

TOPICAL WEBINAR FOR APA MEMBERS

An Educational Resource from McLean Hospital.

Understanding NSSI and Predictive Factors for Suicide

May 17, 2024

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Mass General Brigham
McLean



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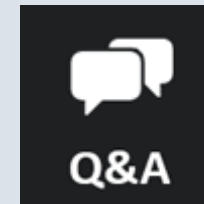
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- You must attend for 45 minutes to receive the certificate.

RECORDING

- A recording of this presentation will be emailed to everyone in 2 weeks' time.
- The recording will include the presentation slides.

HAVE A QUESTION?

- You are on mute. Communicate using the **Q&A box** in the webinar screen. Submit your questions for our speakers using the Q&A box.
- Presentation slides will be posted in the **chat box** of your webinar screen.





Dr. Daniel Dickstein



Dr. Kristen Batejan

PRESENTERS

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Learning Objectives:

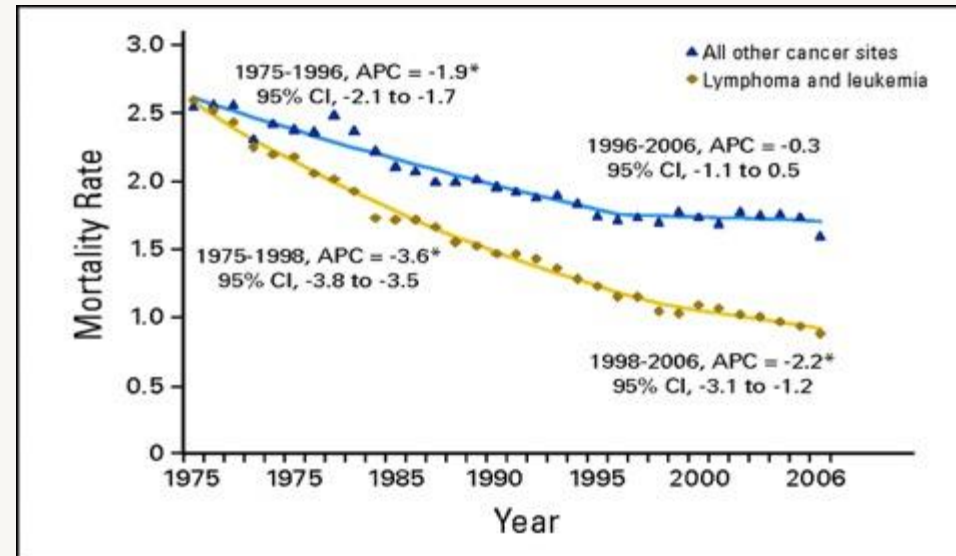
1. ***To describe the magnitude of the problem of youth suicide.***
2. To present data about the characteristics and behavioral mechanisms of non-suicidal self-injury (NSSI)—as a distinct but related problem—may help advance what we know about youth suicide.
3. To discuss treatment for adolescent suicide and NSSI using data from the 3East Dialectical Behavioral Therapy (DBT).

Mechanisms Matter: A tale of 2 children...

Jack 5yo fatigue,
fever, joint pain,
swollen belly, bruising

- Exam: hepatosplenomegaly, pale
- CBC: WBC 3.7 (32% neut 10% blast), Hgb 9.8 PLT 172
- Symptoms + bio-marker
=specific early diagnosis
=mechanism-targeted treatment
- =better prognosis/outcome

US childhood (<20yo) mortality trends for lymphoma and leukemia, & Other Cancers



APC=Annual Percent Change

Smith M A et al. J Clinical Oncology 2010;28:2625-2634

Mechanisms Matter: A tale of 2 children...

Sophia (age 14)

- **Pre-pandemic:** Sadness, loneliness, depression
- **Worsening symptoms:** Suicidal ideation, non-suicidal self-injury
- **6 months later:** Parents noticed failing grades, concern from school counselor, disclosed self-injury
- **Treatment:** Started on medication from pediatrician and searched for therapist
- **Suicide attempt:** Took 20 Tylenol and went to sleep, woke up the next morning and told parents
- **Taken to the ED:** Waited ~1 week to get into McLean.

The Problem: *If only child mental healthcare was as good as it is for other medical conditions*

Childhood Cancer:

- **Access:** No wait, widely available, and team approach is paid for by insurance
- **Innovation:** Dramatic breakthroughs have increased survival rates
 - Diagnosis=art & science of medicine
- **Workforce:** Good supply of doctors, nurses, etc.
- **Education:** No stigma—Make A Wish, Jimmy Fund etc.

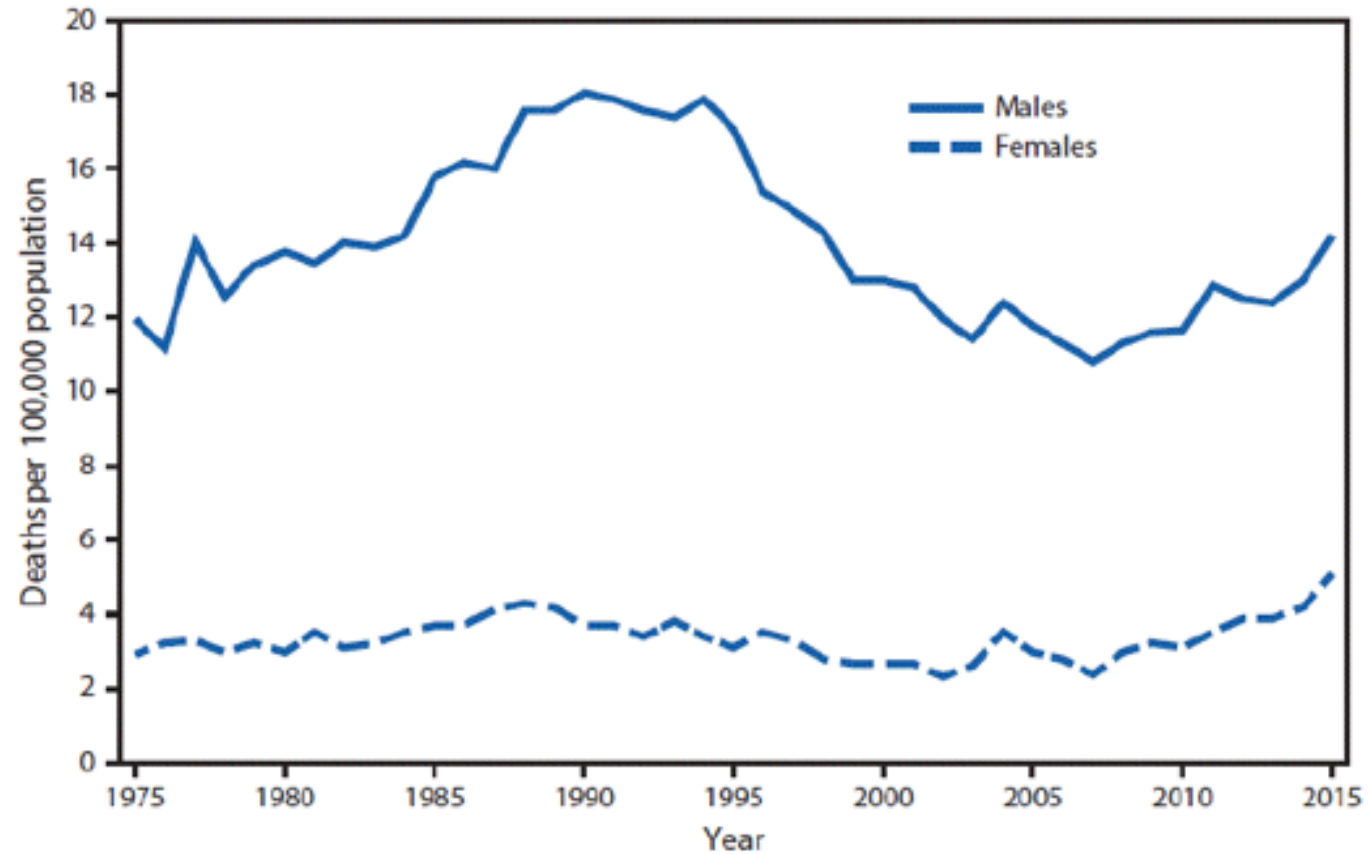
Child Mental Health:

