

接纳承诺疗法的作用机制 ——基于元分析结构方程模型*

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摘 要 接纳承诺疗法(Acceptance and Commitment Therapy, ACT)被认为是行为治疗“第三浪潮”的重要代表。本研究使用元分析结构方程模型, 考察 ACT 的作用机制。通过数据库检索与筛选, 最终纳入文献 50 篇。结果发现: ACT 所假设的心理灵活性、接纳、此时此刻、价值的中介作用都达到统计显著, 认知解离这一中介变量并不显著; 中介机制在网络化干预中仍然得到检验; 相较之传统 CBT, ACT 在所假设的机制上有其区别于 CBT 的优势。后续临床研究应更全面地测量 6 大核心机制, 关注对美好生活提升的影响, 采用多点瞬时评价法, 并尽可能使用更高级、更先进的统计方法检验其作用机制。

关键词 接纳承诺疗法; 元分析结构方程模型; 作用机制; 中介检验; 认知行为疗法

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1 引言

近年来, 新兴的行为治疗“第三浪潮”备受关注。行为治疗被喻为“第一浪潮”, 它基于条件反射和新行为原则, 直接关注有问题的行为和情绪; “第二浪潮”则强调对非理性思维、病理性认知图式或错误的信息处理方式进行矫正, 进而减轻或消除症状, 这种以认知改变为重心的治疗被称为“认知行为疗法”(Cognitive-Behavior Therapy, CBT) (Beck, 1993)。“第三浪潮”则对心理现象的语境和功能更为敏感, 而不仅仅关注其形式(Hayes, Luoma, Bond, Masuda, & Lillis, 2006), 典型的疗法包括接纳与承诺疗法(Acceptance and Commitment Therapy, ACT)、辩证行为疗法(Dialectical Behavioral Therapy, DBT)、正念认知疗法(Mindfulness Based Cognitive Therapy, MBCT)、慈悲聚焦疗法(Compassion Focused Therapy, CFT)等(Hacker, Stone, & MacBeth,

2016)。

尽管研究者们对哪些疗法属于“第三浪潮”仍存在争议, 但为了促进疗法的共同发展, 共识多于分歧。Hayes, Villatte, Levin 和 Hildebrandt (2011)对“第三浪潮”进行了修正, 用“基于语境的认知行为治疗”(Contextual Cognitive Behavioral Therapy, CCBT)作统称, 将关注点从原来的哪些治疗方法应该被纳入“第三浪潮”, 转为强调新兴疗法在理论、治疗过程和程序上“开放, 主动和觉察”的特点。在这些基于语境的认知行为治疗中, ACT 最受关注, 近年来被引用的频次最多(Dimidjian et al., 2016)。本研究的目的在于系统考察 ACT 的作用机制, 相较之传统 CBT 的特异性, 以及在网络环境中的可迁移性。

1.1 ACT 的疗效

探索 ACT 治疗的作用机制之前, 需要先考察其有效性。在循证心理治疗中, 随机对照试验

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(Randomized Controlled Trial, RCT)设计被作为疗法评估的“黄金标准”,元分析证据被当作证据效度的最高标准(Wampold & Imel, 2015)。通常,疗效有绝对疗效和相对疗效之分,绝对疗效旨在检验该疗法是否有效,其对照组一般是等待组(Waiting List, WL)、常规治疗(Treatment as Usual, TAU)、安慰剂治疗等;相对疗效用于检验该疗法是否比其他疗法更为有效,其对照组通常是高度结构化已确立的疗法,比如传统 CBT、认知疗法(Cognitive Therapy, CT)、人本主义疗法等(Wampold, 2013)。那么,ACT 的疗效如何呢?

一方面,从绝对疗效角度,元分析的结果支持 ACT 具有中到大的效果量。最早的元分析纳入 9 篇 RCT, 对照组包括 WL、TAU、心理安慰剂组, 结果发现,ACT 后测具有中等效果量($d = 0.66$) (Hayes, et al., 2006);最近一项纳入 60 项 RCT 研究的元分析(Öst, 2014)包括了更为广泛的心理、身体和工作压力相关问题,相较于 WL ($g = 0.63$)、TAU ($g = 0.55$)和心理安慰剂组($g = 0.59$),其后测的绝对疗效都具有中到大的效果量。

另一方面,从相对疗效角度,与高度结构化已确立的疗法对比,ACT 的效果量大小不一。最早的元分析发现(Hayes et al., 2006)相较于传统 CBT 和 CT, ACT 具有中到大的效果量($d = 0.73$),但该研究只纳入了 4 项 RCT 研究。随后, Ruiz (2012)的元分析纳入 16 项 RCT 研究,包括成瘾、慢性疼痛、焦虑症、抑郁症、压力以及癌症的心理体验等,结果发现与传统 CBT 相比,ACT 的后测($g = 0.37$; $g = 0.42$)和追踪效果量都为小到中等,之后更大样本的 RCT 研究(Öst, 2014)发现其后测效果量较小($k = 60$, $g = 0.16$)。最近,一项纳入 39 项 RCT 研究的元分析也得到类似的结果,这项研究将治疗限定为临床相关疾病,其干预中 80%的成分包含 ACT (A-Tjak et al., 2015)。

综上所述,检验 ACT 的绝对疗效的元分析表明 ACT 是有效的,那么 ACT 是如何有效的,即其作用机制值得进一步探究。

1.2 心理治疗机制的研究方法

机制是指解释改变过程,而识别中介变量是检验作用机制的重要一步,它是在统计上解释自变量与因变量关系的中间变量,解释治疗为何和通过哪种方式作用于效果(MacKinnon, Fairchild, & Fritz, 2007)。

Kazdin (2007)归纳了识别心理治疗机制或中

介变量的基本标准。首先,研究中所提出的机制/中介变量和预期结果变量有明确的关联(强相关性准则)。其次,结果变量和中介变量需要在多个时间点进行测量,从而可以确定中介变量的变化先于结果变量的变化(时间优先准则)。再次,需要操作实验设计(增加或减少特定机制),激活和(或)拆除特定机制来确定效应的特异性(特异性准则)。此外,需要观察“剂量-反应”关系,即针对性地激活越多的机制剂量,观察结果是否改变越强(梯度准则)。最后,研究结果的可重复性(一致性标准)。

具体到统计上,确立一个中介变量需要诸多条件。在很长一段时间,中介仅指统计上的中介,即从统计上证明治疗(X)对结果(Y)的影响可以通过第三变量(中介变量 M)所解释。中介分析的方法众多,显变量检验通常基于线性回归模型,而潜变量检验则使用结构方程模型(Structural Equation Modeling, SEM)。虽然 SEM 技术相较之线性回归更具优势,且研究者也更为推荐,然而,现今心理治疗研究中的中介检验,传统线性回归法仍然是最为流行的方法(Gu, Strauss, Bond, & Cavanagh, 2015)。其中,检验中介最经典的方法是逐步检验法(Baron & Kenny, 1986),根据该方法,治疗研究中介变量的确立需要满足以下几个条件(Lemmens, Müller, Arntz, & Huibers, 2016): (1)存在治疗主效应(疗效检验); (2)治疗与中介变量的改变相关(干预检验); (3)中介变量的改变和结果变量的改变相关(心理病理学检验); (4)当在统计上加入中介变量检验时,治疗的效果不显著(完全中介)或显著性降低(部分中介)。

统计上的中介检验固然重要,但鉴别治疗的中介变量仍需要一些额外的实验设计。根据较新的标准,中介变量的鉴别需要建立在理论上,通过严格的 RCT,进行合理间隔的重复测量,并且要求有足够的统计力和合适的对照组(Kazdin, 2007; MacKinnon et al., 2007);接着,需要改进实验设计,能在治疗研究中操作所提出的中介变量(Alsubaie et al., 2017);此外,根据治疗理论对改变过程的界定,通常评价单一的中介变量是不足够的,研究者推荐应该包括多个中介变量竞争假设,检验替代解释模型,并考察理论上中介变量之间的相互作用(Lemmens et al., 2016)。

1.3 ACT 的作用机制

ACT 基于关系框架理论,其治疗机制模型假设是以提升心理灵活性为核心,包括 6 大成分,即,接纳(愿意接触内心体验)、解离(将认知体验为持续

的过程,而非认知过度调节行为)、以己为景(把内在体验作为自身体验的背景,而不把它看作是体验本身)、此时此刻(能够灵活地接触发生的内部与外部事件,不作评判)、价值(选择持续行为模式所需的结果,以建立强化物)、承诺行动(灵活地朝有价值的方向作出行动)(Hayes et al., 2006; 曾祥龙, 刘翔平, 于是, 2011; 张琦, 王淑娟, 祝卓宏, 2012)。上述机制假设是否能得到实证研究支持?

