

# 气质性乐观的正性偏向及其神经生理研究证据\*

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**摘 要** 气质性乐观是对未来的总体的积极期待。乐观能够带给个体诸多好处, 如有利于提高身体健康, 提高幸福感, 促进成功等等, 究其原因可能是乐观者存在正性偏向。这一偏向主要体现在注意、知觉、记忆、解释风格、应对策略的选择、情绪、期待及动机方面。而乐观者正性偏向产生的神经生理机制可能与前扣带回喙部、前额叶皮质的激活水平变化有关。未来研究可将乐观的核心——期待——作为重点, 整合期待-价值理论、人格理论与神经基础来进一步探讨乐观的心理机制。

**关键词** 乐观; 正性偏向; 神经生理机制

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诗人拜伦曾说过, “悲观的人虽生犹死, 乐观的人永生不老”。积极心理学之父 Martin Seligman 也曾在他的畅销书《活出最乐观的自己》中谈到, 乐观带给人们大量的好处(洪兰译, Seligman, 2010/1991), 可以体现在身心健康, 社会适应等诸多方面。这与大量学者通过实证研究考察乐观对个体身体、心理和行为等方面影响的结果相一致。比如, 乐观与身体健康(Hingle et al., 2014; Warner, Schwarzer, Schüz, Wurm, & Tesch-Römer, 2012)、幸福感(Solberg Nes, Evans, & Segerstrom, 2009; Ammirati, Lamis, Campos, & Farber, 2015)、生活质量(Wrosch & Scheier, 2003; Zaslavsky et al., 2015)和工作满意度(Kwok, Cheng, & Wong, 2015)等方面的提高存在显著正相关。乐观还与抗压能力的增强(Jobin, Wrosch, & Scheier, 2014; Taylor, Larsen-Rife, Conger, Widaman, & Cutrona, 2010), 抑郁症状的缓解(Hirsch, Nsamenang, Chang, & Kaslow, 2014)、创伤后应激障碍综合征的减少(Gil & Weinberg, 2015), 以及创伤后的成长(Shand, Cowlshaw, Brooker, Burney, & Ricciardelli, 2015)

等存在显著正相关。不过, 乐观的前期研究大都集中在它与其他主题的关系方面, 主要描述乐观者的行为表现。但是有关乐观心理机制探讨的研究较少, 仅有 Aspinwal, Richter 和 Hoffman (2001) 提出的乐观信念的适应功能(the adaptiveness of optimistic beliefs), 即乐观的信念有助于个体灵活地分配认知资源, 从而更好地追求目标。但是该理论的后续研究很少。而近年, 随着积极心理学的兴起, 越来越多的研究者开始深入探讨乐观影响个体行为的内在心理机制, 这对于解释乐观的发生具有重要的启示意义。

## 1 气质性乐观的界定

### 1.1 气质性乐观的定义

人格维度的乐观和悲观广泛存在于大众的智慧和, 而将乐观作为一种人格特质的研究, 可追溯到 30 年前乐观问卷——生活定向测验(the Life Orientation Test, 简称 LOT) ——的诞生(Scheier & Carver, 1985)。在该研究中, Scheier 和 Carver 界定了气质性乐观(dispositional optimism)即一种对未来的总体的积极期待。这一定义提出的依据是动机的自我调节理论——期待-价值理论(Scheier & Carver, 1992)。该理论强调期待在行为调节中的关键作用, 当个体对目标持有积极期待时, 他们会采取趋近行为不断缩短自己与目标的距离直至实现目标; 当个体对目标持有消极期待

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时,他们会采取回避行为并放弃目标(Scheier & Carver, 1985, 1992),这就是乐观(optimism)和悲观(pessimism)。乐观既是一种稳定的人格特质,又是一种认知结构,其核心是期待。它表现为期待未来有很多好事情的发生(Scheier & Carver, 1992; Carver & Scheier, 2014)。因此,在面对困难时,气质性乐观者倾向于坚信自己的目标能够实现,受趋近动机调节和支配;气质性悲观者则倾向于放弃目标,受回避动机调节和支配(De Pascalis, Cozzuto, Caprara, & Alessandri, 2013; Rygula, Golebiowska, Kregiel, Kubik, & Popik, 2015)。另外, Peterson 和 Seligman (2004)还将乐观作为 24 项性格优势之一,认为乐观与希望、未来意识(future-mindedness)及未来定向(future orientation)一起代表了指向未来的认知、情绪与动机心理层面的积极特质。

气质性乐观的常用测量工具是生活定向测验(LOT)(Scheier & Carver, 1985),它于 1994 年得到修订(LOT-R)。该测验(LOT-R)采取自我报告法,共 10 个题目,包括 6 个正式题目和 4 个附加题目,得分越高代表越乐观。它测量了乐观和悲观两个维度,具有较高的信效度(Scheier, Carver, & Bridges, 1994; Steca, Monzani, Greco, Chiesi, & Primi, 2015; 温娟娟, 2012),而且被翻译修订成如汉语(温娟娟, 2012),葡萄牙语(Laranjeira, 2008),德语(Glaesmer, Hoyer, Klotzsche, & Herzberg, 2008),希伯来语(Benjamini & Raz, 2007)等多种语言,是目前乐观研究中使用最多的问卷。

当前,尽管学者对乐观概念的界定有很多种,如乐观的解释风格(洪兰译, Seligman, 2010/1991)、学业乐观(Beard, Hoy, & Woolfolk Hoy, 2010; Sezgin & Erdogan, 2015)等等,但是因为 LOT-R 问卷的广泛应用,使得其所测量的气质性乐观成为目前乐观研究中最常用的界定方法。本文中的乐观专指气质性乐观。

## 1.2 乐观与希望的区别

为了进一步明确乐观概念的界定,我们将其与心理学中最相近的概念——希望——进行比较。Snyder 等人(1991), Snyder, Feldman, Taylor, Schroeder 和 Adams (2000)将希望(hope)定义为一种积极的动机性状态,这种状态是以指向目标的动力和达到目标的路径的交互作用为基础形成的(引刘孟超, 黄希庭, 2013),也就是说希望是动机

和方法的交互作用。乐观和希望均是一种指向未来的人格特质。而且,一些研究者用希望和乐观的测量工具(AHS/HS vs. LOT-R)对两者的关系进行实证研究,发现两者之间存在显著正相关(Rajandram et al., 2011; Rand, 2009)。

虽然乐观和希望存在共同点,但它们并非同一概念。从定义来说,乐观更强调达到目标的动力的重要性,即对未来的积极期待会促使人们行动,但并未明确说明如何行动。而希望则将动力和路线放到了同等重要的位置(Snyder et al., 2000; Snyder, 2002)。从实证研究来看,有研究者对 1996 至 2012 年发表的希望和乐观的文献进行元分析,发现乐观与某些变量诸如自尊或正性负性情绪等的相关显著大于希望,而希望与压力、幸福感的相关显著大于乐观(Alarcon, Bowling, & Khazon, 2013)。还有研究发现,在预测应对策略如积极重评的使用中,乐观的影响比希望大。反之,在预测自我效能感时,希望的影响显著大于乐观。此外,该研究还发现相对于希望的目标,乐观的目标更为宽泛(Bryant & Cvengros, 2004)。可以看出,乐观与希望是有一定联系但却不同的两个概念。