- **Access:** Wait time, insurance reimbursement low
- **Innovation:** Need for greater innovation in diagnosis, treatment, and prognosis.
 - Diagnosis primarily art of medicine
- **Workforce:** Insufficient supply of MD, RN, PhD, SW
- **Education:** Substantial stigma

The Problem: Suicide= 2nd leading cause of death age 10-34

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	All Ages
1	Congenital Anomalies 4,301	Unintentional Injury 1,149	Unintentional Injury 714	Unintentional Injury 778	Unintentional Injury 11,755	Unintentional Injury 24,516	Unintentional Injury 24,070	Malignant Neoplasms 35,587	Malignant Neoplasms 111,765	Heart Disease 531,583	Heart Disease 659,041
2	Short Gestation 3,445	Congenital Anomalies 416	Malignant Neoplasms 371	Suicide 534	Suicide 5,954	Suicide 8,059	Malignant Neoplasms 10,695	Heart Disease 31,138	Heart Disease 80,837	Malignant Neoplasms 435,462	Malignant Neoplasms 599,601
3	Unintentional Injury 1,266	Malignant Neoplasms 285	Congenital Anomalies 192	Malignant Neoplasms 404	Homicide 4,774	Homicide 5,341	Heart Disease 10,499	Unintentional Injury 23,359	Unintentional Injury 24,892	Chronic Low. Respiratory Disease 133,246	Unintentional Injury 173,040
4	Sids 1,248	Homicide 284	Homicide 155	Homicide 191	Malignant Neoplasms 1,388	Malignant Neoplasms 3,577	Suicide 7,525	Liver Disease 8,098	Chronic Low. Respiratory Disease 18,743	Cerebrovascular 129,193	Chronic Low. Respiratory Disease 156,979
5	Maternal Pregnancy Comp. 1,245	Heart Disease 133	Heart Disease 91	Congenital Anomalies 189	Heart Disease 872	Heart Disease 3,495	Homicide 3,446	Suicide 8,012	Diabetes Mellitus 15,508	Alzheimer's Disease 120,090	Cerebrovascular 150,005
6	Placenta Cord Membranes 742	Influenza & Pneumonia 122	Chronic Low. Respiratory Disease 69	Heart Disease 87	Congenital Anomalies 390	Liver Disease 1,112	Liver Disease 3,417	Diabetes Mellitus 6,348	Liver Disease 14,385	Diabetes Mellitus 62,397	Alzheimer's Disease 121,499
7	Bacterial Sepsis 603	Perinatal Period 57	Influenza & Pneumonia 52	Chronic Low. Respiratory Disease 81	Diabetes Mellitus 248	Diabetes Mellitus 887	Diabetes Mellitus 2,228	Cerebrovascular 5,153	Cerebrovascular 12,931	Unintentional Injury 60,527	Diabetes Mellitus 87,647
8	Respiratory Distress 424	Septicemia 53	Cerebrovascular 37	Influenza & Pneumonia 71	Influenza & Pneumonia 175	Cerebrovascular 585	Cerebrovascular 1,741	Chronic Low. Respiratory Disease 3,592	Suicide 8,238	Nephritis 42,230	Nephritis 51,565
9	Circulatory System Disease 406	Cerebrovascular 52	Septicemia 36	Cerebrovascular 48	Chronic Low. Respiratory Disease 168	Complicated Pregnancy 532	Influenza & Pneumonia 951	Nephritis 2,269	Nephritis 5,857	Influenza & Pneumonia 40,399	Influenza & Pneumonia 49,783
10	Necrotizing Enterocolitis 354	Benign Neoplasms 49	Benign Neoplasms 31	Benign Neoplasms 35	Cerebrovascular 158	Hiv 486	Septicemia 812	Septicemia 2,176	Septicemia 5,672	Parkinson's Disease 34,435	Suicide 47,511

Rates of Completed Suicide in 15-19 year olds have NOT changed 1975-2015



* Rates are per 100,000 population.

Completed Suicide: The Tip of the Iceberg

- **Suicide 2nd leading cause of death 10-33yo**
- Past year HS students (2019 CDC YRBS):
- 18.8% serious SI
- 15.7% made suicide plan
- 8.9% made suicide attempt (SA)
- 2.5% sought medical attention for suicide attempt (SA)



Opinion

Why Are Young Americans Killing Themselves?

Suicide is now their second-leading cause of death.



By Richard A. Friedman
Dr. Friedman is a psychiatrist.

Jan 6, 2020



Teenagers and young adults in the United States are being ravaged by a mental health crisis — and we are doing nothing about it. As of 2017, statistics show that an alarming number of them are suffering from depression and dying by suicide. In fact, suicide is now the second leading cause of death among young people, surpassed only by accidents.

After declining for nearly two decades, the suicide rate among Americans ages 10 to 24 jumped 56 percent between 2007 and 2017, according to data from the Centers for Disease Control and Prevention. And for the first time the gender gap in suicide has narrowed: Though the numbers of suicides are greater in males, the rates of suicide for female youths increased by 12.7 percent each year, compared with 7.1 percent for male youths.

At the same time, the rate of teen depression shot up 63 percent, an alarming but not surprising trend given the link between suicide and depression: In 2017, 13 percent of teens reported at least one episode of depression in the past year, compared with 8 percent of teens in 2007, according to the National Survey on Drug Use and Health.

How is it possible that so many of our young people are suffering from depression and killing themselves when we know perfectly well how to treat this illness? If thousands of teens were dying from a new infectious disease or a heart ailment, there would be a public outcry and a national call to action.

COVID has exacerbated need for better child & adolescent mental healthcare

Pediatricians, Child and Adolescent Psychiatrists and Children's Hospitals Declare National Emergency in Children's Mental Health

AACAP, AAP, and CHA call on policymakers at all levels of government to act swiftly to address mental health crisis

Washington, D.C., October 19, 2021 – Today, the American Academy of Pediatrics (AAP), the American Academy of Child and Adolescent Psychiatry (AACAP) and the Children's Hospital Association (CHA) together representing more than 77,000 physician members and more than 200 children's hospitals, **declared** a national state of emergency in child and adolescent mental health and are calling on policymakers to join them.

FOR IMMEDIATE RELEASE
December 7, 2021

Contact: HHS Press Office
202-690-6343
media@hhs.gov

U.S. Surgeon General Issues Advisory on Youth Mental Health Crisis Further Exposed by COVID-19 Pandemic

Learning Objectives:

1. To describe the magnitude of the problem of youth suicide.
2. ***To present data about the characteristics and behavioral mechanisms of non-suicidal self-injury (NSSI)—as a distinct but related problem—may help advance what we know about youth suicide.***
3. To discuss treatment for adolescent suicide and NSSI using data from the 3East Dialectical Behavioral Therapy (DBT).

Nat'l Council Suicide Prevention &
Nat'l Institute of Mental Health 2014

A Prioritized Research Agenda for Suicide Prevention:

An Action Plan to Save Lives

Research Prioritization Task Force

www.suicide-research-agenda.org



The Public-Private Partnership Advancing the National Strategy for Suicide Prevention

- Reduce suicide attempts & suicide completions by 20% in 5 yrs & >40% in 10 yrs
- 1) Why do people become suicidal?
- 2) How can we better detect/predict risk?
- 3) What interventions or preventions are effective?
- 4) What services are most effective for treating suicidal behavior?
- 5) What non-health care centered preventions/interventions work?
- 6) What new & existing research infrastructure is needed to reduce suicidal behavior?

