

Humor - It is a Laughing Matter: *Examining the Neurobiology And Clinical Applications of Humor In Clinical Practice*

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Disclosures

Consultant Eli Lilly, Otsuka, Pamlab,
Sunovion

Speaker's Bureau Eli Lilly, Otsuka

Advisor Eli Lilly, Otsuka, Pamlab

Learning Objectives

- Appreciate the neurobiology of humor, and how psychiatric disorders create a deficit in humor creation and processing
- Assess the interventional studies of humor enhancement therapies, and critically examine the outcomes of such studies
- Practical tips on how to recommend humor enhancing interventions in a wide variety of patients with psychiatric disorders



Let Me Start this Presentation with
A Serious Story...

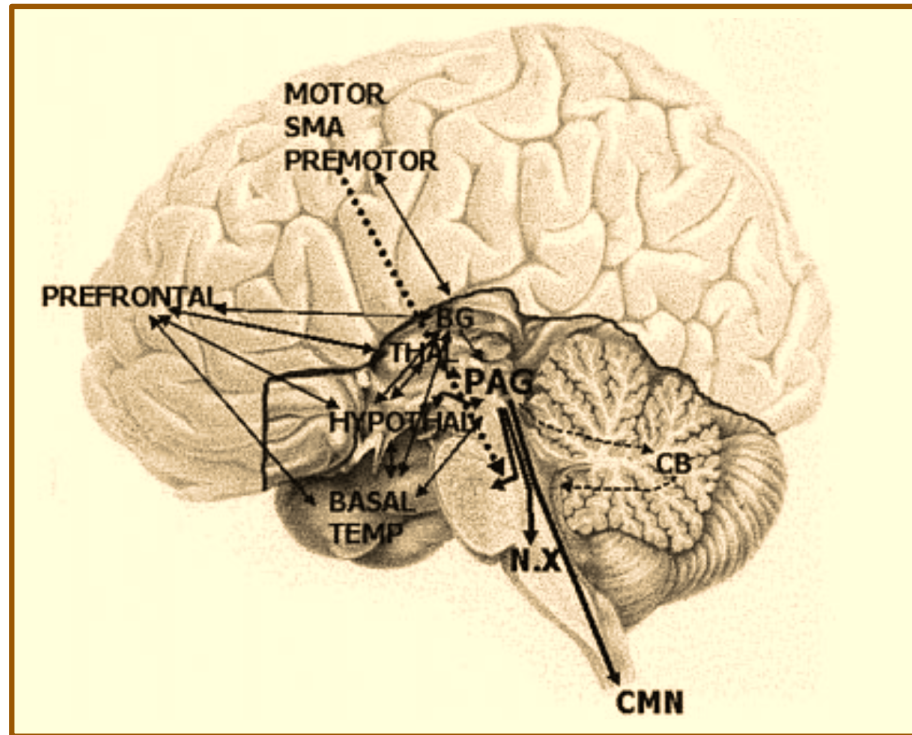
The story about why I have a happy marriage...



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Now That (*some of you!*) You've Laughed,
Let's Examine What *Just* Happened In Your Brain...

The 'Humor and Laughter' Network Activation



- Vast tracks of the brain are involved when humor and laughter are activated
- Note humor 'lives' in the same regions of the brain utilized for mood and hedonic drive regulation
- Limbic system, pre-frontal cortex, and the brain stem - (home to the famed trifecta of NE, DA, and 5-HT) are activated with humor

BASAL TEMP = basal temporal lobe including amygdala; CB = cerebellum; CMN = cervical motor neurons; BG = basal ganglia; HYPOTHAL = hypothalamus; MOTOR = motor area; N.X = vagal nerve nucleus; PREFRONTAL = medial and dorsolateral prefrontal cortex; PREMOTOR = premotor area; THAL = thalamus.

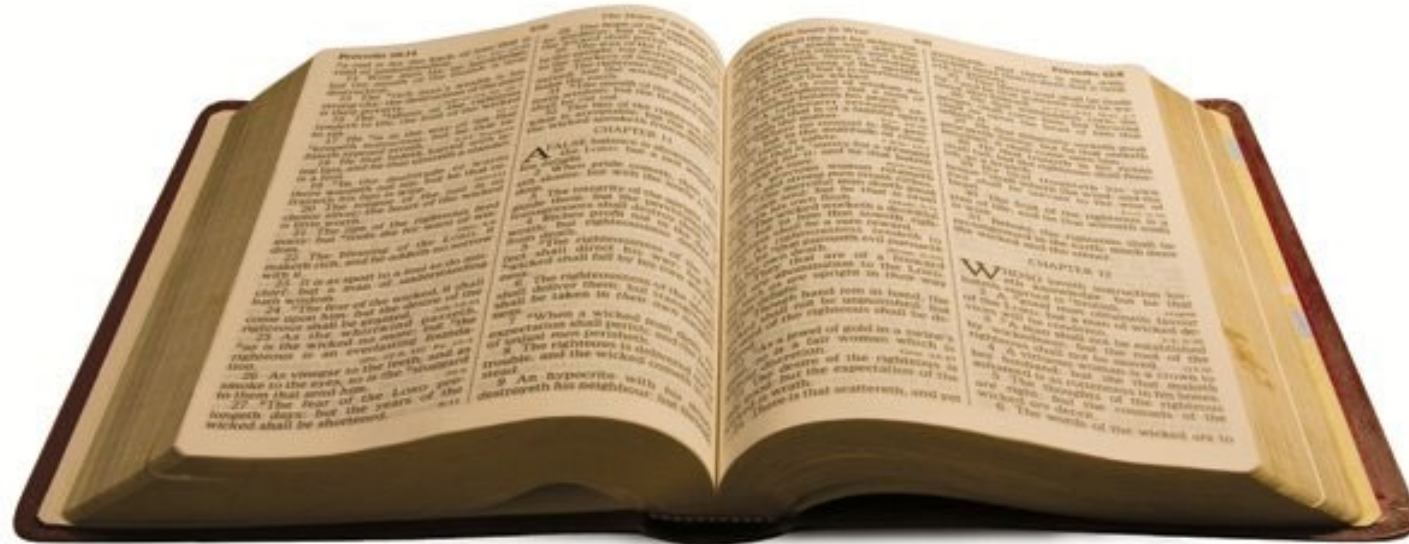
Wild B, et al. Brain (2003), 126, 2121±213



The Value of Humor Has Been
Appreciated For a Long Time

“A merry heart doeth good like a medicine”

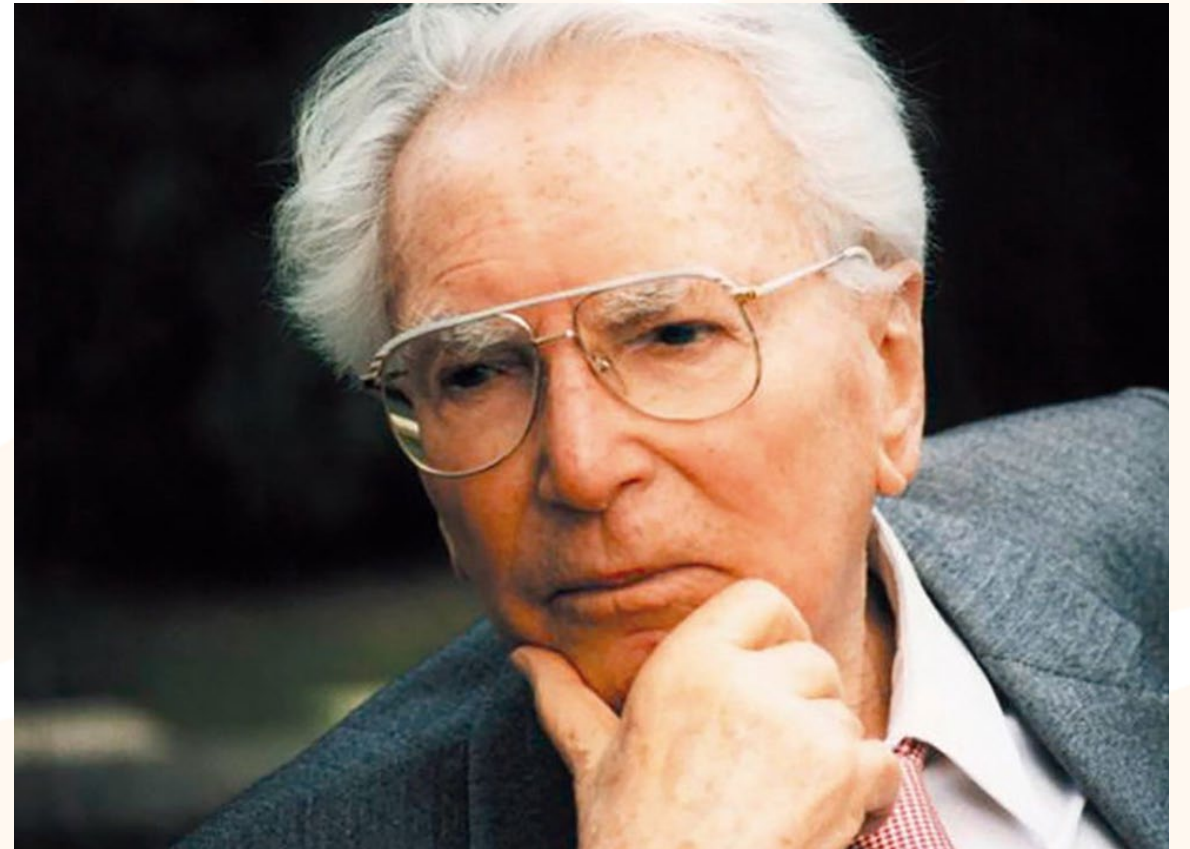
(Proverbs 17:22, King James Bible)



Humor's Value Has Been Well Recognized

The attempt to develop a sense of humor, and to see things in a humorous light is some kind of a trick learned while mastering the art of living.

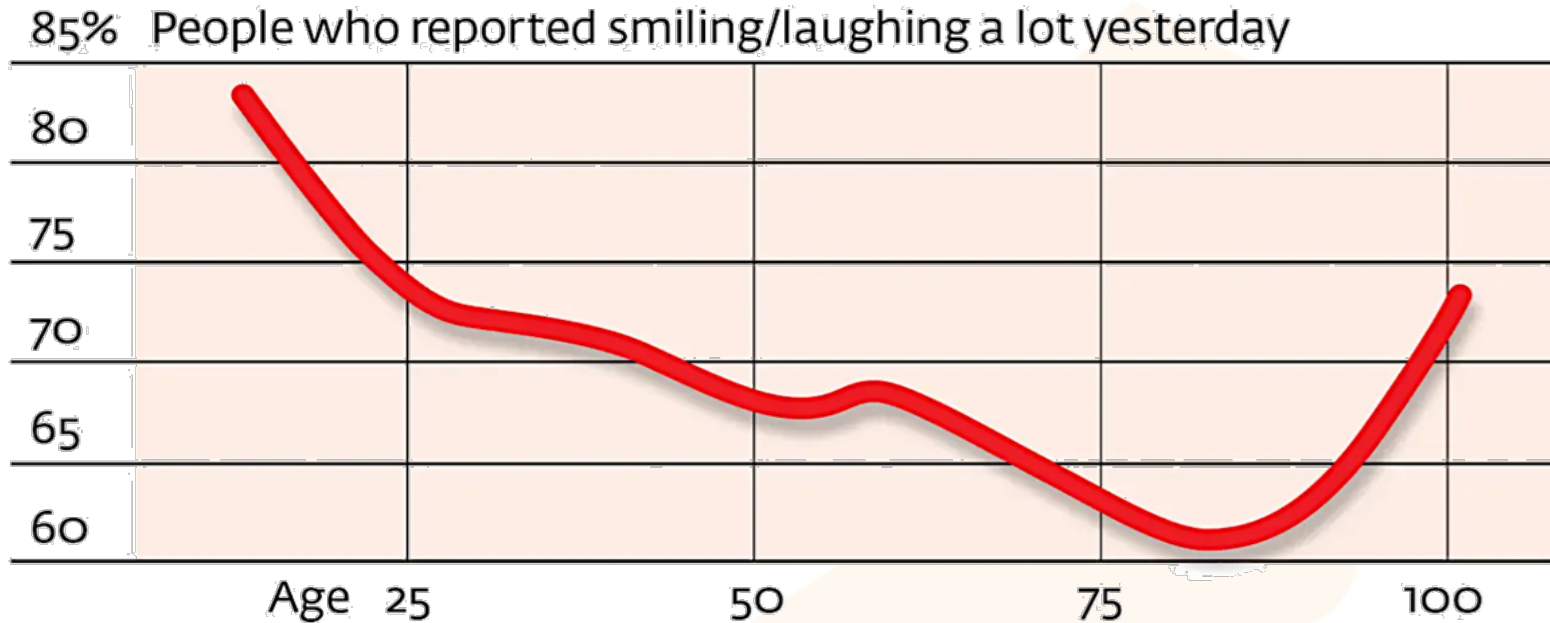
Viktor Frankl



But....

