虑、抑郁、2型糖尿病、高血压和癌症的患病风险,对身体造成的不利影响甚至超过了持续性肥胖^[9]。因此,如何有效抑制体重反弹成为减重研究中的关键问题。

在这一背景下,认知行为疗法(cognitive behavioral therapy, CBT)作为一种以认知和行为改变为核心的心理干预手段,逐渐受到关注。CBT主要针对由认知因素造成的精神障碍和心理困扰(如焦虑、抑郁),通过调节患者认知来达到减轻症状、改善功能和缓解病症的目的^[10]。CBT在多样化的人群和文化背景下都有良好的治疗效果,凸显了其在跨诊断治疗上的巨大潜力^[11-13]。因此,本文将对CBT在减重,特别是在避免减重后反弹中的应用情况进行梳理,同时结合现有的文献研究结果分析CBT在抑制体重反弹上的潜在机制,总结可能的有效干预靶点,并归纳近几年对于传统CBT进行创新性应用的减重研究,为将来进一步提升针对超重和肥胖人群体重管理的长期效果提供策略选择。

1 CBT在减重及维持体重中的应用情况

在被引入体重管理领域后, CBT展现了明显优于常规干预模式的短期减重效果,尤其相比传统的健康教育。在一项为期4个月的减重干预中,每周学习健康饮食、减肥和体育锻炼相关知识的受试者体重不降反增,而接受CBT干预的受试者体重平均减轻了

7.1 lb (1 lb=0.454 kg)^[14]。CBT也能够充当多组分干预模式中的“催化剂”,在与药物治疗以及行为疗法结合时,有效抑制受试者的不良饮食行为,进一步增强减重效果^[15-16]。

CBT的效果不仅体现在短期的减重上,面对减重后体重反弹这一问题,也提供了有效的解决方案。相关研究^[17]表明,超重和肥胖人群所遭受的心理困扰是导致不健康饮食行为发生的重要因素,也间接地增加了体重维持失败的风险。得益于CBT在跨诊断治疗上的优势,超重和肥胖人群中常见的抑郁和焦虑等不健康心理状态在接受CBT干预后得到缓解,其社会功能也得到明显改善^[18-19]。而在饮食行为方面,接受CBT干预的受试者会减少甜食、含糖饮料和加工肉类等食品的摄入,对健康饮食模式的依从性明显优于对照组,且在长期随访中一直保持显著差异^[20]。此外,吸烟和饮酒等不利于健康的行为也能通过CBT干预得到有效控制,从而提升超重与肥胖人群的长期生活质量^[21-22]。目前, CBT常被用于解决减肥手术后的体重反弹问题,在帮助术后人群控制体重的同时,改善饮食失调和心理困扰^[23-24]。这使得CBT被视作体重管理的核心循证治疗模式之一^[25]。

2 CBT应对体重反弹问题的可能路径

2.1 神经机制

最初, CBT因其在治疗暴饮暴食症时的有效性被认定能够应用到减重领域。暴饮暴食症是指主要以反复暴饮暴食为特征的精神障碍,特指神经性贪食症和暴食症^[26]。作为治疗暴饮暴食症最为有效的心理干预策略, CBT可以纠正患者扭曲的身体形象感知,显著减少暴饮暴食事件,并促进更健康的饮食行为的形成^[27]。尽管超重和肥胖并非暴饮暴食症的检验标准,但他们之间存在着较强的关联性^[28]。而食欲、情绪调节和自我控制相关的脑区活动,与暴饮暴食的发生密不可分^[29-30]。因此,近年来神经科学的研究从这些角度入手,进一步揭示了CBT在超重和肥胖人群的大脑功能调节中的潜在机制。

作为CBT作用的关键脑区之一,前额叶皮层(prefrontal cortex, PFC)负责执行功能、决策和自我控制^[31]。研究^[32]表明, CBT通过增强PFC的活动,可帮助个体更好地抑制冲动性饮食行为,尤其