其一,目前对 ACT 的治疗机制模型的实证检验结果存在不一致。部分研究验证了心理灵活性的改变在临床结果中起中介作用(Wicksell et al., 2013);有的研究结果并不一致,比如无法检验到对疼痛的接纳改变在实验条件组与追踪临床结果之间起部分或完全中介作用(Luciano et al., 2014);再有研究发现,在社区环境,ACT 六边形模式的心理灵活性及 6 大核心机制的改变对焦虑障碍的改变作用是不一致的(Forman, Herbert, Moitra, Yeomans, & Geller, 2007; Hayes et al., 2006)。有元分析(Bluett, Homan, Morrison, Levin, & Twohig, 2014)考察 63 个检验焦虑与心理灵活性关系的研究,结果显示,二者在临床与非临床样本,都具有中等程度的相关,即,在中等程度上支持心理灵活性是治疗改变的中介变量的可能。但不难看出,该元分析仅是检验了心理灵活性与症状降低之间的相关性,并没有直接检验中介作用。那么,聚合所有相关研究进行中介检验,是否能支持 ACT 的治疗机制模型?

其二,ACT 所假设的作用机制是否具有特异性?ACT 疗法在创始就强调其机制的独特性。Hayes(2004)认为,相较之“第二浪潮”的传统 CBT,虽然“第三浪潮”与传统 CBT 有相同的干预成分,比如自我监控、暴露和反应阻止法,但二者在理论假设和干预方法都有所区别。在理论假设上,区别于传统 CBT,ACT 基于关系参照理论和功能情境主义哲学取向。在干预方法上,传统 CBT 聚焦内容和认知过程的有效性,而 ACT 侧重功能或对认知和情绪的觉察(Hofmann & Asmundson, 2008)。因此,ACT 重视提升接纳、正念、元认知和心理灵活性,降低经验回避,建立更为宽广、灵活、有效的应对方式,而不仅仅是针对症状的认知和内容进行反驳(Bond et al., 2011; Hayes et al., 2011)。那么,综合分析,相较之传统 CBT,ACT 所强调的机制是否确实具有特异质呢?

其三,这种机制在网络环境中是否能得到迁移?在影响心理治疗效果的所有因素中,当事人与咨询

师所形成的咨询同盟被认为是最大的影响因素,咨询技术特征所带来的效果量提升较小(Wampold & Imel, 2015)。随着计算机网络化技术的发展,近年来心理疾病的网络化干预受到较多研究者的关注,网络化的干预使咨询同盟几乎消失,然而一些经典的干预方法在网络环境中传播,比如网络化 CBT 干预,其作用机制仍然能得以检验(任志洪等, 2016)。而目前基于对 ACT 网络化干预的作用机制的检验结果存在不一致:比如,一项对 234 名大学生群体进行心理健康的网络化干预的研究结果发现,相较之对照组,ACT 干预的心理灵活性的提升与心理健康水平提升有较强关联(Levin, Hayes, Pistorello, & Seeley, 2016),针对抑郁的 ACT 网络化干预也支持心理灵活性的改变与症状改变的相关性(Lappalainen, Langrial, Oinas-Kukkonen, Tolvanen, & Lappalainen, 2015);但也有研究发现网络化 ACT 干预相较之等待组,尽管对抑郁和焦虑症状有显著的改善,但当事人的心理灵活性并没有显著改变(Levin, Pistorello, Seeley, & Hayes, 2014)。因而,有必要系统检验 ACT 所强调的作用机制在网络环境中是否能得到迁移。

1.4 本研究的目的

近年来,元分析和结构方程结合所发展的元分析结构方程模型(Meta-analytic Structural Equation Model, MASEM)(Cheung, 2015),使系统考察心理治疗作用机制成为可能。相较之原始单一的 RCT 研究,通过两阶段 MASEM 汇聚多样本,可以综合样本量,提升模型统计力,获得更稳定的模型估计(Montazemi & Qahri-Saremi, 2015)。

鉴于目前对 ACT 的作用机制缺乏系统检验,其机制是否有区别于传统 CBT 的特异性,以及在网络化干预环境的可迁移性等问题,还未明确。本研究主要使用 MASEM 考察 ACT 的三方面作用机制:(1)检验心理灵活性及 6 大核心机制在 ACT 治疗中的中介作用;(2)考察相较之传统 CBT,ACT 所强调的机制是否具有特异性;(3)ACT 的作用机制的可迁移性,特别是在网络化干预中是否仍然存在。

2 研究方法

2.1 文献检索

在 Web of Science、PsycARTICLES、PsycINFO、PubMed、Elsevier、EBSCO、Wiley online library 等数据库,检索已经发表的英文文献。将检索关键词

分为: 接纳承诺疗法(Acceptance and Commitment Therapy, ACT); 与其对应的心理机制(acceptance、cognitive defusion、self-as-context、committed action、contact with the present moment、values、psychological flexibility)进行配对组合检索。首次文献检索时间2016年10月,2017年11月二次更新。文献由第二作者筛选,第三作者核对,有异议文献与第一作者协商一致解决。详细过程见图1。

2.2 纳入与排除标准

文献纳入与排除标准为,纳入: 1)成年人样本(年龄 > 18 岁), 2)随机对照试验(RCT)或是准试验设计, 测量 ACT 干预前后变量的变化, 3)对心理健康(临床或非临床)结果前后测量改变进行定量评估,

4)对中介变量进行前后测定量评估。排除: 1)混合干预方式, 即除了 ACT 还包含其他干预手段, 或含有接纳成分而非完整的 ACT 治疗(Wicksell, Ahlqvist, Bring, Melin, & Olsson, 2008)或含接纳的行为治疗(Eustis, Hayes-Skelton, Roemer, & Orsillo, 2016; Millstein, Orsillo, Hayes-Skelton, & Roemer, 2015), 2)药物治疗对照组(Luciano et al., 2014)。

数据摘取分两类: 一类是描述研究特征的基础数据, 我们采用第二作者摘取, 第三作者核对的形式; 另一类是真正纳入统计分析的核心数据, 我们采用第二作者和第三作者分别编码, 求得评分者一致性信度 kappa 系数为 0.89, 根据在 0.75 及以上被认为一致性非常好的判别标准(Orwin, 1994), 说明