Risk Factors for Suicidal Thoughts & Behaviors: A Meta-analysis of 50 Years of Research (Franklin JC Psychol Bull 2017)

Top 5 Broad Risk Factor Categories in terms of popularity								
	Pre-1985		1985-1994		1995-2004		2005-2014	
Rank	Category	% ES	Category	% ES	Category	% ES	Category	% ES
1	Demographics	29.73	Internalizing	29.89	Internalizing	28.26	Internalizing	22.81
2	Internalizing	14.86	Prior STBs	13.88	Externalizing	14.67	Demographics	19.14
3	Prior STBs	10.81	Demographics	11.03	Prior STBs	11.85	Externalizing	16.02
4	Externalizing	9.46	Externalizing	10.68	Demographics	11.85	Prior STBs	11.52
5	Social Factors	5.41	Social Factors	9.25	Social Factors	8.37	Social Factors	9.61
Total		70.27		74.73		75.00		79.10

Take home: 50 yrs of research → Same 5 factors → Prediction little better than chance

NSSI: Non-Suicidal Self-Injury

- “deliberate destruction of one’s body without intent to die”
- Self-cutting, also erasing, scratching, burning
- Arms, thighs, stomach
- “Suicidal gesture”: outdated term
- Not clear that there are sex differences
- No SES or ethno-racial differences
- Growing problem:
 - *7-45% of adolescents overall*
 - *25-45% of children seen in the ED for self-harm*
 - *Some data suggests it is a growing problem*



Relationship between NSSI & Suicide

- NSSI: by definition no intent to die
- But...a risk factor for suicide attempt:
 - *TORDIA baseline NSSI predicts future SA better than baseline hx of SA (HR=7.31 $p<0.001$; Asarnow 2011)*
 - *Baseline NSSI predicted future SA among teens despite controlling for past SA (OR=7.5, $p=0.009$, Cox 2012)*
 - *History of NSSI ↑x7 risk for SA in $n=399$ high school students despite controlling for prior depression, SAs, and gender (Guan 2012)*
- Problem: Insufficient understanding of the mechanisms of NSSI & suicide

SA vs. NSSI: Dogma & Data

- Similar theoretical models for youth suicide and NSSI:
 1. *Inter-personal stress vs. intra-psychic conflict*
 2. *Emotion generation/recognition*
 3. *"Cold cognition": decision-making, reward, impulsivity*
 4. *"Emotion regulation" as final common pathway*
- Few studies of NSSI-only vs. SA-only youths
- Few studies of brain/behavioral mechanisms underlying use these theories

NSSI-only vs. SA-only vs. Typically-Developing Control (TDC) Youths

Participants:

- 1) NSSI-only: cutting in the past month with more than 5 lifetime episodes, no SA
- 2) SA-only: suicide attempt in the past month, no NSSI
- 3) TDC: no mental health history in themselves or 1st degree relatives
 - IQ >70; English fluency in the teenage participant

Outcomes:

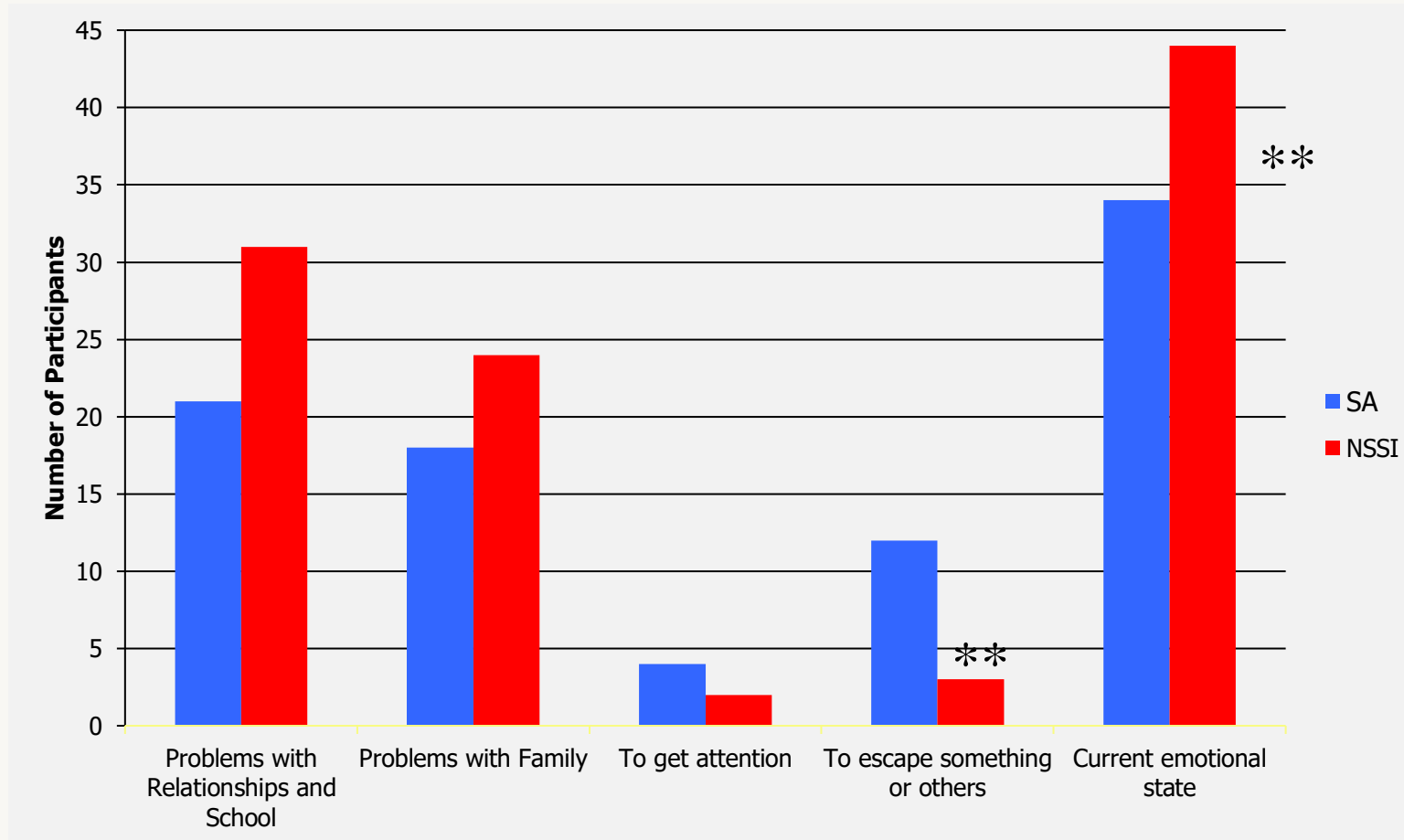
- Psychopathology/demographics
- Behavioral task performance

Sample Demographics

	NSSI (n=45)	SA (n=45)	
<i>Age in Years (SD)</i>	14.9 \pm 1.3	15.3 \pm 1.3	$t(88)=-1.48, p=0.14$
Females (n, %) Males	38 (84%) 7 (16%)	28 (62%) 17 (38%)	$\chi^2=5.68, p=0.02$
<i>SI Onset</i>	12.4 y/o	13.8 y/o	$p < 0.01$
<i>Onset of Self-Injurious Behavior (NSSI or SA)</i>	13.2 \pm 1.8	14.8 \pm 1.4	$F(1,84)=15.40, p<0.01$
<i>BSS Current SI</i>	13.21 \pm 8.07	10.68 \pm 7.91	$F(1,85)=2.17, p=0.14$
<i>Medications</i> None SSRI Sedatives	6 (13) 34 (76) 4 (9)	17 (38)** 23 (51)* 0 (0)*	