是在面对高热量食物时表现出更强的自我调节能力。这种调控作用可能通过改善认知重构和情绪管理来实现,从而减少情绪化饮食的发生^[33]。CBT对体重反弹的抑制作用还涉及对大脑奖赏系统的调节。多巴胺通路在食物奖赏中起重要作用,CBT可通过改变个体对食物的认知评价,降低对高热量食物的奖赏敏感性^[34-35]。神经影像学研究表明,CBT干预后,个体在观看高热量食物图片时,伏隔核(nucleus accumbens, NAcc)和腹侧被盖区(ventral tegmental area, VTA)的激活程度显著降低,表明CBT可能通过调节奖赏回路减少个体对不健康食物的渴望。除此之外,CBT对于减重后体重的维持以及受试者的依从性都起到了更为明显的保障作用,显示了CBT在神经机制上的长期作用效果。研究表明,CBT的长期效果可能与其诱导的神经可塑性变化有关。在CBT干预后,大脑白质和灰质的结构连接性发生显著改变,特别是在与自我控制和情绪调节相关的脑区^[37-38]。这种神经可塑性变化可能为CBT在体重维持中的长期效果提供生物学依据^[39]。

2.2 认知心理机制

关于体重反弹的原因,许多研究将其指向了认知心理因素。基础研究^[40]已明确证实,认知过程在维持当前不良饮食习惯中起着重要作用,错误的认知模式严重阻碍了健康饮食。一项质性研究^[41]的结论指出,在减重后成功维持体重的人往往能够坦然对待减重的瓶颈期,积极地抵制外部诱惑,同时也不会因为轻微的放纵而产生强烈的内疚感或者自暴自弃的倾向,而体重反弹的人在心态和自我控制上往往不能保持稳定。除此之外,自我效能、减重期望与减重满意度也被定量研究证实是决定能否成功维持减重后体重的重要认知因素^[42]。

由于CBT认为认知上的错误是导致问题持续存在的根本原因,因此在减重研究中,CBT干预策略通常以了解和改进个体的思维模式为核心来解决体重反弹问题。超重和肥胖人群在减重初期体重明显下降、即将进入维持阶段的时候,往往会陷入以下思维误区,例如:认为自己依然可以在短时间内继续大幅度减重,于是为自己设定了不切实际的目标^[43];或者在瓶颈期时全盘否定自己过去的努力,失去坚持下去的信心^[44];又或者随着时间的推移,最初的

减重动机已经无法促使自己继续努力^[45]。面对这些思维误区,CBT利用认知重构、问题解决以及行为激活等核心干预技术,通过逻辑推断、苏格拉底式提问、行为实验以及直接争论(在理性情绪行为疗法中)等方式,帮助减重人群将这些错误的想法转变为正面、正确的认知,从而保持更积极的情绪并采取更健康的行为^[18,46-47]。

2.3 行为改变机制

在CBT的框架中,行为策略作为核心要素之一,为减重人群提供了一套可操作性较强的行为改变程序和策略,保证减重人群能够长期实施有效的体重管理计划,避免体重的反弹^[48]。在体重管理领域,最为常见且高效的行为策略包括自我监测、目标设定与正强化等技术^[49]。其中,自我监测要求超重和肥胖人群系统记录自身的饮食、运动及体重等数据,这一策略不仅能够帮助个体识别不良行为模式(如过量进食或久坐),提升其对自身行为的认知水平,还能为其提供即时反馈,推动行为调整。尽管自我监测的实施成本较低,但长期坚持对个体的执行功能要求较高^[50]。研究^[51-52]表明,将自我监测纳入减重干预措施中,往往能够显著促进个体的体重减轻效果。目标设定则要求个体在减重过程中制定具体且可实现的短期和长期目标,例如每日步数或每周运动次数^[53]。这种明确且结构化的目标设定有助于个体更有效地追求减重成果,从而维持其对减重计划的高依从性^[54-55]。此外,正强化作为一种行为策略,已被整合到多种理论方法中,甚至被视为所有预防性行为改变的统一原则^[56]。正强化通过奖励(如自我表扬或物质奖励)来强化积极行为,相较于惩罚等负面激励机制,其产生的心理副作用更小,同时能够显著增加健康行为的频率和持久性,为长期行为改变提供强有力的支持^[57]。值得注意的是,不同的行为策略可以通过有机组合进一步增强干预效果。例如,一项旨在提升个体身体活动量的干预研究^[58],在方案中同时纳入了自我监测、目标设定和正强化3个行为策略,通过将测量、目标、反馈和奖励相结合,构建了一个持续运行的“反馈循环”,最终使干预组受试者的身体活动量显著增加。这一研究为减重干预中CBT行为策略的应用提供了可借鉴的思路,也为提升干预效果指明了方向。

