Accessing and Engaging High-Risk Populations:
A Psychological Intervention Developed for a Level 1 Trauma Center in New Orleans

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The contents of this presentation do not represent the views of the Department of Veterans Affairs or the United States Government
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- Catherine Rochefort
- Samia Lalani
- Rachel Wamser, Ph.D.
Trauma Research: From Treating PTSD to Preventing Violence

Cognitive Bias and PTSD in Veterans

Assessing PTSD in Community Violence Victims
Conrad, Hansel, Pejic, & Constans (2013)

Prevention
1. Access those at high risk for both repeat trauma and perpetration
2. Use trauma as opportunity to motivate change
3. Understand risk factors
4. Modify changeable risk factors
# 2016 Murder Rate Ranking by City

<table>
<thead>
<tr>
<th>Rank</th>
<th>City</th>
<th>Homicide Rate (Per 100,000 People)</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>St. Louis (Missouri)</td>
<td>59.30</td>
</tr>
<tr>
<td>2</td>
<td>Baltimore (Maryland)</td>
<td>51.20</td>
</tr>
<tr>
<td>3</td>
<td>Detroit (Michigan)</td>
<td>45.20</td>
</tr>
<tr>
<td>4</td>
<td>New Orleans (Louisiana)</td>
<td>44.50</td>
</tr>
<tr>
<td>5</td>
<td>Cleveland (Ohio)</td>
<td>34.70</td>
</tr>
<tr>
<td>6</td>
<td>Newark (NJ)</td>
<td>33.40</td>
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<tr>
<td>7</td>
<td>Memphis (TN)</td>
<td>32.50</td>
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<tr>
<td>8</td>
<td>Chicago (IL)</td>
<td>27.90</td>
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<tr>
<td>9</td>
<td>Kansas City (MO)</td>
<td>26.60</td>
</tr>
<tr>
<td>10</td>
<td>Atlanta (GA)</td>
<td>23.90</td>
</tr>
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</table>
New Orleans vs. Other US Cities
Property Crime


Source: Crime in the United States (Uniform Crime Reports), 2009

New Orleans vs. Other US Cities
Violent Crime

New Orleans vs. Other US Cities
Homicide

Chart 4. Homicide Rates, 2009

Source: Crime in the United States (Uniform Crime Reports), 2009

Treatment of Violent Trauma in our Community

• Spirit of Charity Level I Trauma Center

• Trauma Activation
  • Specific trauma teams assess and treat
  • Collection of injury data and basic demographic variables

• Treatment options
  • ER only
  • Surgery / SICU*

• Until recently, no MH involvement unless consulted
<table>
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<tr>
<th>Item</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
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<tr>
<td>Encounters</td>
<td>547</td>
<td>471</td>
<td>503</td>
<td>527</td>
<td>554</td>
<td>551</td>
<td>464</td>
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<tr>
<td>Population</td>
<td>288,113</td>
<td>336,644</td>
<td>354,850</td>
<td>347,800</td>
<td>360,341</td>
<td>369,250</td>
<td>378,715</td>
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<tr>
<td>Murders</td>
<td>208</td>
<td>179</td>
<td>174</td>
<td>175</td>
<td>199</td>
<td>193</td>
<td>155</td>
</tr>
</tbody>
</table>

Russo, Fury, Accardo, & Krause (2016) Economic and Educational Impact of Firearm-Related Injury
Acute Gunshot Wound Encounters (N=3617): Patient Demographics and Economic Impact

**Patient Demographics**
- 89% Male
- 89% non-white
  - 82% Black
- Mean age - 27.9
- 13% blood alcohol > .08
- 27% + illegal substance (70% MJ)
- 92% assault
- 86% survived to discharge

**Hospital/Economic Data**
- 7.26 day average stay
- 65% no insurance
  - 28% Medicaid
  - 6% private insurance
- Bill / Payment Ratio per year
  - ~$20 mil / ~$ 4.5 mil
- Actual Cost (OCCR) after collection
  - $6 mil annually (516 Unique shooting events per year)
  - *Initial Encounter Only*

*Prevention of Gun Violence highly cost effective for community*
Criminal Behavior and Repeat Violent Trauma: A Case Controlled Study*

• How many violence victims are readmitted for gun violence trauma?