* $p < .05$; ** $p < .01$

Reason for Engaging in Self-Harm



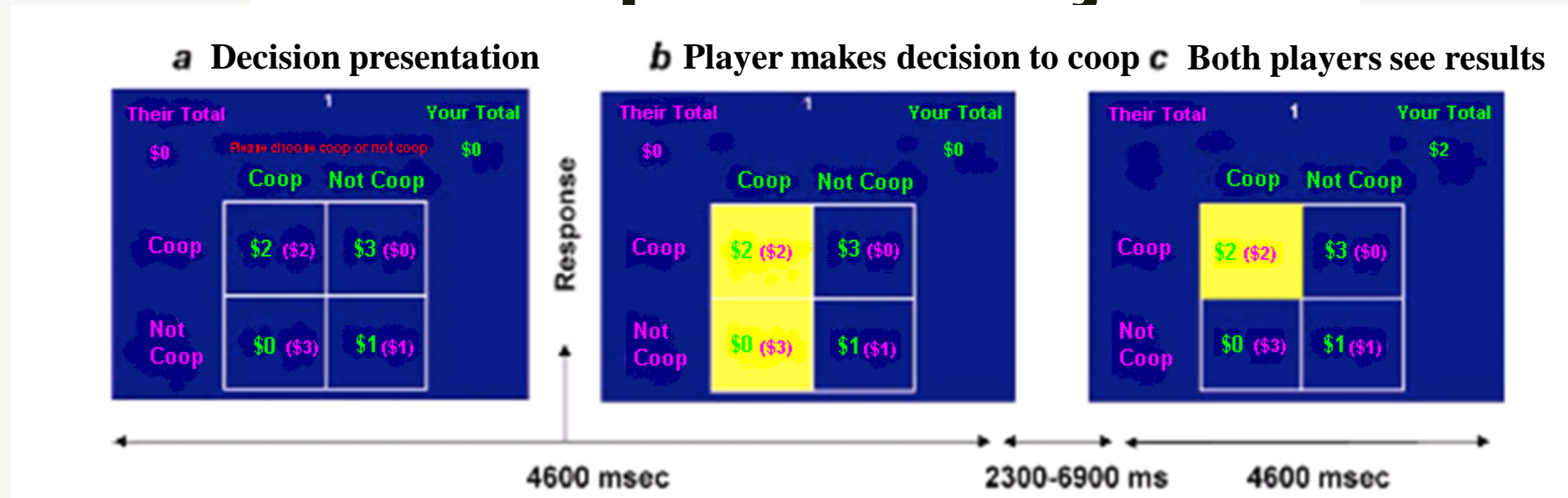
$**p < .01$

Kim KL Sui Lifethreat Behav 2014

Prisoner's Dilemma Task: Peer Acceptance & Rejection

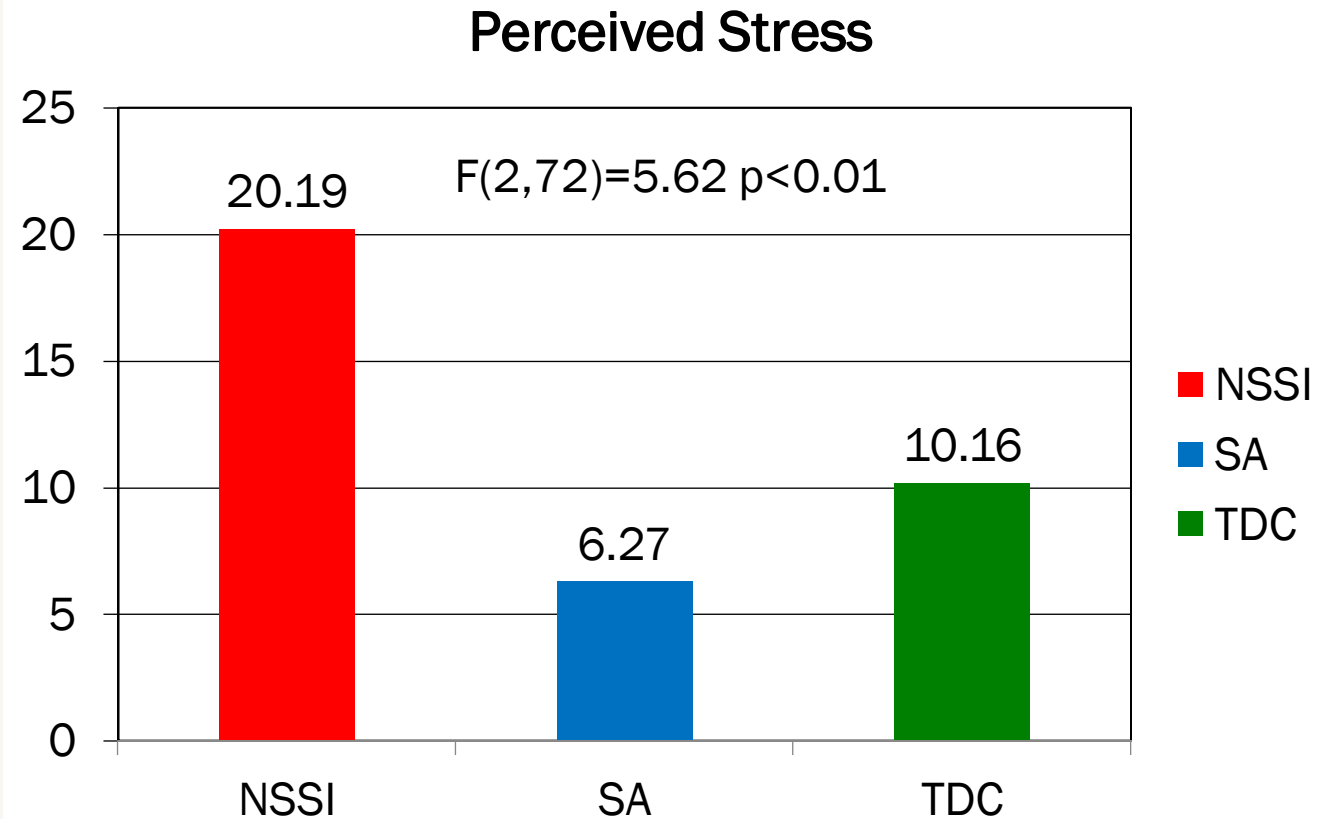
- Simulates social situations using reciprocal economic exchange
- (In English): Players win money depending on whether they and the other player decide to cooperate or not cooperate (“defect”)
- Each player’s decision is revealed after every round
- Allows examination of players’:
 - *(a) Play (do they cooperate/work together vs. defect/reject peer)*
 - *(b) Attitudes (how do they feel/react when the other players cooperate vs. defect)*

Peer Acceptance vs Rejection



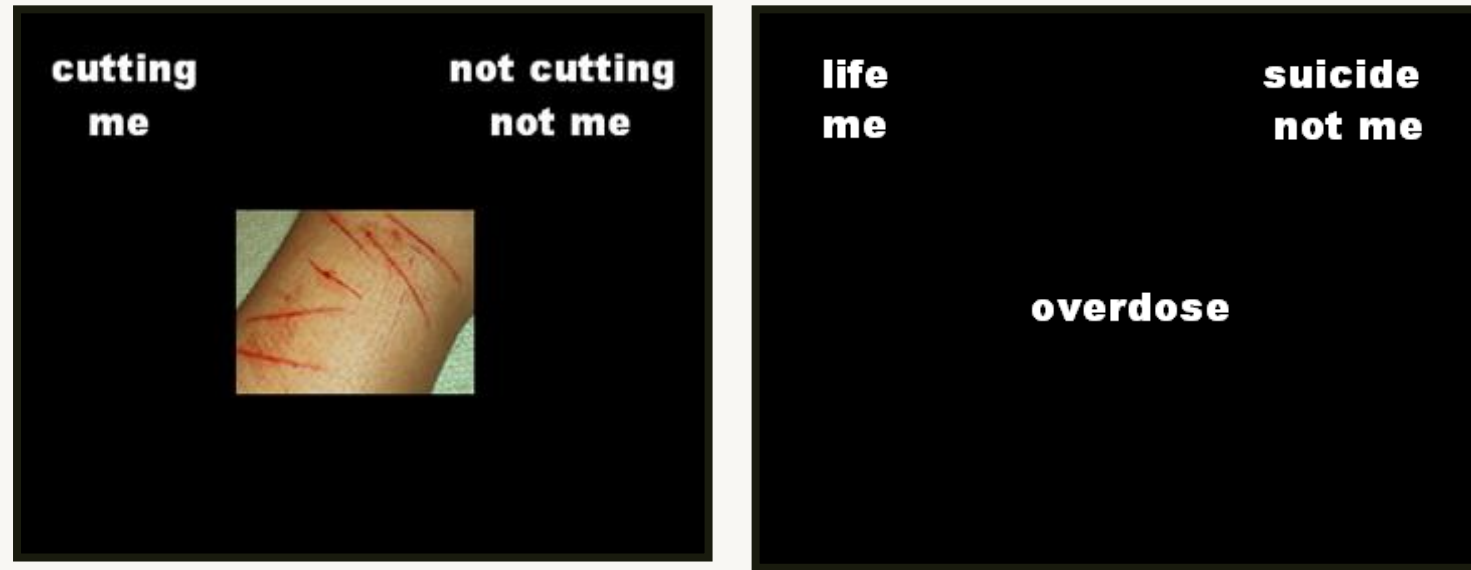
	Player Earns	Co-Player Earns
If both cooperate	\$2	\$2
If both don't cooperate	\$1	\$1
If player does, but co-player doesn't	\$0	\$3
If co-player does, but player doesn't	\$3	\$0

