

注意偏向训练对社交焦虑的干预：方法、效果与机制*

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摘 要 社交焦虑障碍是最普遍且难于治疗的精神障碍之一。大量研究发现, 注意偏向训练可以有效缓解社交焦虑。研究者从自我报告、结构化评估、生理记录等方面考察发现, 接受了注意偏向训练的社交焦虑个体其注意偏向、生理唤醒和脑神经活动发生变化并且社交焦虑症状有所缓解。注意偏向训练对社交焦虑的干预机制可能是因为训练提升了个体对威胁性刺激的注意解除能力。今后的研究可以进一步明确注意偏向训练干预社交焦虑的效果与机制, 拓宽评估注意偏向训练效果的手段, 并探索其对社交焦虑干预的长期效果和对其它心理疾病的作用。

关键词 社交焦虑; 注意偏向; 注意偏向训练

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1 引言

英国精神病学家 Mark 和 Gelder (1966)根据发病年龄和恐惧对象的不同从恐惧障碍中区分出一组病人, 称之为社交焦虑障碍(Social Anxiety Disorders, SAD), 又称社交恐惧(Social Phobia, SP)。社交焦虑障碍患者在社交及表演场合中会显示出持久、明显的害怕, 因需与不熟悉的人交往或担心可能会被他人评价, 社交焦虑障碍患者会对自己言行或自己表现出的紧张症状感到羞耻和尴尬(American Psychiatric Association, APA, DSM-5, 2013)。

社交焦虑障碍被认为是最普遍的精神障碍之一(Slade et al., 2009), 在不同人群中的患病率为1%~15% (Costello, Egger, & Angold, 2005; Heimberg, Stein, Hiripi, & Kessler, 2000)。其年发病率(1年内人群中社交焦虑新病例人数/同时期

内暴露人口数)为7.1% (Kessler, Chiu, Demler, & Walters, 2005), 终生患病率为12.1% (Ruscio et al., 2005)。社交焦虑障碍患者持续恐惧和回避社交场景, 甚至连同辈交流都感到困难(Stein & Stein, 2008)。由于他们在课堂或工作场所不能正常表达(Turner, Beidel, Dancu, & Keys, 1986), 害怕在社交场合进食、演讲、会谈(Stein, 1995), 往往会引发睡眠障碍、抑郁、心境障碍、甚至自杀意念等一系列心理疾病(Buckner, Bernert, Cromer, Joiner, & Schmidt, 2008; Buckner, Eggleston, & Schmidt, 2006; Buckner et al., 2008; Kessler, Stang, Wittchen, Stein, & Walters, 1999)。社交焦虑障碍同样被看做是最难治疗的精神障碍之一(Hudson, Rapee, Lyneham, Wuthrich, & Schniering, 2010; Norton & Price, 2007)。研究发现, 认知行为疗法和药物治疗结合对社交焦虑障碍的治疗有一定效果(Swinson et al., 2006), 但也只是对60%~70%的患者产生作用, 如果单独使用药物治疗或者认知行为治疗, 则治愈率更低(Fedoroff & Taylor, 2001; Stein, Ipser, & Balkom, 2004; Stein & Stein, 2008)。

近年来的一些研究发现, 注意偏向训练(Attentional Bias Training, ABT)对社交焦虑有明显的缓解作用(Amir, Beard, Taylor, et al., 2009; Amir, Weber, Beard, Bomyea, & Taylor, 2008; Eldar et al., 2012; Heeren, Reese, McNally, & Philippot,

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2012; Klumpp & Amir, 2010; Li, Tan, Qian, & Liu, 2008; Schmidt, Richey, Buckner, & Timpano, 2009; De Voogd, Wiers, Prins, & Salemink, 2014)。注意偏向训练, 也称作注意训练(Attention Training, AT)、注意偏向矫正(Attention Bias Modification, ABM)或注意矫正(Attention Modification Program, AMP), 是对个体的注意偏向加以改变或矫正的系统化训练程序(Amir, Beard, Burns, & Bomyea, 2009; Beard, Sawyer, & Hofmann, 2012; Schmidt et al., 2009)。注意偏向训练不仅可以缓解社交焦虑障碍患者的临床症状, 还能有效降低普通人群的社交焦虑水平和压力环境下的焦虑唤醒(Heeren et al., 2012; Schmidt et al., 2009)。Hakamata 等(2010)通过元分析发现, 注意偏向训练缓解社交焦虑症状的效应量 $d=0.61$, $p<0.001$, 这与认知行为疗法和药物疗法的效应量相当(Rickels, Pollack, Sheehan, & Haskin, 2000; Möller, Volz, Reimann, & Stoll, 2001)。更重要的是, 注意偏向训练基于电脑操作, 成本低廉容易推广, 且无药物副作用, 可以成为社交焦虑人群干预的重要手段(Amir, Beard, Burns, 2009; 邢采, 杨苗苗, 2013)。注意偏向训练不仅是有效缓解社交焦虑的重要技术, 同样也为探讨社交焦虑患者心理异常机制开拓了新的方向(Bar-Haim, 2010; Cisler, & Koster, 2010; March, 2010)。近两年来, 国内外研究者们也开始呼吁关注注意偏向训练对焦虑的干预作用(MacLeod & Holmes, 2012; MacLeod & Mathews, 2012; 王曼, 陶嵘, 胡姝婧, 朱旭, 2011; 邢采, 杨苗苗, 2013)。本文将从注意偏向训练范式、注意偏向训练对社交焦虑的干预和机制三个方面加以介绍, 以期对社交焦虑的干预和治疗提供一定的理论依据。