• What are the risk factors associated with readmission?
  • Criminal behaviors
    - Gun Possession Crimes
    - Property Crimes
    - Violent Crimes
    - Drug Crimes
    - Gun Use Crimes

Criminal Behavior and Repeat Violent Trauma: A Case Controlled Study*

- Developed a cohort of trauma registry patients age 18-40 whose activation was due to violent injury (April, 2006-2011)
  - Orleans Parish residents only

- Recorded whether individual presented again for subsequent violent injury treatment
  - April 2006 - 2012

- This measure of repeat violent trauma was used as the primary outcome measure in subsequent analyses.

Criminal Behavior and Repeat Violent Trauma: A Case Controlled Study*

• Through use of patient name and DOB, criminal records obtained for all individuals in the cohort through publically accessible records.

• Used coding schemes that categorized convictions into
  - Gun Possession Crimes
  - Drug Crimes
  - Property Crimes
  - Gun Use Crimes
  - Violent Crimes

• Categorizations NOT mutually exclusive EXCEPT gun possession crimes

• Examine of how initiation, as opposed to continuation, of certain criminal behaviors contribute to re-injury risk.
  • Who did not engage in a specific crime prior to initial injury were coded
    • Continue to abstain
    • Initiate crime subsequent to initial injury

## Demographics and Injury Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD): Total</th>
<th>Mean (SD): Repeat</th>
<th>Mean (SD): Single Episode</th>
<th>No (%) Total (1,243)</th>
<th>No (%) Repeat (93)</th>
<th>No (%) Single Episode (1,150)</th>
<th>$\chi^2$</th>
<th>F</th>
<th>p-value</th>
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<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>18-25</td>
<td>26.55 (6.12)</td>
<td>23.70 (5.29)</td>
<td>26.78 (6.13)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22.20</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>26-32</td>
<td></td>
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<td>33-40</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>1089 (82.8)</td>
<td>90 (96.8)</td>
<td>939 (81.7)</td>
<td>13.81</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>White</td>
<td>79 (6.4)</td>
<td>2 (2.2)</td>
<td>77 (6.7)</td>
<td>2.99</td>
<td></td>
<td></td>
<td></td>
<td>0.08</td>
<td></td>
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<tr>
<td>Asian</td>
<td>11 (0.9)</td>
<td>0 (0)</td>
<td>11 (1.0)</td>
<td>0.90</td>
<td></td>
<td></td>
<td></td>
<td>0.34</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>124 (10.0)</td>
<td>1 (1.1)</td>
<td>123 (10.7)</td>
<td>8.87</td>
<td></td>
<td></td>
<td></td>
<td>0.003</td>
<td></td>
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<tr>
<td><strong>Time to second injury in years</strong></td>
<td>1.68 (1.37)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Frequency of Crime in Sample

<table>
<thead>
<tr>
<th>Category</th>
<th>Number (%) with conviction before first injury</th>
<th>Number (%) with conviction after first injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gun possession</td>
<td>105 (8.4)</td>
<td>72 (5.8)</td>
</tr>
<tr>
<td>Gun use</td>
<td>25 (2.0)</td>
<td>19 (1.5)</td>
</tr>
<tr>
<td>Violence</td>
<td>148 (11.9)</td>
<td>121 (9.8)</td>
</tr>
<tr>
<td>Drug</td>
<td>478 (38.5)</td>
<td>193 (15.5)</td>
</tr>
<tr>
<td>Property</td>
<td>172 (13.8)</td>
<td>77 (6.2)</td>
</tr>
</tbody>
</table>
Criminal Behavior and Repeat Violent Trauma

• Hypothesis I:
  • Drug crime, violent crime, and gun possession will predict re-injury.

• Statistical Analysis
  • Multivariate Logistic Regression
    • Step 1
      • Criminal behaviors prior to first injury
    • Step 2
      • Criminal behaviors after initial injury
## Multivariate Logistic Regression of Crime and Trauma Recidivism