## 2 乐观者的正性偏向

乐观者总是在每一个困难中看到机会,悲观者总是在每一个机会中看到困难。温斯顿·丘吉尔的这句名言,是乐观者具有正性偏向的最好阐述。研究也发现,活得开心幸福的人似乎带着玫瑰色的眼镜,更愿意对积极刺激多加注意(Raila, Scholl, & Gruber, 2015)。从乐观的定义来看,乐观者持有积极期待并且拥有趋近动机。而他们所具有的这一正性偏向不仅体现在期待和动机方面,还体现在注意、知觉、记忆、解释风格、应对策略的选择及情绪方面。这些既是乐观者的行为表现,也是乐观者的心理反应。

### 2.1 乐观者对正性信息的注意偏向

注意偏向(attentional bias)是指相对中性刺激,个体对情绪刺激表现出不同的注意分配(Cisler & Koster, 2010)。乐观者表现出对正性信息的注意偏向。Segerstrom (2001)要求被试判断正、负性情绪词、工具词汇(控制条件)的书写颜色,发现乐观者判断正性情绪词产生的 Stroop 效应大于负性情绪词;悲观者仅在判断负性情绪词时产生 Stroop 效应,判断正性情绪词产生的 Stroop 效应不显著。

这说明,词的情绪性信息有效地干扰了不同乐观程度被试对词颜色的命名,乐观者产生了对正性情绪词的注意偏向,悲观者则对负性情绪词产生了注意偏向。同样采用情绪 Stroop 范式,另有研究得出了相似的结果即乐观者命名正性情绪词颜色的时间显著长于中性词(Karademas, Kafetsios, & Sideridis, 2007)。同时,乐观者对负性信息的注意会减少。比如,Isaacowitz (2005)运用眼动追踪技术考察乐观者的注意偏向,实验要求被试观察皮肤癌图片,结果表明与悲观者相比,乐观者会选择性地忽视负性信息,这从另一侧面体现了乐观者的正性偏向。

## 2.2 乐观者对正性信息的知觉偏向

知觉偏向(bias in perception)是指由于知觉主客体的特殊性以及一些外界环境因素的作用,人在知觉过程中会产生一些与客观现实不相符合的知觉结论(周晓虹, 1997)。乐观者表现出对正性信息的知觉偏向。例如在遭遇相同困难时,乐观者报告获得的社会支持高于悲观者(Srivastava, McGonigal, Richards, Butler, & Gross, 2006; Wimberly, Carver, & Antoni, 2008)。而且在控制了社会支持的实际给予量后,他们知觉到的依然较高(Vollmann, Antoniw, Hartung, & Renner, 2011)。另外,乐观者在追求目标过程中报告获得的进步要比悲观者多(Monzani et al, 2015)。相应地,乐观者知觉到负性信息就会减少。如面对同样的负性事件,乐观者知觉到的压力强度比悲观者小(Jobin et al., 2014)。同样,相对悲观者,乐观者知觉到的疼痛较轻(Geers, Wellman, Helfer, Fowler, & France, 2008; Hood, Pulvers, Carillo, Merchant, & Thomas, 2012)且持续时间也较短(Goodin, Kronfli, et al., 2013)。

## 2.3 乐观者对正性信息的记忆偏向

记忆偏向(memory bias)指在控制了一般记忆能力后,某种人格特质差异对某一特殊类型经验的回忆或再认有更好或更坏的倾向(引杨慧, 吴明证, 刘永芳, Li, 2012)。乐观者表现出对正性信息的记忆偏向,也就是说,乐观者更容易回忆起好的、正性的或有利于自己的内容。例如在玩扑克牌二十一点游戏时,尽管成功的概率是随机的,但是乐观者一周后回忆赢钱的次数显著多于悲观者。换句话说,乐观者回忆出的正性信息比悲观者多(Gibson & Sanbonmatsu, 2004)。还有研究要

求被试浏览甲状腺机能亢进相关的负性、中性及正性信息后进行自由回忆,发现气质性乐观分数越高的被试回忆出正性信息的数量越多(Luo, 2008)。同样采用自由回忆的方式,另有研究也发现,乐观者回忆出积极词汇的数量多于悲观者(李燚, 2011)。

## 2.4 乐观者具有积极解释风格

解释风格是一种认知性人格变量,是人们对发生在自己身上不好事件的原因进行解释时的习惯性态度(Peterson & Seligman, 1984)。气质性乐观者表现出积极的解释风格即他们会将坏事情归因为不稳定的、特定的、外在的。Peterson (2000)曾提出大乐观(气质性乐观)和小乐观(乐观的解释风格)的概念,并指出两者相关的必然性。国内温娟娟、郑雪和张灵(2007)也认为乐观是一种人格特质,表现为一种积极的解释风格。而且,从理论上来说,气质性乐观作为一种人格特质,可能会影响人们的解释风格(Rusting & Larsen, 1998),即乐观者在面对挫折时倾向于采取积极的解释风格。从实证研究来说,已有研究也发现气质性乐观和乐观的解释风格存在显著正相关(温娟娟, 郑雪, 2011; 祁珍华, 陈璠, 江虹, 张红静, 2012; Zhang et al., 2014)。

不同的解释风格可能是造成乐观者和悲观者行为结果差异的重要原因。如在追求成功方面,具有乐观解释风格的人在遇到困难时更容易继续坚持,这不仅体现在保险销售方面(Seligman & Schulman, 1986),还表现在军事院校的训练(Schulman, Castellon, & Seligman, 1989)或者团体运动方面(Carron, Shapcott, & Martin, 2014);在学业方面,采取乐观解释风格的学生的学业成绩高于那些持有悲观解释风格的学生(Maleva, Westcott, McKellop, McLaughlin, & Widman, 2014; Peterson & Barrett, 1987)。而在其他方面诸如面对负性事件时,持有乐观解释风格的学生的自杀意图也少于悲观的学生(Hirsch & Rabon, 2015)。

## 2.5 乐观者选择积极应对策略

应对策略是指个体面对不同的应激事件时所采取的认知和行为方式(Lazarus & Folkman, 1984)。它和上述解释风格既有区别又有联系,解释风格是对人们行为的原因进行归因,而应对策略是个体对压力性事件或情境的威胁性进行评估并作出相应的行为反应。解释风格会影响人们对

事件的应对策略,对事件的积极解释有利于个体采取积极应对策略,对事件的消极解释则有利于个体采取消极的应对策略(Sanjuan & Magallares, 2015)。乐观者持有积极解释风格,面对压力事件倾向于采取积极应对策略。已有研究发现乐观与积极应对策略的选择存在显著正相关(Chang & Chan, 2015; Goodin, Glover, et al., 2013; Goodarzi, Shokri, & Sharifi, 2015; Lee & Mason, 2013; Perera & McIlveen, 2014)。另外,Carver 等人(1993)对乳腺癌患者进行追踪研究也发现,乐观者多采取事先计划、积极重塑及幽默等积极应对策略;反之,悲观者则是采取否定事实、抑制抵触情绪及放弃努力等消极应对策略。

积极应对策略的选择是使乐观者获得更多益处的重要原因。有研究发现积极应对策略的应用是使乐观者比悲观者更易适应压力的中介变量(Büyükaşık-Çolak, Gündoğdu-Aktürk, & Bozo, 2012; Taylor et al., 2010, 2012),也是减轻疼痛(Hood et al., 2012; Wright et al., 2011)的中介变量,还是学生运动员对学业和运动都感到较高满意的原因(Gaudreau, Gunnell, Hoar, Thompson, & Lelièvre, 2015)。