2 注意偏向训练范式

研究者在探索威胁性刺激对个体情绪诱发和维持作用的机制时, 发现注意偏向可能在此过程中起到重要作用(Hofmann, 2007; Lonigan, Vasey, Phillips, & Hazen, 2004)。Macleod, Mathews 和 Tata (1986)报告情绪障碍临床患者与正常人相比表现出对威胁性刺激更多的注意偏向, 而这种偏向的减弱伴随着个体临床症状的缓解。Wells 报告注意训练技术可以有效缓解惊恐障碍患者的临床症状(Wells, White, & Carter, 1997), 但还是无法说明注意偏向与情绪变化的因果关系。随后

Macleod 和 Hagan (1992)发现个体的注意偏向可以预测其情绪波动, 但这和类似的研究(Beevers & Carver, 2003)一样均不是注意偏向作用于情绪改变的有力证据。为了严格控制实验过程中的无关变量, 研究者们尝试在实验室操纵被试的注意偏向, 对注意偏向的操纵逐渐发展为成熟的训练范式, 并证明注意偏向训练能有效改变个体的注意偏向进而改善个体的情绪和临床症状(Dandeneau & Baldwin, 2004; Mogg & Bradley, 2002; Musa, Lepine, Clark, Mansell, & Ehlers, 2003; Macleod, Rutherford, Campbell, Ebsworthy, & Holker, 2002; Wells, White, & Carte, 1997)。随后研究者们进一步探索了注意偏向对个体情绪调节的影响, 发现注意偏向训练在一定程度上可以减缓个体在威胁性环境下的情绪唤醒和社交焦虑临床症状(Amir et al., 2008; Dandeneau, Baldwin, Baccus, Sakellaropoulou, & Pruessner, 2007; Klumpp & Amir, 2010; See, MacLeod, & Bridle, 2009)。目前注意偏向训练范式主要有3种: 点探测任务(Dot Probe Task, DPT)、视觉搜索任务(Visual Search Task, VST)和注意训练技术(Attention Training Technique, ATT)。

2.1 点探测任务

在点探测任务中, 首先向被试呈现两个不同的视觉刺激(一般为单词或面孔图片), 随后刺激消失, 在原来刺激呈现的位置随机出现一个探测点, 要求被试迅速反应探测点的类型(Bullock & Bonanno, 2013)。以 Bunnell, Beidel 和 Mesa (2013)的一项研究为例, 首先屏幕中心呈现一个“+”500ms, 随后采集自同一人的两张面孔图片一上一下呈现在屏幕 500ms, 随后图片消失, 探测点(E 或 F)随机出现在其中一张面孔图片呈现的位置, 要求被试通过点击鼠标左(E)、右键(F)回应探测点的类型。每次训练包含 160 个 trial, 其中 80% 呈现一张中性面孔, 一张厌恶面孔, 为了抵消个体的练习效应和期望效应, 剩余 20% 呈现两张中性面孔。实验将被试分为训练组和控制组, 训练组探测点总是出现在中性面孔呈现的位置, 控制组探测点出现在中性面孔呈现位置和厌恶面孔呈现位置的概率相等。在一项探讨情绪障碍患者的注意偏向研究中首次出现了点探测任务(MacLeod et al., 1986)。随着研究者对注意偏向训练调节情绪的持续重视和探索, 涌现出大量使用点探测任

务进行注意偏向训练的研究(Baum, Schneider, Keogh, & Lautenbacher, 2013; Bullock & Bonanno, 2013; Cowart & Ollendick, 2011; Hazen, Vasey, & Schmidt, 2009; McNally, Enock, Tsai, & Tousian, 2013), 点探测任务范式也不断发展。随后提出的改进版点探测任务(Macleod et al., 2002)被广泛应用, 以点探测任务为基础发展出变式—目标指向注意训练进一步拓宽点探测任务的训练方法(Johnson, 2009)。点探测任务是目前发展成熟、应用广泛的训练范式, 其训练效果要明显好于其他范式(Bullock & Bonanno, 2013), 而且可以完全脱离协助者自主训练, 也能通过网络和 U 盘传输完成训练(Rapee et al., 2013), 因此受到研究者和临床应用的青睐。