Humor is a Scarce Resource for Many

Humor 'Cliff' – *Are We Over the Hill?!*



Gallup data 2013 n = 1.4 million; according to the authors of "Humor, Seriously"

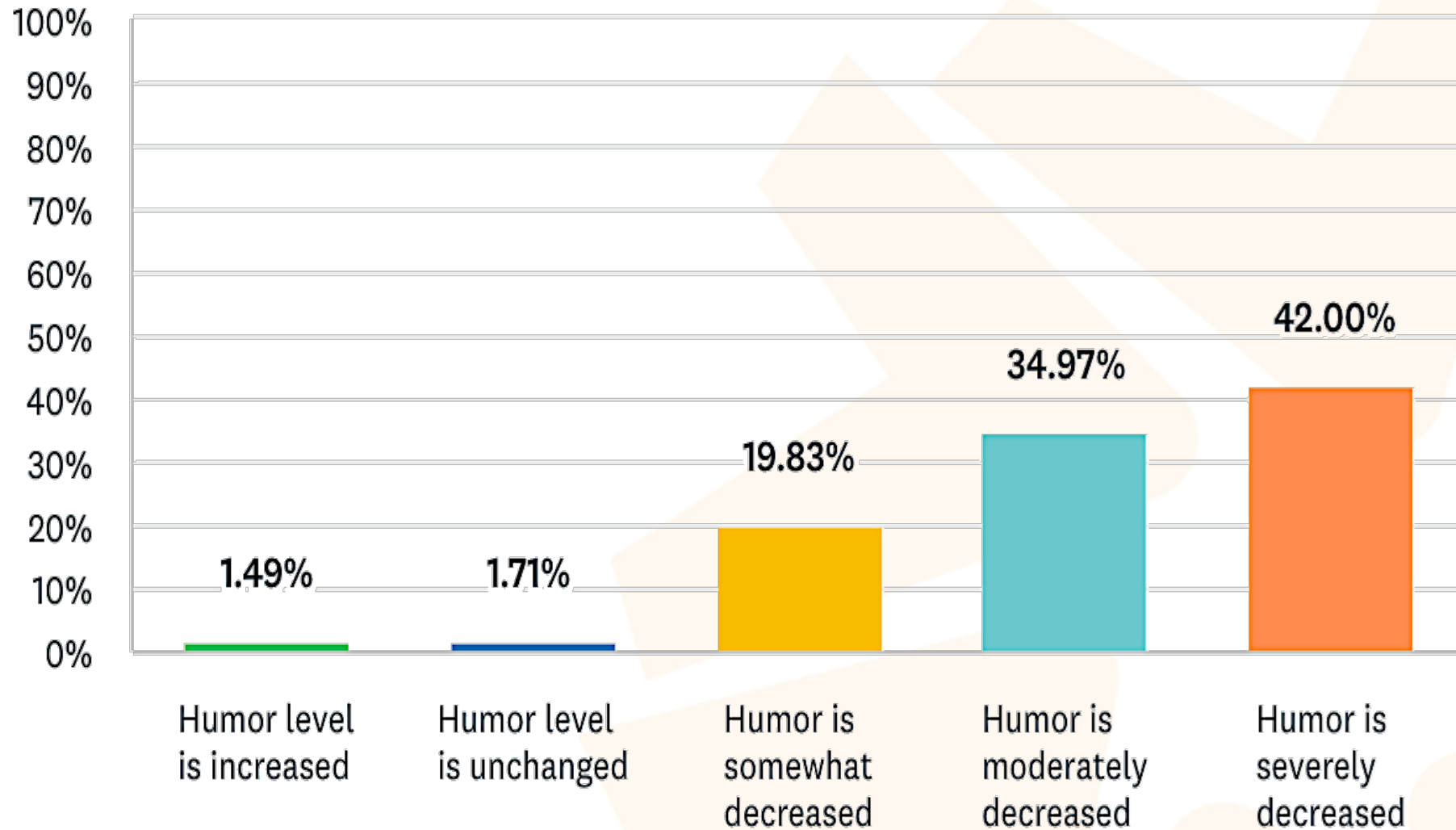
Looks like after the age of 23 there is a dramatic downward slide into a 'humor challenged' existence.

But.... Good news! If we make it until we are 80, then we get back to laughter and smiling!

Is There a 'Humor Deficit Disorder' in Our Patients?

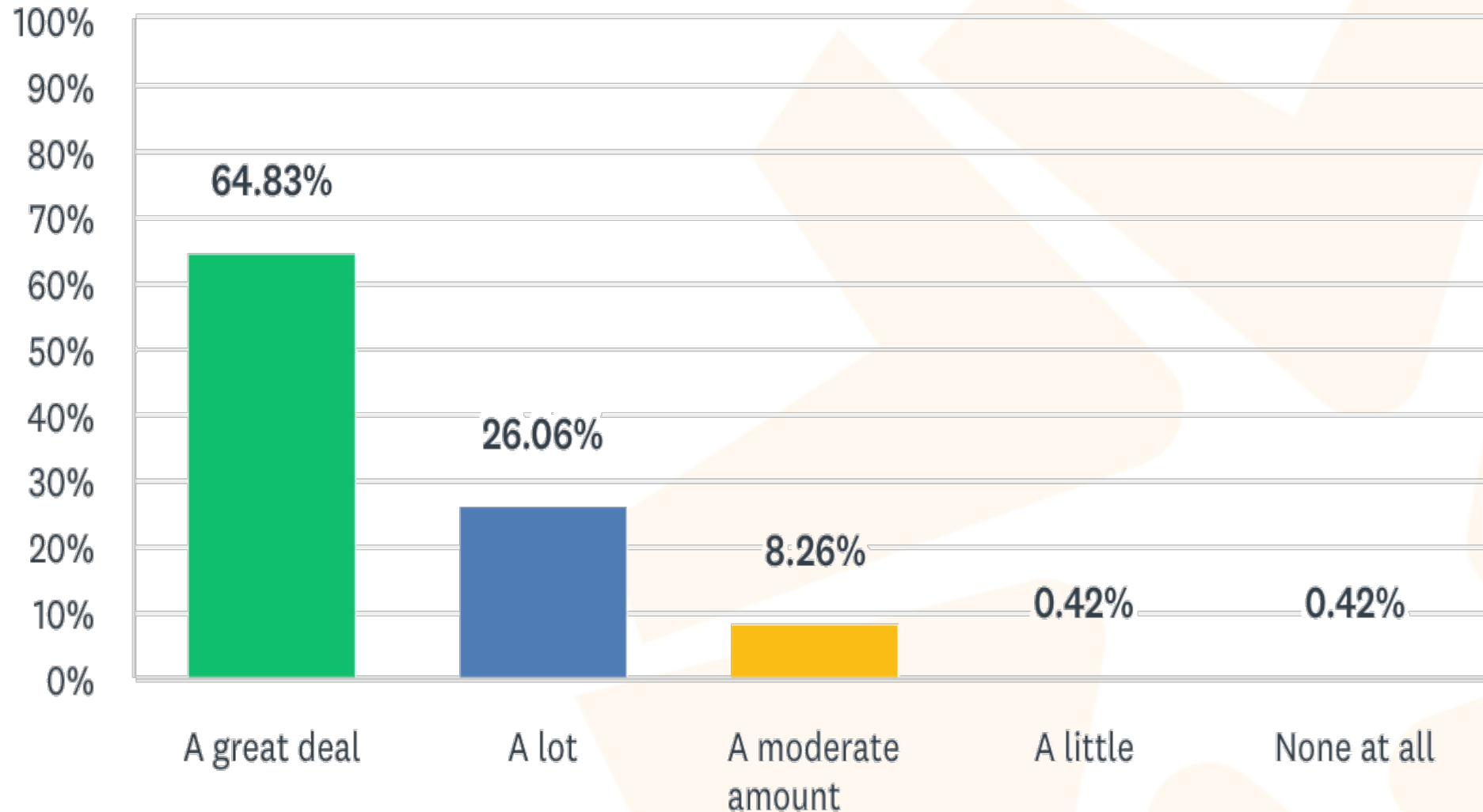
Results from a survey
I conducted in 474 clinicians

‘In your opinion when a patient suffers from psychiatric disorders, how is their humor impacted?’

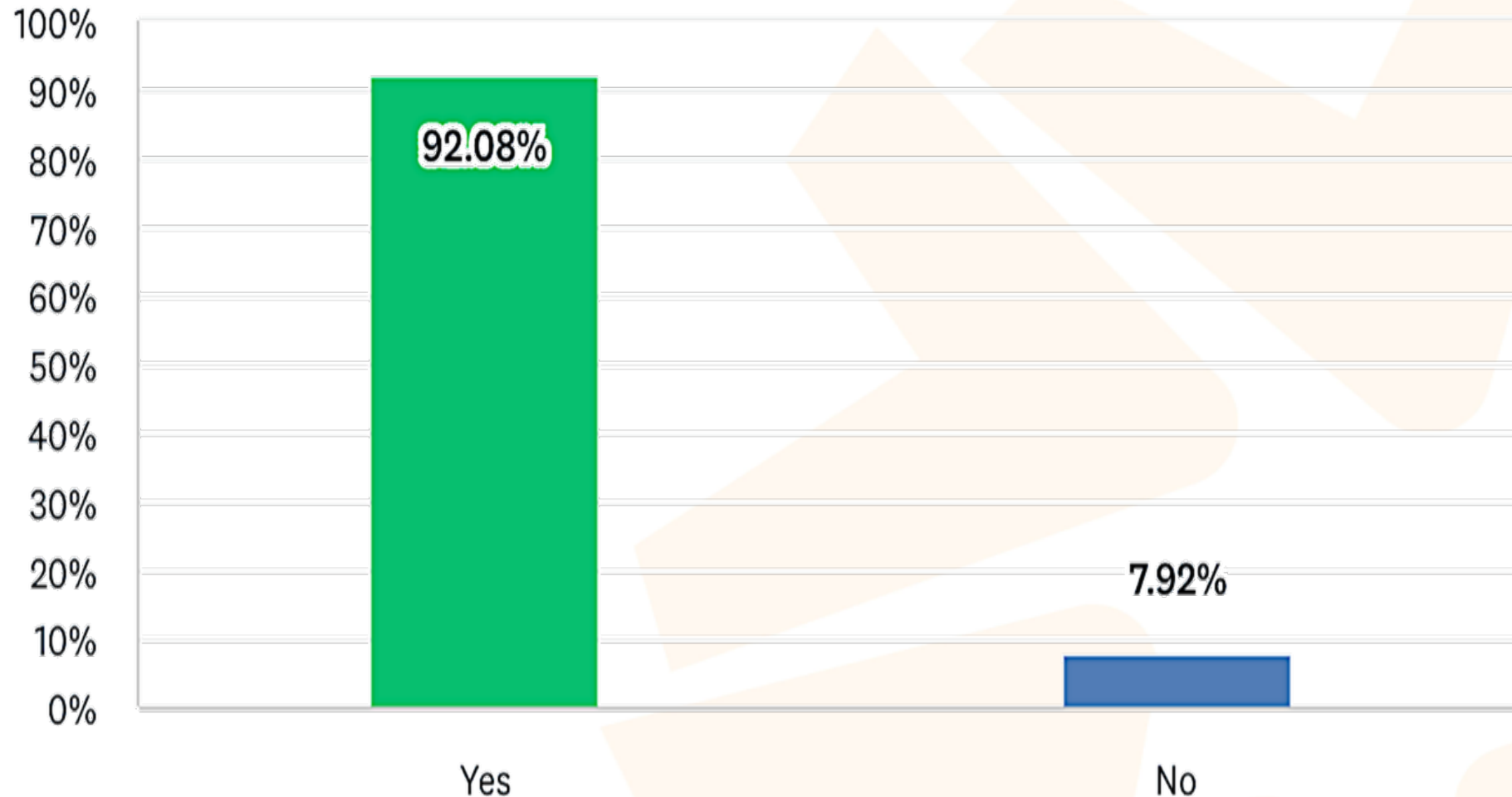


Results from a clinician survey conducted anonymously by Rakesh Jain, MD in 474 clinicians. Accessed April 16, 2022

‘Do you believe humor improves mood and decreases sadness?’