乐观者为什么会采取积极应对策略?除了与解释风格有关之外,还可能与动机有关。有研究指出自我决定动机在乐观和积极应对策略关系中起中介作用。换言之,与低乐观水平的学生相比,高乐观水平的学生在参与活动时更易被自我决定动机驱使,进而采取积极的应对策略(Thompson & Gaudreau, 2008)。

## 2.6 乐观者体验较多积极情绪

乐观可能使人们长期处于一种积极的心境即积极的情绪状态。乐观者相信未来会发生很多好事情,而这些好事情会使人们产生积极情绪(Strümpfer, 2006)。而且,乐观者会不断为预期目标的实现而努力,他们在不断趋近目标的过程中也会体验到较多的积极情绪(Carver & Scheier, 2001; Ilies & Judge, 2005)。大量实证研究也发现乐观与积极情绪存在显著正相关(Cristea et al., 2011; Lench, 2011; Penedo et al., 2003; Segerstrom, Taylor, Kemeny, & Fahey, 1998)。还有研究发现,作为一种乐观干预的乐观训练既提高了乐观水平也提高了被试的积极情绪体验(Hanssen, Peters, Vlaeyen, Meevissen, & Vancleef, 2013; Peters, Flink,

Boersma, & Linton, 2010)。

同时,乐观者体验到的消极情绪会少于悲观者。比如乐观者观看悲伤情节时产生的负面认知少于悲观者(McHale, Clark, & Tramonte, 2015)。乐观者面对心爱之人死亡时所产生的痛苦体验也比悲观者少(Boelen, 2015)。此外,还有研究发现乐观与焦虑及抑郁情绪呈显著负相关(李恒芬,曹素霞,张勇,2006; Johnson & Endler, 2002)。

## 2.7 小结

乐观能够给个体带来诸多好处,可能是因为乐观者具有正性偏向。这一偏向主要表现在注意、知觉、记忆、解释风格、应对策略的选择、情绪、期待与动机方面。其中,期待是乐观的核心结构,而乐观者持有积极期待可能是他们表现出正性偏向的基础。期待会影响人们对信息的选择加工(Iida, Nakao, & Ohira, 2012; Summerfield & Egner, 2009)。同理,积极期待会使乐观者在认知过程中表现出正性偏向。与消极期待和无期待相比,积极期待会使人更倾向于选择加工正性信息(McNulty & Karney, 2004; Helfe, Elhai & Geers, 2015)。而乐观者在认知过程中表现出的正性偏向会使他们在面对负性或压力事件时,更倾向于采取乐观的解释风格和积极的应对策略。同时,积极期待也会使乐观者产生趋近动机并且诱发积极情绪(Scheier & Carver, 1985, 1992)。

乐观者具有正性偏向是乐观者的心理机制,但是它并不具有唯一性。另外,这一偏向可能受其他因素的影响。当所呈现的信息具有自我相关性时,乐观者在认知过程中并未表现出正性偏向。如有研究发现,面对自我相关的正性信息,乐观者和悲观者投入的注意资源并无显著差异。而对于自我相关的负性信息,乐观者却比悲观者投入更多的注意资源(Aspinwall & Brunhart, 1996)。还有研究发现,相对于悲观者,乐观者能回忆出更多的自我相关信息,但是这与信息的效价无关(Abele & Gendolla, 2007)。这或许是因为与自我无关信息相比,自我相关信息具有更重要的意义,所以乐观者对这些信息进行精细加工以便采取积极主动的应对策略。

## 3 乐观者正性偏向的神经生理机制

通过上面的论述,我们了解到乐观者比悲观者关注更多的正性信息并表现出正性偏向。而究

其神经机制可能与前扣带回喙部(rostral anterior cingulate cortex, rACC)、前额叶皮质(prefrontal cortex)的激活水平相关。在上述这些神经机制方面,乐观者和悲观者表现出显著的差异。

### 3.1 前扣带回喙部

前扣带回喙部位于前额叶皮质的吻侧,与传递情绪与动机信息的脑区如杏仁核有紧密联系(Vogt & Pandya, 1987)。近年,有研究发现与悲观者相比,乐观者前扣带回喙部的激活水平会增强(Sharot, Riccardi, Raio, & Phelps, 2007)。

Sharot 等人(2007)的脑成像研究(functional Magnetic Resonance Imaging, fMRI)发现,前扣带回喙部的 BOLD (blood oxygenation level dependent) 信号差值(想象未来积极事件-想象未来消极事件)与乐观分数存在显著正相关。也就是说,乐观分数越高, BOLD 的信号差值越大,即前扣带回喙部的激活水平在想象未来积极事件时越高,在想象未来消极事件时越低。这说明随着乐观分数的升高,前扣带回喙部的激活在想象未来积极事件时会增强,这一增强反映了个体的自我调节,即对正性信息产生注意与警觉偏向。而已有研究发现,前扣带回喙部激活的增强与正性信息的加工相关。例如,有研究采用 fMRI 考察时间估计任务中正性反馈与负性反馈脑区激活水平的差异,发现正性反馈时前扣带回喙部的激活水平显著高于负性反馈(Nieuwenhuis, Slagter, Von Geusau, Heslenfeld, & Holroyd, 2005)。另外,在临床研究方面,前扣带回喙部的高激活被认为是抗抑郁治疗效果的指标,即这一激活的增强表示抑郁症患者症状好转,比如他们更容易注意正性信息(Hunter, Korb, Cook, & Leuchter, 2013)。这从反面体现了前扣带回喙部激活水平的增强在正性信息加工中的重要作用。

总之,随着乐观分数的升高,前扣带回喙部的激活水平也会增强,而这一区域激活水平的增强与正性信息的加工相关,因此,前扣带回喙部激活的增强可能是乐观者对正性信息表现出偏向的原因。

### 3.2 前额叶皮质

前额叶皮质负责高级运动的控制、计划和执行。它的解剖结构包括背侧前额叶、扣带回、内侧额叶及眶额皮层(周晓琳,高定国等译, Gazzaniga, Ivry, & Mangun, 2011/2009)。乐观者正

性偏向的神经基础可能涉及前额叶皮质(Bangen et al., 2014; De Pascalis et al., 2013)。

乐观者左侧额上回(left-superior frontal gyrus)的激活会增强。有研究通过脑电图(EEG)记录静息状态  $\alpha$  波的激活,发现乐观与左侧额上回的激活存在显著正相关,与右侧扣带回后部(the right-posterior cingulate cortex)的激活存在显著负相关。作者认为乐观与这两个区域的相关不仅反映了他们对趋近与奖励的敏感性,还反映了乐观者对能够获得奖赏的期待。而左侧额叶激活的增强可能是导致高乐观的原因(De Pascalis et al., 2013)。

除了左侧额上回外,前额叶腹内侧皮层(ventral medial prefrontal cortex)、前额叶背内侧皮层(dorsal medial prefrontal cortex)以及额下回(inferior frontal gyrus)的激活水平也与乐观相关。这些脑区激活的降低可能与乐观者对负性信息的不敏感有关。有研究发现,在加工负性信息的过程中,这些脑区的激活会随着乐观分数的提高而下降(Bangen et al., 2014)。作者认为这是因为乐观降低了负性信息的凸显性。而已有研究发现上述脑区激活的增强与抑郁症患者、焦虑症患者亦或创伤后应激障碍患者对负性刺激的加工增强有关(Mcclure et al., 2007; Morey, Petty, Cooper, LaBar, & McCarthy, 2008; Strawn et al., 2012)。例如,相对于中性刺激,创伤性综合症患者在加工负性信息过程中额下回的激活水平会增强(Morey et al., 2008)。这从反面证明了上述脑区激活的下降与个体对负性信息加工的减弱相关。也就是说,前额叶腹内侧皮层、前额叶背内侧皮层以及额下回激活的降低与乐观者对负性信息的不敏感有关。