2.2 视觉搜索任务

在视觉搜索任务中, 首先向被试同时呈现一定量干扰刺激和目标刺激, 要求被试迅速找出目标刺激并做出反应(例如点击鼠标)(Dandeneau et al., 2007)。以 Kruijt 等人(2013)的一项研究为例, 首先向训练组被试呈现 4×4 的网格图片, 其中包含 15 个厌恶面孔和 1 个高兴面孔, 要求被试迅速寻找高兴面孔并用鼠标点击。向控制组同样呈现 4×4 网格图片, 但包含 15 个 7 瓣花朵和一个 5 瓣花朵, 要求被试迅速寻找 5 瓣花朵并用鼠标点击。每次训练包含 256 个 trial, 每完成 32 个 trial 屏幕提示“你可以休息一会儿, 之后点击鼠标继续任务”, 被试稍作休息后继续完成训练以缓解疲劳。在一项有关愤怒面孔在面孔群中突然出现是否能直接导致个体恐惧的研究中使用了视觉搜索任务(Hansen & Hansen, 1988)。随后的研究(Dandeneau & Baldwin, 2004; Gilboa-Schechtman, Foa, & Amir, 2000; Rinck, Becker, Kellermann, & Roth, 2003)陆续对视觉搜索任务进行了改进, 之后大量有关个体暴露在威胁性环境中的研究使用并进一步发展了视觉搜索任务(Dandeneau et al., 2007; Dandeneau & Baldwin, 2009; Kruijt, Putman, & Van der Does, 2013)。视觉搜索任务对社交焦虑的缓解有一定作用, 同样可以进行基于家庭的训练, 是可以推广应用的主要范式。研究表明其对低自尊的改善作用相比其它范式更为明显(Dandeneau & Baldwin, 2009)。

2.3 注意训练技术

注意训练技术分为注意选择(要求被试将注

意力集中在混合声音中某一声音上)、注意转换(要求被试将注意力集中在混合声音中的某一声音上一段时间之后转而注意另外一种声音)、注意分割(要求被试尽可能多的注意混合声音中的多种声音)三个阶段(Wells, 1990)。目前多采用由 Wells 创建的 MCT-I 实验室提出的训练范式。以 Sharpe 等(2010)的一项研究为例, 首先要求被试保持睁眼直至训练结束, 然后以合适的音量开始播放由铃声、车流声、鸟叫声和流水声组成的混合声音, 同时音量合理的一台冷加压设备的嗡嗡声, 一部迷你收音机播放古典音乐声和钢笔敲打桌子的声音作为干扰噪音呈现, 其中敲打声由主试在实验过程中完成。首先完成注意选择阶段, 被试在主试要求下随机关注某一声音, 该阶段持续 5min, 然后完成注意转换阶段, 被试在主试引导下将注意力从某一种声音转换到另外一种声音, 每次转换间隔 15s, 持续转换至该阶段结束, 总共持续 5min, 最后完成注意分割阶段, 要求被试尽可能多的同时关注多种声音, 该阶段持续 1min。单次训练持续大约 12min。Wells (1990)为了缓解惊恐症患者的症状使用了注意训练技术(ATT, Attention Training Technique)。这是唯一一个基于听觉通道的注意偏向训练范式, 研究者们已发展出多次训练、实验室结合家庭训练等变式, 混合声音的设计也逐渐变化, 更加切合实验需求(Ensum & Morrison, 2003; Levaux et al., 2011; McEvoy & Perini, 2010; Papageorgiou & Wells, 2000; Sharpe et al., 2010; Valmaggia, Bouman, & Schuurman, 2007; Wells, 2007; Watson & Purdon, 2008; Wells et al., 1997)。目前鲜有研究探讨注意训练技术对社交焦虑的干预作用, 但是, 注意训练技术能有效缓解个体的慢性疼痛(Baum et al., 2013)、进食障碍(Renwick, Campbell, & Schmidt, 2013)和抑郁(Papageorgiou & Wells, 2000)。

3 注意偏向训练对社交焦虑的干预研究

无论是对临床社交焦虑障碍患者还是正常人群, 成年人或是儿童, 注意偏向训练对社交焦虑均有明显的缓解作用(Amir et al., 2008; De Voogd et al., 2014; Cowart & Ollendick, 2011; Schmidt et al., 2009)。目前对这方面的关注主要集中在点探测任务, 也有研究探究视觉搜索任务和注意训练技术对社交焦虑的干预效果(Kruijt et al., 2013;