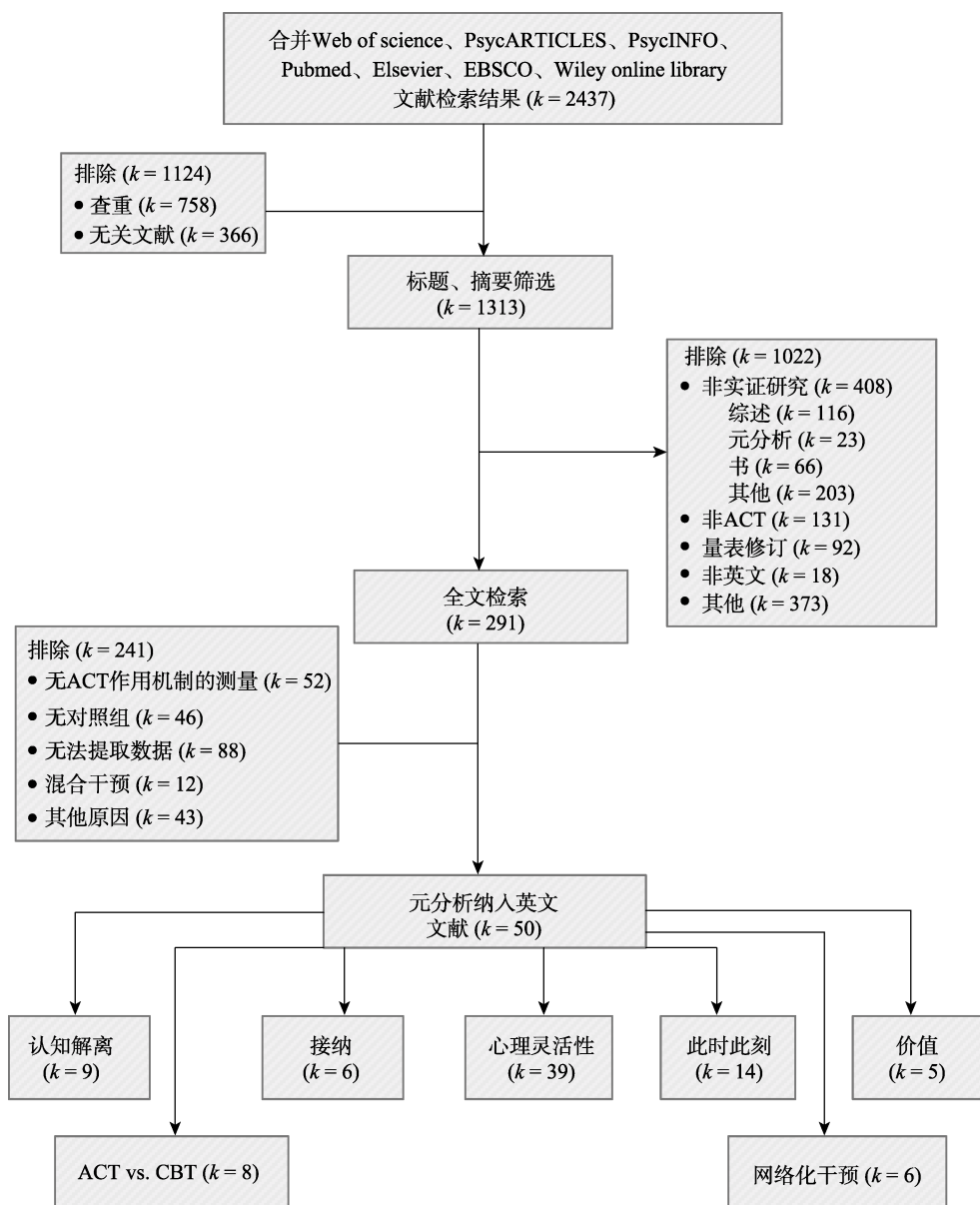


图1 文献检索和筛选流程图

本研究编码具有较高的一致性。最后,与第一作者协商一致后确定最终编码。

2.3 中介检验:两阶段结构方程元分析

中介效应检验采用 MASEM 进行分析。Cheung (2015) 提出两阶段结构方程模型 (Two-Stage Structural Equation Modeling, TSSEM), 采用极大似然估计, 使标准误估计更加精确。使用 R 语言 (Ver.3.5.2) 中的 metaSEM 包 (Ver.1.2.0) 进行 TSSEM 分析 (Cheung, 2015)。具体来说:

2.3.1 考察模型因素的测量不变性(第一阶段分析)

为了减少原始研究汇聚数据, 潜在的人为因素对结构方程参数估计的影响, 根据 (Montazemi & Qahri-Saremi, 2015; Schmidt & Hunter, 2015) 建议, 本研究中可能有 5 个人为因素影响元分析检验理论假设, 处理方法分别如下:

(1) 数据的独立性。数据的非独立性违反了元分析假设 (Schmidt & Hunter, 2015)。因此, 我们使用以下方法, 以保证两阶段随机效应 MASEM 分析数据的独立性。当一篇研究测量了多个结果时, 我们借鉴前人的系统选择方法 (Gu et al., 2015): 优先选择心理病理的整体测量, 其次选择抑郁和焦虑测量结果; 同时包含他评与自评的测量结果的研究, 优先选取临床咨询师评价 (Forman et al., 2007); 同时测量了焦虑与抑郁的研究, 选择与样本量匹配的结果; 若是样本量不匹配, 则根据被试基线的抑郁与焦虑水平, 选取水平更高的结果; 既没有测量抑郁也没有测量焦虑的研究, 选取压力作为心理健康结果, 如果也没有压力则选择消极影响; 最后, 如果一个结果变量有两个或是多个测量工具, 则选择有更强测量学特征的结果。相对的, 若是没有包含心理健康结果的文献, 不纳入 TSSEM 分析。虽然可能在一项研究中计算多结果测量的均值, 但无法直接获得每项研究平均相关系数的方差, 因而, 每项研究仅提取一个心理健康结果指标较为适宜。

(2) 编码过程。本研究的主要目的并非关注 ACT 对心理疾病治疗的效果量, 而旨在着重考察其作用机制。因而, 为了使用 TSSEM 考察 ACT 的作用机制, 从每一篇文章中提取 X (ACT vs. 对照组), M 变量(中介变量)在干预前后的改变以及 Y 变量(结果变量)干预前后的改变之间的两两相关系数, 并且提取每项研究的样本量。如果研究并没有提供明确的相关系数, 则利用均值、标准差、 t 值、 F 值和效果量(d 或 g 值)计算相关系数 (Lipsey & Wilson, 2001; Morris, 2008)。

(3) 评价潜在的数据缺失影响。在元分析中, 可能存在潜在的“文件抽屉问题” (file drawer problem), 即效果不显著的论文相比效果显著的论文, 更不易被发表, 导致出版偏差 (Higgins & Thompson, 2002)。我们先使用 Begg and Mazumdar rank correlation 和 Egger's regression intercept 评估可能的出版偏差, 若存在偏差, 进而使用失安全系数 (fail-safe Number, N_{fs}) 检验可能的出版偏差对效果量的影响 (Rothstein, Sutton, & Borenstein, 2005)。失安全系数是指让现有结论变得不显著的研究个数的最小值, N_{fs} 越大, 偏倚的可能性越小; 当 N_{fs} 小于 $5k + 10$ (k 为原始研究的数目) 时, 发表偏倚应引起警惕 (Rothstein et al., 2005)。本研究中, 多数的 N_{fs} 值都较大 (仅 ACT vs. CBT 的 c 路径可能存在出版偏差), 整体上说, 本研究结果具有较强的稳健性。

(4) 检验 Type II 错误。统计力是统计检验中的一个重要成分, 即零假设事实不成立, 那么在多大程度上, 统计结果拒绝零假设。为了评价 Type II 错误的风险, 我们基于各自合并的样本量, 根据所假设检验的中介变量的合并相关系数, 使用 G*Power3.1 计算其统计力 (Faul, Erdfelder, Lang, & Buchner, 2007)。统计力分析结果显示 (表 1), 除认知解离 $A \rightarrow C$ 的统计为 0.771, 其他所有参数都大于 0.8 这一被广泛接受的统计力阈值。因此, 可以确信, MASEM 分析的所有模型均具有足够的统计检验力以拒绝事实不成立的零假设 (Cohen, 1988; Montazemi & Qahri-Saremi, 2015)。

(5) MASEM 分析中原始研究异质性问题。在 MASEM 分析中可以使用固定效应模型 (fixed-effects model) 和随机效应模型 (random-effects model) (Cheung, 2014)。根据 Cheung 和 Chan (2005) 的推荐, 鉴于样本、研究设计和效果量在不同研究间存在差异, 在 MASEM 分析中优先使用随机效应模型, 如果统计结果证明效果量是同质的, 则在第二步分析中使用固定效应模型。使用 Q 值和 I^2 考察模型的异质性及其大小: $Q < 0.05$, 表示研究之间是异质的; $I^2 > 50\%$ 则为高异质性, $25\% \sim 50\%$ 为中等异质性, $< 25\%$ 为低等异质性 (Higgins & Thompson, 2002)。分析结果如表 1 所示。

2.3.2 评价 SEM 模型(第二阶段分析)

根据 Cheung (2015) 所提示的两阶段随机效应 MASEM 分析的步骤, 第二阶段分析是使用元分析对原始研究进行效果量合并, 结合 SEM 技术进行

表1 基于TSSEM的ACT中介作用检验

变量	K (N ₀)	n	随机效应 TSSEM, 第一阶段					随机效应 TSSEM, 第二阶段								
			X	M	Y	r ²	Q	p	路径	Power	B	Se	95% CI	Sobel Z	直接效应	间接效应
心理灵活性	39 (2152)	2894					397.83	<0.001						Z = 4.97, p < 0.001	0.26	0.06
	X		1	-	-	0.71	X→M		>0.995	0.26	0.033	0.19, 0.32				
	M		0.26	1	-	0.64	M→Y		>0.995	0.25	0.039	0.18, 0.33				
	Y		0.25	0.30	1	0.77	X→Y		>0.995	0.19	0.033	0.12, 0.25				
接纳	6	388					50.57	<0.001					Z = 4.76, p < 0.001	0.39	0.21	
X	1		-	-	0.04	X→M	>0.995		0.39	0.044	0.31, 0.48					
M	0.39		1	-	0.81	M→Y	>0.995		0.53	0.094	0.35, 0.72					
Y	0.25		0.55	1	0.00	X→Y	>0.995		0.04	0.055	-0.07, 0.15					
认知解离	9	569					83.65	<0.001					Z = 1.39, p = 0.17	0.27	0.03	
X	1		-	-	0.66	X→M	>0.995		0.27	0.069	0.14, 0.41					
M	0.27		1	-	0.72	M→Y	0.882		0.12	0.081	-0.04, 0.28					
Y	0.43		0.23	1	0.70	X→Y	0.771		0.40	0.073	0.26, 0.55					
此时此刻	14	1613					674.31	<0.001					Z = 2.89, p = 0.003	0.24	0.09	
X	1		-	-	0.89	X→M	>0.995		0.24	0.067	0.10, 0.37					
M	0.24		1	-	0.91	M→Y	>0.995		0.39	0.080	0.23, 0.55					
Y	0.30		0.44	1	0.94	X→Y	>0.995		0.21	0.077	0.06, 0.36					
价值	5	285					24.63	=0.01					Z = 2.16, p = 0.03	0.22	0.07	
X	1		-	-	0	X→M	>0.995		0.22	0.052	0.12, 0.33					
M	0.22		1	-	0	M→Y	>0.995		0.33	0.130	0.08, 0.59					
Y	0.16		0.35	1	0.77	X→Y	>0.995		0.08	0.061	-0.04, 0.20					
网络干预	6	681					37.02	<0.001					Z = 3.60, p < 0.001	0.22	0.06	
X	1		-	-	0.18	X→M	>0.995		0.22	0.038	0.14, 0.29					
M	0.22		1	-	0.34	M→Y	>0.995		0.29	0.063	0.17, 0.42					
Y	0.17		0.32	1	0.71	X→Y	>0.995		0.11	0.045	0.02, 0.20					
ACT vs.CBT	8	517					22.15	0.39					Z = 2.02, p = 0.04	0.12	0.02	
X	1		-	-	0.00	X→M	0.969		0.12	0.051	0.02, 0.22					
M	0.12		1	-	0.37	M→Y	0.909		0.15	0.044	0.06, 0.23					
Y	0.12		0.16	1	0.00	X→Y	>0.995		0.11	0.060	-0.01, 0.22					