3 CBT在维持体重中的应用创新

3.1 信息和通信技术的引入

由于CBT干预在实施中对研究人员的专业水平有一定的要求,因此应用于维持体重情景的大多数CBT干预都是在专业团队的指导下进行的。为了增加干预的可及性,有研究尝试设计自助CBT干预手册,分阶段为减重人群提供相应的指导内容,其疗效与常规干预相当^[59]。而随着信息和通信技术的不断发展,网络平台(如网站)、移动设备(如手机)和可穿戴设备(如计步器、加速度计、智能手表)等被应用到减重干预中,相关研究结果展现出数字化干预在体重减轻和维持方面的明显优势^[60]。近几年,CBT干预策略与信息通信技术结合的案例在减重领域显著增加,不仅可以节约人力成本,还能提高干预的可及性,有效提升减重人群的参与度,带来较为明显的体重维持效果。

在多样化的信息和通信技术中,智能手机应用程序是与CBT干预策略结合频率最高的。智能手机应用程序在行为的自我监测与及时反馈上提供了极大的便利,受试者能够随时随地记录每日食物摄入量、运动量和日常情绪并获得激励提示,这有力地支持了受试者的长期体重控制^[61]。此外,这类应用程序通常会向受试者提供心理训练教程,不仅能够提高受试者体重管理的依从性,还能够使受试者在专业的指导下更好地改变饮食行为^[62]。不同的基于CBT干预策略的智能手机应用程序有着不同的侧重点。例如某应用程序倾向于对受试者进行认知重构,以每日互动文章的形式向受试者传递认知行为疗法的核心干预内容。文章包括定义认知行为疗法及其组成部分(如什么是认知扭曲),并提供实际适用的例子和活动(如逐步识别和重新评估参与者的认知扭曲),受试者在进行阅读学习时能够获得相应的认知教育^[63]。而面向超重和肥胖青少年的某应用程序将CBT干预的具体内容进行了游戏化和社交化处理^[64]。受试者通过采取健康行为并进行记录获得虚拟货币,货币可以用于购买应用程序内的虚拟商品。而在程序内的社交模块,青少年受试者不仅能与指导人员和教练进行及时沟通,同时也可以发布消息,与他人分享想法、感受或经验。这些互动有效增强了他们坚持减重的内在动机,使主动的体重管理变得更加容易坚持^[65]。

除了应用程序,很多研究团队也在尝试发掘借助

其他数字化技术实施CBT干预的可能性。例如RYCHESCKI等人^[66]开创性地利用社交媒体平台实施CBT干预。在5周的时间里,研究团队的账户每周以一个特定主题为中心发布包括帖子、短视频和直播课程在内的各类线上资源,同时也会向受试者提供相应的电子手册和减重计划。在这项干预研究中,大多数(60.6%)的受试者介于31~50岁,意味着这项研究的受众群体年龄范围较广,体现出社交媒体平台强大的号召力,也为推动各年龄段人群进行长期的体重管理提供了新的切入点。同时,虚拟现实技术(virtual reality, VR)也被应用到以CBT干预策略为基础的减重研究中,发展出虚拟现实线索暴露疗法(VR cue exposure, VR-CE)和虚拟现实参照系转换疗法(VR reference frame shifting, VR-RFS) 2种重要的应用方法^[67-69]。在实证研究^[70]中,VR技术在超重和肥胖管理领域有着很大的潜力,其与CBT的结合也有望推动减重以及减重后体重维持研究的进一步发展。