### 3.3 小结

总之,乐观者表现出正性信息偏向与前扣带回喙部、前额叶皮质的激活水平变化有关。这些脑区激活的变化与情绪信息加工相关,可能反映了正性信息的凸显性的提高以及负性信息的凸显性的降低,进而导致乐观者表现出正性偏向。不过,上述研究主要考察的是乐观者在注意、情绪及期待方面表现出正性偏向的神经生理机制。前文所提到的一些脑区如前扣带回喙部、前额叶皮质等均是注意、认知控制、情绪调节亦或期待相关的脑结构(Henseler, Krüger, Dechent, & Gruber, 2011)。而且,研究中所用的实验范式也是用来考察注意、情绪调节或期待,比如表情匹配任

务或想象未来积极或消极事件(Hariri, Bookheimer, & Mazziotta, 2000)。目前, 尚未有研究考察乐观者在其他方面, 如知觉、记忆、解释风格及动机等等, 表现出正性偏向的神经生理机制。

为什么乐观者和悲观者前扣带回喙部和前额叶皮质的激活水平会不同? 这可能与遗传有关。大量双生子研究发现乐观的遗传度大约为30%(Caprara et al., 2009; Mosing, Zietsch, Shekar, Wright, & Martin, 2009; Mosing, Pedersen, Martin, & Wright, 2010; Plomin et al., 1992)。如 Mosing 等人(2009)以 3053 对 50 岁至 94 岁的双生子为研究对象发现乐观的遗传度为 36%。同年, Caprara 等人以 428 对 23 岁至 24 岁的双生子为研究对象发现乐观的遗传度为 28%。近年, 学者还开始考察是否存在特定的基因成分直接影响乐观和悲观, 但是结果并不一致。如 Saphire-Bernstein, Way, Kim, Sherman 和 Taylor (2011)的研究发现催产素受体(OXTR)基因的 rs53576 GG 型可能是乐观的生物学基础, 因为相对于 rs53576 AA 等位基因携带者, GG 基因携带者的乐观水平较高。但是, 另一项对美国 1229 名女性的研究发现上述两组基因携带者的乐观分数并无显著差异(Cornelis et al., 2012)。Strohmaier 等人则(2013)发现, 男性钙离子通道基因(CACNA1)中的 rs1006737 AA 等位基因携带者的乐观水平较低。总之, 乐观和悲观的差异部分源于遗传, 而未来研究还需深入考察是否存在特定的基因(如催产素受体基因的 rs53576 GG 型等)对乐观具有独特的作用。

## 4 总结与展望

综上所述, 乐观给个体带来诸多好处是因为乐观者具有正性偏向, 并主要体现在注意、知觉、记忆、解释风格、应对策略的选择、情绪、动机及期待方面。而这种偏向的神经机制可能与前扣带回喙部、前额叶皮质激活水平密切相关。尽管有关乐观心理机制的研究已经取得上述成果, 但是该领域仍存在不足之处, 未来研究需要注意以下三点:

首先, 未来研究应该着重考察乐观核心认知结构——期待——本身的认知机制。乐观从本质上来说是一种认知结构, 其核心是期待。借助期待结果的好坏, 这种维度也包含着情绪的意味(Carver & Scheier, 2014)。而当前乐观的研究基本

上是通过划分不同乐观程度的受试者来考察乐观者和悲观者在认知加工过程中的不同表现, 进而探讨乐观的心理机制(Levens & Gotlib, 2012; Gibson & Sanbonmatsu, 2004), 较少对乐观核心的认知结构——期待——本身进行深入考察。当然, 这主要是因为我们在实验室很难对特质乐观进行严格的操纵。但是气质性乐观的概念却给我们提供了一个新的研究思路, 即对个体的期待进行操纵。我们可以在实验室条件下通过操控某些变量使被试产生一种积极或消极的期待, 然后考察不同期待对认知过程的影响, 从而揭示乐观认知机制。Segerstrom (2011)曾提到在乐观作为一种人格特质得到深入研究之前, 心理学家就曾经通过操作期待来使人们变得更乐观或更悲观。如 Carver, Blaney 和 Scheier (1979)通过指导语对期待进行操作, 发现诱发出积极期待的个体解决难题的时间显著长于那些诱发出消极期待的个体。未来, 我们可以延长线索提示范式中的线索提示与预期刺激(正性或负性)之间的时间间隔, 并且在其中安排某些认知任务, 这样便可通过不同情绪期待下被试完成认知任务的差异来考察积极期待对认知的影响, 进而深入探讨乐观的认知心理机制。

其次, 未来研究应该合理划分乐观和悲观。已有的乐观实验研究大多单纯以悲观为基线考察乐观的心理机制, 这可能不够全面。Scheier 和 Carver (1985)提出气质性乐观时认为乐观和悲观是一个维度的两端, 但是现有研究发现乐观和悲观这两个维度之间仅呈低相关(Herzberg, Glaesmer, & Hoyer, 2006; 温娟娟, 2012)。而且, 个体可以同时具有高乐观和高悲观这两种特质倾向(Benjamini, 2005; 陶沙, 2006)。这说明, 乐观的反面可能是缺乏乐观而并非悲观(Marshall, Wortman, Kusulas, Hervig, & Vickers, 1992)。同理, 悲观的反面也不是乐观, 而是缺乏悲观(Robinson-Whelen, Kim, MacCallum, & Kiecolt-Glaser, 1997)。缺乏乐观与存在悲观可能会造成不同的后果(Norem & Chang, 2001)。所以, 这就意味我们不能仅依据 LOT-R 问卷总分简单地将个体归为乐观者或悲观者。未来, 一方面, 我们可以依据乐观 LOT-R 问卷两个维度的得分高低划分不同气质性乐观类型的个体来考察乐观的心理机制。如有研究据此分类, 发现具有高乐观低悲观倾向的个体占总体的 35.9%; 同时具有高乐观高悲观倾向的个体占 19.8%; 不具

有明显乐观悲观倾向的个体占 21%; 具有低乐观高悲观倾向的个体占 23.4%, 并且上述 4 种类型在压力和抑郁量表上的得分具有显著差异(陶沙, 2006)。这说明, 不同气质性乐观类型的划分是有必要的。另一方面, 在进行回归预测分析时, 我们不仅以乐观 LOT-R 的总分为预测变量, 还可以以各维度分数为预测变量。如有研究以乐观维度和悲观维度的分数为预测变量发现, 悲观维度而非乐观维度的分数能够显著预测工作记忆中情绪信息的连接和打破能力(Levens & Gotlib, 2012)。