注: N₀: 失安全系数(fail-safe number)

参数估计。具体来说,因在现实中,并非所有原始研究中涉及的变量都是同时测量的,因此我们使用加权矩阵,渐近协方差矩阵(asymptotic covariance matrix),以校正合并相关系数中的异构性和每个相关矩阵中样本量的不同(Viswesvaran & Ones, 1995)。使用合并矩阵的非标准化回归系数和标准误进行 Sobel 检验,以考察中介模型间接路径的显著性水平(Gu et al., 2015)。

3 结果

3.1 纳入文献基本描述

本研究最终纳入元分析文献 50 篇¹,其中 RCT 研究 44 篇,涉及疼痛障碍、人格障碍、抑郁、焦虑、物质滥用等多种心理问题,甚至包括正常群体的职业倦怠等(详见电子版附录表 1)。研究 ACT 的核心机制心理灵活性的文献最多($k = 39$),其次是此时此刻($k = 14$)、接纳($k = 6$)、认知解离($k = 9$)和价值($k = 5$),因以己为景(Yadavaia, Hayes, & Vilardaga, 2014)和承诺行动(Avdagic, Morrissey, & Boschen, 2014)都仅纳入 1 篇文献,未进行后续的 MASEM 分析。虽然有 14 篇对 ACT 假设的机制进行多中介变量测量(大于 1 项),但并没有同时测量 ACT 六大作用机制的文献。纳入的文献中,相对疗效主要以传统 CBT 作为对照组($k = 8$);有 6 项 RCT 考察了 ACT 基于网络传播的作用机制。

大多数研究测量了 ACT 假设的机制变量但并没有在统计上进行中介效应检验($k = 33$),仅有少数研究($k = 16$)使用推荐的 Bootstrap 法进行中介检验(Preacher & Hayes, 2008),个别研究仍使用传统的回归逐步检验法(Kemani, Hesser, Olsson, Lekander, & Wicksell, 2016)。当然,也有些研究采用更为复杂的中介检验方法,比如多水平(HLM)中介模型(Rost, Wilson, Buchanan, Hildebrandt, & Mutch, 2012; Zarling, Lawrence, & Marchman, 2015)和结构方程模型(Eilenberg, Hoffmann, Jensen, & Frostholm, 2017)。虽然在小样本分析上, HLM 有优势,但应该注意到 HLM 是基于正常分布假设,而 Bootstrap 法在非正态分布中更具优势(Swain, Hancock, Hainsworth, & Bowman, 2015)。

实验设计上,较少研究考虑机制变量的时序作用,仅有 8 篇进行了多点测量,但大部分多点测量使用的是前测、后测和追踪测量(Luciano et al.,

2014; Stafford-Brown & Pakenham, 2012; Wetherell et al., 2011; Yadavaia et al., 2014),追踪是在治疗结束后,并非在有效治疗阶段;少部分是在治疗期间测量机制变量(Lloyd, Bond, & Flaxman, 2013; Westin et al., 2011),甚至对机制在治疗间进行多次测量(Rost et al., 2012),但仅有极少部分在每次治疗单元都进行机制和效果测量(Kemani et al., 2016)。

3.2 ACT 作用机制检验

3.2.1 心理灵活性

心理灵活性作为 6 大 ACT 作用机制的统称,纳入研究 39 项,样本量 2894,其测量主要使用接纳和行动问卷(Acceptance and Action Questionnaire, AAQ; 例如, Arch et al., 2012)、接纳和行动问卷 II (Acceptance and Action Questionnaire – II, AAQ-II; 例如, Levin, Haeger, Pierce, & Twohig, 2017b)、疼痛心理的不灵活性量表(The Psychological Inflexibility in Pain Scale, PIPS) (Trompetter, Bohlmeijer, Veehof, & Schreurs, 2015; Wicksell et al., 2013)。在 39 项纳入研究中,34 项 RCT 和 5 项准实验研究,以整体精神症状(Global Psychopathological Symptoms, $k = 16$)为主要测量结果的最多,其次是抑郁水平($k = 9$)。

表 1 呈现了 39 项纳入研究的 X, M, Y 的两两相关合并系数,三个相关系数都呈现高显著性。异质性检验发现, Q 值显著($Q = 397.83, p < 0.001$),表示 39 项研究的相关矩阵有较大差异,两两相关的异质性 I^2 都大于 50%,显示较大的异质性,适用随机效应模型。图 2 呈现了 TSSEM 分析第二阶段心理灵活性作为中介变量的模型检验路径图。虽然回归系数 c' ($c' = 0.19$)依然显著,但比原始 c 值($c = 0.25$)有所下降,为部分中介。使用 X 和 M, M 和 Y 的相关系数和标准误进行 Sobel 检验,证明心理灵活性在 ACT 对心理健康的结果改变上,起到显著的中介作用($Z = 4.97, p < 0.001$)。

3.2.2 接纳

纳入的研究 6 项,都为 RCT 研究,样本量 388,

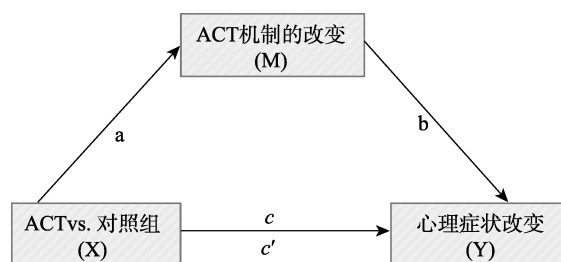


图 2 TSSEM 分析路径图,以 ACT 假设机制的改变为中介变量

¹ 纳入的元分析文献及特征编码,请见电子版的附表。

主要测量使用慢性疼痛接纳问卷(Chronic Pain Acceptance Questionnaire, CPAQ) (例如, Luciano et al., 2014)。结果测量的心理变量包括焦虑($k = 3$)、抑郁($k = 2$)和整体评价($k = 1$)。合并效应值的三个相关系数都具有高显著性(见表 1)且异质性显著($Q = 50.57, p < 0.001$), 接纳具有较大程度的异质性($I^2 = 0.81$)。在中介的路径模型检验中, ACT 的对心理健康结果的改变路径($c' = 0.04$), 比直接路径($c = 0.25$)有显著下降, 且 c' 不再显著, Sobel 检验显示, 接纳在 ACT 与心理健康结果改变之间的中介作用显著($Z = 4.76, p < 0.001$), 说明接纳在二者的关系中起到完全中介的作用。

3.2.3 认知解离

纳入的研究文献 9 篇(RCTs = 6, 准实验 = 3), 样本量 569, 主要测量使用自动思维问卷(Automatic Thought Questionnaire, ATQ) (Clarke, Kingston, James, Bolderston, & Remington, 2014; Forman et al., 2012; Lappalainen et al., 2015; Waters, Frude, Flaxman, & Boyd, 2018; Zettle, Rains, & Hayes, 2011), 德雷塞尔解离问卷(Drexel Defusion Scale, DDS) (Juarascio et al., 2013), 白熊思维抑制量表(White Bear Thought Suppression Inventory, WBSI) (Lappalainen et al., 2015; Rost et al., 2012; Stafford-Brown & Pakenham, 2012)和青少年逃避与融合问卷(Avoidance and Fusion Questionnaire for Youth, AFQ-Y) (Levin et al., 2016)。在纳入的 9 篇研究中, 主要使用整体精神症状($k = 3$)和抑郁($k = 3$)作为结果测量。

合并效应值的三个相关系数都具有较高显著性(见表 1), 异质性显著($Q = 83.65, p < 0.001$)。在认知解离作为中介变量的中介模型检验中, 虽然 $X \rightarrow Y$ 阶段二路径系数($c' = 0.40$)比阶段一系数($c = 0.43$)有所下降, 但下降的值极小, 间接效应只占总效应的 10%, 进一步 Sobel 检验显示, 认知解离在 ACT 与心理健康结果改变之间的中介作用不显著($Z = 1.39, p = 0.17$)。