3.2 个性化模式的开发

在过去的研究经验中,为了弥补行为疗法在体重管理中对认知因素的忽视,CBT干预策略在被采纳时保持了其传统的干预模式,即重点关注超重和肥胖人群中共性的认知问题。虽然CBT相较于行为疗法能够有效地帮助减重人群实现行为改变(即健康饮食和锻炼),但未能达到理想的长期效果。而同时,个体认知过程差异所带来的负面影响以及个性化干预的有效性在实证研究中被不断地验证。

为进一步提升CBT在超重和肥胖人群中的适用性,DALLE GRAVE等人^[71]开发了一种新的疗法,即个性化肥胖认知行为干预(personalized cognitive behavioral therapy for obesity, CBT-OB)。区别于传统的CBT,CBT-OB首先基于受试者在干预初期的自我监测情况绘制专属的“认知图谱”。图谱囊括了受试者形成致胖生活方式的各类认知层面的影响因素,如问题性思维(我无法抵制甜食的诱惑)和前导刺激(我感到非常焦虑)等^[72]。在随后的正式干预阶段,CBT-OB会针对图谱中表现出的主要认知问题,根据患者的个人需求提出特定的认知行为策略和方法。如此针对性的干预不仅可以让受试者的思维模式得到更加彻底且持久的改变,同时能够助力研究团队在干预后期准确找到促进受试者继续坚持的思维动机,并将

这种思维模式主动应用到之后的减重过程中^[73]。目前CBT-OB在研究环境和实际临床环境中都展现出良好的体重维持效果,能够保证受试者在6~12个月的干预期间没有体重反弹的趋势^[74-75]。除了维持体重外,相比对照组,接受CBT-OB的受试者在长期的随访过程中都表现出明显的健康相关生活质量与身体成分模式的改善^[76]。

尽管CBT-OB作为一种具有显著长期效果的体重管理方法已在实践中取得了巨大成功,但由于其干预持续时间较长(一般为1.5年),选择参与的受试者需要克服较大障碍,这也可能导致研究结果存在一定的志愿者偏倚^[77]。为了解决这一问题,EGOSHI等人^[78]对CBT-OB进行了改良,将这一新的基于CBT策略的干预命名为CBT-F(cognitive behavioral therapy for obesity modified as FIRE method)。CBT-F是一种结合了CBT-OB和药物疗法的独创治疗方法,它保留了CBT-OB中的重要干预模块即绘制“认知图谱”以及帮助受试者接纳行为上的改变,但也考虑到干预中药物的引入,增加了药物脱敏、克服药物不良反应和减少对药物的心理依赖等模块,整体干预周期仅需2个月。在超重和肥胖女性中,CBT-F组平均减重5.3 kg,对照组平均减重2.9 kg,差异具有统计学意义($P=0.003$)^[78]。可以看出,CBT-F持续时间短且药物治疗起效迅速,有望成为干预超重和肥胖人群有效且可持续的方法。

4 展望

当前,随着超重和肥胖问题的日益严峻,CBT在体重管理中的重要性愈发凸显。CBT通过改变个体的认知和行为模式,不仅在短期减重中表现出色,更在长期体重维持方面展现出显著优势。其作用机

制涵盖了神经、心理和行为等多个层面,能够有效调节大脑奖赏系统、增强自我控制能力,并通过认知重构帮助个体建立可持续的健康生活方式。此外,数字化技术的引入和个性化干预模式的开发,进一步拓展了CBT的应用范围和效果。尽管目前CBT在体重管理中取得了显著进展,但其在国内人群中尚无充分的研究积累,且面对中国人群时其应用仍面临诸多挑战。首先,文化差异可能影响CBT的接受度和实施效果。中国人群对体重管理的认知和态度可能与西方人群存在差异,因此在干预设计中需更加注重本土化调整。其次,CBT的实施需要专业的心理治疗师和较长的干预周期,在我国当前医疗资源分布不均的背景下其推广可能受到限制。此外,针对中重度肥胖患者以及合并代谢性疾病人群的CBT干预效果仍需进一步验证。未来的研究需要进行更加积极的探索和尝试,寻找适宜的应用模式与关键的有效元素。通过结合本土化研究和技术创新,CBT有望在未来成为肥胖防控综合措施中的重要工具,为改善公共健康作出更大贡献。

利益冲突声明/Conflict of Interests

两位作者声明不存在利益冲突。

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