Wells et al., 1997)。训练效果、训练效果评估和训练形式是注意偏向训练对社交焦虑的干预研究的3个核心内容。

3.1 训练效果评估

在探讨注意偏向训练对社交焦虑的干预效果时,研究者主要从自我报告、结构化评估、生理记录等方面加以评估。注意偏向训练后,研究者要求被试报告社交焦虑水平和临床症状体验,如完成 Liebowitz 社交焦虑量表(Liebowitz Social Anxiety Scale, LSAS) (McNally et al., 2013)、社交恐惧与焦虑问卷(Social Phobia and Anxiety Inventory, SPAI) (Amir, Beard, Burns, 2009)、社交恐惧量表(Social Phobia Scale, SPS) (Li et al., 2008)、状态-特质焦虑问卷(State Trait Anxiety Inventory, STAI) (Klumpp & Amir, 2010)、社交互动焦虑量表(Social Interaction Anxiety Scale, SIAS) (Neubauer et al., 2013)等,也有研究者要求被试完成其他相关量表,诸如贝克抑郁量表(Beck Depression Inventory, BDI) (Julian, Beard, Schmidt, Powers, & Smits, 2012)、生活质量问卷(Quality of Life Inventory, QOLI) (Carlbring et al., 2012)、生活冲突量表(Life Interference Scale, LIS) (Rapee et al., 2013)等作为衡量干预效果的辅助指标。结构化评估由对实验不知情的专业人士依据一定标准进行,有对社交焦虑临床症状的评估,如国际精神病诊断访谈简版(Mini International Neuropsychiatric Interview, MINI) (Heeren et al., 2012)、DSM-IV 结构化访谈(Structured Clinical Interview for DSM-IV Axis I Disorders, SCID-I) (Amir, Beard, Taylor, et al., 2009)、儿童焦虑障碍诊断访谈亲子版(Anxiety Disorders Interview Schedule for Children Parent Version, ADIS-CP) (Coward & Ollendick, 2011)、国际临床评估改善分卷(Clinical Global Impressions-Improvement, CGI-I) (Bunnell et al., 2013)等,也有对行为改变的评估,例如被试在即兴演讲任务(Amir et al., 2008)、社交互动任务(Neubauer et al., 2013)、无领导小组讨论任务(Rapee et al., 2013)的表现,以及工作能力的变化(Dandeneau et al., 2007)。研究者记录被试的生理变化以明确注意偏向训练对社交焦虑个体的影响,包括眼动(MacLeod et al., 2002)、皮肤电(Heeren, Reese, McNally, & Philippot, 2012)、氢化皮质醇释放水平(Dandeneau

et al., 2007)、功能磁共振成像(Siegle, Ghinassi, & Thase, 2007)和事件相关电位(Taylor et al., 2013)等。

3.2 干预形式

3.2.1 实验设计

注意偏向训练干预社交焦虑的实验设计多采用双盲随机对照实验(Amir, Beard, Taylor, et al., 2009; Heeren et al., 2012; McNally et al., 2013)。研究者将被试随机分为训练组和对照组,在完成点探测任务时,正性训练组的探测点总是出现在中性或正性刺激之后,负性训练组的探测点总是出现在负性刺激之后。控制组的探测点出现在中性和负性刺激之后的概率相等,也有研究将正、负性训练组的任务交替进行作为控制组任务。如 Heeren 等(2012)使用双盲随机对照实验,将 57 名被试随机分至正性训练组、负性训练组和控制组。所有研究助手和被试均不知晓分组的结果。该研究使用高兴-愤怒面孔作为刺激材料,正性训练组的探测点 80%出现在高兴面孔之后,20%出现在愤怒面孔之后,负性训练组探测点 20%出现在高兴面孔之后,80%出现在愤怒面孔之后,控制组将正、负性训练组的任务交替进行,每 186 个 trial 转换一次; Amir 等使用双盲随机对照实验,告诉被试研究是用于评估一种新开发的电脑训练程序对社交焦虑的治疗效果,但被试并不知道自己处于训练组还是控制组。注意偏向训练中 20%的面孔采用中性-中性面孔以克服被试的练习效应和期望效应,80%采用中性-厌恶面孔。在中性-厌恶面孔刺激呈现后,训练组的探测点总是出现在中性面孔的位置,而控制组的探测点有 50%出现在中性面孔位置,50%出现在厌恶面孔位置(Amir, Beard, Burns, et al., 2009)。

3.2.2 被试选取

被试主要从以下 3 个方面获得:医院收治的 SAD、SP 患者(Eldar et al., 2012; Schmidt et al., 2009);通过 DSM-IV 评估(Amir, Beard, Taylor, et al., 2009; Bunnell et al., 2013);量表选取(Amir et al., 2008; Li et al., 2008; Julian et al., 2012)。注意偏向训练干预社交焦虑的研究对象年龄涵盖了儿童、青少年、成年人,多数为 20 岁左右的大学生(Coward & Ollendick, 2011; Neubauer et al., 2013)。如 Schmidt 等(2009)以 36 名医院收治的 SAD 患者(平均年龄 23)为对象进行了注意偏向训练; Carlbring 等(2012)进行结构化评估,选取了 79 名

DSM-IV 诊断符合 SAD 的成年人(平均年龄 36.5)作为被试; Amir 等(2008)以 LSAS 为标准, 将得分 26 以上的 94 名大学生(平均年龄 19)作为研究对象。

