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The Science of Spirituality and Healing: The NIH-HEALS Tool



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The Science of Spirituality and Healing: The National Institutes of Health

Healing Experience of All Life Stressors
(NIH-HEALS): A measure of psycho-social-spiritual healing

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No disclosures





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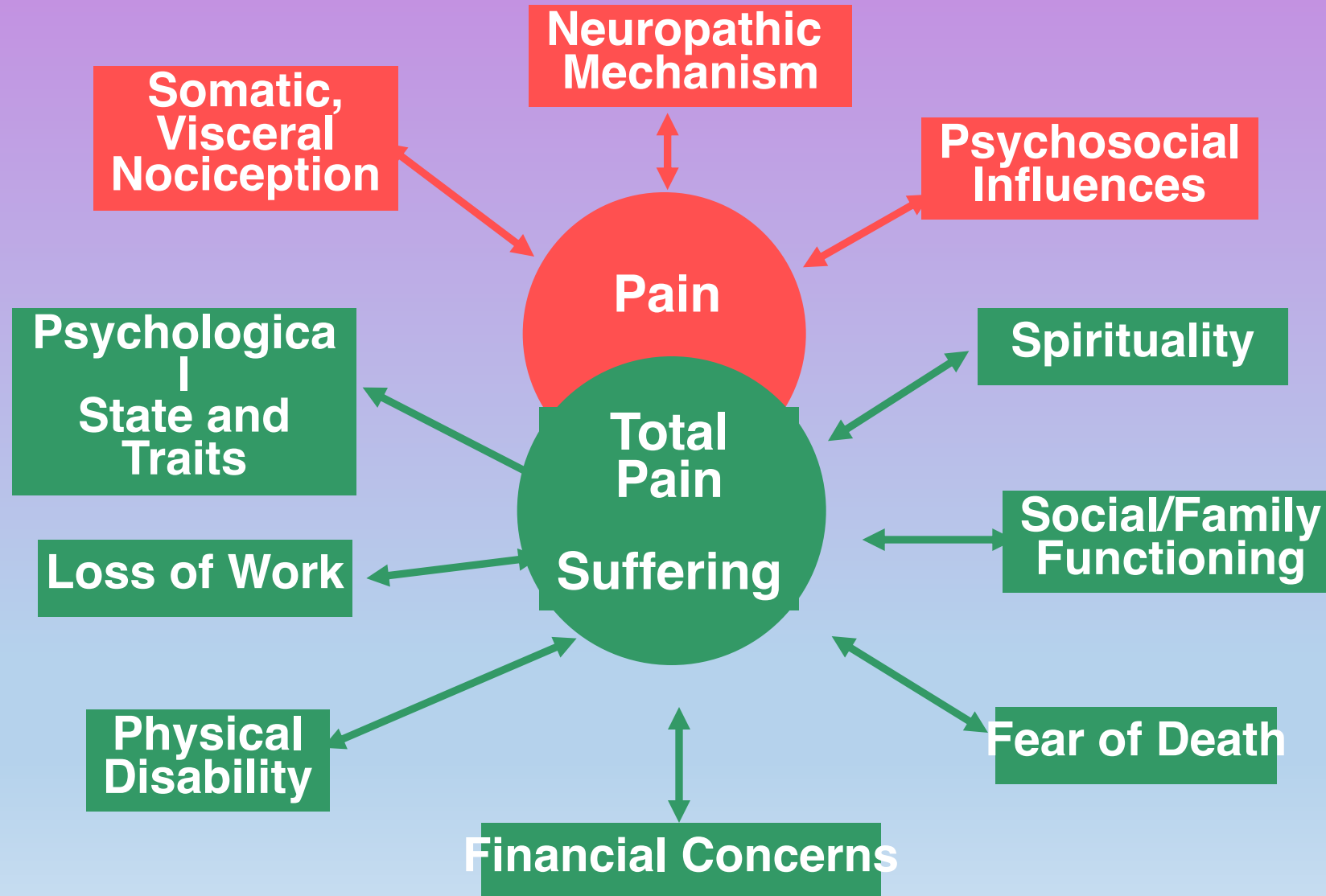


Learning Objectives

- Understand the concept of spirituality
- Describe the studies required to develop the NIH-HEALS
- Name the three psychosocial spiritual factors that occur with healing
- Describe the first intervention using psilocybin that examined the psychosocial spiritual healing that occurs



Nature of Pain



Introduction: Importance of Spirituality in Healthcare

- 76% of those with life-threatening illness are cognizant of some form of spirituality in their lives (Murray et al, 2004)
- Knowledge of a care team available to discuss these matters might help the patient engage important additional resources to cope with their condition (MacAskill & Petch, 1999)



What is Spirituality?