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<thead>
<tr>
<th>Crime</th>
<th>Wald</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before only</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race (black/not black)</td>
<td>7.77**</td>
<td>5.32</td>
<td>1.64 – 17.25</td>
</tr>
<tr>
<td>Gun possession before</td>
<td>0.04</td>
<td>1.11</td>
<td>0.54 – 2.21</td>
</tr>
<tr>
<td>Gun use before</td>
<td>0.13</td>
<td>0.75</td>
<td>0.16 – 3.54</td>
</tr>
<tr>
<td>Violence before</td>
<td>0.71</td>
<td>1.36</td>
<td>0.70 – 2.46</td>
</tr>
<tr>
<td>Drug crime before</td>
<td>5.43**</td>
<td>1.71</td>
<td>1.09 – 2.69</td>
</tr>
<tr>
<td>Property crime before</td>
<td>0.17</td>
<td>0.88</td>
<td>0.47 – 1.63</td>
</tr>
<tr>
<td><strong>Before and after</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race (black/not black)</td>
<td>4.45**</td>
<td>3.56</td>
<td>1.10 – 12.18</td>
</tr>
<tr>
<td>Time after first injury</td>
<td>82.26**</td>
<td>0.91</td>
<td>0.90 – 0.93</td>
</tr>
<tr>
<td>Gun possession before</td>
<td>0.02</td>
<td>1.06</td>
<td>0.50 – 2.24</td>
</tr>
<tr>
<td>Gun use before</td>
<td>0.08</td>
<td>0.77</td>
<td>0.13 – 4.53</td>
</tr>
<tr>
<td>Violence before</td>
<td>0.61</td>
<td>0.76</td>
<td>0.39 – 1.51</td>
</tr>
<tr>
<td>Drug crime before</td>
<td>5.19**</td>
<td>1.80</td>
<td>1.09 – 2.97</td>
</tr>
<tr>
<td>Property crime before</td>
<td>0.01</td>
<td>0.97</td>
<td>0.49 – 1.89</td>
</tr>
<tr>
<td>Gun possession after</td>
<td>4.95*</td>
<td>2.70</td>
<td>1.13 – 6.48</td>
</tr>
<tr>
<td>Gun use after</td>
<td>0.68</td>
<td>0.37</td>
<td>0.03 – 3.97</td>
</tr>
<tr>
<td>Violence after</td>
<td>0.17</td>
<td>1.33</td>
<td>0.52 – 3.40</td>
</tr>
<tr>
<td>Drug crime after</td>
<td>3.70</td>
<td>1.93</td>
<td>0.99 – 3.76</td>
</tr>
</tbody>
</table>
Criminal Behavior and Repeat Violent Trauma

- Hypothesis II:
  - *Initiation* of gun possession will increase risk of re-injury

- Statistical Analysis
  - Series of Logistic Regressions for each crime type
    - DV = repeat victimization (y/n)
    - IV = crime initiation (y/n)
    - History of other crime is controlled.
<table>
<thead>
<tr>
<th>Crime</th>
<th>n</th>
<th>Unadjusted OR</th>
<th>95% CI</th>
<th>Wald</th>
<th>AOR&lt;sup&gt;a&lt;/sup&gt;</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crime initiated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gun possession</td>
<td>1,116</td>
<td>2.15</td>
<td>0.98 – 4.69</td>
<td>7.45**</td>
<td>3.53</td>
<td>1.43 – 8.73</td>
</tr>
<tr>
<td>Gun use</td>
<td>1,218</td>
<td>0.73</td>
<td>0.10 – 5.51</td>
<td>0.36</td>
<td>0.59</td>
<td>0.06 – 4.62</td>
</tr>
<tr>
<td>Violence</td>
<td>1,092</td>
<td>0.70</td>
<td>0.27 – 1.77</td>
<td>0.08</td>
<td>0.87</td>
<td>0.32 – 2.38</td>
</tr>
<tr>
<td>Drug crime</td>
<td>764</td>
<td>2.08</td>
<td>0.89 – 4.89</td>
<td>9.03**</td>
<td>5.12</td>
<td>1.77 – 14.84</td>
</tr>
<tr>
<td>Property crime</td>
<td>1,070</td>
<td>1.38</td>
<td>0.53 – 3.57</td>
<td>0.24</td>
<td>1.30</td>
<td>0.45 – 3.74</td>
</tr>
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</table>
Drug offenses before and after initial injury predicts re-injury.

Gun possession after initial injury predicts re-injury.
  • GSW is inflection point in which risk behaviors (i.e., gun carrying) may increase?