3.2.4 此时此刻

纳入 14 项 RCTs 研究, 样本量 1613, 最主要测量工具为五因素正念问卷(Five Facet Mindfulness Questionnaire, FFMQ) (例如, Eilenberg et al., 2017), 还有部分研究使用肯塔基正念技能问卷(Kentucky Inventory of Mindfulness Skills, KIMS) (Forman et al., 2007; Gumley et al., 2017; White et al., 2011), 费城正念问卷(Philadelphia Mindfulness Scale, PMS) (Levin et al., 2017b; Levin, Haeger, Pierce, & Cruz,

2017a)和正念注意觉察量表(Mindful Attention Awareness Scale, MAAS) (Clarke et al., 2014)。在纳入的研究中, 主要使用抑郁($k = 7$)作为结果测量, 其次是整体精神症状($k = 6$)。

合并效应值的三个相关系数都具有高显著性(见表 1)且异质性显著($Q = 674.31, p < 0.001$), 具有较大异质性($I^2 > 89\%$)。在此时此刻作为中介变量的路径模型检验中, ACT 对心理健康结果的改变路径($c' = 0.21$), 比直接路径($c = 0.30$)有显著下降, 但 c' 仍然保持着显著水平, Sobel 检验显示, 此时此刻 ACT 与心理健康结果改变之间的中介作用显著($Z = 2.89, p = 0.003$), 说明此时此刻在二者的关系中起到部分中介的作用。

3.2.5 价值

纳入 5 篇 RCTs 的研究文献, 样本量 285, 主要测量工具为个人价值问卷(Personal Values Questionnaire, PVQ) (Levin et al., 2016), 价值问卷(Valuing Questionnaire, VQ) (Levin et al., 2017b), 慢性疼痛价值问卷(Chronic Pain Values Inventory, CPVI) (Alonso-Fernández, López-López, Losada, González, & Wetherell, 2013; Johnston, Foster, Shennan, Starkey, & Johnson, 2010), 价值生活问卷(Valued Living Questionnaire, VLQ) (Clarke, Taylor, Lancaster, & Remington, 2015; Stafford-Brown & Pakenham, 2012)。在纳入的 5 篇研究中, 使用整体精神症状($k = 3$)和抑郁($k = 2$)作为结果测量。合并效应值的三个相关系数都具有高显著性(见表 1), M 具有较高的异质性($I^2 = 0.77$), 因此仍然支持使用随机效应模型。在价值作为中介变量的路径模型检验中, ACT 的对心理健康结果的改变路径($c' = 0.08$), 比直接路径($c = 0.16$)有显著下降, 且 c' 不显著, Sobel 检验显示, 价值在 ACT 与心理健康结果改变之间的中介作用显著($Z = 2.16, p = 0.03$)。

3.3 ACT 相较之传统 CBT 作用机制的检验

以 ACT 作为干预组, 传统 CBT 作为控制组, 考察相较之传统 CBT 组, ACT 的作用机制是否依然能被检验到。以心理灵活性作为假设的中介机制, 纳入研究文献 8 篇(RCTs = 7, 准实验 = 1), 样本量 517, 使用整体精神症状($k = 4$)和焦虑($k = 4$)作为结果测量。合并效应值的三个相关系数异质性较低($I^2 < 37\%$), 且不显著($Q = 22.15, p = 0.39$)。在中介的路径模型检验中, 与传统 CBT 比较, ACT 对心理健康结果的改变路径($c' = 0.11$), 比直接路径($c = 0.12$)有所下降, 但 c' 仍然保持着显著水平, 直接效应值

为 0.12, 间接效应值为 0.02, Sobel 检验显示, 中介作用显著($Z = 2.02, p = 0.04$), 说明心理灵活性在二者的关系中起到部分中介的作用。

3.4 基于网络传播机制检验

特别考察 ACT 在基于网络传播的研究中, 以心理灵活性作为假设的中介机制是否依然能够得以检验。纳入 6 项 RCT 效果量(4 篇文献), 样本量 681, 主要使用抑郁($k = 5$)作为结果测量。TSSEM 的第一阶段异质性检验分析显示, 合并效应值的三个相关系数都具有高显著性(见表 1), 且异质性水平显著($Q = 37.02, p < 0.001$), X、M 异质性水平较低(I^2 分别为 18%和 34%), 而 Y 异质性水平为 71%。TSSEM 的第二阶段分析显示, 在中介的路径模型检验中, 基于网络传播的 ACT 对心理健康结果的改变路径($c' = 0.11$), 相较之直接路径($c = 0.17$)有所下降, 但 c' 仍然保持着显著水平, 直接效应值为 0.22, 间接效应值为 0.06, Sobel 检验显示, 中介作用显著($Z = 3.6, p < 0.001$), 说明心理灵活性在二者的关系中起到部分中介的作用。

4 讨论

本研究采用 MASEM 的方法, 系统检验了 ACT 所假设的作用机制。其一, 在疼痛障碍、人格障碍、抑郁(障碍)、焦虑(障碍)、物质滥用、职业倦怠等不同群体, ACT 所假设的心理灵活性、接纳、此时此刻、价值的中介作用都达到统计显著, 认知解离这一中介变量并不显著, 而以己为景和承诺行动因各只纳入一篇研究无法进行 MASEM 分析。其二, 这些机制在网络化干预中仍然得到检验, 说明 ACT 的治疗机制具有可迁移性。

其三, ACT 在其所假设的改变机制上, 即心理灵活性及其所包含的 6 大成分, 较传统 CBT 具有优势。与以往的元分析发现较为一致(Dimidjian et al., 2016)的是 ACT 在其相关联的过程变量改变上, 相较之传统 CBT, 具有中等后测效果量($g = 0.45$)。但应看到的, 在与传统 CBT 的对比中, 本元分析纳入的研究多数仅测量了心理灵活性。ACT 对特定机制具有更大效果量, 并不意味着治疗效果更好, 目前元分析的证据并无法得出 ACT 比传统 CBT 更有效的结论(Dimidjian et al., 2016; Hacker et al., 2016; Öst, 2008; Öst, 2014; Powers, Vörðing, & Emmelkamp, 2009), 但是, 正如共同因素说所主张的“渡渡鸟效应”, 凡是有效的治疗机制都应该被奖励, 这有助于后续研究进一步厘清不同治疗方法共同的作用机

制。正如 ACT 与以人为中心治疗的比较研究中发现的: 以人为中心疗法对 ACT 所提出的心理灵活性具有同等的改变效果(Lang et al., 2017)。

值得注意的是, ACT 中认知解离的中介效应不显著。可能的原因是, 在纳入测量认知解离的 9 篇文献中, 有 3 篇的对照组是传统 CBT 或 CT 组(Clarke et al., 2014; Hancock & Swain, 2016; Hancock et al., 2016; Zettle et al., 2011), 而 ACT 与传统 CBT (或 CT)可能都发生了认知解离。

不少研究者认为, ACT 所提出的认知解离和传统 CBT 的认知重建概念具有异曲同工之处(Dimidjian et al., 2016; Swain et al., 2015), 研究者推测二者可能有潜在相同的作用机制(Forman et al., 2012)。虽然传统 CBT 并没有明确讨论认知解离, 但有研究提供了证据, 即认知解离不仅在 ACT 中发生改变, 在传统 CBT 中同样发生(Arch et al., 2012); 而 ACT 疗法也同样改变了传统 CBT 中所强调的功能失调性思维(任志洪 等, 2016)。认知解离被定义为减少认知的字面性质, 其结果是“通常减少对个体事件的可信度或依附性”(Hayes et al., 2006), 换言之, 把负性思维看作一种行为, 从而更好地把事件与所衍生的意义分离(Larsson, Hooper, Osborne, Bennett, & McHugh, 2016)。而在传统 CBT 中, 这种现象也被称为元认知觉察(metacognitive awareness), 即“负性思维认知……被看作是个体经历的心理事件, 而非自我本身”(Takahashi, Muto, Tada, & Sugiyama, 2002)。这些证据表明了 ACT 认知解离与传统 CBT 认知重建的重叠性, 即降低认知的可信度。如何降低认知可信度呢? 有研究者进一步指出, 认知重建和接纳有助于降低对心理事件的抑制和心理回避, 而这过程包括聚焦、识别和打断消极思维, 这可能也是一种暴露形式(Swain et al., 2015); 而 ACT 的诸多练习, 比如单词游戏(单词重复、搞怪声音、慢说话、唱出思维、单词翻译), 这些暴露程序使当事人反复接触高频度的相关刺激, 直到其语言所引出的功能减弱(Assaz, Roche, Kanter, & Oshiro, 2018)。简言之, 暴露可能是认知解离与认知重建共同的作用机制。