再次, 未来研究应该采取事件相关电位(ERP)技术考察乐观发生作用的时间特征。乐观发生的作用可能会随着时间而变化。比如乐观是对未来的积极期待, 但是当所期待的事件未能实现时, 乐观者会感到更多的失望或悲伤吗? 有研究发现面对落空的期待, 相对于消极期待者, 积极期待者感知到的负面情绪并没有显著增加(Brown & Marshall, 2001)。这有可能是因为期待落空之后, 乐观者能够迅速地调整自己的情绪。不过因为这一结果是通过调查研究获得的, 可能由于其所测量情绪的滞后性, 所以研究并未发现乐观者与悲观者所经历情绪的差异。而且到目前为止, 考察乐观神经生理机制的研究均是采用 fMRI 或 EEG 的方法(De Pascalis et al., 2013; Sharot et al., 2007), 主要是从大脑空间上揭示了乐观的神经生理基础, 却没有采用高时间分辨率的事件相关电位技术(ERP)考察乐观发生作用的时间特征。

总之, 未来研究应进一步考察乐观的核心即期待的作用机制。这种期待既有情绪的意味也有动机的成分, 从而产生对未来及现在正在进行任务的影响。而这些都是探究乐观心理机制的核心。我们对基于此发展的乐观人格特质的考察, 也可以不必拘泥于乐观和悲观的两级划分, 而将对未来的期待作为核心部分。另外, 神经机制方面, 乐观与涉及情绪与动机信息加工的脑结构如前扣带回喙部、前额叶皮质的激活水平存在显著相关。由此, 未来研究可以将期待-价值理论、人格理论与神经基础全面整合, 深入且全面考察乐观的心理机制。

## 参考文献

- 李恒芬, 曹素霞, 张勇. (2006). 焦虑抑郁中学生的家庭环境和认知倾向. *中国心理卫生杂志*, 20(9), 582-585.
- 李臻. (2011). 气质性乐观大学生的信息加工偏向(硕士学位论文). 河南大学.
- 刘孟超, 黄希庭. (2013). 希望: 心理学的研究述评. *心理科学进展*, 21(3), 548-560.
- 祁珍华, 陈璿, 江虹, 张红静. (2012). 大学生的归因方式及灵活性与健康. *中国心理卫生杂志*, 26(4), 310-314.
- 陶沙. (2006). 乐观、悲观倾向与抑郁的关系及压力、性别的调节作用. *心理学报*, 38(6), 886-901.
- 温娟娟. (2012). 生活定向测验在大学生中的信效度. *中国心理卫生杂志*, 26(4), 305-309.
- 温娟娟, 郑雪. (2011). 大学生气质性乐观、解释风格与主观幸福感的关系研究. *心理研究*, 4(5), 90-96.
- 温娟娟, 郑雪, 张灵. (2007). 国外乐观研究述评. *心理科学进展*, 15(1), 129-133.
- 杨慧, 吴明证, 刘永芳, Li Q. (2012). 自尊与记忆偏向的关系. *心理科学*, 35(4), 962-967.
- 周晓虹. (1997). *现代社会心理学: 多维视野中的社会行为研究*. 上海人民出版社.
- Abele, A. E., & Gendolla, G. H. E. (2007). Individual differences in optimism predict the recall of personally relevant information. *Personality and Individual Differences*, 43(5), 1125-1135.
- Alarcon, G. M., Bowling, N. A., & Khazon, S. (2013). Great expectations: A meta-analytic examination of optimism and hope. *Personality and Individual Differences*, 54(7), 821-827.
- Ammirati, R. J., Lamis, D. A., Campos, P. E., & Farber, E. W. (2015). Optimism, well-being, and perceived stigma in individuals living with HIV. *AIDS Care: Psychological and Socio-medical Aspects of AIDS/HIV*, 27(7), 926-933.
- Aspinwall, L. G., & Brunhart, S. M. (1996). Distinguishing optimism from denial: Optimistic beliefs predict attention to health threats. *Personality and Social Psychology Bulletin*, 22(10), 993-1003.
- Aspinwall, L. G., Richter, L., & Hoffman, R. R. (2001). Understanding how optimism works: An examination of optimists' adaptive moderation of belief and behavior. In E. C. Chang (Ed.), *Optimism & pessimism: Implications for theory, research, and practice* (pp. 217-238). Washington, DC: American Psychological Association.
- Bangen, K. J., Bergheim, M., Kaup, A. R., Mirzakhani, H., Wierenga, C. E., Jeste, D. V., & Eyler, L. T. (2014). Brains of optimistic older adults respond less to fearful faces. *The Journal of Neuropsychiatry & Clinical Neurosciences*, 26(2), 155-163.
- Beard, K. S., Hoy, W. K., & Woolfolk Hoy, A. (2010). Academic optimism of individual teachers: Confirming a new construct. *Teaching and Teacher Education*, 26(5), 1136-1144.

