**Presentation Objectives**

- Define and categorize non-suicidal self-injury (NSSI)
- Discuss epidemiology and etiology NSSI
- Identify assessment of NSSI in the primary care setting
- Identify non-pharmacological and pharmacological treatment options for NSSI

**Non-Suicidal Self-Injury (NSSI)**

- Understanding the continuum of self-injurious behavior begins with definitions of terms used in the literature as well as clinical practice
- NSSI
  - Infliction of deliberate bodily damage, usually by cutting oneself, without the intention to die
  - Behavior is also known as impulsive self-injury, self-injurious behavior (SIB), self-injury, self-mutilation, cutting, and self-harm
- Main difference between suicidal behavior and NSSI
  - Suicidal behavior involves intent to end one’s life and includes ideations and attempts

**NSSI vs. Suicide**

- Self-injury is a major risk factor for completed suicide, either by accident or habituation
- The higher the frequency of self-harm, the higher the risk for completed suicide
  - Self-harmers have a 30-fold increased risk for completing suicide compared to those who do not self-harm (Cooper et al., 2007)
  - Self-injury is NOT a suicide prevention strategy!

**Types of NSSI**

- Behavior can be manifested in a variety of forms (including, but not limited to):
  - Cutting
  - Hitting or bruising self
  - Skin picking (including reopening wounds)
  - Head banging
  - Pulling out hair
  - Burning
  - Bone-breaking

**Risk Factors for NSSI**

- History of childhood physical and/or sexual abuse
- Substance use
- Mental retardation
- Psychiatric diagnosis
Functions of NSSI

- Motivational factors:
  - Emotional regulation
  - Desolation (stop feeling empty)
  - Punishment
  - Influence/manipulate others
  - Self-stimulation (provide excitement)

Epidemiology of NSSI

- Difficult to obtain accurate statistics due to secrecy around self-injury
  - Approx 1-4% of adults in the US self-injures
  - Chronic and severe self-injury is estimated to occur in approx 1% of the population (Klonsky, Oltmanns, & Turkheimer, 2003)

Epidemiology of NSSI (cont)

- Adolescence is a period of increased risk for self-injury behaviors as well as suicidal thoughts and behaviors
  - Studies report a 13-25% lifetime prevalence of NSSI with the behaviors often beginning between ages 13 and 15 (Hankin & Abela, 2011)
  - Appears to be a higher risk of self-injury among college students with rates ranging from 17-35% (Whitlock, Eckenrode, & Silverman, 2006)

Epidemiology of NSSI (cont)

- Suicide and suicide attempts
  - 3rd leading cause of death among children/adolescents 10-24
  - Multiple attempts for every completed suicide

- NSSI
  - Community samples: 14-39%
  - Psychiatric inpatient samples: 40-61%
  - 25,000 ED visits yearly for NSSI related events

Epidemiology of NSSI (cont)

- Rates of self-injury between males and females appear to be similar although they appear to prefer different forms of self-injury
  - Males more frequently report burning and hitting themselves
  - Females are more likely to engage in cutting

Epidemiology of NSSI (cont)

- Self-injury rates may be as high as 22% among primary care patients (Weideman, Sansone, & Sansone, 1999)

Implications:

- Primary care providers play a vital role as a first step in the treatment process for those who self-injure
Why Are Adolescents so Vulnerable?