Implication that at time of initial trauma clinicians might attend to:
  • Interventions to decrease involvement in drug industry
  • Behavioral interventions targeting gun carrying
Trauma-Center Gun Violence Intervention

- Increasingly common
  - Access to high risk sample
    - Risk of gun violence perpetration 3x
    - Risk of hospitalization for violent trauma 30x
    - Risk of firearm-related death 4x
  - Majority focus on enrolling patients in case management services (e.g., Becker, Hall, Ursic, Calhoun, & Jain, 2004)
  - Most have no specific behavioral intervention
  - Evaluations of efficacy indicate mixed-results (Cunningham et al., 2009)

- Behavioral interventions may increase efficacy
  - Leverage science of behavior change
What do we want them to change?

• Many patients deny violence.

• Violent injury is not an intentional behavior

• Violence and violent injury have many determinants

➢ Dynamic Risk Factors: changeable aspects of a persons life that ↑ risk

• Risk factors unique to urban violence

• General risk factors for violence and violent injury
Possible Risk Factors For Perpetration / Re-injury

### Intrinsic Risk Factors
- PTSD
  - (Corrigan & Watson, 2005; Elbogen et al., 2012, 2014)

- Pro-gun Beliefs
  - (Nanney et al., 2015)

- Anger/Aggression
  - (Swanson et al., 2015; DuRant, Getts, Cadenhead, & Woods, 1995)

- Alcohol Abuse
  - (Branas, Han, & Wiebe, 2016)

### Extrinsic Risk Factors
- Unemployment
  - (DuRant et al., 1994)

- Limited Education
  - (Maguin & Loeber, 1996)

- Drug Market
  - (Nanney et al., 2015)
Possible Interventions to Mitigate Risk

**Interventions to mitigate intrinsic risk factors**

- Psychological treatments
  - PTSD treatment
  - Cognitive therapy Gun Beliefs and Behavior
  - CBT for Anger / Aggression

- Substance Abuse Treatment

**Interventions to mitigate extrinsic risk factors**

- Work programs
- GED programs
Issues in Choosing Interventions

• Which risk factor to address?
• Develop new interventions for multiple risk factors?
  – Time / Cost
• Some risk factors aren’t amenable to therapy
  – Unemployment, limited education
• Community has existing programs

**Solution:** Improving motivation to change / accept assistance

• No need to create new interventions
  – Build on existing infrastructure
• Flexible with regard to issues of multiple risk factors
• Patient-centered approach
How do we increase motivation for change?

**What doesn’t work?**

- Shaming approaches → shame/anger, not change
- Overtly directive approaches → resistance, not change

**What may work?**

- Motivational Interviewing (Miller & Rollnick, 2013):
  - Respectful, client-centered approach → ↑ motivation & behavior change
    - Eliciting and exploring the person’s own reasons for change
    - “People talk themselves into change”
Motivational Interviewing and the Stages of Change

- Transtheoretical Model (TTM)- developed by James Prochaska and Carlo DiClemente, focuses on promoting behavior change by identifying how and why people change. TMM is concerned with understanding a person’s readiness to adapt to a new behavior.
Precontemplation

- Person has no intention to adopt change within the next 6 months
- Person is unaware of their issues
- Person is not ready
- Person is not serious about change
Contemplation

- Person acknowledges there is a problem and is thinking about making a change
- Intends to make changes within the next six months
- Weighing the pros and cons of change
- Person may be in this stage for a long period of time
- Person not committed to make a change
Preparation

• Person is planning on making behavior change within the next month

• Person is not sure how to make changes and may doubt their abilities

• Person may begin a plan of action

• Person collects information

• “Testing the waters”
Action

• Person is actually making the changes to modify their behaviors, environment, and experiences on a daily basis

• These changes have occurred within the last day to six months

• This phase includes a lot of time, energy, and recognition

• This person is achieving their goal
Maintenance

- Sustained change for 6 months or more
- The focus is to prevent relapse
- Maintain the progress that has occurred during the action stage
- Person is very confident that they will maintain the changes
- Avoid temptations and old/new triggers
Motivational Interviewing

- **Style of communicating (OARS)**
  - Collaborative instead of confrontational
  - Evocative rather than educational
  - Respectful of autonomy
  - Acceptance and compassionate about resistance

- **Develop discrepancy**
  - Present information

- **Support self-efficacy** *in an action plan*
  - Consistent with stage of change
Motivational Interviewing for Victims of Urban Gun Violence (MI-VoV)