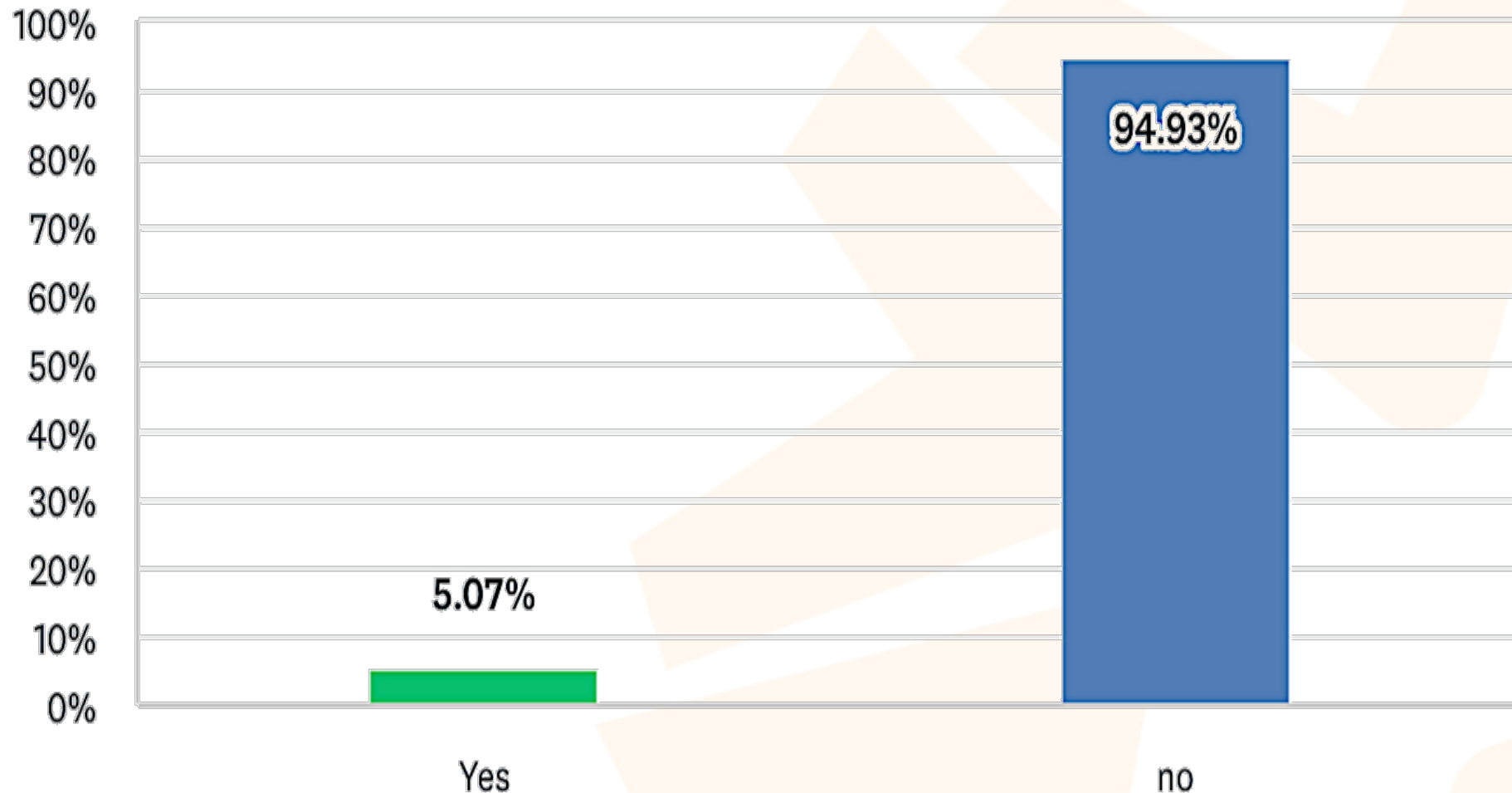


‘Do you think your patients will be receptive if you were to offer them a humor-based intervention or psychotherapy?’



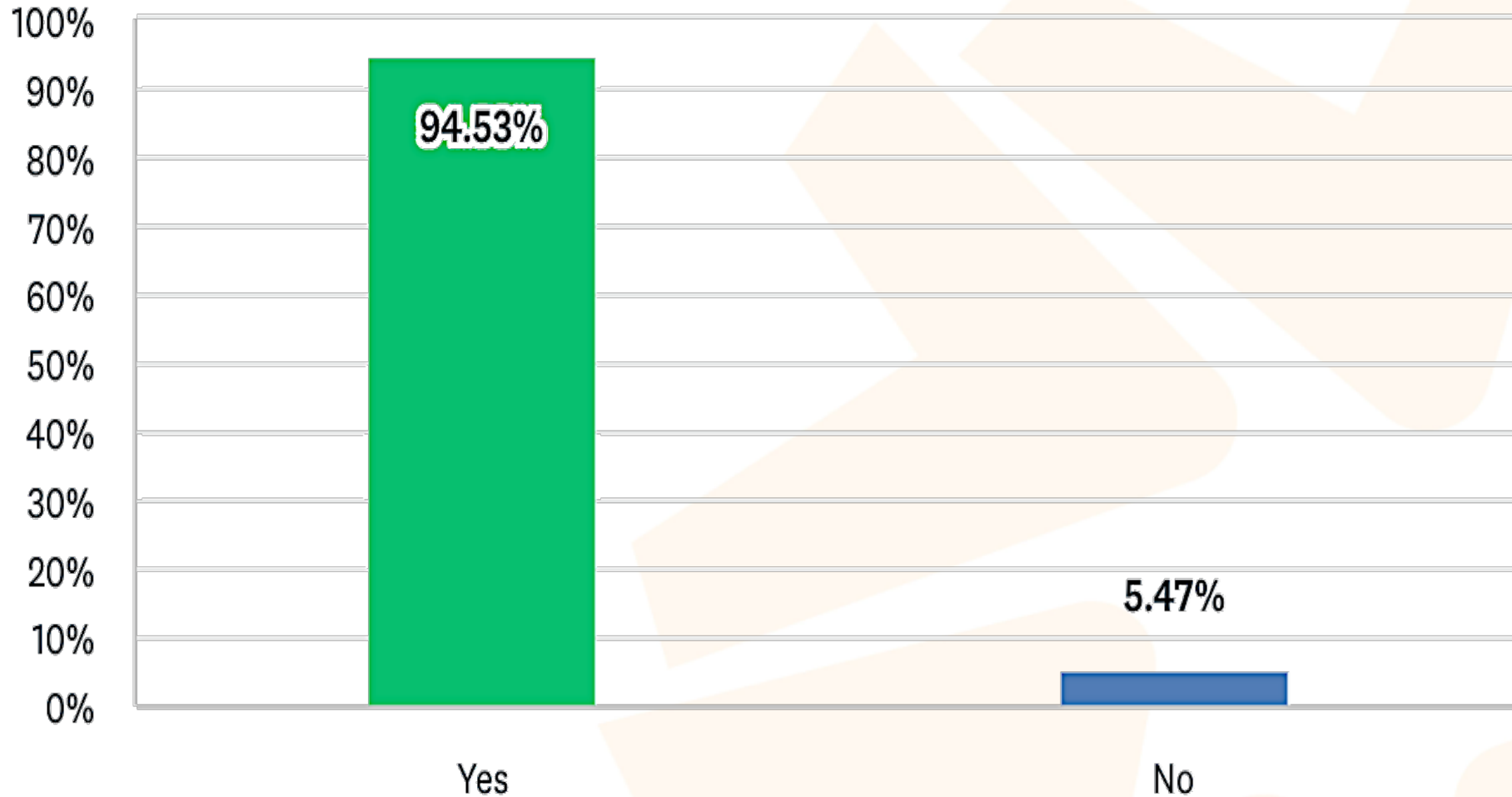
Results from a clinician survey conducted anonymously by Rakesh Jain, MD in 474 clinicians. Accessed April 16, 2022

‘In your professional training as a clinician, did you receive any formal education or training in humor-based interventions or psychotherapy?’

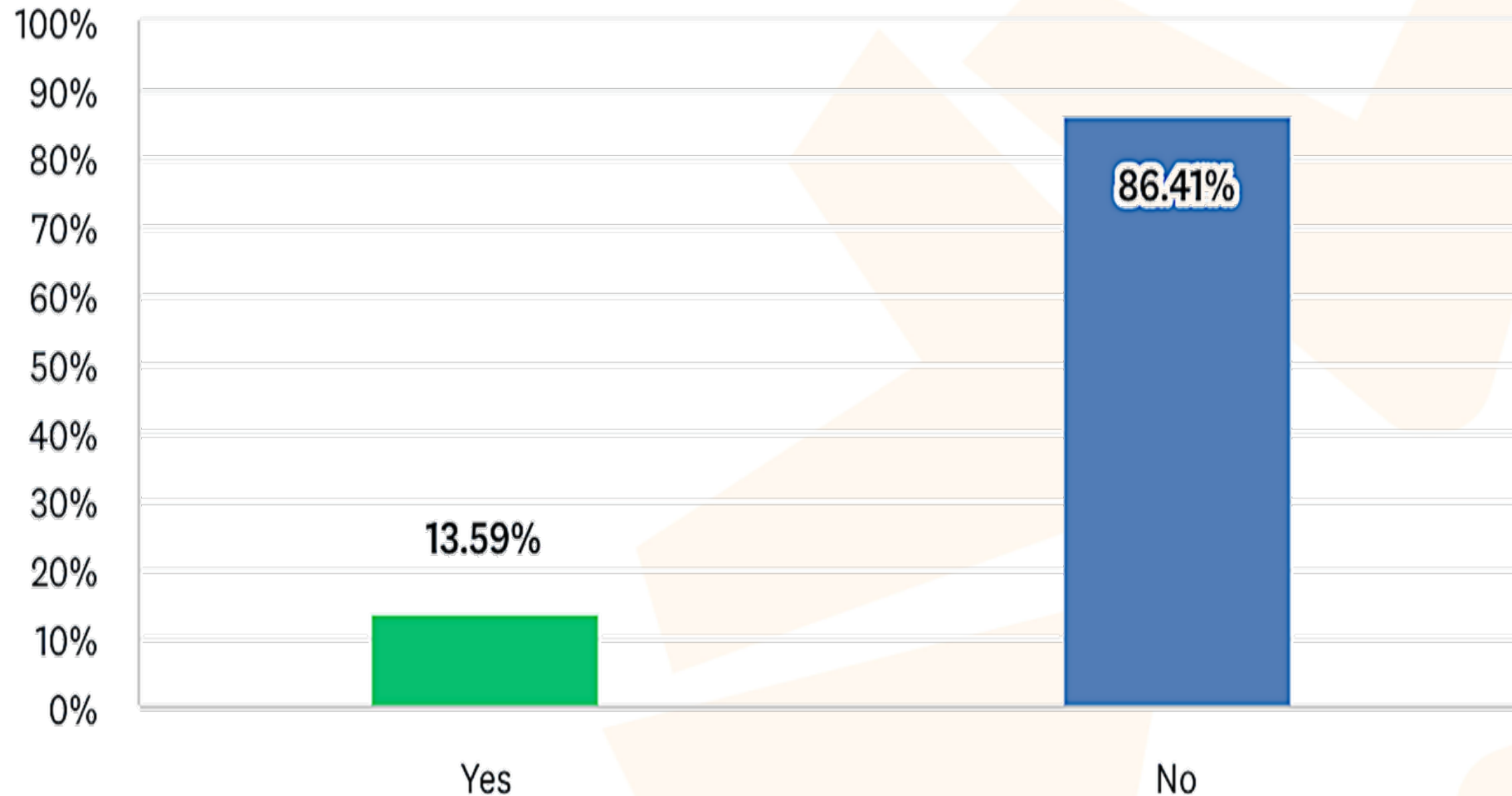


Results from a clinician survey conducted anonymously by Rakesh Jain, MD in 474 clinicians. Accessed April 16, 2022

‘Would you be interested in learning more about humor-based psychotherapy?’



‘In your current clinical practice do you offer any formal humor-based interventions or psychotherapy?’