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Definition

- “the aspect of humanity that refers to the way individuals seek and express meaning and purpose, and the way they experience their connectedness to the moment, to self, to others, to nature, and to the significant or sacred”
- Spirituality Vs. Religion
 - “**Religion** is a formal structure through which a person expresses spirituality within a community. A religious community is then organized around common beliefs, attitudes, practices, traditions, and relationships.”



Puchalski, C., et al. (June 2017)



Spirituality vs Religion

- One distinction: spirituality represents values and/or beliefs that give a meaning and purpose to life (Woll, Hinshaw, & Pawlik, 2008).
- Spirituality: more inclusive and universal because these values originate from subjective experiences both within and outside of traditional religious customs (Elkins et al., 1988; Vaughan, Wittine, & Walsh, 1998; Moberg, 1979; Hiatt, 1986; Reed, 1987; Ley & Corless, 1988)



Spirituality & its effect on life-threatening illness

- maintaining confidence, providing comfort, reducing distress, increasing peace, and fostering an upbeat attitude toward life (Coughlin, 2008)



Exploring Spirituality in Patients- Individual Responses in Our Study



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A Muslims Belief

Yeah, a lot. Not in the sort of transcendental meditation but a lot of times, sort of – I mean like as a Muslim, I pray five times a day but even like when I'm on the treadmill, I – a half an hour on the treadmill is half an hour of meditation for me. So there's the physical thing happening



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A Muslims Belief

Yeah. Because I said, "Look, there can be only two ways to make the case, rationally." One would be that, "Look, I haven't had – you know, I haven't done all the things I needed to do, whatever. You know, I need to go." I said, "I had a terrific life." You know? I've been so blessed. I have four children, four grandchildren.....



A Jewish Belief

A non-verbal connection. That's what gives a meaningful life. The simple things that you find between the people you love. The look you get from your child, the look you get from your lover or parent. That's what gives meaning to life. And those things can be religious based, or they cannot be. It doesn't matter. It's that connection, and I think to me,



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A Jewish Belief

It's a tough question. Maybe. I had lost my faith and direction in 2003 when my marriage ended, and it was very difficult for me to find acceptance in my faith for lots of different reasons, and I still find it difficult, and I'm struggling with who I am spiritually and what I really believe. Because there's a difference between who you are, traditionally,



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A Christian Belief

As an example, yeah, I'm gonna carry this with me. How did I? Well, how I would say I've grown on a spiritual level is that I recognize all of these things are tools, and I see the inner connection of all these different expressions of spirituality. You know what I mean? I get it. This is just who I am in the context of my own life, right?



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A Christian Belief

So, spirituality – so, my definition of spirituality is basically how you live your life. That’s my definition. So, it’s not something that’s disconnected from how you want to live your life, and what you want to do here in the world. I’m not a person that is – think I’m gonna get this big reward, ‘cause I do the right thing, or whatever. No way. I feel like I have a mature sense of spirituality that – the reason that I could have that experience in



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An Atheist Belief

Well, I don't know that there's a simple answer to that. It has not been – it's been through people rather than through abstractions. I – my husband is – he's somewhat exasperated with me when I say I don't believe in God and I don't have other – I don't have an entity or a being that I believe in....



An Atheist Belief

Well, as I say, I wonder about this black space. I'm not a particularly spiritual person. I don't think. I teach in a [Religion] school. I've been there for almost 40 years, and I must say that sitting in silence with a group of people is a very powerful experience. In that sense, I don't know if I feel a spiritual kind



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NIH-HEALS Background

- Some patients with life-threatening or chronic illness report positive psychological, social, and spiritual change during the diagnosis or treatment of their illness, even in the face of unfavorable prognosis.
- Identifying factors that contribute to the positive transformation known as “healing”, has far reaching implications for interventions aimed at improving quality of life, mind, body, and spiritual wellness in the face of life’s challenges.