PD: Stress During Peer Acceptance/Rejection



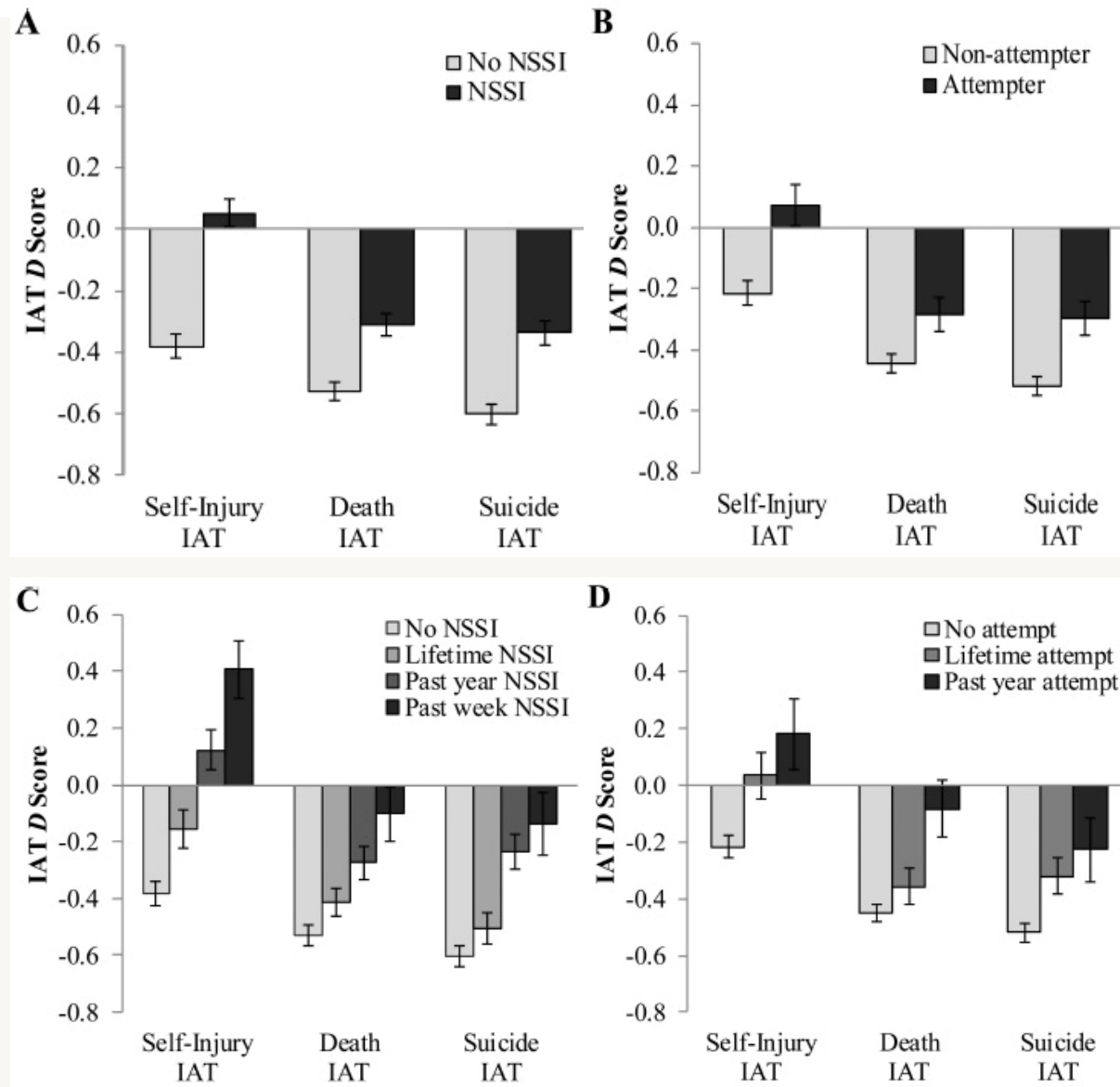
Kim KL Psych Research 2015

Unconscious Attitudes towards Suicide & NSSI: Self-Injury Implicit Association Task



Bias To Something=Faster reaction time classifying center object when top category paired with "me" (than when paired with "not me") if I have thought about center object before

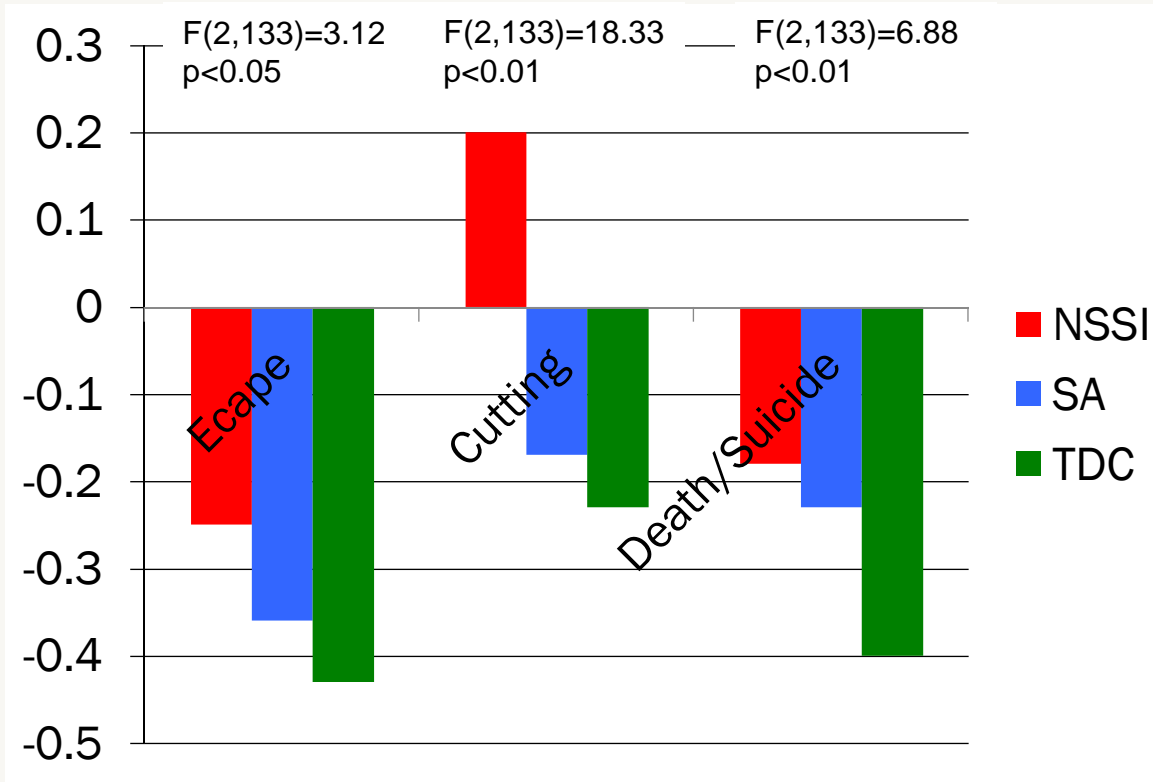
Implicit Associations in 7,015 Adults Robustly Map onto Self-Harm