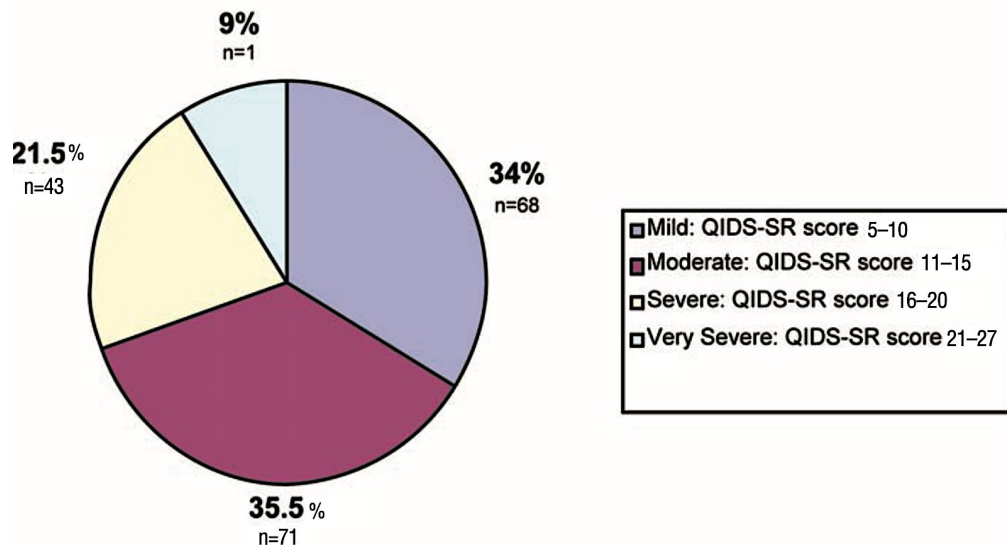
Results from a clinician survey conducted anonymously by Rakesh Jain, MD in 474 clinicians. Accessed April 16, 2022

So It's True –
Psychiatric Disorders Are Indeed
'Humor Deficit Disorders'

Question to Ask Ourselves:
*Do Psychiatric Disorders 'Destroy' the Ability to
Enjoy and Appreciate Humor?*

Answer – No. In Depression, the Underlying Ability to Experience Humor is Unchanged

Level of Depression Severity among Study



Parameter	Perception of Humorous Messages (SHQ M)	Perception of Humorous Situations (SHQ L)	Personal Expression of Humor (SHQ E)	Disposition Toward Humor (DTH)	Sense of Humor (Total SHQ)
Mean Score	21	19.3	17	22.6	57.3
Standard Deviation	4.3	3.8	2.7	3.7	7.3
% of Maximum Possible	75%	68.90%	60.70%	80.70%	68.20%
Correlation with QIDS score	$r=-0.28$	$r=-0.12$	$r=-0.03$	$r=-0.20$	$r=-0.22$

- There was no statistically significant correlation between disposition toward humor and depression
- Nor was there a statistically significant correlation between depression and any parameter of the humor scale

Moreover...Depressed Patients Did Not See Their Clinicians Who Use Humor As A Negative

DISPOSITION TOWARD HUMOR QUESTIONNAIRE (DTH)

1. Laughing can be a good way to relieve depression
strongly disagree 1 2 3 4 strongly agree

2. Laughter and humor are inappropriate during a therapy session
strongly disagree 4 3 2 1 strongly agree

3. A therapist using humor during a session does so to cover up his or her own true feelings
strongly disagree 4 3 2 1 strongly agree

4. How caring and concerned is a therapist who makes jokes during a session?
very much 4 3 2 1 not at all

5. How professional is a therapist who makes jokes during a session?
very professional 4 3 2 1 not at all professional

6. Sharing humor and jokes is a good way for doctor and patient to relate to each other
strongly disagree 1 2 3 4 strongly agree

7. Humor is a powerful tool in relieving sadness
strongly disagree 1 2 3 4 strongly agree

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Conclusion:

“The study findings support the basis for clinicians to consider humorous interventions, as many patients might appreciate humor being incorporated into their treatment at appropriate times”



Lesson for All of Us –
*Humor Enhances and Improves The Quality of the
Patient-Clinician Relationship*

Take Home Message:

A lack of correlation between disposition toward humor and depression suggests that **MDD does not intrinsically alter one's disposition toward humor.**

Moreover...

There was no correlation between humor and age, gender, or race/ethnicity.



Humor, What Have You Done For Me Lately??

The Mind-Body Impact of Humor on Us Humans

The Known Scientific Benefits of Humor and Laughter

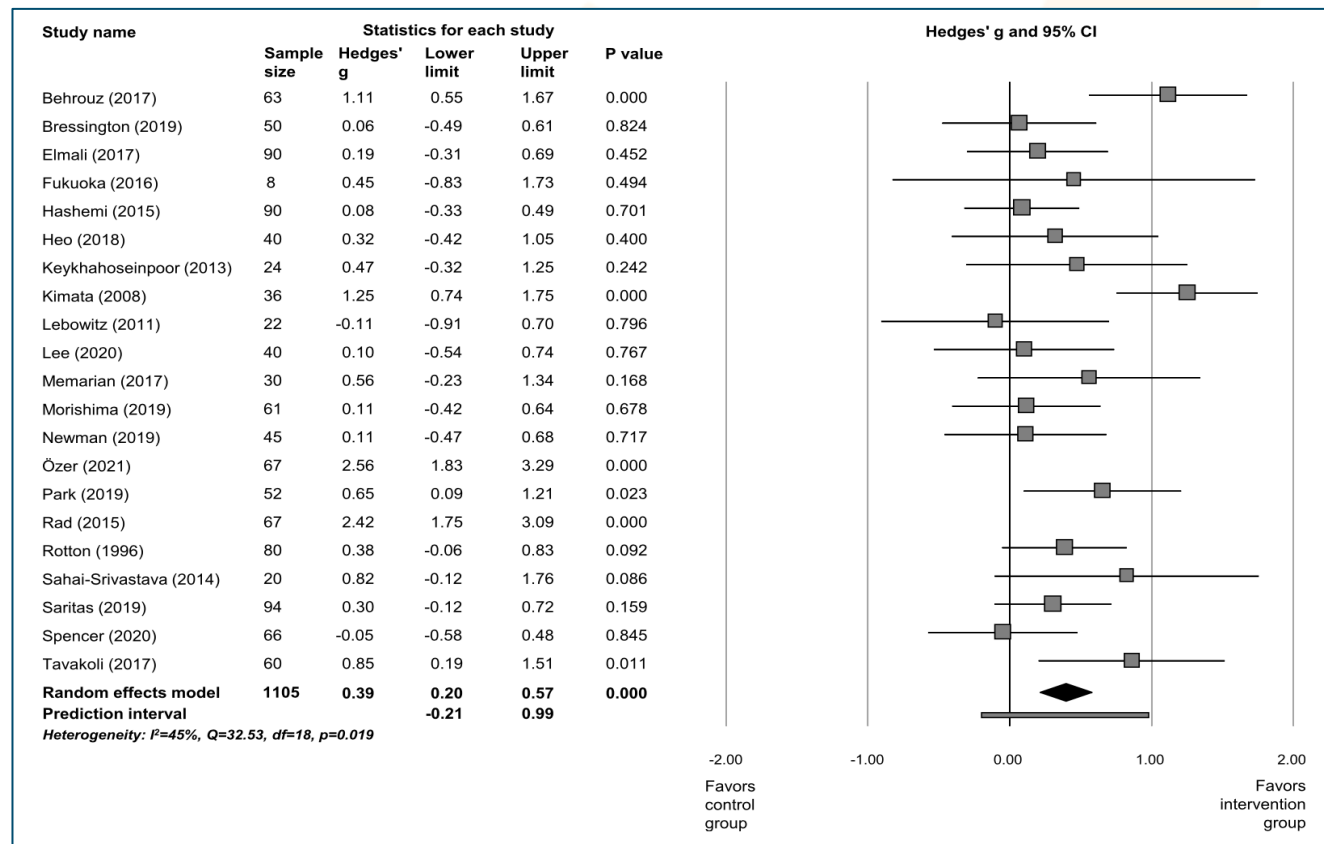


Let's Check Out the Most Recent Meta-Analysis of Laughter Inducing & Humor Studies

45 studies comprising 2,547 randomized participants

Stiwi K, et al. *Complementary Therapies in Clinical Practice* 2022. 47(101552). Accessed August 5, 2022.
<https://doi.org/10.1016/j.ctcp.2022.101552>

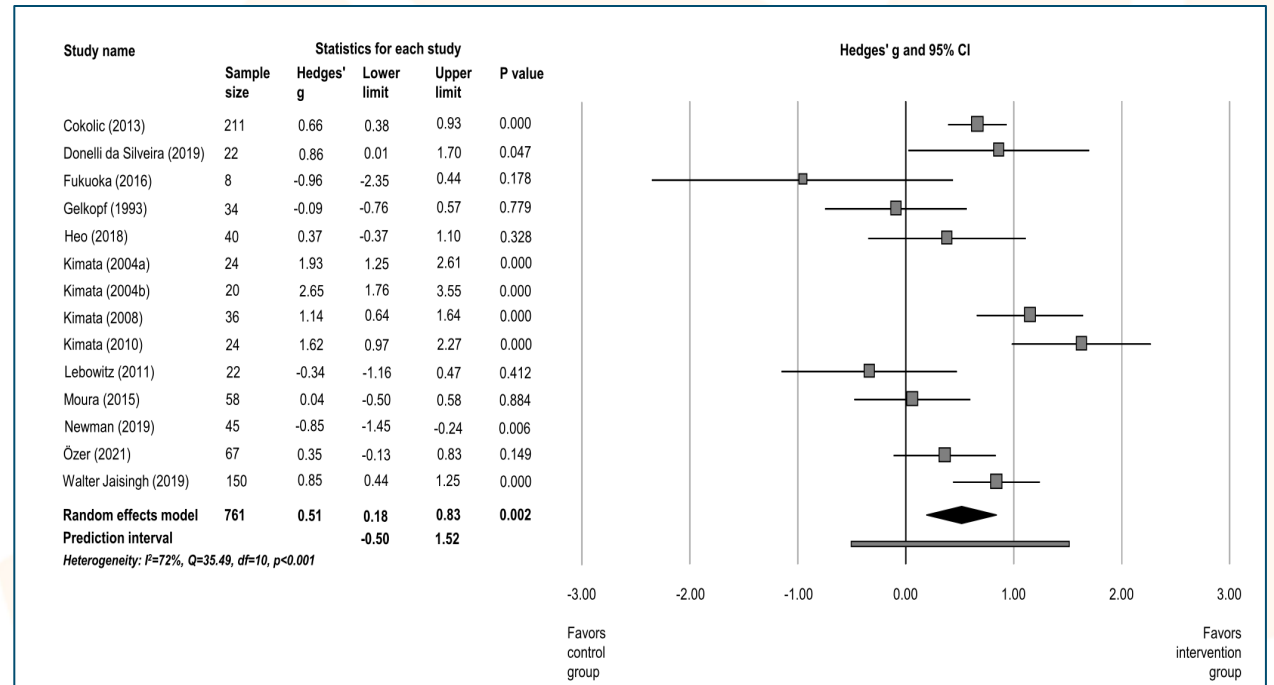
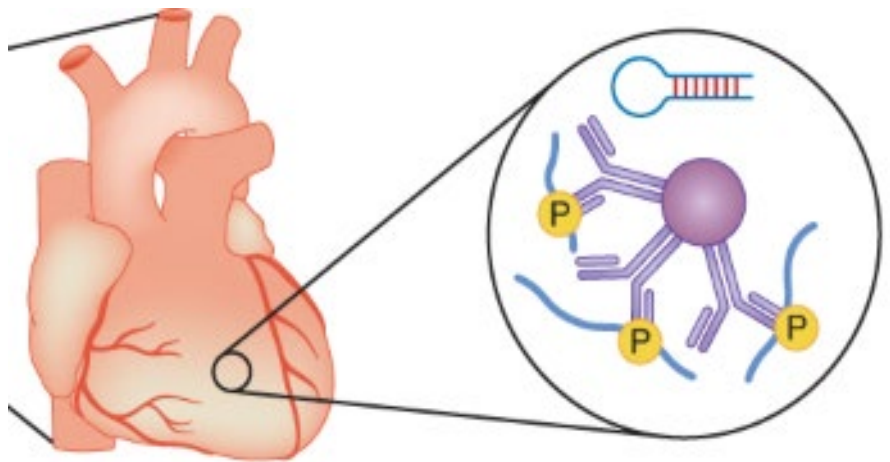
Humor's Impact on Physical Health



Physical Health (effect size = 0.59, $p < 0.001$)