3.2.3 训练时间与任务量

对社交焦虑个体的注意偏向训练时间从一天到 16 周, 次数从一次到 12 次、任务量从 160~3360 个 trial 不等, 每次训练在 20~30min 左右(Amir, Beard, Burns, et al., 2009; Klumpp & Amir, 2010; Bunnell et al., 2013)。如 Klumpp 和 Amir (2010)进行了 160 个 trial 的单次注意偏向训练; Li 等(2008)要求 24 名大学生完成连续 7 天, 每天一次, 每次 480 个共计 3360 个 trial 的注意偏向训练; Amir 等的研究中对 30 岁左右的成年人进行了连续 12 周, 每周一次, 每次 192 个 trial 共计 2304 个 trial 的注意偏向训练; Bunnell 等(2013)的注意偏向训练有 31 名被试, 持续 16 周, 每两周一次, 每次 160 个共计 1280 个 trial (Amir, Beard, Burns, et al., 2009)。

3.2.4 训练地点

对社交焦虑个体注意偏向训练的地点一般是在实验室(Amir, Beard, Taylor, et al., 2009; Amir et al., 2008; Eldar et al., 2012; Heeren et al., 2012), 有研究者进行了基于家庭的训练(Boettcher, Berger, & Renneberg, 2012; Neubauer et al., 2013; Rapee et al., 2013), 也有研究直接在学校进行训练(De Voogd et al., 2014)。

3.3 训练效果

3.3.1 注意偏向发生改变

注意偏向训练改变了社交焦虑个体的注意偏向(Macleod et al., 2002; Dandeneau & Baldwin, 2004)。如 Macleod 等(2002)通过眼动轨迹发现正性训练组被试在接受注意偏向训练后对负性刺激的注意偏向减弱; Dandeneau 和 Baldwin (2004)发现被试在完成视觉搜索任务后对威胁性刺激的注意偏向减弱; Mogg, Philippot 和 Bradley (2004)发现被试在注意偏向训练后减少了对愤怒面孔的注意选择; Moriya 和 Tanno (2011)对经过注意偏向训练的被试测量发现其注意更容易从威胁性刺激解除。

3.3.2 社交焦虑缓解

接受过注意偏向训练的个体社交焦虑得以缓解(Cowart & Ollendick, 2011; Eldar et al., 2012; Heeren et al., 2012; Klumpp & Amir, 2010; Schmidt

et al., 2009)。如 Heeren 等(2012)发现经过注意偏向训练的个体自我报告的社交焦虑水平显著降低, 正性训练组和控制组的 LSAS 得分在训练后均降低了 20%左右, 但两周后的跟踪调查中正性训练组降低了 37.8%, 而控制组仅有 10.4%, 表明注意偏向训练能有效减轻社交焦虑, 但这种效果并不一定即时体现出来, 而是随着时间的推移逐渐显现; Schmidt 等(2009)将医院收治的 36 名 SAD 患者随机分为训练组、和控制组, 经过共计 8 次的点探测任务训练, 发现训练组有 72%、控制组有 11%的被试不再符合 SAD 的诊断标准(由被试所在医院的不知情医师评估), 同时训练组被试 BSPS 和 LSAS 后测时的平均得分降低了 12.7%和 15.2% (40.2~35.1, 80.8~68.5), 135 天后的跟踪调查显示降低了 25.4%和 30.4% (40.2~30.0, 80.8~56.2), SPAI 的平均得分在后测和跟踪调查时分别降低了 12.0%和 24.0 (105.1~92.5~79.9), 这表明注意偏向训练对社交焦虑的干预效果随着时间的推移, 在 2~4 个月内保持并不断增强; Cowart 等(2011)探究了注意偏向训练对社交焦虑儿童的干预效果, 一名 8 岁、一名 9 岁患社交焦虑障碍的儿童接受了为期 5 周, 每周两次, 共计 1600 个 trial 的点探测注意偏向训练之后其 Spence 儿童焦虑问卷的得分分别降低了 62.5%和 73.5%; Eldar 等(2012)以有焦虑症状的儿童患者(分离焦虑、特定焦虑、社交焦虑)为对象完成训练后, 训练组被试符合 DSM-IV 亲子版儿童焦虑诊断的平均条目数由 8 条降低为 4 条, 严重程度由 7 级降为 5 级, 同时有 33%的儿童不再符合儿童焦虑的诊断标准(由该儿童所在医院的不知情医师评估), 而两种对照条件下的被试其儿童焦虑符合条目和严重程度均无明显变化, 不再符合儿童焦虑诊断标准的也仅有 11%和 0%。

3.3.4 生理唤醒改变

注意偏向训练训练被证明可以有效改变社交焦虑个体在压力情景下的生理唤醒。如 Heeren, Lievens 和 Philippot (2011)让被试在实验室接受连续 4 天的点探测注意偏向训练之后发现, 被试的皮肤电反应明显减弱; Dandeneau 等(2007)对 25 名大四学生进行了视觉搜索任务训练, 后测时他们的皮质醇释放量降低。