- N=7,015 adults completing >1 IAT via ImplicitMentalHealth.com
- N=2,332 self-injury
- N=2,298 death
- N=2,385 suicide

- Glenn JJ J Abn Psych 2017

NSSI teens have stronger unconscious bias to “cutting” or “suicide/death” vs. SA & Controls



Dickstein DP et al. J Child Psychol Psychiat 2015

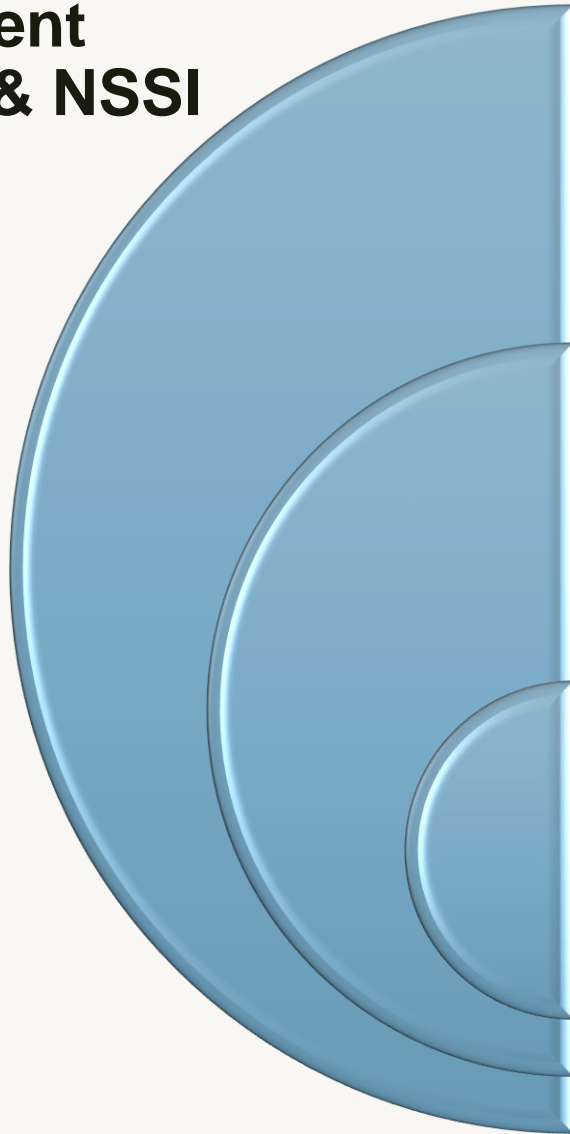
Summary: NSSI vs. Suicide Attempters

- NSSI is a serious problem associated with
 - *Earlier onset of self-harm behavior*
 - *Greater implicit association with cutting & death/suicide (SI-IAT)*
 - *Greater self-reported stress during inter-personal collaboration/conflict (Prisoner's Dilemma)*
- *Why haven't these NSSI-only youths tried to kill themselves (yet)?*
- *What is the neural mechanism underlying NSSI-only/itself?*
- *What is the mechanism NSSI-only → 1st suicide attempt (vs. continuing with NSSI-only or remitting)?*

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Treatment for Adolescent Suicide & NSSI



Mentalization Based Therapy-Adolescents (MBT-A)	<ul style="list-style-type: none">• Effective in reducing self-harm and depressive symptoms (Rossouw & Fonagy, 2012)• Systematic review & meta-analysis: reduced self-harm, BPD, and depressive symptoms, however when compared to control intervention was not more efficacious (Hajek Gross et al., 2024)
Various Cognitive Behavior Therapy (CBT)	<ul style="list-style-type: none">• Integrated CBT with adolescents with substance abuse disorder, plus SI/SA, led to fewer suicide attempts (Esposito-Smythers et al., 2011)• No advantage using Family-focused CBT compared to usual care (Esposito-Smythers et al., 2010)
Attachment-Based Family Therapy (ABFT)	<ul style="list-style-type: none">• Significant decrease in suicide ideation postintervention in outpatient adolescents/young adults (van der Spek et al., 2024)• Not more favorable than TAU in clinically depressed adolescents (Waraan et al., 2021)

DBT as the gold-standard

Third-Wave Therapy

DBT is a third-wave cognitive behavioral therapy, using change & acceptance-based skills and strategies

DBT Origins

Originally created by Marsha Linehan, PhD, for a specific patient population: Adult women, BPD, suicidal, self-harming, in and out of inpatient units.

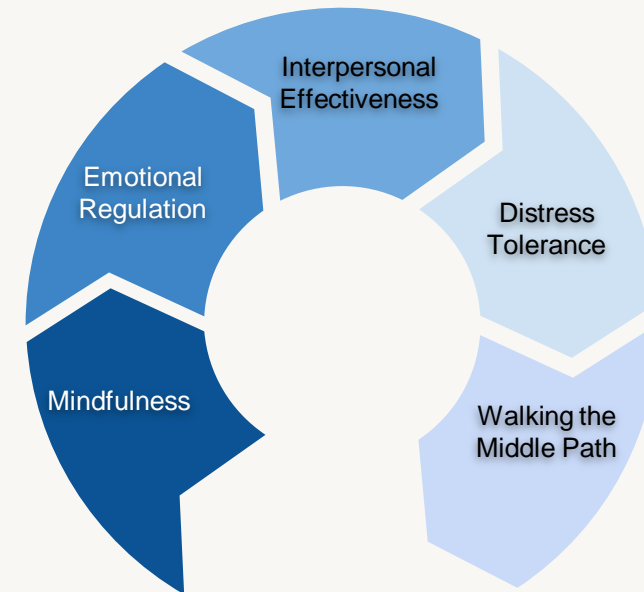
Core Approach: Dialectics

Two seemingly opposing things can exist at the same time. Balance of Acceptance and Change

Modes of Treatment

- Individual Therapy
- DBT skills training
- On-call skills coaching
- Consultation team for therapists

DBT: Treatment Pillars



"You're doing the best you can and you need to do better, try harder, and be more motivated to change"

Research on DBT in Adolescents

Outpatient

- Mehlum et al. (2014): significantly fewer episodes of self-harm, lower levels of SI, and a reduction in depressive symptoms
- Goldstein et al. (2015): 12-month follow up adolescents with bipolar disorder showed improvement in SI
- McCauley et al. (2018): improvements in reducing repeat suicide attempts, NSSI, and total self-harm after treatment
- Santamarina-Perez et al. (2020): reduced NSSI, both treatments effective at decreasing SI

Partial Hospitalization Program (PHP)

- Del Conte et al. (2016): fewer anxiety and depressive symptoms at discharge, as well as fewer maladaptive ways to cope with stressor
- Lenz et al., (2016): specific skills acquisition from the emotion regulation and the interpersonal effective modules were predictive of lower anxiety and depression at the time of discharge
- Lenz & Del Conte (2018): reduced depression and lower interpersonal sensitivity

Inpatient & Residential

- Moran et al. (2018): reductions in BPD and depression severity
- Tebbett-Mock et al. (2020): fewer incidents of suicide attempts, self-injury, restraints, and hospitalized days



FAST FACTS:

3EAST DBT PHP

- ✓ Est. 2007 as girls residential program
- ✓ PHP est. 2008
- ✓ Different levels of care along continuum
- ✓ 4-Week Program treating adolescent & young adults
- ✓ Treatment focus: emotional & behavioral dysregulation, suicidality & NSSI
- ✓ Gender Inclusive
- ✓ Age Range: 14-mid 20s
- ✓ Predominantly white
- ✓ Higher SES
- ✓ Interviews to assess clinical fit & commitment



3East PHP: Treatment Components

- Four-week program
- 34 groups x week
- Rolling admission
- HW assignments

Group Therapy



- Twice x week
- Diary Card
- Chain Analyses

Individual Therapy



- Once x week
- Parent group once x week
- Two-day workshop every two months

Family Involvement



- In program
- 24/7 On-call
- Parent coaching

Skills Coaching



- Once x week
- Decrease reliance on certain meds
- Med changes to ameliorate symptoms

Psychiatric Consultation



- Once x week
- Multidisciplinary team
- Therapy for the therapists

Consultation



3East PHP Patient Program Outcomes Study: Demographics

Patients Treated

146

Adolescent and emerging adult patients treated between May 2019-March 2022

At Admission

61.6%

Reported a suicide attempt or intentionally harming or injuring themselves in the prior three months.