NIH-HEALS

NIH-HEALS is a psycho-social-spiritual measure of healing that assesses positive transformation in response to challenging life events. It is a self-report, 35 item questionnaire that is scored on a five point Likert Scale from strongly disagree to strongly agree. Four items require reversed scoring.



Development of NIH-HEALS

- Initial clinical observations of “healing” experience.
- Literature review.
- Qualitative interviews with patients who reported positive life transformation.
- Expert review to streamline a list of initial questions
- A pilot study with 100 patients: the initial factor analysis and further reduction of items.
- Cognitive interviewing.
- Study with 200 patients to re-evaluate factor structure, reliability, convergent and divergent validity and confirmatory factor analysis and reduction of the items to its current 35.



Initial Qualitative Study

- Cancer survivors were recruited from two sites:
 - Smith Farm Center for Healing Arts
 - NIH CC
- Cardiac survivors
 - Suburban Hospital Cardiac Rehabilitation



I was (age 30-40) when I was diagnosed, no history of cancer in my family -- none. At (age) of course, you don't think you're going to get hit with breast cancer. I was perking along as a professional , working full-time in environmental work. I come from a science background ...

(skip ahead)



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Initial Factor Analysis (N=100)

- Internal Consistency (Cronbach's alpha coefficients $\alpha = .94$)
- 4 factors:
 - Religion
 - Spirituality
 - Intrapersonal relationships
 - Interpersonal relationships



Cognitive Interviewing

“What does the word healing mean to you?”

- Not forgetting but coming to grips with the reality of my illness
- Getting appropriate treatment and help
- Accepting the illness
- Not blaming myself
- Letting go of the past
- Less pain
- Feeling better physically and mentally
- Regaining strength



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Continued--“What does the word healing mean to you?”

- To make whole & to function at a normal ability
- Focus on getting well instead of finding a cure
- Being able to function on a day-to-day basis with minimal pain
- Achieving a sense of well-being; free of pain, distress, and suffering
- To correct my body & rid of my disease
- Accepting what you gotta go through
- Making progress from one state of health to another





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Description of the NIH-HEALS Validation study (N=200)

- **Subjects:** We recruited 200 patients with severe and or life threatening illness from June to Dec 2017.
- **Instruments:**
 - NIH-HEALS 42 items.
 - Functional Assessment of Chronic Illness Therapy-Spiritual Wellbeing -12 (FACIT-Sp12)
 - Self Integration Scale (SIS)
 - Mindful Attention Awareness Scale (MAAS)
 - The Connor-Davidson Resilience Scale (CD-RISC 10 item version)
 - Life Events Checklist 5 (LEC-5)
 - Demographic questionnaire



NIH-HEALS Validation

- Reliability
- Convergent and divergent validity
- Factor structure



Reliability

NIH-HEALS demonstrated excellent reliability:

- Internal consistency based on Cronbach's $\alpha=0.89$
- Split-half reliability= 0.95



Convergent and Divergent validity

	NIH-HEALS Total Score	NIH-HEALS Factor 1 (Connection) Score	NIH-HEALS Factor 2 (Reflection & Introspection) Score	NIH-HEALS Factor 3 (Trust & Acceptance) Score
Convergent Validity				
SIS Healed Factor Score	0.64*** (p<0.0001)	0.41*** (p<0.0001)	0.59*** (p<0.0001)	0.59*** (p<0.0001)
FACIT-SP12 Meaning Score	0.62*** (p<0.0001)	0.39*** (p<0.0001)	0.45*** (p<0.0001)	0.64*** (p<0.0001)
FACIT-SP12 Peace Score	0.60*** (p<0.0001)	0.35*** (p<0.0001)	0.51*** (p<0.0001)	0.72*** (p<0.0001)
FACIT-SP12 Faith Score	0.84*** (p<0.0001)	0.84*** (p<0.0001)	0.51*** (p<0.0001)	0.54*** (p<0.0001)
Divergent Validity				
SIS Codependent Factor Score	-0.34*** (p<0.0001)	-0.16* (p=0.0264)	-0.15* (p=0.0464)	-0.58*** (p<0.0001)