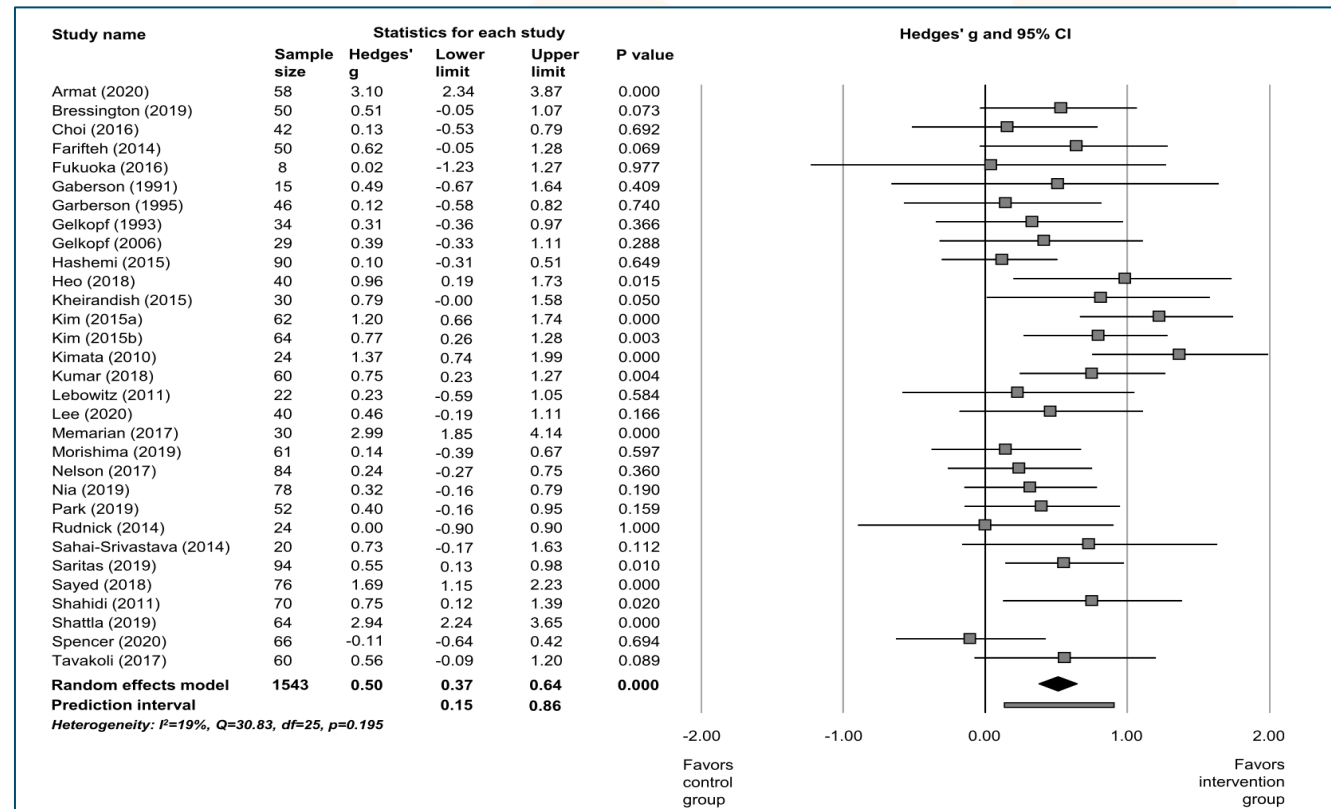
Humor's Impact on Physiologic Health

Physiological benefits have been observed involving the muscular, cardiovascular, respiratory, endocrine, immune, and central nervous systems.



Physiological Outcomes (effect size = 0.61, $p < 0.001$)

Humor's Impact on Mental Health



Mental Health (effect size = 0.74, $p < 0.001$)

6 Mental Health Benefits from Enhanced Humor

- 1) Positive social and emotional functioning
- 2) Relationships with other people
- 3) Social support
- 4) Attractiveness
- 5) Psychological well-being
- 6) Coping abilities



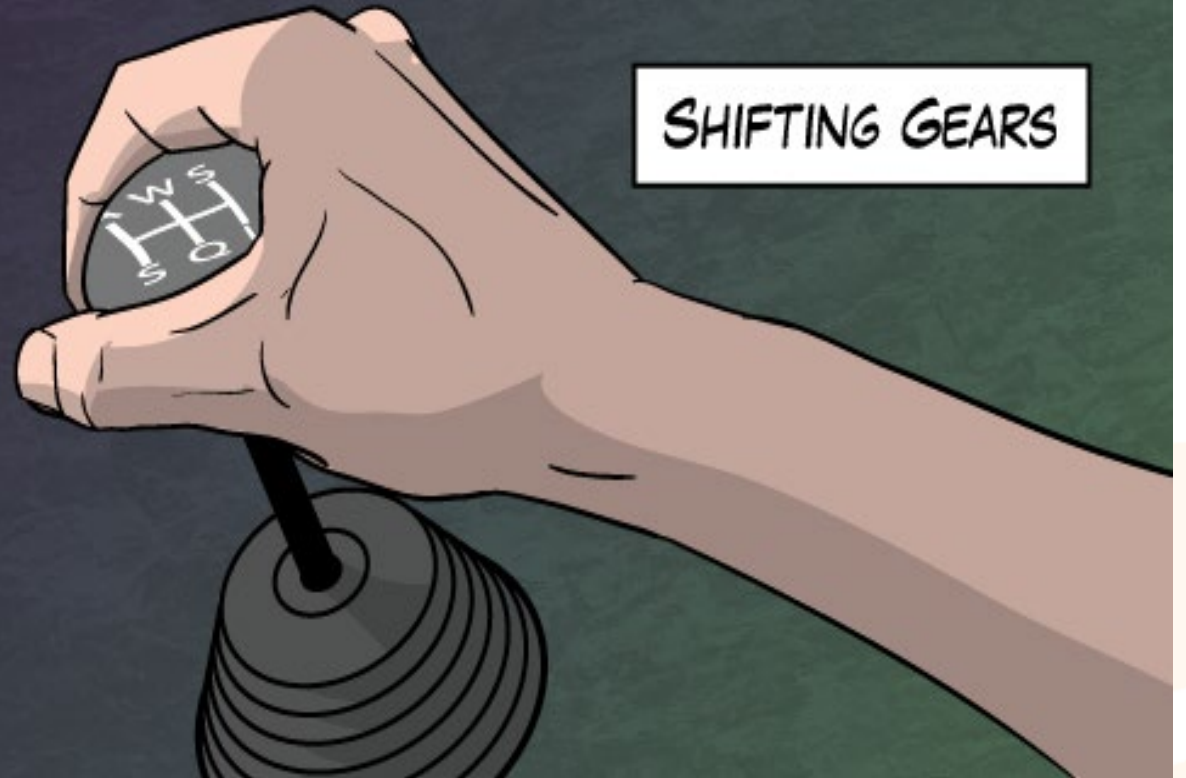
Berger P, et al. (2021) *Humor in Psychiatry: Lessons From Neuroscience, Psychopathology, and Treatment Research*. *Front. Psychiatry* 12:681903. Martin RA. *The Psychology of Humor : An Integrative Approach*. Burlington, MA: Elsevier Academic Press (2007). Dyck KTH, et al. Understanding humor styles and well-being: the importance of social relationships and gender. *Person Individ Diff*. (2013) 55:53–8. doi: 10.1016/j.paid.2013.01.023. Greengross G, et al. Humor ability reveals intelligence, predicts mating success, and is higher in males. *Intelligence*. (2011) 39:188– 92. doi: 10.1016/j.intell.2011.03.006. Howrigan DPP, et al. Humor as a mental fitness indicator. *Evol Psychol*. (2008) 6:652–66. doi: 10.1177/147470490800600411. Falkenberg I, et al. Sense of humor in patients with schizophrenia. *Schizophr Res*. (2007) 95:259– 61. doi: 10.1016/j.schres.2007.06.006. Uekermann J, et al. Executive function, mentalizing and humor in major depression. *J Int Neuropsychol Soc* . (2008) 14:55–62. doi: 10.1017/S1355617708080016. Abel MH. Humor, stress, and coping strategies. *Humor*. (2002) 15:365–81. doi: 10.1515/humr.15.4.365. Nezlek JB, et al. Use of humor as a coping mechanism, psychological adjustment, and social interaction. *Humor*. (2001) 14:395–413. doi: 10.1515/humr.2001.011.

So, in Conclusion – The World's Largest and Most Recent Meta-analysis of Laughter/Humor Rx. Reveal...

Significant positive, medium-sized effects in comparison to control groups:

- Mental health (effect size = 0.74, $p < 0.001$)
- Physiological outcomes (effect size = 0.61, $p < 0.001$)
- Physical health (effect size = 0.59, $p < 0.001$)

At This Point,
Let's Shift Gears



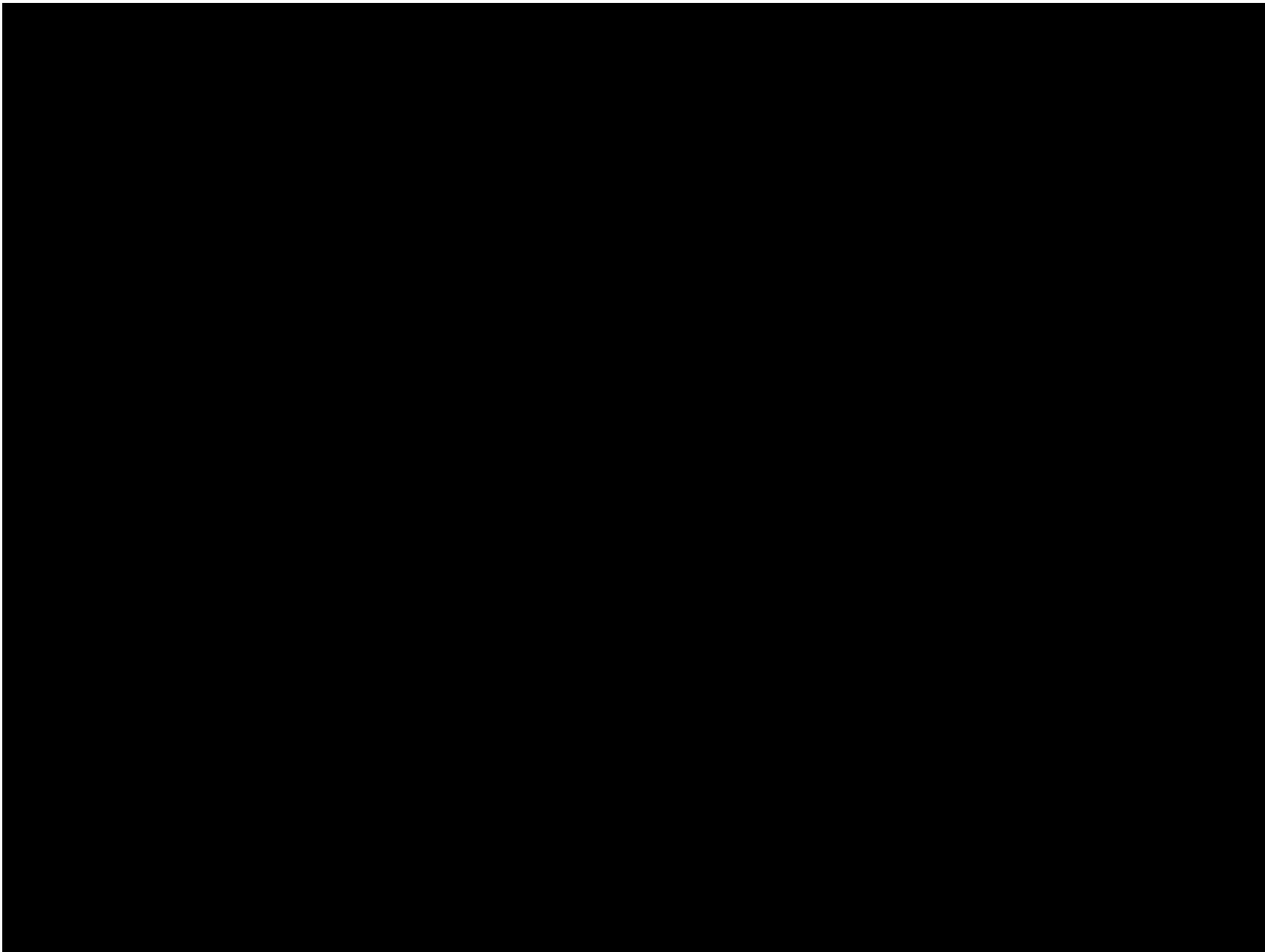
SHIFTING GEARS

Let's Talk About the Neurobiology of Humor



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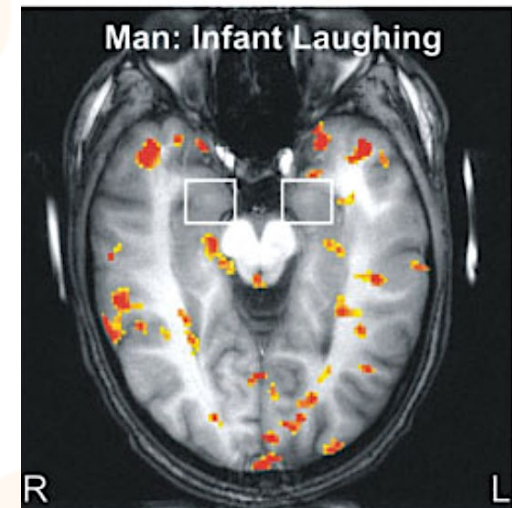
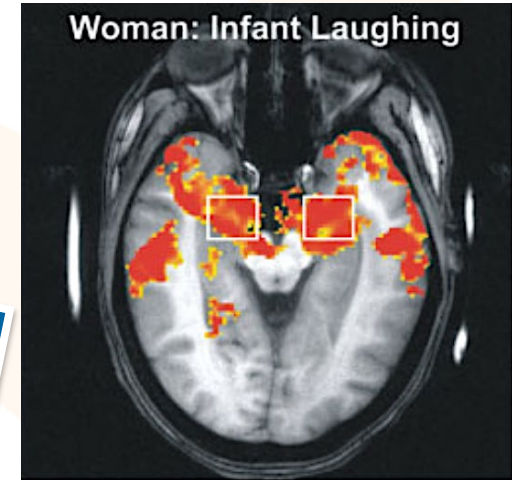
But First, to Better Understand the Neurobiology of
Humor and Laughter, Let's Watch this Video