Race & Ethnicity

83.3%*

of the sample who did report race identified, at least in part, as white or European American.

Sexual Orientation

53%

identified as gay, lesbian, bisexual, queer, asexual, or other sexual orientations.

Average Age

17.5yrs

Patients ranged from 14 to 24, with the mean age being 17.5

Gender Identity

61.0%

Identified as cisgender female

Gender Identity

19.2%

Identified as cisgender male

Gender Identity

19.8%

Did not identify as cisgender male or female

*38% of sample did not report race of ethnicity, influencing rates

3East PHP Patient Program Outcomes Study: Results

Our study compared mean scores for patients at admission to scores at 20 days of treatment.

The study uses several measures to monitor patients' clinical progress, including the DASS-21, Suicidal Behaviors Questionnaire, DERS, FFMQ, and DBT-WCCL.

Results: Significant improvements across all outcome measures and subscales.

Significant Improvements

Patients reported lower depression, anxiety, stress, and suicidal ideation/behaviors, and demonstrated significant improvements in emotion regulation, mindfulness, and DBT coping skills.

At Discharge

55%+

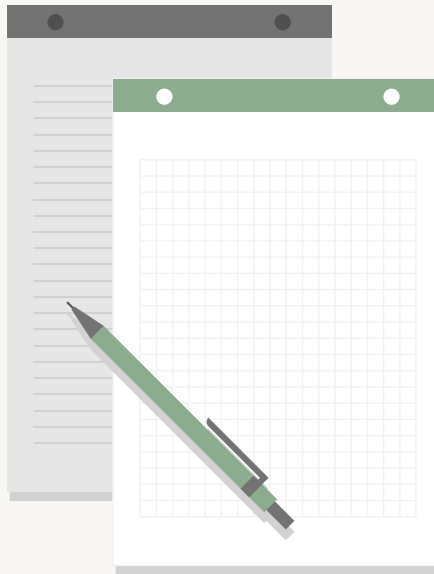
Of patients with poor emotion regulation at admission demonstrated reliable improvement after the program.

Emotional Regulation

75%

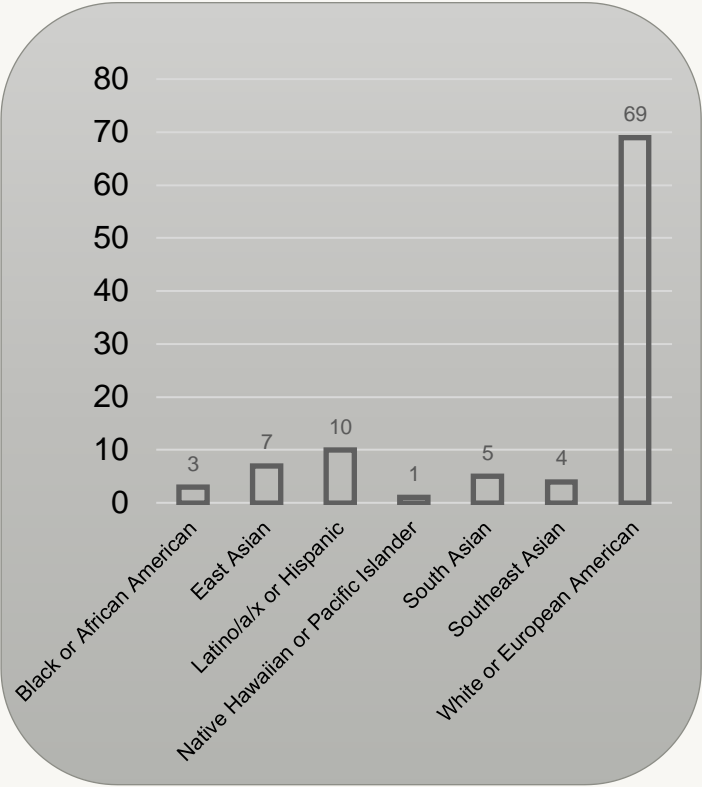
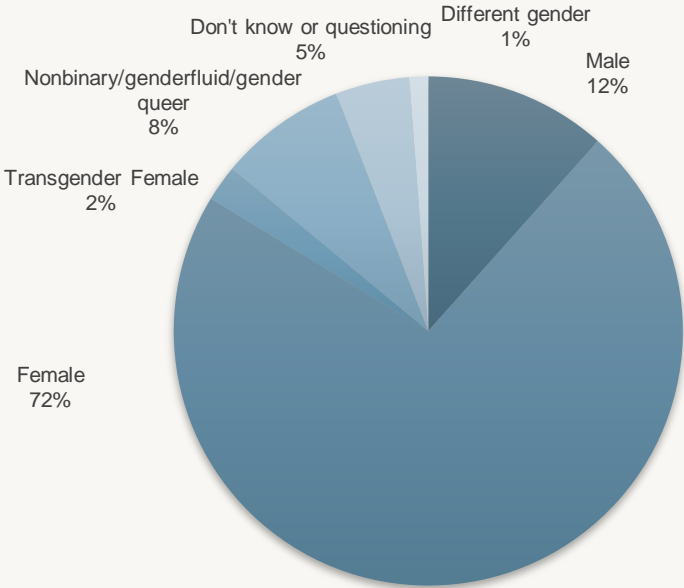
Of patients with reliable change in emotion regulation also showed clinically significant change, indicating recovery.

3East PHP CARE

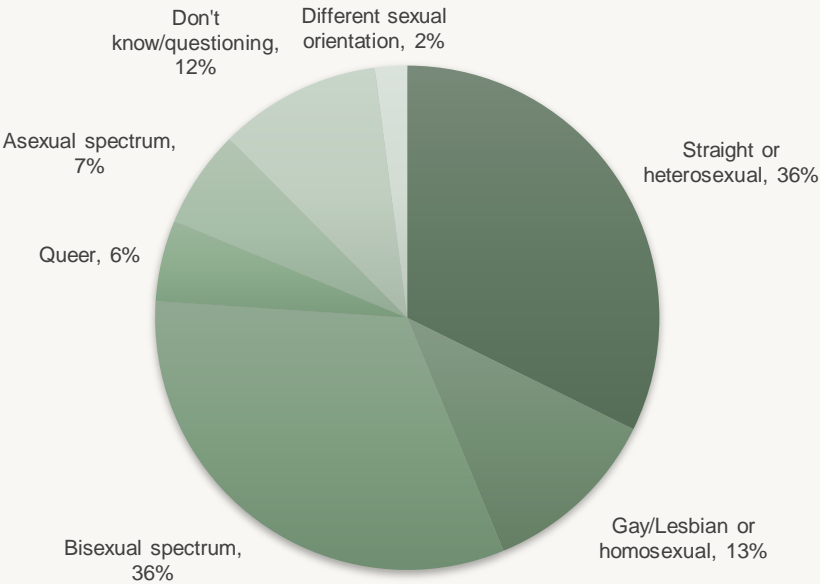


- The Child and Adolescent Routine Evaluation (CARE) Initiative
- Every child and adolescent patient in every Child Division treatment program at McLean complete a set of standardized assessments—of issues ranging from ASD to ADHD to family functioning and suicide and early life stress
- This ensures a more comprehensive evaluation than current standard of care—can consider the whole view of the patient, resulting in more comprehensive treatment and recommendations
- 86 adolescents/young adults and at least one parent have consented to participate (April 2022 - ongoing)
- Age range 13-24