- Benyamini, Y. (2005). Can high optimism and high pessimism co-exist? Findings from arthritis patients coping with pain. *Personality and Individual Differences*, 38(6), 1463–1473.
- Benyamini, Y., & Raz, O. (2007). “I can tell you if I’ll really lose all that weight”: Dispositional and situated optimism as predictors of weight loss following a group intervention. *Journal of Applied Social Psychology*, 37(4), 844–861.
- Boelen, P. A. (2015). Optimism in prolonged grief and depression following loss: A three-wave longitudinal study. *Psychiatry Research*, 227(2-3), 313–317.
- Brown, J. D., & Marshall, M. A. (2001). Great expectations: Optimism and pessimism in achievement settings. In E. C. Chang (Ed.), *Optimism & pessimism: Implications for theory, research, and practice* (pp. 239–255). Washington, DC: American Psychological Association.
- Bryant, F. B., & Cvetengros, J. A. (2004). Distinguishing hope and optimism: Two sides of a coin, or two separate coins? *Journal of Social and Clinical Psychology*, 23(2), 273–302.
- Büyükaşık-Çolak, C., Gündoğdu-Aktürk, E., & Bozo, Ö. (2012). Mediating role of coping in the dispositional optimism–posttraumatic growth relation in breast cancer patients. *The Journal of Psychology*, 146(5), 471–483.
- Caprara, G. V., Fagnani, C., Alessandri, G., Steca, P., Gigantesco, A., Sforza, L. L. C., & Stazi, M. A. (2009). Human optimal functioning: The genetics of positive orientation towards self, life, and the future. *Behavior Genetics*, 39(3), 277–284.
- Carron, A. V., Shapcott, K. M., & Martin, L. J. (2014). The relationship between team explanatory style and team success. *International Journal of Sport and Exercise Psychology*, 12(1), 1–9.
- Carver, C. S., Blaney, P. H., & Scheier, M. F. (1979). Reassertion and giving up: The interactive role of self-directed attention and outcome expectancy. *Journal of Personality and Social Psychology*, 37(10), 1859–1870.
- Carver, C. S., Pozo, C., Harris, S. D., Noriega, V., Scheier, M. F., Robinson, D. S., ... Clark, K. C. (1993). How coping mediates the effect of optimism on distress: A study of women with early stage breast cancer. *Journal of Personality and Social Psychology*, 65(2), 375–389.
- Carver, C. S., & Scheier, M. F. (2001). *On the self-regulation of behavior*. Cambridge University Press.
- Carver, C. S., & Scheier, M. F. (2014). Dispositional optimism. *Trends in Cognitive Sciences*, 18(6), 293–299.
- Chang, Y. S., & Chan, H. J. (2015). Optimism and proactive coping in relation to burnout among nurses. *Journal of Nursing Management*, 23(3), 401–408.
- Cisler, J. M., & Koster, E. H. W. (2010). Mechanisms of attentional biases towards threat in anxiety disorders: An integrative review. *Clinical Psychology Review*, 30(2), 203–216.
- Cornelis, M. C., Glymour, M. M., Chang, S. C., Tchetgen, E. J. T., Liang, L., Koenen, K. C., ... Kubzansky, L. D. (2012). Oxytocin receptor (OXTR) is not associated with optimism in the Nurses’ Health Study. *Molecular Psychiatry*, 17(12), 1157–1159.
- Cristea, I. A., Surala, M., Stefan, S., Igna, R., David, D., & Tatar, A. S. (2011). Positive and negative emotions in cardiac patients: The contributions of trait optimism, expectancies and hopes. *Cognitie, Creier, Comportament/ Cognition, Brain, Behavior*, 15(3), 317–329.
- De Pascalis, V., Cozzuto, G., Caprara, G. V., & Alessandri, G. (2013). Relations among EEG-alpha asymmetry, BIS/BAS, and dispositional optimism. *Biological Psychology*, 94(1), 198–209.
- Gaudreau, P., Gunnell, K. E., Hoar, S. D., Thompson, A., & Lelièvre, J. (2015). Optimism, pessimism, and coping in a dual-domain model of sport and school satisfaction. *Sport, Exercise, and Performance Psychology*, 4(2), 140–152.
- Gazzaniga, M. S., Ivry, R. B., & Mangun, G. R. (2011). *Cognitive neuroscience: The biology of the mind* (X. L. Zhou, D. G. Gao, et al., Trans.). Beijing: China Light Industry Press. (Original work published 2009).
- [Gazzaniga, M. S., Ivry, R. B., & Mangun, G. R. (2011). *认知神经科学: 关于心智的神经生物学* (周晓琳, 高定国等译). 北京: 中国轻工业出版社.]
- Geers, A. L., Wellman, J. A., Helfer, S. G., Fowler, S. L., & France, C. R. (2008). Dispositional optimism and thoughts of well-being determine sensitivity to an experimental pain task. *Annals of Behavioral Medicine*, 36(3), 304–313.
- Gibson, B., & Sanbonmatsu, D. M. (2004). Optimism, pessimism, and gambling: The downside of optimism. *Personality and Social Psychology Bulletin*, 30(2), 149–160.
- Gil, S., & Weinberg, M. (2015). Coping strategies and internal resources of dispositional optimism and mastery as predictors of traumatic exposure and of PTSD symptoms: A prospective study. *Psychological Trauma Theory Research Practice & Policy*, 7(4), 405–411.
- Glaesmer, H., Hoyer, J., Klotzsch, J., & Herzberg, P. Y. (2008). Die deutsche version des Life-Orientierung-Tests (LOT-R) zum dispositionellen optimismus und pessimismus. *Zeitschrift für Gesundheitspsychologie*, 16, 26–31.
- Goodarzi, A., Shokri, O., & Sharifi, M. (2015). Cognitive appraisals, coping strategies, optimism and subjective well-being. *Journal of Psychology*, 18(4), 346–364.
- Goodin, B. R., Glover, T. L., Sotolongo, A., King, C. D., Sibille, K. T., Herbert, M. S., ... Fillingim, R. B. (2013). The association of greater dispositional optimism with less endogenous pain facilitation is indirectly transmitted through lower levels of pain catastrophizing. *The Journal*



- of Pain, 14(2), 126–135.
- Goodin, B. R., Kronfli, T., King, C. D., Glover, T. L., Sibille, K., & Fillingim, R. B. (2013). Testing the relation between dispositional optimism and conditioned pain modulation: Does ethnicity matter?. *Journal of Behavioral Medicine*, 36(2), 165–174.
- Hanssen, M. M., Peters, M. L., Vlaeyen, J. W. S., Meevissen, Y. M. C., & Vancleef, L. M. G. (2013). Optimism lowers pain: Evidence of the causal status and underlying mechanisms. *Pain*, 154(1), 53–58.
- Hariri, A. R., Bookheimer, S. Y., & Mazziotta, J. C. (2000). Modulating emotional responses: Effects of a neocortical network on the limbic system. *Neuroreport*, 11(1), 43–48.
- Helfer, S. G., Elhai, J. D., & Geers, A. L. (2015). Affect and exercise: Positive affective expectations can increase post-exercise mood and exercise intentions. *Annals of Behavioral Medicine*, 49(2), 269–279.
- Henseler, I., Krüger, S., Dechent, P., & Gruber, O. (2011). A gateway system in rostral PFC? Evidence from biasing attention to perceptual information and internal representations. *NeuroImage*, 56(3), 1666–1676.
- Herzberg, P. Y., Glaesmer, H., & Hoyer, J. (2006). Separating optimism and pessimism: A robust psychometric analysis of the revised Life Orientation Test (LOT-R). *Psychological Assessment*, 18(4), 433–438.
- Hingle, M. D., Wertheim, B. C., Tindle, H. A., Tinker, L., Seguin, R. A., Rosal, M. C., & Thomson, C. A. (2014). Optimism and diet quality in the women's health initiative. *Journal of the Academy of Nutrition and Dietetics*, 114(7), 1036–1045.
- Hirsch, J. K., Nsamenang, S. A., Chang, E. C., & Kaslow, N. J. (2014). Spiritual well-being and depressive symptoms in female African American suicide attempters: Mediating effects of optimism and pessimism. *Psychology of Religion & Spirituality*, 6(4), 276–283.
- Hirsch, J. K., & Rabon, J. K. (2015). Optimistic explanatory style and suicide attempt in young adults. *International Journal of Mental Health and Addiction*, 13(6), 675–686.
- Hood, A., Pulvers, K., Carrillo, J., Merchant, G., & Thomas, M. D. (2012). Positive traits linked to less pain through lower pain catastrophizing. *Personality and Individual Differences*, 52(3), 401–405.
- Hunter, A. M., Korb, A. S., Cook, I. A., & Leuchter, A. F. (2013). Rostral anterior cingulate activity in major depressive disorder: State or trait marker of responsiveness to medication? *The Journal of Neuropsychiatry and Clinical Neurosciences*, 25(2), 126–133.
- Iida, S., Nakao, T., & Ohira, H. (2012). Prior cognitive activity implicitly modulates subsequent emotional responses to subliminally presented emotional stimuli. *Cognitive, Affective, & Behavioral Neuroscience*, 12(2), 337–345.
- Ilies, R., & Judge, T. A. (2005). Goal regulation across time: The effects of feedback and affect. *Journal of Applied Psychology*, 90(3), 453–467.
- Isaacowitz, D. M. (2005). The gaze of the optimist. *Personality and Social Psychology Bulletin*, 31(3), 407–415.
- Jobin, J., Wrosch, C., & Scheier, M. F. (2014). Associations between dispositional optimism and diurnal cortisol in a community sample: When stress is perceived as higher than normal. *Health Psychology*, 33(4), 382–391.
- Johnson, J. M., & Endler, N. S. (2002). Coping with human immunodeficiency virus: Do optimists fare better? *Current Psychology*, 21(1), 3–16.
- Karademas, E. C., Kafetsios, K., & Sideridis, G. D. (2007). Optimism, self-efficacy and information processing of threat- and well-being-related stimuli. *Stress and Health*, 23(5), 285–294.
- Kwok, S. Y. C. L., Cheng, L., & Wong, D. F. K. (2015). Family emotional support, positive psychological capital and job satisfaction among Chinese white-collar workers. *Journal of Happiness Studies*, 16(3), 561–582.
- Laranjeira, C. A. (2008). Portuguese translation and validation of the revised life orientation test (LOT-R). *Universitas Psychologica*, 7(2), 469–476.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, Appraisal, and Coping*. New York: Springer.
- Lee, H., & Mason, D. (2013). Optimism and coping strategies among Caucasian, Korean, and African American older women. *Health Care for Women International*, 34(12), 1084–1096.
- Lench, H. C. (2011). Personality and health outcomes: Making positive expectations a reality. *Journal of Happiness Studies*, 12(3), 493–507.
- Levens, S. M., & Gotlib, I. H. (2012). The effects of optimism and pessimism on updating emotional information in working memory. *Cognition & Emotion*, 26(2), 341–350.
- Luo, J. (2008). *Optimism, cognition, and information processing in medical decision making* (Unpublished doctoral dissertation). Brandeis University, United States of America.
- Maleva, V., Westcott, K., McKellop, M., McLaughlin, R., & Widman, D. (2014). Optimism and college grades: Predicting GPA from explanatory style. *Psi Chi Journal of Psychological Research*, 19(3), 129–135.
- Marshall, G. N., Wortman, C. B., Kusulas, J. W., Hervig, L. K., & Vickers, R. R., Jr. (1992). Distinguishing optimism from pessimism: Relations to fundamental dimensions of mood and personality. *Journal of Personality and Social Psychology*, 62(6), 1067–1074.