Babies Laughing - ModernMom Top 10. Accessed August 4, 2022: https://youtu.be/f_qmU8r75Bk

This is What Happened in Our Brains *Just Now* -

fMRI study of listening to Natural samples of continuous laughing of preverbal infants. (9 females, 9 males)



Areas of Activation:
DL-PFC, Amygdala, Auditory Cortex
Posterior Cingulate Cortex (PCC)
and Anterior Cingulate Cortex
(ACC)

Take Home Message:
Humor is a Direct Suppressor of
Anhedonia and Rumination



The Impact of Culture and Age on Humor

Results – Culture and Age Don't Change the Positive Relationship Between Subjective Well-Being (SWB) and Humor



Meta-analysis of 85 studies

- Meta-analysis results indicate that affiliative and self-enhancing humor enhances SWB, whereas aggressive and self-defeating humor damages SWB.
- Culture and age do not moderate the relation between humor styles and SWB.

SWB (positive facet)

	Average			
	<i>k</i>	<i>N</i>	<i>r</i>	<i>p</i>
Adaptive humor	63	23,197	0.225	0.227***
Maladaptive humor	59	21,361	-0.114	-0.124***

SWB (negative facet)

Adaptive humor	59	19,225	-0.167	-0.160***
Maladaptive humor	56	18,602	0.173	0.181***

SWB = Subjective Well Being

Jiang F, et al. *Front. Psychol.* 2020. 11:2213. doi: 10.3389/fpsyg.2020.02213

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Take Home Message:
*'Being Funny' is Not a Requirement to
Enjoy and Benefit from Humor*



Dangers and Pitfalls of Humor

*Yes, Humor Does Have a Dark Side
(and it must be avoided)*

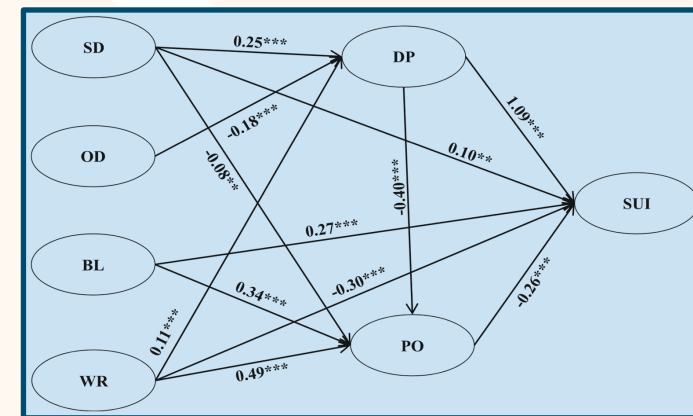
Styles of Humor: Impact on Mood (Positive and Negative) and Suicidal Ideations



4 Different Humor Styles Were Assessed:

- 1) Self-deprecating humor expression
- 2) Other-devaluing humor expression
- 3) Body language humor expression
- 4) Witty response humor expression

Self-deprecating Vs. Witty



p < 0.01; *p < 0.001

SD = self-deprecating; OD = other-devaluing; BL = body language; WR = witty response; DP = depressive emotion; PO = Positive emotion; SUI = Suicidal ideation.

Lee et al. *BMC Psychiatry* (2020) 20:421 <https://doi.org/10.1186/s12888-020-02814-7>.

Humor Deficit Disorder (HDD) *(I just made this up!)* Is an Associated Feature of Depression

- Self-report and experimental studies typically show a tight link between conditions of negative mood states, and the aberrant perception of humor
- Ability to adequately respond to humor and the use of humor as a coping strategy are related to depression scores
- Conversely - the *use* of adaptive humor in everyday social interaction has been observed to be inversely related with vulnerability to depression



Take Home Message:

Humor Deficit Does Occur in MDD

Humor is Not Absent - It's Just Dormant



Question for Us:
Can Humor Be Taught or
Enhanced in Our Patients?

The McGhee Humor Training Program

Step	Titel
1	Surround yourself with humor you enjoy. Determine the nature of your sense of humor.
2	Learn to adopt a playful attitude. Overcome terminal seriousness
3	Laugh more often and more heartily. Begin telling jokes and funny stories
4	Play with language, puns and other verbal humor
5	Find humor in everyday life
6	Take yourself lightly. Laugh at yourself
7	Find humor in the midst of stress
8	Using humor to survive and cope



Results of a Pilot Study Using The McGhee Humor Training Program

6 in-patients with MDD.

8 Weekly group classes following the McGhee Program

	Mean (S.D.) before training	Mean (S.D.) after training	Z	P value	Cohen's d
BDI	18.6 (9.1)	13.5 (8.8)	-1.4	0.17	0.72
CHS	16.0 (4.1)	19.0 (3.8)	-1.6	0.10	0.75
STCI-S					
Cheerfulness	19.0 (4.9)	27.5 (8.2)	-2.2	0.03	1.2
Seriousness	32.0 (4.7)	24.0 (3.7)	-2.2	0.03	1.9
Bad mood	25.5 (7.5)	18.0 (9.2)	-2.2	0.03	0.9
STCI-T					
Cheerfulness	46.5 (11.3)	64.5 (12.9)	-1.9	0.05	1.48
Seriousness	51.0 (5.4)	47.5 (6.5)	-1.9	0.05	0.59
Bad mood	54.0 (12.8)	45.0 (13.0)	-1.57	0.12	0.69

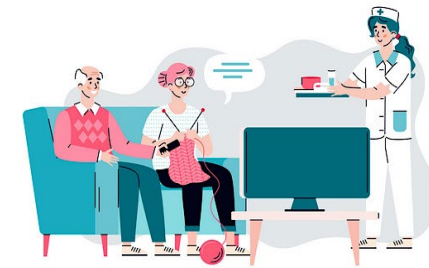
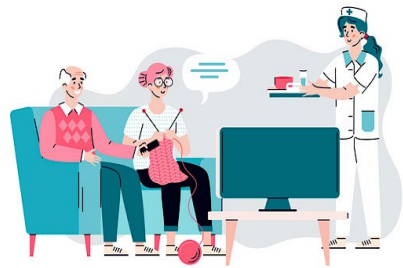
BDI = Beck Depression Inventory

STCI = State-Trait Cheerfulness Inventory

CHS = Coping Humor Scale

Results - 

Humor Interventions in the Elderly: Impact on Mood, Wellness, and Pain



Does Humor Training in a Nursing Home Help?

Yes – Very Much So

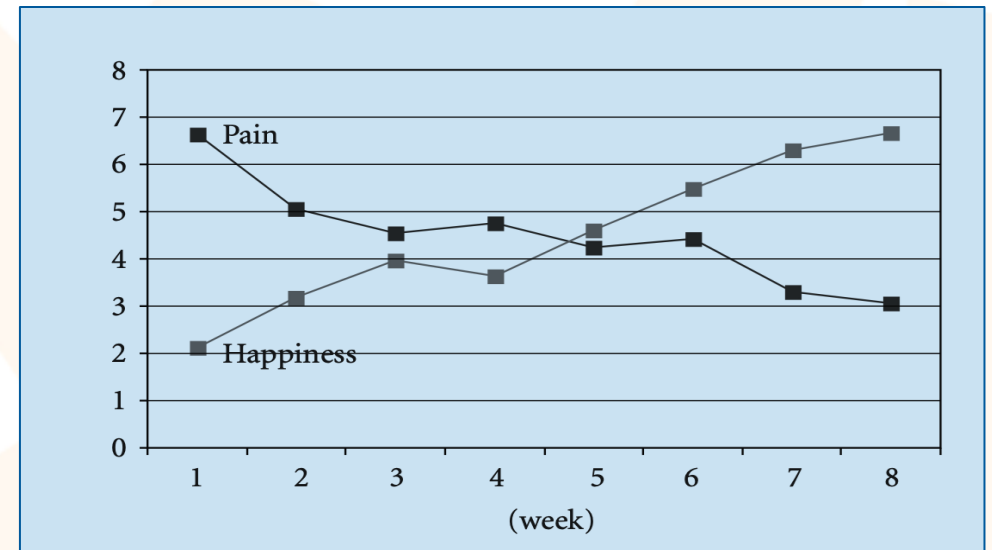
8-week program involving one hour per week.

In the first week, each participant would receive a portfolio called “My Happy Collection”.

The research team would work with the participants to design and make entries in the portfolios, with funny books and photos, jokes, funny audio tapes and videos, comedy clips and cartoons, and funny and interesting news clips, articles, stories and reflections. Their portfolios were reviewed every week,

From week 2 to week 8, each session started with a joke of the day and the reading of funny jokes and stories; lectures on humor research were then given.

Participants in the therapy group were also shown how to give higher priority to humor in their everyday lives, laughing exercises and games, sharing of their own funny stories, magic shows, and hot tips to stimulate humor and joy.



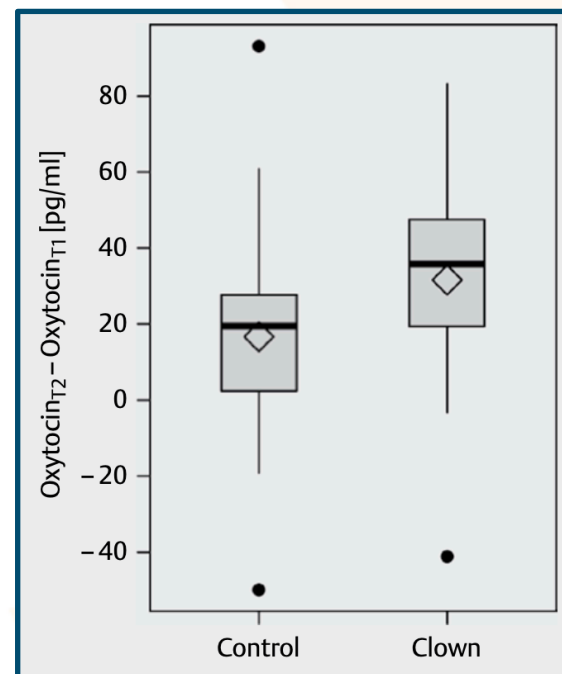
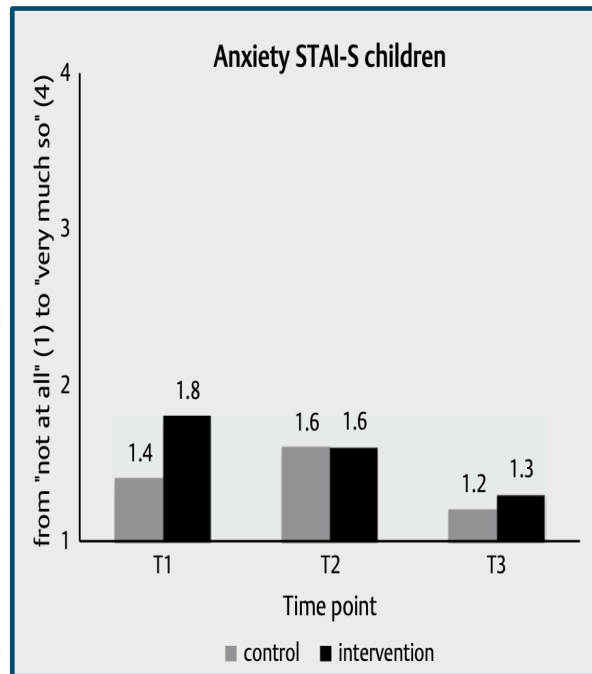
Upon completion of the humor therapy program, there were significant decreases in pain and perception of loneliness, and significant increases in happiness and life satisfaction for the experimental group, but not for the control group.