本研究的局限: (1)本研究仅关注随机和非随机对照组研究, 而其他类型的研究, 比如个案研究, 可能可以为 ACT 的作用机制在治疗过程中的变化提供更为深入的理解; (2)所纳入的实证研究, 其研究对象、精神障碍或心理问题类型不尽相同, 各项实证研究的具体操作和数据收集方法具有差异。这

也正是元分析一直存在的“苹果和橙子问题”(apple and orange problem); 但纳入元分析的实证研究也具有共性, 都关注 ACT 对精神障碍或心理问题的治疗效果, 这些共性是元分析得以进行的基础。(3) 从理论假设上来说, 6 个成分应是一阶因素, Hayes 用心理灵活性一词作为 6 大机制的统称, 那么心理灵活性应该是二阶因素。所以, 可能存在更为复杂的机制模型, 比如, ACT 治疗→某个 ACT 成分→心理灵活性→治疗效果, 或者是: ACT 治疗→心理灵活性→某个 ACT 成分变化→治疗效果。然而, 元分析是基于已有实证研究的再分析, 而在纳入的实证研究中极少同时测量了心理灵活性及 6 大成分, 因此在本研究中, 我们无法检验更为复杂的 ACT 作用机制模型。(4) MASEM 方法本身具有一定的局限性, 特别是本研究对作用机制的考察报告了 Sobel 经典中介检验结果, 该法近年来也受到正态分布假设和统计功效较低的诟病(MacKinnon, et al., 2007); 且应该注意到, 原始研究中其中介变量和治疗结果变量的测量方法可能存在共同测量偏差, 本研究结果可能也受其影响。

5 临床研究启示

(1) 应尽可能全面测量 ACT 的 6 大核心机制。现有研究主要使用的 AAQ 和 AAQ-II 更趋向于测量全局的心理灵活性, 而对 6 大具体核心机制的检验较少。许多研究并没有同时测量 6 大作用机制, 可能是其测量工具上的不便, 不同的机制使用了不同的测量工具。因而, 最近有研究者开发同时测量 ACT 六大成分的测量工具(Francis, Dawson, & Golijani-Moghaddam, 2016), 虽然其信效度仍需临床研究进一步检验。

(2) 现有对 ACT 的研究聚集于症状的改善, 后续研究应关注其对美好生活提升的影响。一些观点认为, ACT 的 6 大机制可以分为三大模块(Villatte et al., 2016): 接纳和认知解离属于“开放”模块, 目的是降低思维、情感和感觉的有害反应; 价值和承诺行动属于“行动”模块, 侧重强化动机和增加有意义行为; 而接触当下和以己为景主要是为了促进自我觉察, 在“开放”和“行动”模块中都包含, 但并没有特意强调。就纳入本元分析的文献而言, 多数研究聚集的是“开放”模块, 而对“行动”模块的关注较少。事实上, “行动”模块具有极为重要的意义。一方面, 是, 接纳承诺疗法倡导者 Hayes 一再强调应该把该疗法的缩写“ACT”(Acceptance and Commitment

Therapy)读成 Act (行动), 而不是逐字母读成“A-C-T”, 以体现该疗法中“承诺行动”的重要性; 另一方面, 在积极心理学的影响下, 心理健康的双因素模型认为, 心理健康并非仅是没有心理疾病, 还应有较高的幸福感(Keyes, Shmotkin, & Ryff, 2002)。聚集于接纳和认知解离的干预机制在降低心理疾病症状上有较大效果; 而价值和承诺行动则更有助于提升幸福感水平(Villatte et al., 2016)。此外, 对很多症状来说, 特别是一些与躯体相关的心理症状, 比如疼痛障碍, 其生理和心理症状本身可能并不能彻底根除, 这就需要当事人学会与症状较长时间相处, 那么帮助当事人寻求过与自己价值一致的生活, 就显得尤为重要。

(3) 研究设计上建议基于 RCT 多点测量, 结合瞬时评价方法。几乎所有的研究都没有满足治疗研究中介变量检验的要求。可能识别中介变量研究的最大挑战是证明中介变量的改变而导致症状的改变这一因果关系。因此, 尽管经过 30 多年的过程研究, 仍无法对心理治疗的改变机制有清晰、明确的实验解释(Lemmens et al., 2016)。即使是旨在考察治疗改变的因果过程研究, 欲证明因果关系也是很困难的。首先, 确定观测的最佳时间和间隔, 以捕获治疗改变的临界点, 是一件困难而微妙的事情, 特别是在治疗的变化速度和形态并没有先验信息的情况下。研究者需要在最优化研究设计、当事人负担和对数据过多测量所造成的测量假象风险等方面获得平衡(Longwell & Truax, 2005)。此外, 研究设计通常是基于治疗改变是渐进和线性的假设。然而, 各种研究表明, 改变经常是突然发生的, 而不是在治疗过程中逐渐发生(Aderka, Nickerson, Bøe, & Hofmann, 2012)。如果治疗确实是突然获益(例如“啊哈体验”), 那么抓住这一时刻可能非常困难, 更不用说评估机制变化与症状改变之间的时序关系(Lemmens et al., 2016)。然而, 随着网络化干预发展, 特别是基于手机 APP 干预应用的尝试(Levin et al., 2017a), 结合当事人主动报告瞬时评价的日常经验取样法(Experience Sampling Method)(Hektner, Schmidt, & Csikszentmihalyi, 2007)去捕获干预的突然获益逐渐成为可能, 这将有助于厘清改变机制。

(4) 在传统中介检验法的基础上, 尽可能使用更高级、更先进的统计方法。根据 Kazdin (2007) 治疗中介检验的建议, 现有治疗机制检验多数采用推荐的 Bootstrap 法进行中介检验(Preacher & Hayes,

2008)。而一些研究者认为,仅通过前后测(或追踪)探索治疗的改变机制是不足够的,要考察治疗过程中介变量和结果变量的变化趋势,应该在治疗期间对二者进行多点测量(Black & Chung, 2014)。极少 ACT 研究者开始在每次治疗单元都进行机制和效果测量,并使用与多点测量相对应的纵向中介模型分析;而已有研究大多采用混合效应回归模型,即以时间、中介变量和结果变量为层一,被试个体间差异为层二,以考察随着时间变化每干预单元机制与结果变量的变化情况(Forman et al., 2012; Kemani et al., 2016)。然而,近年来新发展的纵向中介模型分析技术(Grimm, Ram, & Estabrook, 2017),比如潜变量增长曲线模型(Latent Growth Curve Models, LGCM)、潜变量变化分数模型(Latent Change Score Models)和多水平结构方程模型(Multilevel Structural Equation Modeling)也应值得尝试。

6 结论

本研究采用元分析结构方程模型,通过对 50 篇 ACT 研究中介机制的检验,得出以下结论:(1) ACT 所假设的心理灵活性、接纳、此时此刻、价值的中介作用都达到统计显著;认知解离这一中介变量并不显著;(2) ACT 在所假设的机制上有其区别于传统 CBT 的优势;(3)这些机制在网络化干预中仍然得到检验,说明 ACT 治疗的机制具有可迁移性。

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Mechanisms of the Acceptance and Commitment Therapy: A meta-analytic structural equation model

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Abstract

Following the Behavioral Therapy and the Cognitive-Behavioral Therapy (CBT), Acceptance and Commitment Therapy (ACT) is considered as one of the third wave of behavioral therapies. ACT is based on the relational frame theory, and its therapeutic model includes 6 components (i.e., acceptance, cognitive defusion, self-as-context, committed action, contact with the present moment, values) and psychological flexibility. What is the empirical evidence for these hypothesized components or mechanisms? In recent years, integrating meta-analysis and structural equation modeling, the meta-analytic structural equation model (MASEM) has made it possible to systematically examine the mechanisms of psychotherapy. Compared to the traditional single randomized controlled trial (RCT) studies, the MASEM combines multiple samples to increase statistical power and obtain more robust model estimates. The current study utilized two-stage structural equation modeling (TSSEM) to examine three aspects of the mechanisms of ACT, including: (1) the mediational effects of psychological flexibility and the 6 components, (2) the unique mechanisms of ACT compared to CBT, and (3) the generalizability of these mechanisms to internet-based ACT interventions.

Studies were identified by searching Web of science, PsycARTICLES, PsycINFO, Pubmed, Elsevier, EBSCO, Wiley Online Library from the first available date until November, 2017. We used the search term Acceptance and Commitment Therapy combined with acceptance, cognitive defusion, self-as-context, committed action, contact with the present moment, values, or psychological flexibility. Selection criteria included: (1) adult sample (age > 18), (2) RCT or quasi-experimental design, which measured pre-post change with ACT interventions, (3) quantitative measures of psychological outcomes (clinical or non-clinical) before and after treatment, and (4) quantitative measures of mediational variables at pre and post treatment. Excluding criteria were (1) not having a control group, (2) mixed intervention studies, which integrated ACT with other interventions, or included the Acceptance component but not the complete ACT model, or used CBT with the Acceptance component, and (3) medication treatment as the control group. The metaSEM package in R was used for the TSSEM analysis to examine the mechanisms of ACT.