3.3.5 大脑活动变化

Siegle 等(2007)使用 fMRI 技术发现, 要求被

试完成情绪性单词与本人相关程度的评级时,接受过注意偏向训练的被试杏仁核活动更加完整,而且右侧杏仁核对正性单词的反应增强,对负性和中性单词的反应减弱;Eldar 和 Bar-Haim (2010)发现焦虑个体在注意偏向训练之后完成点探测任务时代表随意神经系统激活的 P2 波幅显著降低,而早期波 P1 和 N1 没有差异;Taylor 等(2013)发现高社交焦虑个体在注意偏向训练之后完成情绪面孔加工任务 (Emotional Face Processing Task, EFPT)时前额叶皮层的活动显著增强,腹内侧前额叶皮层活动显著增强的被试对威胁性刺激的注意偏向和压力情景下的焦虑唤醒均显著减弱。

3.3.6 训练效果迁移

注意偏向训练对社交焦虑个体的干预效果会迁移到相关任务中的表现。如 Dandeneau 等(2007)发现经过视觉搜索任务训练的电话推销员工作绩效更高,长时间被拒绝的员工自尊水平提升;Johnson (2009)使用点探测任务的变式一目标指向注意训练对 109 名即将毕业的大学生进行了注意偏向训练,发现被试在训练后完成易位构词任务时挫折反应降低了 3 倍;Heeren 等(2012)对 57 名大学生进行连续 4 天的注意偏向训练后,评估发现他们在即兴演讲任务中的表现提升。

4 注意偏向训练对社交焦虑的干预机制: 对威胁性刺激的注意解除

以点探测任务为主的研究证实了注意偏向训练可以有效降低个体的社交焦虑水平和临床症状,随后一些研究发现注意偏向改变是导致个体社交焦虑改善的中介变量(Heeren et al., 2011; See et al., 2009)。但也有研究并未发现注意偏向改变起中介作用(Amir, Beard, Burns, et al., 2009)。这引发了研究者对注意偏向训练缓解社交焦虑机制的探索,注意偏向训练到底通过怎样的方式影响社交焦虑人群?这其中又有那些关键因素在发挥作用?

注意偏向是个体面对不同刺激所体现出的注意分配,它有 3 种成分: 注意投入 (facilitated attention)、注意解除困难(difficulty in disengaging)和注意规避 (attentional avoidance) (Cisler & Koster, 2010)。研究发现对威胁性刺激的注意偏向是诱发和维持社交焦虑的重要因素(Mogg & Bradley, 2002; Mogg et al., 2004; Pishyar, Harris, & Menzies, 2004),同时注意有高的主动性,并易于

控制(Baars, 1997),从而注意偏向可以通过练习加以改变(Lutz, Slagter, Dunne, & Davidson, 2008; Rueda, Rothbart, Saccomanno, & Posner, 2007),这表明训练个体注意远离威胁性信息可能会缓解其社交焦虑。起初的研究发现(Stormark, Nordby & Hugdahl, 1995)注意偏向训练缓解个体社交焦虑可能存在两种过程,一是对威胁性刺激的注意投入,即个体更容易被威胁性刺激吸引,并作出回应,远离威胁性刺激的注意偏向训练抑制了个体注意早期的自动化偏向,进而减少了负性信息的获得,降低了个体的社交焦虑唤醒;二是对威胁性刺激的注意解除困难,即个体被威胁性刺激吸引后难以移除,比正常人耗时更长,注意偏向训练反复要求被试将注意从威胁性刺激解除并再投入到中、正性刺激,提高了被试的对威胁性刺激的注意解除能力,减少了威胁性刺激对个体的影响,进而缓解社交焦虑。Amir, Elias, Klumpp 和 Przeworski (2003)以 18 名社交恐惧患者为实验组和 20 名无焦虑人群为控制组,采用 Posner (Posner, 1980)任务,探测点呈现在中性、正性或威胁性单词之后,但分为有效点(呈现在刺激呈现的位置)、无效点(呈现在非刺激呈现位置)和空点(不呈现)三种情况。测量表明实验组和控制组被试对出现在威胁性单词之后的有效点反应时无显著差异,但实验组对出现在威胁性单词之后的无效点的反应时要显著长于控制组。此类研究(Amir et al., 2003; Moriya & Tanno, 2011; Yiend & Mathews, 2001)说明焦虑个体存在对威胁性刺激的注意解除困难,从而形成了对威胁性信息的注意偏向,而注意偏向训练通过使被试反复将注意从威胁性刺激上移除并再定位到中性或正性刺激,提高了被试将注意从威胁性刺激解除的能力,阻断了诱发和维持社交焦虑的来源,从而缓解了被试的社交焦虑。