NIH-HEALS

Three-factor, 35-item

(43.4% total variability, Cronbach's $\alpha=0.89$, split-half reliability $r_p=0.95$)

Connection

Eigenvalue = 11.9

- 15: My personal religious practice is important to me (0.92)
- 18: My religious beliefs give me hope (0.91)
- 14: My religious beliefs help me feel calm when faced with difficult circumstances (0.90)
- 3: Connection with a higher power is important to me (0.86)
- 16: My participation in religious community is an important aspect in my life (0.85)
- 13: My situation strengthened by my connection to a higher power (0.84)
- 12: I survived difficult circumstances because of a higher power (0.83)
- 17: I get support from my religious community (0.81)
- 22: Support from family lifts my spirits, which gives me hope during difficult times in life (0.44)
- 21: Connection with family has become my highest priority (0.44)

Reflection & Introspection

Eigenvalue = 3.6

- 32: Being surrounded by nature is meaningful (0.62)
- 10: Difficult circumstances in my life have increased my compassion towards others (0.60)
- 27: I take more time to be in the moment (0.59)
- 20: I find meaning in helping others (0.58)
- 31: I have an increased sense of gratitude (0.58)
- 9: Working through thoughts about dying brought meaning to my life (0.54)
- 11: I want to make the most out of life (0.54)
- 33: Creative arts bring peace to my life (0.54)
- 4: I gain awareness from self-reflection (0.52)
- 5: I enjoy activities that involve both the mind & body (0.52)
- 29: Working through my own grief brings meaning to my life (0.52)
- 26: I seek more of a connection in my relationships (0.51)
- 35: Life challenges raised my desire to be positive (0.45)
- 19: Doing something I am passionate about gives me purpose during difficult times (0.42)

Trust & Acceptance

Eigenvalue = 2.8

- 30: I have a sense of peace in my life (0.61)
- 2: I have a sense of purpose in my life (0.61)
- 1: I am content with my life (0.59)
- 7: I feel calm even though I am not in control of my situation (0.56)
- 8: I accept things I cannot change (0.54)
- 25: My friends provide support I need during difficult times (0.49)
- 24: I am confident that my medical caregivers will respond to my needs (0.46)
- 34: Life challenges interfere with activities that are important to me (-0.51)
- 23: I am not getting the support I need (-0.59)
- 28: My experience with multiple losses has made it hard to be hopeful during difficult times (-0.64)
- 6: I feel isolated (-0.69)

NIH-HEALS items that were deleted because they either did not load onto any factor, or did not measure a pure construct:

- I have a greater appreciation for my life
- I feel less stressed when I connect with others
- Relationship with my family is more meaningful
- Relationships with my friends are more meaningful since my challenging situation began
- I no longer focus on the “little things”
- My values shape the way I live my life
- It is difficult to ask others for help because I do not want to burden them



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NIH-HEALS & Gender

- There were no significant differences between males and females on 31 out of 35 of NIH-HEALS items.
- There were no significant differences between males and females on 2 out of 3 factors.
- Males and females differed significantly on 3rd factor: Reflection/Introspection.
- Item analysis showed significant differences between males and females on intrapersonal items related to:
 - Mind/body practices
 - Compassion toward others
 - Gratitude
 - Desire to be more positive



NIH-HEALS and Trauma

- Life Events Checklist 5 (LEC-5) was used to assess trauma history and trauma severity.
- Trauma severity was significantly correlated with the NIH-HEALS Trust and Acceptance factor ($p < 0.02$).



NIH-HEALS and Resilience

- Connor Davidson Resilience Scale (CD RISC) 10 item version was the measure used in the study to assess resilience.
- CD RISC was positively and significantly correlated with the NIH-HEALS total score ($r=0.46$, $p<0.0001$) and its three factors.