Adolescence represents one of the healthiest periods in the lifespan with respect to physical illness, BUT…

- 200-300% increase in mortality and morbidity rates between mid childhood to late adolescence
- Problems related to emotional and behavioral control
  - Accidents, homicides
  - Suicide, depression, anorexia, bulimia
  - Alcohol and substance use
  - STDs, unwanted pregnancies

Why Are Adolescents so Vulnerable? (cont)

- Pubertal development associated with changes in brain
  - Increased conflicts with parents (intensity)
  - Mood volatility (and increased negative mood)
  - Increased risk behavior, recklessness
  - Sensation-seeking

Why Are Adolescents so Vulnerable? (cont)

- Emotional changes associated with pubertal development (emotional intensity, romantic interests, risk-taking)
- Cognitive changes (inhibition, problem-solving, long-term planning) are r/t increasing age and experience
  - Asynchrony between physical and emotional changes and cognitive maturation
  - During this period of rapid change, adolescents are not yet able to make rational decisions in the face of intense emotional and motivational states
Etiology of NSSI

- Combination of biological, psychological, and environmental factors
  - Vulnerabilities to self-injury
  - Biological
  - Behavioral
  - Emotional dysregulation

Etiology of NSSI (cont)

- Vulnerabilities to self-injury
  - Confused sense of self (including sexual orientation)
  - Internal locus of control (self-blaming)
  - Peer pressure
  - Hypercritical parents
  - Violent/dysfunctional family
  - Use of cigarettes, alcohol, and/or drugs
  - Criminal history

Etiology of NSSI (cont)

- Biological
  - Serotonin hypothesis
  - Low levels associated with impulsivity, aggression, and suicide attempts
  - Some evidence that self-injury is associated with lower levels of presynaptic 5-HT release
  - Endogenous opioid system hypothesis
  - Significantly lower levels of CSF β-endorphin and met-enkephalin in NSSI group
    - Stanley, Sher, Wilson, Edelman, Yung, Huang, & Mann, 2010

Etiology of NSSI (cont)

- Behavioral
  - Learned behavior—modeling
  - Positive reinforcement
  - Attention, inclusion, sense of relief, tension reduction
Etiology of NSSI (cont)

- Behavioral
  - Influence of the internet
    - 80% of 12-17 year olds report use of internet; half log on daily
    - Depressed youth more likely to engage on-line
      - Self-injurers may be drawn to internet
    - Whitlock, Powers, & Eckenrode, 2006
      - Studied role of internet in spreading self-injury info and influencing help seeking
      - 3912 posts over a 2 month period were examined

Etiology of NSSI (cont)

- Findings:
  - 28%—Informal support
  - 19.2%—Triggers
  - 9.1%—Concealment issues
  - 8.9%—Addictiveness of behavior
  - 7.1%—Help seeking
  - 6.2%—Techniques

Etiology of NSSI (cont)

- Conclusions
  - Internet is providing powerful vehicle to bring self-injuring youth together
  - Positives
    - These youth engage in typical social discourse—exchanging stories, voicing opinions, providing support
  - Negatives
    - Exposure to subculture that normalizes and encourages self-harming behaviors contributes to a social contagion effect

Etiology of NSSI (cont)

- Biosocial Model
  - Developed by Marcia Linehan in 1993 to describe etiology of borderline personality disorder

  - Emotional Vulnerability + Invalidating Environment

  - = Pervasive emotional, behavior, interpersonal, cognitive, and self-dysregulation

Etiology of NSSI (cont)

- Emotional vulnerability
  - High sensitivity
    - Immediate reactions
    - Low threshold for emotional reaction
  - High reactivity
    - Extreme reaction
    - High arousal dysregulates cognitive processing
  - Slow return to emotional baseline
    - Long lasting reactions
    - Contributes to high sensitivity to next emotional stimulus

Etiology of NSSI (cont)

- Invalidating environment
  - "Poorness of fit"
  - Child’s expression of private experiences are not validated, but dismissed
    - "You can’t be hungry; we just had dinner."
  - Child does not learn how to understand, label, regulate, or tolerate emotional responses
    - Child "ups the volume" to convince invalidating environment that what they’re feeling is real
What About the DSM?
- Currently listed as a symptom in Borderline Personality Disorder
- Not included as a separate diagnosis in the DSM-IV
- NSSI is proposed to be included as a diagnostic category in the DSM-5