Assessment → Motivational Interview → Follow-up

Nanney et al. (in press). Motivational Interviewing for Victims of Armed Community Violence: A Non-Experimental Pilot Feasibility Study. *Psychology of Violence*
Assessment

- Assessed Day 1 of enrollment into study
- Empirically validated measures of dynamic risk factors for future violent behavior and injury
  - Aggression - Youth Risk Behavior Survey (YRBS)
  - Anger - Overt Aggression Scale-Modified
  - Gun Carrying/Use - YRBS
  - Alcohol Use Disorders - Alcohol Use Disorders Identification Test-Consumption (AUDIT-C)
  - Illicit Drug Use - Drug Abuse Screening Test (DAST-10)
  - PTSD - Primary Care PTSD (PC-PTSD)
  - Unemployment
  - Limited Education
MI-VoV

Assessment

➤ Measures of Change Readiness

• Motivation to change (URICA)
  • Precontemplation (2 items)
  • Contemplation (2 items)

• Behavioral Steps to Reduce Risk
  • 7 items (AATS)
Motivational Interview

- Brief (60 – 120 minutes); Conducted separate day

- Therapeutic Tasks:
  - Present outcome of assessment
    - Identify goals/values
  - Prioritize risk factors
  - Elicit the reasons for change
  - Respectfully provide information
    - Develop discrepancies
  - Develop Action Plan (First steps)
Motivational Interview - Information

➢ Violent Behavior
  • Violence ↑ criminal penalties.
  • Convictions for violent crimes limit employment

➢ Substance Abuse
  • Substance abuse is treatable.
  • Current substance use limits employment options.

➢ Weapon Use
  • Possession of a weapon by a convicted felon is a federal crime that will result in mandatory penalties.
  • Many common gun practices risk accidental injury or death.

➢ Beliefs About Aggression
  • Using violence to deter aggression ↑ the chances of victimization

➢ Anger
  • Anger limits self-control & impulsive behavior that can ↑ risk of injury.

➢ Employment/Education/Living Stability
  • Reduces chance of victimization, incarceration, and death
Motivational Interview - Action

- **Violent Behavior**
  - Learn conflict resolution skills
  - Talk to a non-violent friend or family member about dealing with conflict
  - Participate in counseling

- **Substance Abuse**
  - Talk to a friend/family member about how they could assist you
  - Attend an AA/NA group
  - Participate in counseling

- **Weapon Use**
  - Review gun safety manuals
  - Obtain non-lethal means of protection (e.g., mace/pepper spray)

- **Beliefs About Aggression**
  - Talk to non-violent friend / family member about earning & keeping respect
  - Write down the types disrespect that are not worth violent retaliation.
  - Identify situations where toughness/aggression are not useful
MI-VoV

Motivational Interview - Action

- Anger
  - Learn relaxation/mood improvement techniques
  - Consult a physician about medication
  - Participate in counseling

- Unstable Living Situation
  - Contact a community agency regarding housing

- Employment Problems
  - Contact a community agency regarding job placement/job training
  - Apply for a job
  - Put together a resume

- Limited Education
  - Participate in GED/Literacy courses
MI-VoV

- In person follow-up after first outpatient surgery appointment
  - Motivation to change
  - Behavioral steps to reduce risk

- Telephone follow-up assessment (6 – 12 weeks)
  - Motivation to change
  - Behavioral Steps to reduce risk
  - Fighting
  - Weapons carry
  - Substance misuse
  - Anger/irritability
CONSORT diagram of participant flow

Enrollment

Assessed for eligibility (n = 96)

- Excluded (n = 3)

Offered treatment (n = 95)

- Declined to participate (n = 16)

- Discharged prior to intervention (n = 6)

Intervention

Received intervention (n = 71)

- Missing 2-week follow-up (n = 39)

Follow up

Completed 2-week follow-up (n = 35)

- Missing 6-12 follow-up (n = 34)