	HEALS Total Score	HEALS Connection Factor	HEALS Reflection/ Introspection Factor	HEALS Trust/ Acceptance Factor
CD-RISC Total Score	0.44 $p<0.001$ (n=178)	0.17 $p=0.022$ (n=186)	0.38 $p<0.001$ (n=184)	0.59 $p<0.001$ (n=185)



NIH-HEALS and Mindfulness

- Mindful Attention Awareness Scale (MAAS) was used in the study to assess trait mindfulness.
- MAAS was positively and significantly correlated with the NIH-HEALS total score ($r=0.32$, $p<0.0001$) and its three factors.

	HEALS Total Score	HEALS Connection Factor	HEALS Reflection/ Introspection Factor	HEALS Trust/ Acceptance Factor
MAAS Total Score	0.32 $p<0.001$ (n=179)	0.16 $p=0.028$ (n=187)	0.21 $p=0.004$ (n=184)	0.41 $p<0.001$ (n=185)



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Additional NIH-HEALS Research

- African American Elders' Serious illness experiences; Narratives of God Did, God will and life Is better.
- Using cognitive interviews to improve a PSS healing instrument; voices of African Americans with serious illness.
- Testing domains of the NIH-HEALS in a cohort of HIV-infected and HIV-uninfected Chicago women.
- **Findings from Uganda for validation of NIH-HEALS: Cognitive Interviews.**
- **Findings of NIH-HEALS in a Psilocybin study demonstrates sensitivity to change.**



Study in Uganda: Cognitive interviews

- 35 patients with cancer participated in cognitive interviewing
- 17 were women
- Of the 35 NIH-HEALS items, 31 were comprehensible to all participants (items 11, 26, 27, and 29 required more explanation/ some adjustments in wording)



Comprehensibility of the NIH-HEALS

- I want to make the most of my life [Item 11]
- I seek more of a connection in my relationships [Item 26]
- I take more time to be in the present moment [Item 27]
- Working through my own grief has brought meaning to my life [Item 29]



What does the term healing mean to you?

- Over-coming the illness
- Cure from the illness
- Having hope

“It means having hope. Of all the questions you have asked me I have told you I have hope that with my God all will be well.”

- Surrendering to supernatural being

“Spiritual healing is very good and that is coming to God and believing God is in control of everything instead of wondering. It would be good for everyone to come to God for spiritual healing.”



Safety and Efficacy of Psilocybin With Patients with Cancer

NIH-HEALS: Sensitivity to Change

Objective

Examine the NIH-HEALS sensitivity to change post psilocybin therapy

Methods

Study involved a one-time psilocybin administration to 30 patients with both cancer and depression

NIH-HEALS was administered at baseline, day 1, week 1, week 3, and week 8

Results

Improvement was noted in NIH-HEALS total scores and its 3 factors over time in response to psilocybin therapy and at every time point compared to pre-treatment baseline consistent with outcomes of anxiety and depression measures



Demographic characteristics of study participants with cancer

Characteristic	Categories	% (<i>n</i> = 30)
Age, in years: mean (SD)	Range 30–78	56.1 (12.4)
Gender	Female	70.0 %
	Male	30.0 %
Ethnicity/race	African American/Black	10.0 %
	Asian, Asian American, Pacific Islander	6.7 %
	Caucasian	80.0 %
	Hispanic, Latinx	3.30 %
	Marital status	Married
Marital status	Divorced/separated	16.7 %
	Never married	16.7 %
	Employment status	Employed
Employment status	Retired	13.3 %
	Unemployed	3.33 %



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Shnayder S, Ameli R, Sinaii N, Berger A, Agrawal M. Psilocybin-assisted therapy improves psycho-social-spiritual well-being in cancer patients. *J Affect Disord.* 2023.



Clinical characteristics of study participants with cancer

Characteristic	Categories	% (n = 30)
Number of depressive episodes	3 or less	30.0 %
	>3	40.0 %
	Unknown	30.0 %
Baseline depression severity: mean	HAMD	25.4
	QIDS-SR	12.3
Prior antidepressant use	Yes	50.0 %
	No	36.7 %
	Unknown	13.3 %
Cancer prognosis	Non-curable	53.3 %
	Curable	46.7 %



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Shnayder S, Ameli R, Sinaii N, Berger A, Agrawal M. Psilocybin-assisted therapy improves psycho-social-spiritual well-being in cancer patients. J Affect Disord. 2023.