The literature search resulted in 50 studies, involving issues such as pain disorder, personality disorder, depression, anxiety, substance abuse, and work-related burnout among healthy populations. Most studies examined psychological flexibility ($k = 39$), followed by contact with the present moment ($k = 14$), acceptance ($k = 6$), cognitive defusion ($k = 9$), and values ($k = 5$), whereas the studies of self-as-context ($k = 1$) and committed action ($k = 1$) were excluded from further MASEM analysis due to a low number of publications. Results indicated that (1) the mediational effects of psychological flexibility, acceptance, contact with the present moment, and values were significant, while the effects of cognitive defusion were not significant, (2) the mechanisms of ACT are evident in internet-based interventions, suggesting the generalizability of these mechanisms, and (3) compared to the traditional CBT, the hypothesized mechanisms of ACT have their unique advantages.

Implications for future studies: (1) measure all 6 core mechanisms as comprehensively as possible; (2) focus more on the increase of wellbeing as opposed to improvement of symptoms; (3) use RCT based multiple measurements combined with the experience sampling method; and (4) apply more advanced statistical methods in addition to the traditional mediation statistics.

Key words acceptance and commitment therapy; meta-analytic structural equation model; mechanism; mediational study; cognitive-behavior therapy

附表1 ACT作用机制元分析纳入文献基本信息

研究	N	结果测量	被试来源	障碍类别	被试平均年龄	对照组	被试分配	干预单元	机制测量	中介检验
Alonso-Fernández (2013)	14	Pain interference in enjoying life、GDS-10、SWLS	护理中心	疼痛障碍	>65	WL	ACT=7; CG=7	10	AAQ、CPVI	无
Arch (2012)	128	ASI ^a 、ADIS-IV、QOLI	广告招募	焦虑障碍	37.93	CBT	ACT=71; CG=57	12	AAQ	无
Avdagic (2014)	51	DASS-21、QOLI、PSWQ	广告招募	广泛性焦虑障碍	36.17	CBT	ACT=25; CG=26	6	CAQ、AAQ	无
Bohlmeijer (2011)	93	CES-D、HADS、CIS	广告招募	抑郁障碍	49.02	WL	ACT=49; TRT=44	8	AAQ-II	Bootstrap
Brinkborg (2011)	106	PSS、GHQ-12、MBI、Performance-based self-esteem scale、DCSQ	城市工厂	焦虑障碍	44	WL	ACT=70; WL=22; TRT=36;	3	AAQ	无
Buhrman (2013)	76	HADS、CSQ、MPI、PAIRS、QOLI	医院	疼痛障碍	27-69	WL	ACT=38; CG=38	7	CPAQ	无
Chakhssi (2015)	81	OQ-45	医院	人格障碍	32.98	TAU-CBT	ACT=60; CG=21	/	AAQ-II	无
Clarke (2014)	45	SCL-90-R、GSI、BDI-II、SCID-II、WHOQOL-BREF	社区心理健康中心	人格障碍	43.45	TAU-CBT	ACT=26; CG=19	16	ATQ、AAQ、MAAS	无
Clarke (2015)	116	GHQ-12、(APDQ)、HAQ-II、SDS、MBI	慈善组织	人格障碍	40.27	PET	ACT=71; CG=45	2	VLQ	无
Eilenberg (2017)	115	Whiteley Index 7-item version	大学医院	健康焦虑	37	WL	ACT=63; CG=52	10	AAQ-II、FFMQ	SEM、Bootstrap
Fledderus (2010)	93	MHC-SF	广告招募	心理健康	49	WL	ACT=49; CG=44	8	AAQ-II	Bootstrap
Forman (2007)	99	BDI-II; BAI; OQ; GAF; CGI; QOLI; SWLS	咨询中心	焦虑与抑郁	27.87	CT	ACT=55; CG=44	6	AAQ、KIMS	无
González-Menéndez (2014)	37	ASI ^b	监狱	物质滥用	33.59	CBT	ACT=18; CG=19	16	AAQ-II	无
Hancock (2016a、b)	193	ADIS-IV; CGAS; MASC; CDI; CALIS	咨询师和医院推荐	焦虑障碍	12-17	CBT、WL	ACT=68; CBT=63; CG=62	10	AFQ-Y	无
Johnston (2010)	24	QOLI; SWLS; CMDI; BAI	大学医院	疼痛障碍	N	WL	ACT=12; CG=12	6	CPAQ、CPVI	无
Juarascio (2013)	140	EDE-Q; BSQ; DERS	治疗中心	进食障碍	26.74	TAU	ACT=66; CG=74	4.75	DDS、AAQ-II	无
Kemani (2015)	60	SF-12; HADS; PDI	初级与次级护理中心	疼痛障碍	25.8	AR	ACT=30; CG=30	12	CPAQ	无
Kemani (2016)	45	PII; CSQ	医院	疼痛障碍	40.3	AR	ACT=22; CG=23	12	CPAQ	重复测量线性回归
Kohtala (2015)	57	BDI; SCL-90; SASS	广告招募	抑郁障碍	46.2	WL	ACT=28; CG=29	4	AAQ-II	无
Lang (2017)	160	PHQ-9; C-SRRS; PCL-M; DAR-II; ISI; WHOQOL-BREF; SF-12	医疗中心	抑郁、焦虑、强迫	34.2	PCT	ACT=80; CG=80	12	AAQ-II	无
Lanza (2014)	50	ASI	监狱	物质滥用	27.63	CBT、WL	ACT=18; WL=13; CBT=19	16	AAQ-II	无
Lappalainen (2007)	39	SCL-90; BDI	广告招募	抑郁与心情问题	41.8	CBT	ACT=19; TRT=20	9.6	AAQ	无
Lappalainen (2015)	28	BDI-II; SCL-90	广告招募	抑郁障碍	50.32	WL	ACT=14; CG=14	7	BDI、AAQ-II、FFMQ、WBSI、ATQ-F	无

附表 1

研究	N	结果测量	被试来源	障碍类别	被试平均年龄	对照组	被试分配	干预单元	机制测量	中介检验
Levin (2017)	79	CCAPS-34; MHC-SF	大学校园	心理健康	20.51	WL	ACT=40; CG=39	10	AAQ-II、CFQ、VQ、PHLMS	无
Lloyd (2013)	100	MBI、GHQ-12	政府部门	情绪倦怠	46.37	WL	ACT=43; CG=57	3	AAQ-II	Bootstrap
Luciano (2014)	156	HADS; FIQ; PCS; MINI	初级保健中心	疼痛障碍	48.3	RPT、WL	GACT=51; RPT=52; WL=53	8	CPAQ	Bootstrap
McConachie (2014)	120	GHQ; SSQ; WEMWBS	护理中心	工作焦虑	>18	WL	ACT=66; CG=54	/	WBSI、AAQ-II	无
McCracken (2013)	73	PHQ-9; SF-36	区域基层医疗网络	慢性疼痛	58	TAU	ACT=37; CG=36	4	CPAQ、AAQ-II	无
Morton (2012)	41	DASS、BHS	心理健康中心中心	边缘性人格障碍	34.81	TAU	ACT=21; CG=20	12	AAQ-II、FFMQ-AW	Bootstrap
Petersen (2009)	24	HRS; BDI-II	医院	抑郁、物质使用障碍	37.8	TAU	ACT=12; TRT=12	5.2	AAQ	无
Pots (2016)	336	CES-D、HADS-A、MHC-SF	广告招募	抑郁	46.8	Expressive writing、WL	ACT=82; Expressive writing=67; WL=187	9	AAQ-II、FFMQ	无
Rizert(2016)	503	ASI ⁺ BDI-II; BAI; PSWQ; QOLI	网络招募	焦虑障碍	38.05	WL	ACT=256; CG=247	12	AAQ; MAAS	无
Rost(2012)	47	BDI-II; BAI; POMS; CEC	/	抑郁焦虑	56	TAU	ACT=25; CG=22	12	WBSI	Bootstrap
Schwetschenau (2008)	45	GHQ; DSI	广告招募	工作焦虑	43.64	WL	ACT=21; TRT=24	2	AAQ-II	无
Stafford-Brown (2012)	56	GHQ-28; SWLS; SCS; MHPSS	大学校园	压力管理	28.45	WL	ACT=28; CG=28	3	WBSI、AAQ、FFMQ、VLQ	Bootstrap
Trompetter (2015)	238	MPi; HADS; PDI; MHC-SF	广告招募	疼痛障碍	>52	Expressive writing、WL	ACT=82; Expressive writing=79; WL=77	8	PIPS、FFMQ、ELS	无
Twohig (2010)	79	Y-BOC; BDI-II; QLS	广告招募	强迫障碍	37	PRT	ACT=41; TRT=38	8	AAQ	无
Villagr� Lanza (2013)	31	ASI; MINI; ASI-6	监狱	药物滥用	32.3	WL	ACT=18; CG=13	16	AAQ-II	无
Vowles (2009)	12	CES-D; PDI; PASS	医院	疼痛障碍	50.4	CBT	ACT=6; TRT=6	8	CPAQ	无
Waters (2018)	35	GHQ-12	广告招募	心理健康	39.7	WL	ACT=17; CG=18	/	AAQ-II、FFMQ、ATQ	Bootstrap
Westin (2011)	62	QOLI; HADS; CGI-I	广告招募	耳鸣	50.6	TRT、WL	ACT=20; TRT=20; WL=22	10	TAQ	Bootstrap
Wetherell (2011)	114	SF-12; BDI-II; PASS	初级保健诊所	疼痛障碍	54.9	CBT	ACT=57; CG=57	8	CPAQ	Bootstrap
White (2011)	27	HADS; PANSS	社区心理健康中心	抑郁、焦虑	34	TAU	ACT=14; CG=13	10	AAQ-II、KIMS	无
Wicksell (2008)	21	HADS、PDI、SWLS	交通事故幸存协会	疼痛障碍	51.5	WL	ACT=11; TRT=10	10	PIPS	无
Wicksell (2013)	40	STAI; BDI; SF-36; PDI	初级保健中心	疼痛障碍	45.1	WL	ACT=23; CG=17	12	PIPS	Bootstrap
Yadavaia (2014)	73	GHQ; DASS; SCS	大学校园	自我同情	>18	WL	ACT=30; CG=43	/	AAQ-II	Bootstrap