Completed 6-12 week follow-up (n = 39)
<table>
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<th>Characteristic</th>
<th>%</th>
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<td>Male</td>
<td>97.2</td>
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<td>White</td>
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<td>Education</td>
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<td>Less than 9th grade</td>
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<td>High school graduate</td>
<td>30.0</td>
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<tr>
<td>Some college</td>
<td>18.6</td>
</tr>
<tr>
<td>College degree</td>
<td>2.9</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
</tr>
<tr>
<td>No work in past month</td>
<td>58.8</td>
</tr>
<tr>
<td>Part-time</td>
<td>22.1</td>
</tr>
<tr>
<td>Full-time</td>
<td>19.1</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Never married</td>
<td>81.7</td>
</tr>
<tr>
<td>Married</td>
<td>15.5</td>
</tr>
<tr>
<td>Divorced</td>
<td>2.8</td>
</tr>
<tr>
<td>Characteristic</td>
<td>%</td>
</tr>
<tr>
<td>----------------------------------------------------</td>
<td>-----</td>
</tr>
<tr>
<td><strong>Lifetime Months Incarcerated</strong></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>42.3</td>
</tr>
<tr>
<td>1 – 12</td>
<td>28.1</td>
</tr>
<tr>
<td>13 – 36</td>
<td>9.9</td>
</tr>
<tr>
<td>37 +</td>
<td>21.0</td>
</tr>
<tr>
<td><strong>No. times beaten</strong></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>38.0</td>
</tr>
<tr>
<td>Once</td>
<td>8.5</td>
</tr>
<tr>
<td>More than once</td>
<td>53.5</td>
</tr>
<tr>
<td><strong>No. times assaulted with weapon</strong></td>
<td>n/a</td>
</tr>
<tr>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Once</td>
<td>49.3</td>
</tr>
<tr>
<td>More than once</td>
<td>50.7</td>
</tr>
<tr>
<td><strong>No. times witnessed severe community violence</strong></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>27.1</td>
</tr>
<tr>
<td>Once</td>
<td>11.4</td>
</tr>
<tr>
<td>More than once</td>
<td>61.4</td>
</tr>
</tbody>
</table>
MI-VoV Pilot Study (n = 71; Nanney et al, in press)

• Feasible and Acceptable to Patients
  • 83.2% Agreed to Participate
  • 72.4% Received the Intervention

• Follow-up
  • 49.3% at 2 weeks
  • 54.9% at 6-12 weeks
  • 64.8% completed some follow-up
## MI-VoV Pilot Study Example Action Plans

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Action Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited Education</td>
<td>Enroll in GED classes.</td>
</tr>
<tr>
<td></td>
<td>Consult with college admissions counselor.</td>
</tr>
<tr>
<td>Unemployment</td>
<td>Make appointment with job training program</td>
</tr>
<tr>
<td></td>
<td>Call specific industry staffing recruiter</td>
</tr>
<tr>
<td>Weapon/Gun Carrying</td>
<td>Limit situations in which weapons/guns are carried.</td>
</tr>
<tr>
<td></td>
<td>Store weapons securely when not carrying</td>
</tr>
<tr>
<td></td>
<td>Avoid specified social settings/groups within which weapon/gun carrying is</td>
</tr>
<tr>
<td></td>
<td>believed to be warranted</td>
</tr>
<tr>
<td>Anger/Irritability</td>
<td>Practice specific emotion regulations skills (e.g., deep breathing,</td>
</tr>
<tr>
<td></td>
<td>progressive muscle relaxation)</td>
</tr>
<tr>
<td></td>
<td>Consult with psychiatrist regarding possible pharmacotherapy</td>
</tr>
<tr>
<td></td>
<td>Participate in psychotherapy</td>
</tr>
<tr>
<td>PTSD</td>
<td>Participate in psychotherapy</td>
</tr>
<tr>
<td></td>
<td>Consult with psychiatry regarding possible pharmacotherapy</td>
</tr>
<tr>
<td>Substance Abuse</td>
<td>Complete intake inpatient substance use disorder treatment</td>
</tr>
<tr>
<td></td>
<td>Attend Alcoholics Anonymous/Narcotics Anonymous meeting</td>
</tr>
<tr>
<td></td>
<td>Limit alcohol/drug consumption</td>
</tr>
</tbody>
</table>
## MI-VoV Outcomes (2 week)