- McClure, E. B., Monk, C. S., Nelson, E. E., Parrish, J. M., Adler, A., Blair, R. J. R., ... Pine, D. S. (2007). Abnormal attention modulation of fear circuit function in pediatric generalized anxiety disorder. *Archives of General Psychiatry*, 64(1), 97–106.
- McHale, N., Clark, D. A., & Tramonte, L. (2015). Does optimism moderate mood repair? A daily diary study. *Motivation & Emotion*, 39(3), 409–419.
- McNulty, J. K., & Karney, B. R. (2004). Positive expectations in the early years of marriage: Should couples expect the best or brace for the worst? *Journal of Personality and Social Psychology*, 86(5), 729–743.
- Monzani, D., Steca, P., Greco, A., D'Addario, M., Pancani, L., & Cappelletti, E. (2015). Effective pursuit of personal goals: The fostering effect of dispositional optimism on goal commitment and goal progress. *Personality & Individual Differences*, 82, 203–214.
- Morey, R. A., Petty, C. M., Cooper, D. A., LaBar, K. S., & McCarthy, G. (2008). Neural systems for executive and emotional processing are modulated by symptoms of posttraumatic stress disorder in Iraq War veterans. *Psychiatry Research: Neuroimaging*, 162(1), 59–72.
- Mosing, M. A., Pedersen, N. L., Martin, N. G., & Wright, M. J. (2010). Sex differences in the genetic architecture of optimism and health and their interrelation: A study of Australian and Swedish twins. *Twin Research and Human Genetics*, 13(4), 322–329.
- Mosing, M. A., Zietsch, B. P., Shekar, S. N., Wright, M. J., & Martin, N. G. (2009). Genetic and environmental influences on optimism and its relationship to mental and self-rated health: A study of aging twins. *Behavior Genetics*, 39(6), 597–604.
- Nieuwenhuis, S., Slagter, H. A., Von Geusau, N. J. A., Heslenfeld, D. J., & Holroyd, C. B. (2005). Knowing good from bad: Differential activation of human cortical areas by positive and negative outcomes. *European Journal of Neuroscience*, 21(11), 3161–3168.
- Norem, J. K., & Chang, E. C. (2001). A very full glass: Adding complexity to our thinking about the implications and applications of optimism and pessimism research. In E. C. Chang (Ed.), *Optimism & pessimism: Implications for theory, research, and practice* (pp. 347–367). Washington, DC, US: American Psychological Association.
- Penedo, F. J., Dahn, J. R., Gonzalez, J. S., Molton, I., Carver, C. S., Antoni, M. H., ... Schneiderman, N. (2003). Perceived stress management skill mediates the relationship between optimism and positive mood following radical prostatectomy. *Health Psychology*, 22(2), 220–222.
- Perera, H. N., & McIlveen, P. (2014). The role of optimism and engagement coping in college adaptation: A career construction model. *Journal of Vocational Behavior*, 84(3), 395–404.
- Peters, M. L., Flink, I. K., Boersma, K., & Linton, S. J. (2010). Manipulating optimism: Can imagining a best possible self be used to increase positive future expectancies? *The Journal of Positive Psychology*, 5(3), 204–211.
- Peterson, C. (2000). The future of optimism. *American Psychologist*, 55(1), 44–55.
- Peterson, C., & Barrett, L. C. (1987). Explanatory style and academic performance among university freshman. *Journal of Personality and Social Psychology*, 53(3), 603–607.
- Peterson, C., & Seligman, M. E. (1984). Causal explanations as a risk factor for depression: Theory and evidence. *Psychological Review*, 91(3), 347–374.
- Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification*. Oxford: Oxford University Press.
- Plomin, R., Scheier, M. F., Bergeman, C. S., Pedersen, N. L., Nesselroade, J. R., & McClearn, G. E. (1992). Optimism, pessimism and mental health: A twin/adoption analysis. *Personality and Individual Differences*, 13(8), 921–930.
- Raila, H., Scholl, B. J., & Gruber, J. (2015). Seeing the world through rose-colored glasses: People who are happy and satisfied with life preferentially attend to positive stimuli. *Emotion*, 15(4), 449–462.
- Rajandram, R. K., Ho, S. M. Y., Samman, N., Chan, N., McGrath, C., & Zwahlen, R. A. (2011). Interaction of hope and optimism with anxiety and depression in a specific group of cancer survivors: A preliminary study. *BMC Research Notes*, 4(1), 519.
- Rand, K. L. (2009). Hope and optimism: Latent structures and influences on grade expectancy and academic performance. *Journal of Personality*, 77(1), 231–260.
- Robinson-Whelen, S., Kim, C., MacCallum, R. C., & Kiecolt-Glaser, J. K. (1997). Distinguishing optimism from pessimism in older adults: Is it more important to be optimistic or not to be pessimistic? *Journal of Personality and Social Psychology*, 73(6), 1345–1353.
- Rusting, C. L., & Larsen, R. J. (1998). Personality and cognitive processing of affective information. *Personality and Social Psychology Bulletin*, 24(2), 200–213.
- Rygula, R., Golebiowska, J., Kregiel, J., Kubik, J., & Popik, P. (2015). Effects of optimism on motivation in rats. *Frontiers in Behavioral Neuroscience*, 9, 32.
- Sanjuan, P., & Magallares, A. (2015). Coping strategies as mediator variables between explanatory styles and depressive symptoms. *Anales de Psicología*, 31(2), 447–451.
- Saphire-Bernstein, S., Way, B. M., Kim, H. S., Sherman, D. K., & Taylor, S. E. (2011). Oxytocin receptor gene (OXTR)