DSM-IV Diagnoses Frequently Associated with NSSI
- Borderline personality disorder
- Dissociative disorders
- Major depression
- OCD
- PTSD
- Eating disorders
- Substance abuse disorders

Role of the Primary Care Provider
- Attempt to understand self-injury through motivational interviewing (MI)
- Use of MI techniques can:
  - Enhance PCP’s understanding of self-injury from the patient’s point of view
  - Facilitate discussion of self-injury in order to complete an adequate risk assessment
  - Prompt the patient to consider getting treatment

Role of the Primary Care Provider (cont)
- MI
  - Empathetic, patient-focused directive counseling style
  - Seeks to create conditions for positive behavioral change
  - Well-suited for brief clinical encounters
  - Evidence-based (>200 clinical trials, both adults and adolescents)

Understanding Self-Injury
- Sample questions to assess NSSI based on MI techniques
  - What effect is this having on your life?
  - It seems like self-injury serves a function for you. Are there any disadvantages to continuing to do this to yourself?
  - Is there anything that’s motivating you to stop self-injuring right now?
  - It sounds like it’s difficult to handle the stress in your life without self-injuring. How would your life be different right now if you were not self-injuring?
  - There are a lot of options for getting help for this problem. What do you think you would need to help you stop from self-injuring?

Use of Validation
- Validation
  - Communicating your understanding of the patient’s experience from their perspective
  - Allows the patient to feel as if he/she was heard
  - Avoid being critical/judgmental or communicating to the self-injuring patient that their behavior is “wrong”
Assessment of Self-Injury

- 2 main considerations when evaluating risk
  - Severity level of the patient’s self-injury
    - Based on the frequency of the behavior and the number of different methods used
  - Risk that NSSI will progress to suicide attempts
    - As the severity of self-injury increases, the risk of suicide also increases

- Risk/Severity Level by Number of Types & Episodes of Self-Injury

<table>
<thead>
<tr>
<th>Feature</th>
<th>Indicator</th>
<th>Severity/Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of types used</td>
<td>1</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>2-3</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td>&gt;3</td>
<td>High</td>
</tr>
<tr>
<td>Number of episodes</td>
<td>≤10</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>11-50</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td>&gt;50</td>
<td>High</td>
</tr>
</tbody>
</table>

Numerous validated instruments are available to assess for self-injury

- Self-Harm Inventory
  - 1 page screening tool
  - Less than 5 minutes to complete
  - Free to use
  - Screens for lifetime prevalence of 22 self-harm behaviors, detects BPD symptoms, and predicts past mental health care utilization
    - [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2877617/figure/F1](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2877617/figure/F1)

Use of mnemonic “STOPS FIRE”

- S—Suicidal ideations during or before self-injury
- T—Types of self-injury in which the patient engages
- O—Onset of self-injury
- P—Place (location) on the body that is injured
- S—Severity and extent of damage caused by self-injury
- F—Functions of the self-injury for the patient
- I—Intensity or frequency of self-injury urges
- R—Repetition of self-injury
- E—Episodic frequency of self-injury

What To Assess

<table>
<thead>
<tr>
<th>Assessment of Self-Injury (cont)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Suicidal ideations</strong></td>
</tr>
<tr>
<td>• Cutting might be different than trying to kill yourself, but for some people, they’re related.</td>
</tr>
<tr>
<td>• Do you ever think about killing yourself when you cut?</td>
</tr>
<tr>
<td>• Do you think about killing yourself when you don’t cut?</td>
</tr>
<tr>
<td>• Intense thoughts about suicide while self-injuring</td>
</tr>
<tr>
<td>• Thoughts about suicide before or after self-injuring</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment of Self-Injury (cont)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Types</strong></td>
</tr>
<tr>
<td>• What have you used to cut?</td>
</tr>
<tr>
<td>• In what ways do you injure yourself?</td>
</tr>
<tr>
<td>• Multiple types</td>
</tr>
<tr>
<td>• 3 methods</td>
</tr>
</tbody>
</table>