Humor Interventions in Very Young Children

Humor Helps Children Too & Elevates Oxytocin (especially when they are under stress)

Randomized intervention - control group design with 31 children aged 4 to 13 years. 17 patients were accompanied by a clown prior to surgery or during ward round (intervention group) and 14 were not.

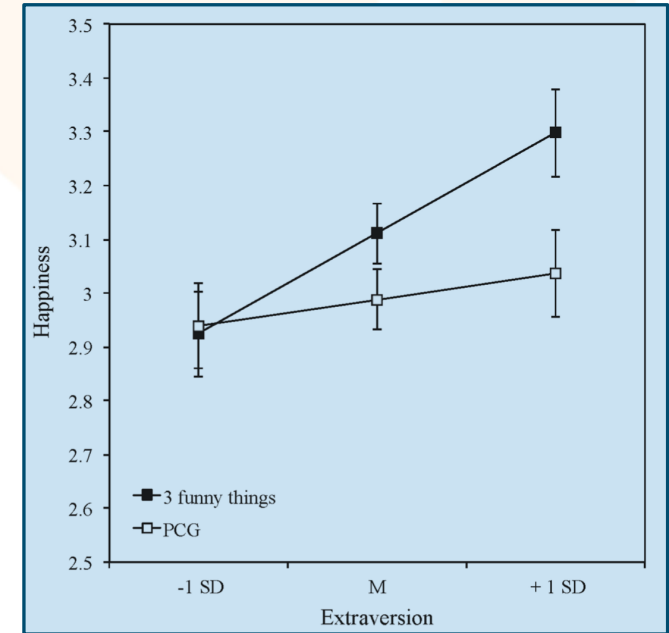
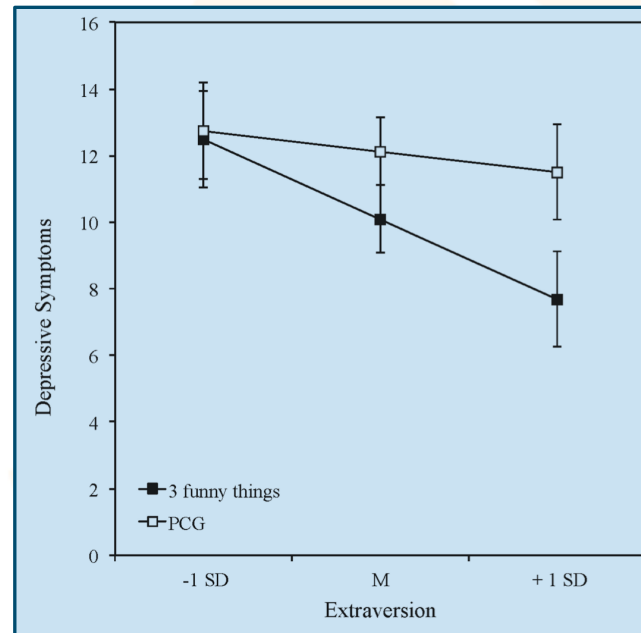


- Children in the intervention group had lower anxiety ratings and a higher oxytocin concentration
- Parents rated the well-being of their children higher if their child had clown's contact and were more willing to recommend the hospital.

Extremely Small Humor Based Interventions Lead to Large (and Enduring) Changes

104 women who completed all follow-up assignments in the three funny things intervention ($n = 55$) or the placebo control condition ($n = 49$) in the study

Participants were asked to write down three *funny* things that happened to them during the day. They subsequently received instructions for the intervention and conducted the intervention for the following seven consecutive days. After the intervention-week, as well as 1, 3, and 6 months after the intervention.



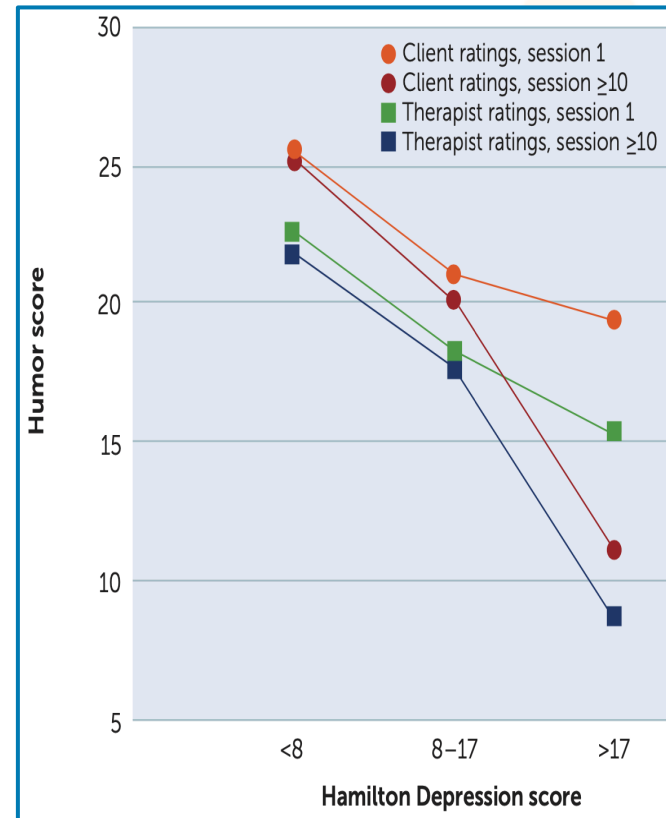
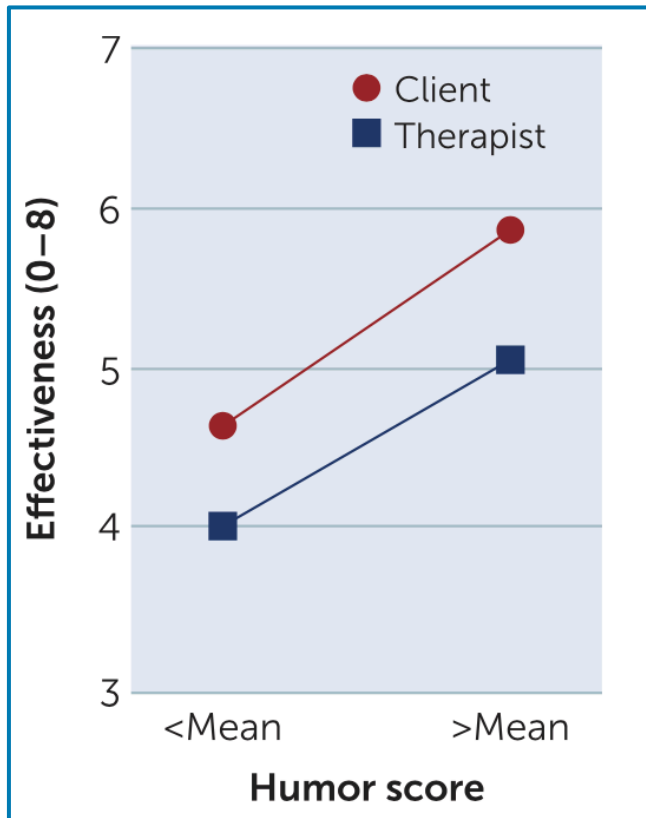
Note: humor-based interventions were equally suited for humorous and non-humorous people

Would The Use of
Humor by Us – HCPs -
In Clinical Encounters
Improve Outcomes?



Answer – Substantially!

Humor in Psychotherapy Appears to Lead to Improved Outcomes



This study examined the association between humor and therapy outcomes in a population of 110 adult psychotherapy clients who attended at least 10 therapy sessions.

A strong positive correlation was observed between humor and therapy effectiveness, from both client ($r = 0.40$; $p < 0.001$) and therapist perspectives ($r = 0.37$; $p < 0.001$).

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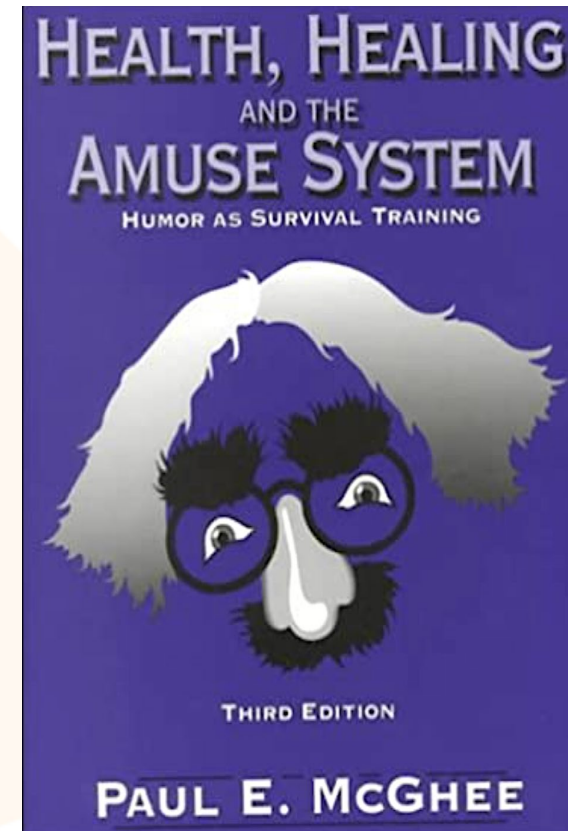
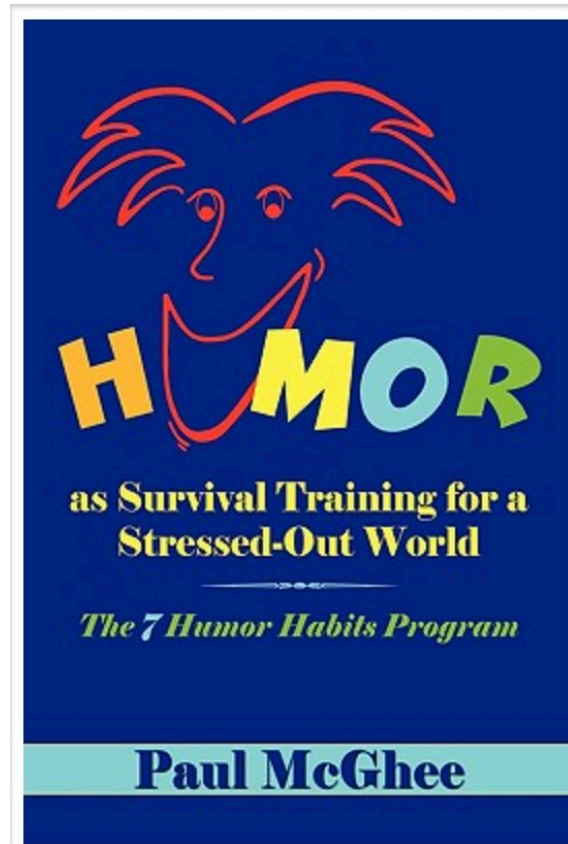
Practical Tips on Humor Enhancing Interventions

Clinicians!

It Would Be Ideal for Us to Sharpen Our Humor Skills Too!