附表 1

研究	N	结果测量	被试来源	障碍类别	被试平均年龄	对照组	被试分配	干预单元	机制测量	中介检验
Zarling (2015)	94	MMEA; DERS; MINI; CTS-2	社区精神康复中心	攻击行为	31	attention placebo control group	ACT=46; CG=48	12	AAQ-II	multilevel mediation
Zettile (2003)	24	MARS; TAI; STAI	传单招募	焦虑	30.9	系统脱敏	ACT=12; TRT=12	6	AAQ	无
Zettile (2011)	25	BDI、DAS	广告招募	抑郁障碍	>18	CT	ACT=12; CG=13	12	ATQ	Bootstrap

* 加粗的是纳入的结果变量的测量工具。GDS-10: 老年抑郁量表(Geriatric Depression Scale); SWLS: 生活满意度量表(Satisfaction With Life Scale); ASI^a: 焦虑敏感指数(Anxiety sensitivity index); ADIS-IV: 焦虑障碍访谈日程表(Anxiety Disorders Interview Schedule-IV); QOLI: DASS-21: 抑郁、焦虑和压力量表(Depression, Anxiety and Stress Scale); PSWQ: 宾州焦虑问卷(Penn State Worry Questionnaire); CES-D: 流行病学研究中心抑郁量表表(Center for Epidemiologic Studies Depression Scale); HADS: 医院焦虑抑郁量表表(Hospital Anxiety and Depression Scale-anxiety); CIS: 个人力量核查表(Checklist Individual Strength); PSS: 压力觉察量表表(Perceived Stress Scale); MBI: Maslach 的倦怠量表表(Maslach's Burnout Inventory); DCSQ: 需求控制支持量表表(Demand-Control-Support Questionnaire); CSQ: 应对策略问卷(Coping Strategies Questionnaire); MPI: 多维度疼痛清单(Multidimensional Pain Inventory); PAIRS: 疼痛和损伤关系量表表(The Pain And Impairment Relationship Scale); QOLI: 生活质量量表表(Quality Of Life Inventory); OQ-45: 咨询效果量表表(Outcome Questionnaire-45); SCL-90-R: 90 项症状核查清单修订版(Symptom Check List-90 Revised); BDI-II: 贝克抑郁自评量表表-2 版(Beck Depression Inventory-2nd Edition); SCID-II: DSM-IV 轴 II 疾病的结构化临床访谈(Structured Clinical Interview for DSM-IV Axis II Disorders); WHOQOL-BREF Phys: 世界卫生组织生活质量的简化版的心理健康维度(psychological health domain of the abbreviated version of the World Health Organization Quality of Life); GHQ-12: 一般健康量表表(General Health Questionnaire); APDQ: 人格障碍的态度问卷(Attitude to Personality Disorder Questionnaire); HAQ-II: 帮助同盟问卷-咨询师版(Helping Alliance Questionnaire-Therapist Version); SDS: 社会距离量表表(Social Distancing Scale); MHC-SF: Mental Health Continuum-Short Form; GAF: 功能整体评估量表表(Global Assessment of Functioning Scale); CGI: 临床疗效总评量表表(Clinical Global Impression Scale); ASI^b: 成瘾严重程度指标(Addiction Severity Index-6); ADIS-IV: 焦虑障碍的诊断和临床严重程度(Anxiety disorder diagnosis and clinical severity); CGAS: 儿童整体评估量表表(Children's global assessment scale); MASC: 多维度儿童焦虑量表表(Multidimensional anxiety scale for children); CDI: 儿童抑郁清单(The children's depression inventory); CALIS: 焦虑干预: 儿童焦虑生活干预量表表(Anxiety life interference: Children's anxiety life interference scale); BAI: 贝克焦虑量表表(Beck Anxiety Inventory); EDE-Q: 进食障碍检查问卷(Eating Disorder Examination Questionnaire); BSQ: 简明症状问卷(Brief Symptom Questionnaire); DERS: 情绪调节困难(Difficulties in Emotion Regulation); SF-12 MCS: 36 健康问卷中心心理成分简短版(short version of the Short Form 36 Health Survey Mental Component Summary); PDI: 疼痛障碍指数(Pain Disability Index); PII: 疼痛干扰指数(Pain Interference Index); SASS: 社会适应自我评估量表表(Social Adaptation Self-Evaluation Scale); C-SSRS: 哥伦比亚自杀严重程度量表表(Columbia Suicide Severity Rating Scale); PHQ-9: 病人健康问卷(Patient Health Questionnaire); PCL-M: 创伤性应激障碍检查表(PTSD Checklist); DAR-II: 愤怒反应维度版本 II (Dimensions of Anger Reactions II); ISI: 失眠严重程度指数(Insomnia Severity Index); CCAPS-34: 心理咨询中心评估心理症状(Counseling Center Assessment of Psychological Symptoms); FIQ: 纤维肌痛的影响调查问卷(Fibromyalgia impact questionnaire); SSQ: 员工压力问卷(Staff Stressor Questionnaire); WEMWBS: 沃里克-爱丁堡心理健康量表表(Warwick-Edinburgh Mental Well-Being Scale); HRS 汉密尔顿量表表(Hamilton Rating Scale); MAAS: 注意觉察量表表(Mindful Attention Awareness Scale); GHQ-28: 一般健康问卷表(General Health Questionnaire-28); ELS: 生活投入问卷表(Engaged Living Scale); Y-BOCS: 耶鲁-布朗强迫症量表表(Yale-Brown Obsessive Compulsive Scale); PASS: 疼痛焦虑症状量表-简版(Pain Anxiety Symptoms Scale-Short Form); PANSS: 阴性和阳性症状量表表(Positive and Negative Syndrome Scale); STAI: 斯皮尔伯格特质状态焦虑量表表(Spielberger Trait-State Anxiety Inventory); MMEA: 情感虐待的多维测量(Multidimensional Measure of Emotional Abuse); MARS: 数学焦虑量表表(Mathematics Anxiety Rating Scale); AAQ: 接纳和行动量表表(Acceptance and Action Questionnaire); AR: 应用放松组(Applied Relaxation); PCT: 基于现实的治疗(present-centered therapy); RPT: 推荐的药物治疗(recommended pharmacological treatment); SC: 标准治疗(Standard Care); WLC: 等待组(Wait List); CT: 认知疗法(Cognitive Therapy); TAU: 一般治疗(Treatment as Usual); CBT: 认知行为疗法(Cognitive Behavioral Therapy); CPAQ: 慢性疼痛接受程度问卷表(Chronic Pain Acceptance Questionnaire); ATQ-F&B: 自动化思维问卷表(Automatic Thought Questionnaire); DDS: 德雷克塞尔解离问卷(Drexel Defusion Scale); FFMQ: 正念问卷表的五个方面(Five-Facet Mindfulness Questionnaire); KIMS: 肯塔基正念技能(Kentucky Inventory of Mindfulness Skills); VLQ: 生活价值问卷表(Valued Living Questionnaire); CPVT: 疼痛障碍价值量表表(Chronic Pain Values Inventory).

附录 2: 元分析纳入文献

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