NIH-HEALS Total Score

Visit	n	Score mean (SD)	Magnitude of effect mean difference (95 % CI) ^a	P- value ^a
Total score				
Baseline	30	119.1 (19.4)		
Week 1	30	133.1 (19.9)	14.4 (8.5–20.3)	<0.001
Week 3	30	133.8 (20.3)	15.5 (8.9–20.9)	<0.001
Week 8	30	134.6 (23.7)	16.4 (9.1–23.8)	<0.001



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NIH-HEALS Connection

Visit	n	Score mean (SD)	Magnitude of effect mean difference (95 % CI) ^a	P- value ^a
Connection factor				
Baseline	30	30.8 (9.4)		
Week 1	30	34.3 (9.1)	3.4 (1.3–5.3)	0.002
Week 3	30	33.8 (9.0)	2.9 (0.7–4.9)	0.012
Week 8	30	34.7 (9.3)	3.9 (1.4–5.9)	0.003



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Shnayder S, Ameli R, Sinaii N, Berger A, Agrawal M. Psilocybin-assisted therapy improves psycho-social-spiritual well-being in cancer patients. *J Affect Disord.* 2023.



NIH-HEALS Reflection/Introspection

Visit	n	Score mean (SD)	Magnitude of effect mean difference (95 % CI) ^a	P-value ^a
Reflection & introspection factor				
Baseline	30	55.7 (6.8)		
Week 1	30	59.6 (6.8)	3.9 (2.1–6.2)	<0.001
Week 3	30	60.4 (6.4)	4.7 (3.2–7.3)	<0.001
Week 8	30	60.0 (7.9)	4.3 (2.5–7.3)	<0.001



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Shnyder S, Ameli R, Sinai N, Berger A, Agrawal M. Psilocybin-assisted therapy improves psycho-social-spiritual well-being in cancer patients. *J Affect Disord.* 2023.



NIH-HEALS Trust /Acceptance

Visit	n	Score mean (SD)	Magnitude of effect mean difference (95 % CI) ^a	P- value ^a
Trust & acceptance factor				
Baseline	30	32.6 (8.0)		
Week 1	30	39.3 (8.9)	6.7 (3.9–10.3)	<0.001
Week 3	30	39.7 (8.7)	7.1 (4.3–10.9)	<0.001
Week 8	30	39.9 (10.7)	7.3 (4.2–11.7)	<0.001



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Conclusion & Future Directions

- NIH-HEALS is a 35 item valid and reliable measure of psych-social-spiritual healing with 3 factors: Connection, Reflection/Introspection, and Trust/Acceptance.
- Developing a 12 item short form
- History of trauma, resilience, and mindfulness are relevant factors in the experience of healing.
- Preliminary data shows that NIH-HEALS is sensitive to change in psilocybin studies
- We continue our work nationally and internationally



NIH-HEALS

short form version

Three-factor, 12 item

Connection		Reflection & Introspection		Trust & Acceptance	
3	The connection with a higher power is important to me.	4	I gain awareness from self-reflection.	2	I have a sense of purpose in my life.
21	Connection with my family has become my highest priority.	11	I want to make the most of my life.	23	I am not getting the support I need.
22	Support from my family lifts my spirits, which gives me hope during difficult times in life.	19	Doing something I am passionate about gives me purpose during difficult times (e.g. work, hobbies, volunteering, my religious institution, reading groups).	24	I am confident that my medical caregivers will respond to my needs.
		20	I find meaning in helping others.	25	My friends provide the support I need during difficult times.
		32	Being surrounded by nature is meaningful		

With special thanks to our team and the patients of the NIH clinical center to make this work possible.



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Upcoming Events:

2:45- 3:15 Coffee & Networking Break in Exhibit Hall

3:15 – 4:15 Workshops

- 1st Annual Member to Member Forum: Workforce Reports from the Field
- Measuring and Implementing Integrated Substance Use and Mental Health Services
- Tobacco and the SUD Patient

The logo graphic consists of several overlapping, semi-transparent geometric shapes in shades of blue and grey, forming a stylized, abstract shape that resembles a house or a series of connected peaks. The text 'NAATP NATIONAL 2023' is overlaid on the bottom right portion of this graphic.

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