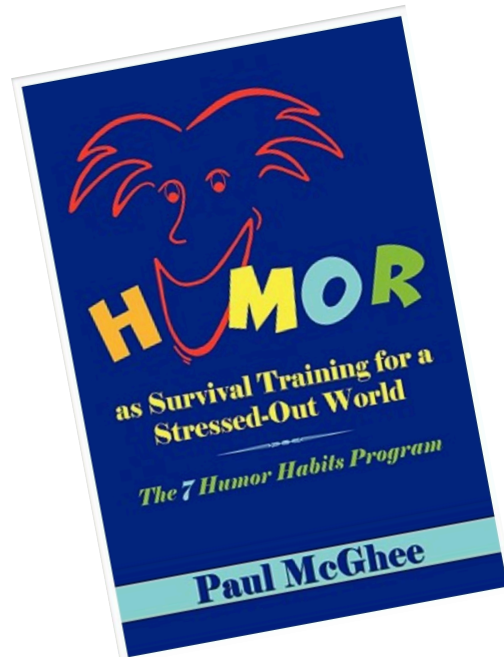
Manuel-Based Humor Therapy



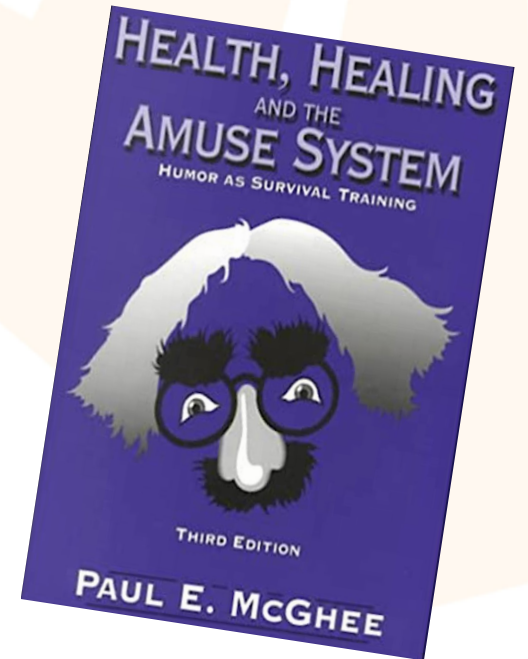
One way to include humor in daily psychiatric care is via the implementation of manual-based interventions

Falkenberg I, et al. Do depressed patients lose their sense of humor. *Psychopathology*. 2011;44(2):98-105. Rudnick A, et al. *Commun Ment Health J*. (2014) 50:737–42. doi: 10.1007/s10597-013-9685-4 .Cai C, et al. *J Psychiatr Res*. 2014;59:174–8. doi: 10.1016/j.jpsychires.2014.09.010

The McGhee Humor Training Program



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Encourage Patients To Consume Humor Both
Passively and Actively

Passive Consumption of Humor: A Few Suggestions

1. Watch sitcom shows (sipping humor, not binge watching!)
2. Video streaming services
3. YouTube
4. TikTok
5. Podcasts
6. Audio streaming services
7. Read humor books

Caution to offer patients – Not to use the above excessively, as escape tools, or to over consume screen time.

The background features several light orange, semi-transparent geometric shapes, including rectangles and rounded polygons, scattered across the white space. A solid dark blue horizontal band is positioned in the upper middle section of the slide.

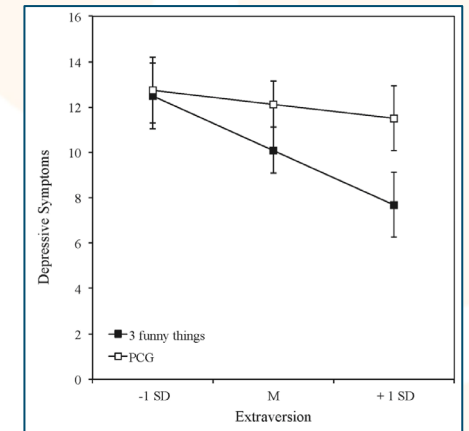
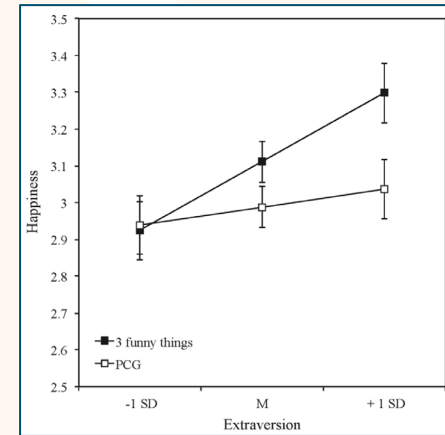
Active Interventions to Enhance Humor

Consider Using the '3 Funny Things' Intervention

104 women who completed all follow-up assignments in the *three funny things*-intervention ($n = 55$) or the placebo control condition ($n = 49$) in the study



Participants were asked to write down three *funny* things that happened to them during the day. They subsequently received instructions for the intervention and conducted the intervention for the following seven consecutive days. After the intervention-week, as well as 1, 3, and 6 months after the intervention.



Note: humor-based interventions were equally suited for humorous and non-humorous people

Educate Patients about the 4 Styles of Humor

4 STYLES OF HUMOR

(IN ORDER OF APPROPRIATENESS AT WORK)



Goal of this Active Intervention

- Get clients to start thinking about various humor styles
- Help them examine their current humor style
- And gently advise they move towards more Self-enhancing and Affiliative Humor (and to avoid self defeating and aggressive humor)

INTRODUCING: HaHa-7 Humor Enhancement Program

If you want access, it's here:

<https://www.JainUplift.com>

www.JainUplift.com



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Humor

HaHa-7 Humor Enhancement Program

Coping with Humor Scale (CHS)

Think of the last 7 days as your answer these questions


		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	I often lose my sense of humor when I am having problems	5	4	3	2	1
2	I have often found that my problems have been greatly reduced when I try to find something funny in them	1	2	3	4	5
3	I usually look for something comical to say when I am in tense situations	1	2	3	4	5
4	I must admit my life would probably be a lot easier if I had more of a sense of humor	5	4	3	2	1
5	I have often felt that if I am in a situation where I have to either cry or laugh, it's better to laugh	1	2	3	4	5
6	I can usually find something to laugh or joke about even in trying situations	1	2	3	4	5
7	It has been my experience that humor is often a very effective way of coping with problems	1	2	3	4	5
Add Each Column						
Total Score		_____				

HaHa-7

Humor Appreciation for Health Advantages - 7

Humor Development Program

Rakesh Jain, MD, MPH
Saundra Jain, PsyD, LPC



HaHa-7 Humor Enhancement Program

Styles of Humor: *There are 4 Styles of Humor*



Ask Yourself Two Questions:

1. Which style of humor do I mostly use?

2. Is there a need for me to enhance 'affirmative' sense of humor, and decrease 'aggressive' and 'self-defeating' sense of humor?

Introduction to the HaHa-7 Humor Enhancement Program

HaHa-7

Humor Appreciation for Health Advantages-7

Ground Rules

1. Look for funny things in day to day living.
2. Know a few jokes. Share them!
3. Never be hurtful or mean with jokes.
4. Always be ready to break into a smile.
5. Look, listen, read. Humor is everywhere if we look.
6. Use passive and active ways to enhance your 'humor attitude'.
7. Always laughs at others' jokes!

HaHa-7 Humor Enhancement Program

HaHa-7 Program

Day 1

1. Today, wear a half smile on your face.
2. Today, have an 'attitude of humor'.
3. Today, learn a joke. Share it with at least two other people.
4. Today, passively consume humor. Read, listen to or watch something funny for a few minutes.
5. Today's exercise, **Three Funny Things**:
Think about, and then write down, three funny things that happened today. If you have a 'humor buddy', share it. Remember, when humor is shared, it doubles in value!

a) _____

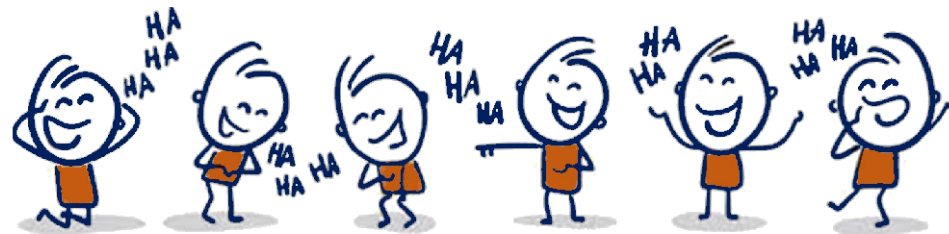
b) _____

c) _____

In Conclusion: Let The Lifelong Humor and Laughter- Filled Journey Start!

Please consider writing down what you've learned and taught yourself by engaging in the HaHa-7 Humor Enhancement Program. How did your 'before and after' scale scores change? Honor those lessons! *And let's remember, a life filled with humor, laughter and joy is a life well-lived.*

Please write down your learnings below:



Expect Clients to Say –
“But, But...I’m Not Funny!”

Newsflash –

**The is no need to ‘be funny’ to
derive maximize benefit from
humor!**



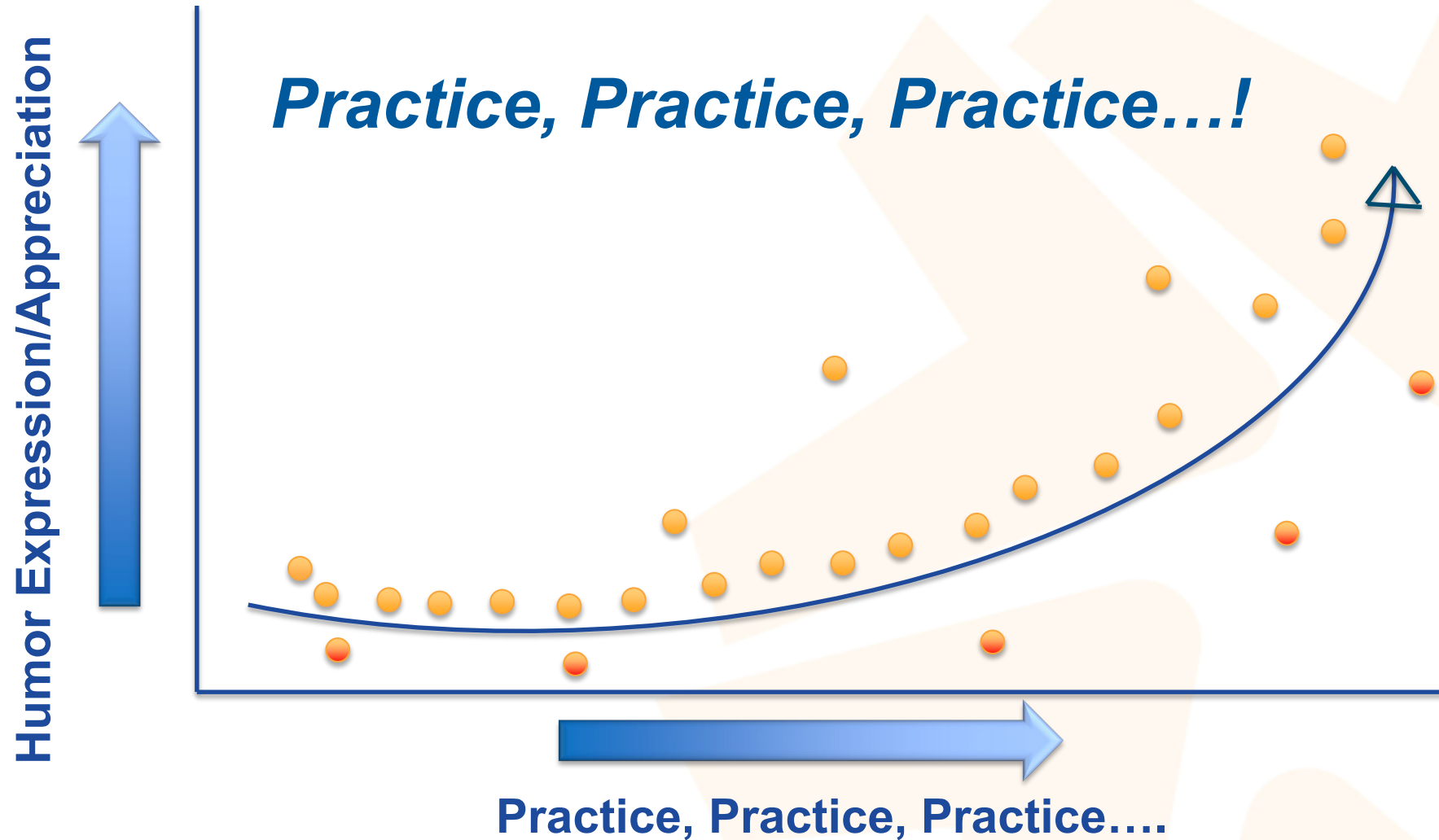
Take Home Message:

There is no need to try and invent a new kind of humor for people with Depression

Rather, it's teaching them to use and appreciate humor more

How Does One Get Better at Humor?

The Same Way One Gets to Carnegie Hall



In Summary

Have an Attitude of Gratitude ~~& Humor!~~

1. Humor Deficit is a problem in psychiatric disorders
2. Humor elevating interventions appear effective and offer a broad range of mind-body benefits

Good

Always laugh when you can. It is cheap medicine.

— Lord Byron



Q&A