- is related to psychological resources. *Proceedings of the National Academy of Sciences of the United States of America*, 108(37), 15118–15122.
- Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*, 4(3), 219–247.
- Scheier, M. F., & Carver, C. S. (1992). Effects of optimism on psychological and physical well-being: Theoretical overview and empirical update. *Cognitive Therapy and Research*, 16(2), 201–228.
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, 67(6), 1063–1078.
- Schulman, P., Castellon, C., & Seligman, M. E. P. (1989). Assessing explanatory style: The content analysis of verbatim explanations and the attributional style questionnaire. *Behaviour Research and Therapy*, 27(5), 505–509.
- Segerstrom, S. C. (2001). Optimism and attentional bias for negative and positive stimuli. *Personality and Social Psychology Bulletin*, 27(10), 1334–1343.
- Segerstrom, S. C. (2011). *Breaking Murphy's law: How optimists get what they want from life-and pessimists can too*. New York: Guilford Press.
- Segerstrom, S. C., Taylor, S. E., Kemeny, M. E., & Fahey, J. L. (1998). Optimism is associated with mood, coping, and immune change in response to stress. *Journal of Personality and Social Psychology*, 74(6), 1646–1655.
- Seligman, M. E. P. (2010). *Learned optimism* (L. Hong, Trans.). Shenyang: Volumes Publishing Company. (Original work published 1991).
- [马丁·塞利格曼. (2010). *活出最乐观的自己* (洪兰译). 沈阳: 万卷出版公司.]
- Seligman, M. E., & Schulman, P. (1986). Explanatory style as a predictor of productivity and quitting among life insurance sales agents. *Journal of Personality and Social Psychology*, 50(4), 832–838.
- Sezgin, F., & Erdogan, O. (2015). Academic optimism, hope and zest for work as predictors of teacher self-efficacy and perceived success. *Educational Sciences: Theory & Practice*, 15(1), 7–19.
- Shand, L. K., Cowlshaw, S., Brooker, J. E., Burney, S., & Ricciardelli, L. A. (2015). Correlates of post-traumatic stress symptoms and growth in cancer patients: A systematic review and meta-analysis. *Psycho-Oncology*, 24(6), 624–634.
- Sharot, T., Riccardi, A. M., Raio, C. M., & Phelps, E. A. (2007). Neural mechanisms mediating optimism bias. *Nature*, 450(7166), 102–105.
- Snyder, C. R. (2002). Hope theory: Rainbows in the mind. *Psychological Inquiry*, 13(4), 249–275.
- Snyder, C. R., Feldman, D. B., Taylor, J. D., Schroeder, L. L., & Adams, V. H. (2000). The roles of hopeful thinking in preventing problems and enhancing strengths. *Applied and Preventive Psychology*, 9(4), 249–269.
- Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T., ... Harney, P. (1991). The will and the ways: Development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology*, 60(4), 570–585.
- Solberg Nes, L., Evans, D. R., & Segerstrom, S. C. (2009). Optimism and college retention: Mediation by motivation, performance, and adjustment. *Journal of Applied Social Psychology*, 39(8), 1887–1912.
- Srivastava, S., McGonigal, K. M., Richards, J. M., Butler, E. A., & Gross, J. J. (2006). Optimism in close relationships: How seeing things in a positive light makes them so. *Journal of Personality and Social Psychology*, 91(1), 143–153.
- Steca, P., Monzani, D., Greco, A., Chiesi, F., & Primi, C. (2015). Item response theory analysis of the life orientation test-revised: Age and gender differential item functioning analyses. *Assessment*, 22(3), 341–350.
- Strawn, J. R., Bitter, S. M., Weber, W. A., Chu, W. J., Whitsel, R. M., Adler, C., ... DelBello, M. P. (2012). Neurocircuitry of generalized anxiety disorder in adolescents: A pilot functional neuroimaging and functional connectivity study. *Depression & Anxiety*, 29(11), 939–947.
- Strohmaier, J., Amelang, M., Hothorn, L. A., Witt, S. H., Nieratschker, V., Gerhard, D., ... Schulze, T. G. (2013). The psychiatric vulnerability gene CACNA1C and its sex-specific relationship with personality traits, resilience factors and depressive symptoms in the general population. *Molecular Psychiatry*, 18(5), 607–613.
- Strümpfer, D. J. W. (2006). Positive emotions, positive emotionality and their contribution to fortigenic living: A review. *South African Journal of Psychology*, 36(1), 144–167.
- Summerfield, C., & Egner, T. (2009). Expectation (and attention) in visual cognition. *Trends in Cognitive Sciences*, 13(9), 403–409.
- Taylor, Z. E., Larsen-Rife, D., Conger, R. D., Widaman, K. F., & Cutrona, C. E. (2010). Life stress, maternal optimism, and adolescent competence in single mother, African American families. *Journal of Family Psychology*, 24(4), 468–477.
- Taylor, Z. E., Widaman, K. F., Robins, R. W., Jochem, R., Early, D. R., & Conger, R. D. (2012). Dispositional optimism: A psychological resource for Mexican-origin

- mothers experiencing economic stress. *Journal of Family Psychology*, 26(1), 133–139.
- Thompson, A., & Gaudreau, P. (2008). From optimism and pessimism to coping: The mediating role of academic motivation. *International Journal of Stress Management*, 15(3), 269–288.
- Vogt, B. A., & Pandya, D. N. (1987). Cingulate cortex of the rhesus monkey: II. Cortical afferents. *Journal of Comparative Neurology*, 262(2), 271–289.
- Vollmann, M., Antoni, K., Hartung, F. M., & Renner, B. (2011). Social support as mediator of the stress buffering effect of optimism: The importance of differentiating the recipients' and providers' perspective. *European Journal of Personality*, 25(2), 146–154.
- Warner, L. M., Schwarzer, R., Schütz, B., Wurm, S., & Tesch-Römer, C. (2012). Health-specific optimism mediates between objective and perceived physical functioning in older adults. *Journal of Behavioral Medicine*, 35(4), 400–406.
- Wimberly, S. R., Carver, C. S., & Antoni, M. H. (2008). Effects of optimism, interpersonal relationships, and distress on psychosexual well-being among women with early stage breast cancer. *Psychology and Health*, 23(1), 57–72.
- Wright, M. A., Wren, A. A., Somers, T. J., Goetz, M. C., Fras, A. M., Huh, B. K.,..... Keefe, F. J. (2011). Pain acceptance, hope, and optimism: Relationships to pain and adjustment in patients with chronic musculoskeletal pain. *The Journal of Pain*, 12(11), 1155–1162.
- Wrosch, C., & Scheier, M. F. (2003). Personality and quality of life: The importance of optimism and goal adjustment. *Quality of Life Research*, 12(S1), 59–72.
- Zaslavsky, O., Palgi, Y., Rillamas-Sun, E., LaCroix, A. Z., Schnall, E., Woods, N. F.,..... Shrira, A. (2015). Dispositional optimism and terminal decline in global quality of life. *Developmental Psychology*, 51(6), 856–863.
- Zhang, J. X., Miao, D. M., Sun, Y. F., Xiao, R. R., Ren, I., Xiao, W., & Peng, J. X. (2014). The impacts of attributional styles and dispositional optimism on subject well-being: A structural equation modelling analysis. *Social Indicators Research*, 119(2), 757–769.

## The positive bias of dispositional optimism and the evidence of neurophysiology research

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**Abstract:** Optimism is generalized positive expectations for the future. It brings many benefits. For instance, optimism can improve individual's physical health, well-being and promote success. One possible mechanism behind these phenomena is optimists' positive bias in attention, perception, memory, explanatory styles, coping strategies, emotion, expectations and motivation, etc. Empirical evidence shows that positive bias of optimism is related to the activation level of rostral anterior cingulate cortex and prefrontal cortex. To deeply explore the mechanisms of optimism, it's essential to take expectations, core of dispositional optimism, as the focus of research, integrating expectancy-value theory, personality theory, and neural basis in future studies.

**Key words:** optimism; positive bias; neurophysiological mechanisms