<table>
<thead>
<tr>
<th></th>
<th>Baseline M (SD)</th>
<th>Follow-Up M (SD)</th>
<th>Change (t)</th>
<th>p</th>
<th>Cohen’s d (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motivation to change</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precontemplation</td>
<td>2.33 (0.71)</td>
<td>2.28 (0.69)</td>
<td>-0.51</td>
<td>.62</td>
<td>-0.07 (-0.40 - 0.54)</td>
</tr>
<tr>
<td>Contemplation</td>
<td>2.75 (0.78)</td>
<td>2.88 (0.64)</td>
<td>1.21</td>
<td>.23</td>
<td>0.18 (-0.65 - 0.29)</td>
</tr>
<tr>
<td>Behavioral steps</td>
<td>3.84 (4.07)</td>
<td>7.37 (3.79)</td>
<td>4.05*</td>
<td>&lt;.01</td>
<td>0.89 (0.40 - 1.38)</td>
</tr>
</tbody>
</table>
## MI-VoV Outcomes (6-12 week)

<table>
<thead>
<tr>
<th></th>
<th>Baseline M (SD)</th>
<th>Follow-Up M (SD)</th>
<th>Change (t)</th>
<th>p</th>
<th>Cohen’s d (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motivation to change</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precontemplation</td>
<td>2.32 (0.59)</td>
<td>2.14 (0.60)</td>
<td>-1.91</td>
<td>.06</td>
<td>-0.32 (-0.76 - 0.13)</td>
</tr>
<tr>
<td>Contemplation</td>
<td>2.84 (0.73)</td>
<td>3.01 (0.42)</td>
<td>1.66</td>
<td>.11</td>
<td>.28 (-0.16 - 0.40)</td>
</tr>
<tr>
<td>Behavioral steps</td>
<td>4.62 (4.13)</td>
<td>8.24 (4.69)</td>
<td>3.29*</td>
<td>&lt;.01</td>
<td>.81 (0.35 - 1.27)</td>
</tr>
</tbody>
</table>
## MI-VoV Outcomes (6-12 week)

<table>
<thead>
<tr>
<th></th>
<th>Baseline M (SD)</th>
<th>Follow-Up M (SD)</th>
<th>Change (t)</th>
<th>p</th>
<th>Cohen’s d (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Violence</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of fights</td>
<td>0.23 (0.63)</td>
<td>0.00 (0.00)</td>
<td>-2.30*</td>
<td>.03</td>
<td>.51 (-0.06 - 0.96)</td>
</tr>
<tr>
<td>Days carrying weapon</td>
<td>4.89 (10.83)</td>
<td>0.85 (4.82)</td>
<td>-2.50*</td>
<td>.02</td>
<td>.48 (0.03 - 0.93)</td>
</tr>
<tr>
<td>Days carrying gun</td>
<td>4.89 (10.83)</td>
<td>0.00 (0.00)</td>
<td>-2.82*</td>
<td>.01</td>
<td>.63 (0.18 - 1.09)</td>
</tr>
</tbody>
</table>
MI-VoV RCT (n = 51; Nanney et al, in preparation)

- TAU (n=25) versus MI VoV (n=26)
- Procedure for MI-VoV unchanged
- Follow-up
  - Included broader assessment risk factors including PTSD
  - 49.3% at 2 weeks
  - 54.9% at 6-12 weeks
  - 64.8% completed some follow-up
MI-VoV Pilot Randomized Controlled Trial at 6 weeks

* p<.05
n = 25
## MI-VoV Pilot RCT

<table>
<thead>
<tr>
<th></th>
<th>MI-VoV %</th>
<th>Control %</th>
<th>$\chi^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-reported Gun Carrying</td>
<td>0</td>
<td>24</td>
<td>2.38</td>
<td>.12</td>
</tr>
<tr>
<td>(3 month $n = 21$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gun Crime (public records check</td>
<td>8</td>
<td>24</td>
<td>2.15</td>
<td>.14</td>
</tr>
<tr>
<td>at 6 months; $n = 51$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
MI-VoV Conclusions

• Trauma-center based behavioral interventions may be effective in reducing risk of gun violence/gun violence risk factors within the high risk network
  • Hospital-only intervention is of limited efficacy

• May complement other forms of intervention
  • Law enforcement
  • Community-based peer mediation (i.e., Cure Violence)

• Options for hospital based programs
  • Expand length?
  • Health navigators/case managers?
Next steps

• Develop integrated, multidisciplinary, long-term psychosocial rehabilitation system for high risk network

  • Access and Engagement -> Longer-term psychotherapy to reduce gun violence

  • Understand psychological mechanisms underpin cycle of gun violence

  • **Conceptualize as broad psychological response to trauma.**