但注意偏向训练缓解社交焦虑还存在其他两种可能性,一是被试反复暴露在威胁性刺激中形成了对威胁性信息获得的注意疲劳,从而减弱了对威胁性刺激的关注和回应进而缓解社交焦虑,二是被试注意反复被定位到对中、正性刺激从而产生对中、正性刺激的注意投入进而缓解社交焦虑。对此, Dandeneau 等(2007)使用视觉搜索任务进行注意偏向训练后,让被试完成一个由接受性词汇和拒绝性词汇组成的 Rejection Stroop 任务,

结果发现接受训练的被试表现出对拒绝性词汇的抑制,这表明注意偏向训练并非通过使被试对威胁性刺激形成注意疲劳的方式来缓解社交焦虑,而是改变了被试的注意偏向。Heeren 等(2011)以79名SAD患者为被试,随机分至注意解除组(disengagement from threat)、注意投入组(engagement towards non-threat)、注意解除和注意投入混合、控制组。训练后注意解除组自我报告的社交焦虑水平显著降低,即兴演讲任务表现提升,而注意投入组无明显变化,这意味着个体对非威胁性刺激的注意投入并不能有效的缓解社交焦虑。

从逻辑学角度来看,无论使个体远离威胁性刺激还是导向中、正性刺激,首先需要从已有的注意偏向解除,故而对当下刺激的注意解除成为注意再分配的前提。社交焦虑个体因对威胁性刺激的过度警觉(Lee & Telch, 2008)而不会形成注意疲劳,而对非威胁性刺激的投入和远离威胁性刺激的训练效果并不明显(Amir et al., 2003; Heeren et al., 2011),这说明注意偏向训练中单纯导向性成分可能仅仅加工了被试在首次分配之后剩余的注意资源,没有从根本上改变被试的注意模式。所以注意偏向训练中起效用的成分是通过反复回应出现在非威胁性刺激之后的线索,导致被试对威胁性刺激的注意解除及后来的注意再分配,但社交焦虑个体对威胁性刺激的注意偏向导致被试解除之后的再分配仍然会关注威胁性刺激,故而有可能存在解除、再分配、再解除的循环注意加工系统。这也佐证注意偏向训练中的单纯导向性成分是无力的。

注意偏向训练对个体社交焦虑的干预可能是通过提升被试对威胁性刺激的注意解除能力实现,而注意解除存在被试的主观努力,是晚期的、由随意神经系统执行的调节,属于对刺激成分自主的、指向性的、自上而下的策略加工。相关的脑神经机制研究也支持了这一观点。Johnson (2009)发现,注意偏向训练的刺激时长为无意注意(17ms)时被试并无显著变化,为有意注意(500ms、1250ms)时被试产生对正性刺激的注意偏向,在完成之后的压力任务时挫折反应显著降低,这说明注意偏向训练作用于个体的随意注意阶段并调用随意(voluntary)神经系统。Eldar 和 Bar-Haim (2010)发现社交焦虑个体在注意偏向训练之后

P2、N3、P3波幅显著变化,而早期波P1和N1没有差异,佐证了注意偏向训练改变了被试随意神经系统的信息加工能力。Siegle 等(2007)使用fMRI技术发现要求被试完成情绪性单词与本人相关程度的评级时,接受过注意偏向训练的被试杏仁核活动更加完整,且右侧杏仁核对负性单词的反应减弱,Bickart 等(2010)研究发现社交能力越强的个体其杏仁核会稍大,这说明注意偏向训练很有可能促使了杏仁核变化进而改善个体的社交焦虑。Browning, Holmes, Murphy, Goodwin 和 Harmer (2010)对健康被试进行注意偏向训练后发现被试的边侧前额叶活动水平显著变化,Taylor 等(2013)对高社交焦虑被试进行注意偏向训练后发现,被试的双侧杏仁核、双侧脑岛、前扣带回膝下区的活动水平显著降低;前额叶皮层活动增强,而且腹内侧前额叶皮层活动显著增强的被试对威胁性刺激的注意偏向和压力情景下的焦虑唤醒均显著减弱。而一般认为,前额叶皮层在随意神经系统调节中起着关键作用,注意偏向与前扣带回活动水平的变化有关(Browning, Holmes, Murphy, Goodwin, & Harmer, 2010; Eysenck, Derakshan, Santos, & Calvo, 2007; Taylor et al., 2013)。这均是注意偏向训练作用于个体随意神经系统,提升其将注意从威胁性刺激解除的能力,进而缓解社交焦虑的有力证据。

综上所述,注意偏向训练最可能是引导被试形成了对威胁性刺激注意解除、注意再分配和注意再解除的循环注意加工系统,进而使被试的注意不断由威胁性刺激转向非威胁性刺激来减缓社交焦虑。当然,人的注意系统是十分复杂的,这一过程当中还可能存在其他可能,需要研究者进一步探索。

5 展望

5.1 进一步提高干预效果的可信度

近期,有些研究结果显示社交焦虑个体在注意偏向训练后无显著变化(Bunnell et al., 2013; Julian et al., 2012),而有些研究发现各项指标均显著变化,但这并不是由注意偏向训练引起(Carlbring et al., 2012; Kruijt et al., 2013; McNally et al., 2013; Rapee et al., 2013)。如Kruijt 等(2013)将HADS-D得分4~9的40名被试随机分为控制组和训练组,对其在实验室进行单次的视觉搜索