Kerr, Muehlenkamp, & Turner, 2010
Assessment of Self-Injury (cont)

<table>
<thead>
<tr>
<th>What To Assess</th>
<th>How To Assess It</th>
<th>High Risk Indicators Warranting Referral for Behavioral Health Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functions</td>
<td>•What does cutting do for you?</td>
<td>•Any relationship to suicide (reduces suicidal thoughts or urges)</td>
</tr>
<tr>
<td></td>
<td>•How do you usually feel before/after cutting?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>•Would it help you in any way if you stopped cutting?</td>
<td></td>
</tr>
<tr>
<td>Intensity of self-injury/urges</td>
<td>•How strongly would you rate your urges to cut in a typical day from 0 to 100?</td>
<td>•≥ 70 or higher</td>
</tr>
</tbody>
</table>

Kerr, Muehlenkamp, & Turner, 2010

Non-Pharmacologic Treatment for NSSI

- Cognitive Behavioral Therapy (CBT)
- Dialectical Behavioral Therapy (DBT)

CBT

- Incorporates
  - Behavior, cognition, affect and social factors
  - Cognitive and affective interventions to effect change in:
    - Thoughts
    - Feelings
    - Behaviors

CBT Materials: Thought Record

<table>
<thead>
<tr>
<th>What happened?</th>
<th>How did you feel?</th>
<th>What thoughts did you have at the time?</th>
<th>What did you do?</th>
<th>Any other way to look at it?</th>
</tr>
</thead>
</table>

DBT

- Only therapeutic entity shown in controlled trials to successfully treat NSSI
- Therapy and groups focus on:
  - Regulating emotions
  - Tolerating distress
  - Improving interpersonal relationships
  - Reducing identity confusion and maladaptive cognitions
**DBT…Distraction Techniques (cont)**
- High intensity distraction techniques
  - Dance to loud rock/rap music (using a headphone if others are around)
  - Take hot/cold shower
  - Exercise/get active
  - Go to the mall
  - Talk to a trusted adult
- Do muscle relaxation exercises/squeeze a stress ball
- Do Mindfulness exercises (deep breathing)
- Put on clothes straight out of the dryer
- Appreciate nature (look at the stars, listen to the rain, smell the flowers)

**DBT…Substitute Behaviors (cont)**
- Substitute behaviors
  - Treatment goal is for pts to substitute less destructive behaviors in response to intense emotional states
  - Snapping rubber band or rubbing ice on skin

**Pharmacologic Treatment for NSSI**
- Few evidence-based studies have looked at NSSI treatment in adolescents
- Most of the rx evidence is extrapolated from the literature on treating adult women with BPD
- No meds are FDA approved for treating NSSI
- Use meds to treat underlying disorders

**Pharmacologic Treatment for NSSI (cont)**
- Some limited data supporting specific pharmacologic agents for self-injury in adults who are not developmentally disabled
  - Level of evidence for below meds is 3 (no RCTs)
    - Naltrexone (Revia)
    - Clozapine (Clozaril)
    - Topiramate (Topamax)
Pharmacologic Treatment for NSSI (cont)

- Naltrexone (Revia) 50 mg/day
  - Mu-opiate receptor antagonist
  - FDA approved for the rx of alcohol dependence and opiate dependence
  - Blocks opiate receptors and hypothesized to block the positive reinforcement mechanism involved in self-injury

Pharmacologic Treatment for NSSI (cont)

- Clozapine (Clozaril) 300-550 mg/day
  - Atypical antipsychotic
  - Numerous risks with this drug
    - Agranulocytosis, metabolic syndrome, cardiomyopathy, seizures

- Topiramate (Topamax) 200 mg/day
  - Anticonvulsant
  - Used off-label in the treatment of bipolar disorder
  - Being studied as a treatment for alcohol dependence

References


References (cont)