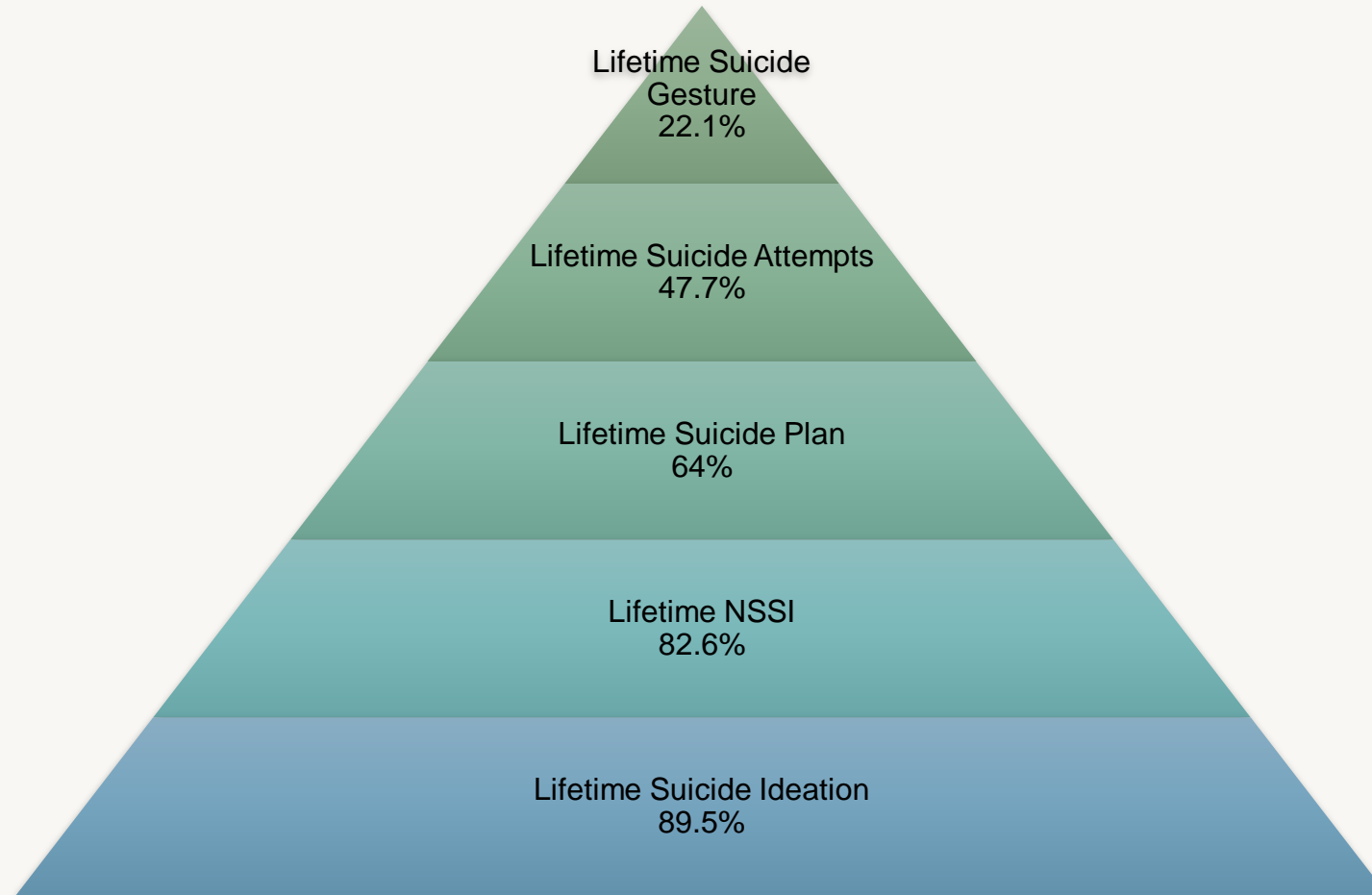
3East PHP CARE: Demographics



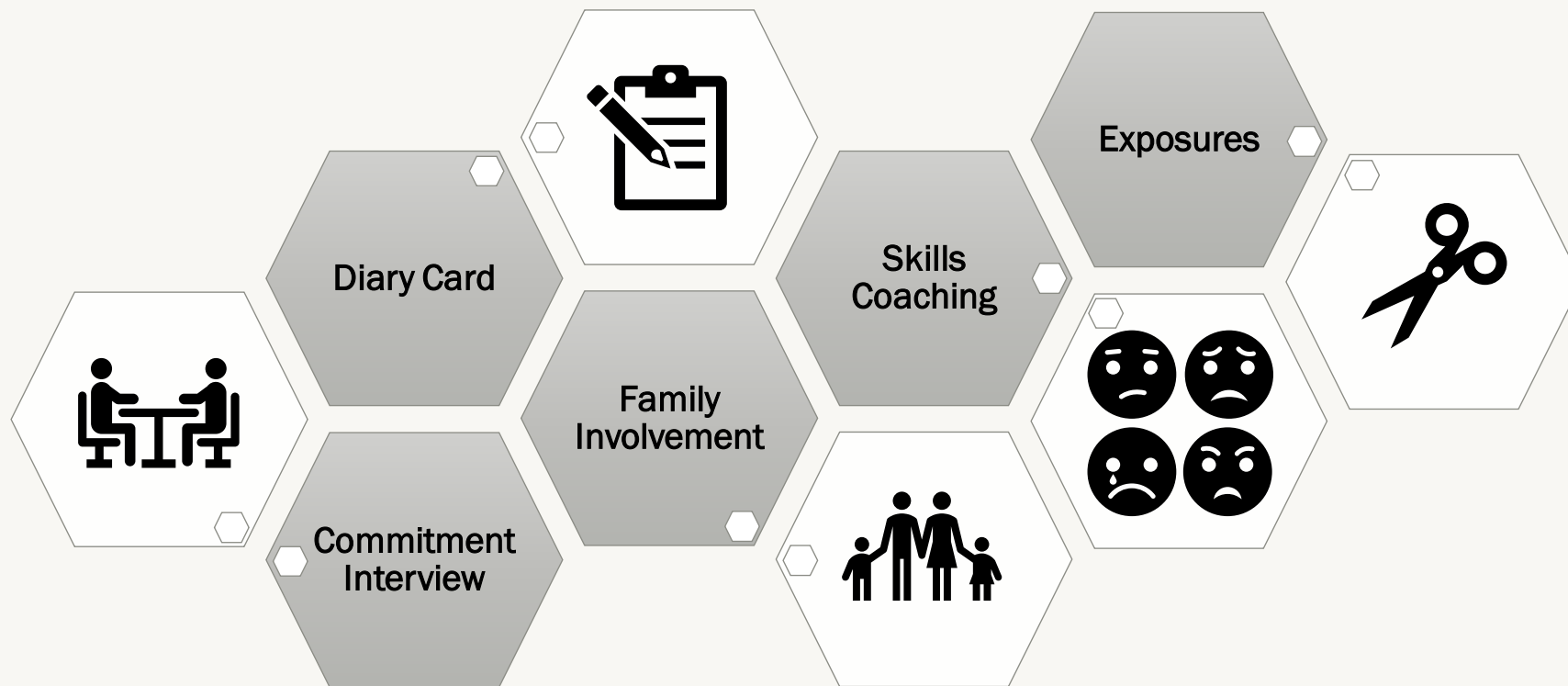
*Can select multiple options



3East PHP CARE: Suicidality and NSSI Data



Why the 3E DBT PHP works at reducing suicidality & NSSI



AUDIENCE Q&A

FINAL THOUGHTS

- A recording will be emailed to you in 2 weeks. It will include the presentation slides.
- Take our survey immediately after the webinar has concluded.

THANK YOU!

PAID FOR BY



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