任务既未能改变其注意偏向, 也未能改善情绪。Rapee 等(2013)要求被试在家中完成连续 12 周, 每周一次, 共计 2304 个 trial 的点探测注意偏向训练, 后测显示所有被试的各项指标均有显著变化, 并在 6 个月后的跟踪调查中有所保持, 但控制组和训练组无显著差异, 这可能与环境因素、任务量、被试的不适应等有关(Julian et al., 2012)。今后的研究可以进一步控制无关变量, 增加注意偏向训练对社交焦虑的干预效果的可信度。

5.2 进一步探索干预机制

大量研究者探讨了注意偏向训练缓解社交焦虑的机制(Bar-Haim, Lamy, Shlomit, & Glickman, 2005; Heeren, Raedt, Koster, & Philippot, 2013; Peer, Spinhoven, & Roelofs, 2010; Schofield, Inhoff, & Coles, 2013), 提出了各种假设, 但没有研究全面、准确的予以揭示。脑神经机制的探索佐证了注意偏向训练作用于个体的随意神经系统, 却无法明确个体注意偏向变化的具体成分。个体对威胁性刺激的注意解除可能起着关键作用, 目前相关的研究得出一些证据, 但缺乏对注意解除的准确控制, 现有的训练范式中, 点探测任务和视觉搜索任务均包含了注意投入导向的训练和注意解除, 今后的研究可以尝试更精确的控制注意解除, 以明确其对社交焦虑改善的贡献。

5.3 进一步拓宽评估手段

当前研究对注意偏向训练效果的评估过度依赖了被试自我报告的社交焦虑水平(Carlbring et al., 2012; Li et al., 2008; Macleod & Mathews, 2012; Kruijt et al., 2013), 仅有少许研究采取了多元化的测量方式(Heeren et al., 2012), 而单一的研究方法所得出的结论难免令人生疑问, 而且缺乏科学研究的全面性、准确性与客观性。过度依赖问卷调查可能导致的共同方法偏差, 缺少其他方法的数据支持等均可能成为注意偏向训练对社交焦虑的干预研究领域的短板。今后的研究可以更多关注被试生理唤醒和大脑活动的变化, 明确其评估效果的迁移, 以及这种迁移的持续时间和变化规律等。这不仅可以增加注意偏向训练的可信度, 而且能帮助我们明确社交焦虑人群一系列症状之间的功能性关系。

5.4 干预的长期效果

目前研究中的干预效果多来自后测, 有跟踪调查的研究也仅有两周(Heeren et al., 2012)到 6 个

月(Rapee et al., 2013), 这无法有效说明注意偏向训练能否对焦虑个体产生有益而长期的效果。虽然没有研究直接探索注意偏向训练 1 年、3 年及更长时间的干预效果, 但是个体的注意偏向可以通过反复的练习加以改变, 随着训练进行, 个体需要付出的认知努力减少, 注意偏向可以成为自动化的过程(Lutz, Brefczynski-Lewis, Johnston, & Davidson, 2008; Lutz et al., 2008), 这意味着注意偏向训练可能存在长期作用。研究者可以延长跟踪调查的时间, 尝试进行纵向研究, 探索注意偏向训练干预社交焦虑的年龄差异以及其长期效果。

5.5 注意偏向训练对其他心理障碍的治疗效用

注意偏向训练能有效缓解社交焦虑, 同样对广泛性焦虑(Amir, Beard, Burns, et al., 2009)、抑郁(Baert, De Raedt, Schacht, & Koster, 2010)、低自尊(Dandeneau et al., 2007)、物质依赖(Attwood, Sullivan, & Leonards, 2008)、疼痛(Baum et al., 2013)、进食障碍(Renwick et al., 2013)等也有显著的改善作用。孤独症、自闭症、儿童注意缺陷综合症等与个体的注意控制和偏向有关的疾病虽然可能因器质性损伤引起, 但依然存在注意偏向训练缓解患者症状的可能性, 这将是有一个有价值的研究方向。

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Attentional Bias Training towards Social Anxiety

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Abstract: Social anxiety disorder is one of the most common and intractable mental disorders. Numerous studies have found that attention bias training can be an effective treatment for patients or normal people with social anxiety. According to self-report, structured interview and physiological records, researchers found that individuals with social anxiety change attention bias, physiological arousal and cranial nerve activity, in addition, their social anxiety symptoms are relieved after attention bias training. Intervention mechanism of attention bias training towards social anxiety is probable because training enhances individual attentional disengagement ability from the threatening stimulation. Future research further clarify intervention effect and mechanism of attention bias training towards social anxiety, and broaden the evaluation means of attention bias training effect as well as explore its long-term effects and the role in other mental illnesses.

Key words: social anxiety; attentional bias; attentional bias training