Introduction
- Prevention of health risk behaviors such as smoking, alcohol/drug use, and unprotected sexual activity is considered a key national health promotion objective.
- Individual interventions have not always resulted in an impressive, sustained decline in risk behaviors.
- Research efforts need to be directed at examining individual risk behaviors in relation to social context.
- Much remains unknown about the similarities in patterns of risk behaviors among members of social networks.

Social Networks
- Social network analysis examines an individual’s risk behavior within a broader social context.
- This conceptual framework uses the size of social networks, sources of support provided by network members (multiplexity), and the degree of connectedness between members (density).

Purpose
- The purpose of this study is to explore the risk behaviors and social network characteristics of people accessing a rural public health department, focusing on the relationship between respondents’ self-reported behaviors and that of their network members.

Research Questions
- What are the self-reported risk behaviors (tobacco use, drug/alcohol use, sexual risk behaviors, intimate partner violence) of people presenting for care at a Western Wisconsin Public Health Clinic?
- What are the personal network characteristics (size, density, multiplexity) of people presenting for care at a Western Wisconsin Public Health Clinic?
- What is the relationship between patterns of risk behaviors and personal network characteristics?

Procedure
- Clients were recruited from the Dunn County Health Department in Menomonie, WI. This clinic serves a diverse population, including both university and predominantly rural communities in Western Wisconsin.
- Clients agreeing to participate received an information letter and signed informed consent.
- After their clinic assessment, participants were individually interviewed in a room designated for the study.
- Participants were paid $5.00 for their participation.

Risk Behavior Assessment
- Individual risk assessment was conducted using the 2006 Behavioral Risk Factor Surveillance System Questionnaire.
- Core sections of tobacco use and smoking.
- Optional modules of sexual risk behavior, intimate partner violence, and alcohol consumption/drug use.

Social Network Assessment
- Respondents were asked about the people who were in their social networks.
- For each member of the network, respondents were asked to describe:
  - the extent to which network members know each other
  - the types of social support that each network member provides
  - the extent to which network members engage in risk behaviors (tobacco use, alcohol/drug use, sexual risk behavior, and intimate partner violence).

Example of a Social Network

Demographic Characteristics

<table>
<thead>
<tr>
<th>Gender</th>
<th>Mean Age</th>
<th>Mean Years of Education</th>
<th>Mean Income</th>
<th>Mean Income 60+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>40</td>
<td>16.4%</td>
<td>63,000</td>
<td>38,600</td>
</tr>
<tr>
<td>Female</td>
<td>50</td>
<td>85.6%</td>
<td>38,000</td>
<td>25,600</td>
</tr>
</tbody>
</table>

To date, 61 respondents have been interviewed. The sample is predominantly Caucasian (96%) and heterosexual (96%).

To examine the quality of relationships when and alcohol consumption/drug use, and unprotected sexual activity.

Sexual risk and Social Networks

There was a significant negative correlation between number of partners and multiplexity, showing that those with more partners may have fewer network members that provide multiple sources of social support. Respondents with more partners had less dense networks.

### Number of partners in past year

<table>
<thead>
<tr>
<th>Number of partners</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20%</td>
<td>80%</td>
</tr>
<tr>
<td>2</td>
<td>40%</td>
<td>60%</td>
</tr>
<tr>
<td>3</td>
<td>30%</td>
<td>70%</td>
</tr>
<tr>
<td>4</td>
<td>10%</td>
<td>90%</td>
</tr>
<tr>
<td>5</td>
<td>5%</td>
<td>95%</td>
</tr>
</tbody>
</table>

### Number of NEW partners in past year

<table>
<thead>
<tr>
<th>Number of NEW partners</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10%</td>
<td>90%</td>
</tr>
<tr>
<td>2</td>
<td>30%</td>
<td>70%</td>
</tr>
<tr>
<td>3</td>
<td>40%</td>
<td>60%</td>
</tr>
<tr>
<td>4</td>
<td>20%</td>
<td>80%</td>
</tr>
<tr>
<td>5</td>
<td>5%</td>
<td>95%</td>
</tr>
</tbody>
</table>

### Age of first intercourse

- There was no relationship between current drinking behavior and age of first intercourse. However, respondents who currently smoke were significantly younger at first intercourse.

Discussion
- Social network analysis appears to be a useful method of examining risk-taking behaviors in young adults.
- Findings show patterns of risk behavior that indicate clusters of risk. For example, those who smoke are more likely to initiate sexual activity earlier, and have more partners.
- It is important for clinicians to examine the quality of relationships when providing health promotion with regard to risk behavior prevention. Persons who have members in their social networks who provide multiple sources of support engage in fewer risk behaviors.
- Clients who smoke report networks with significantly more network members who also smoke. The presence of smokers in an individual’s social network may make the intention to quit and process of quitting much more difficult.
- Interventions must be tailored to consider the social environments in which clients live.

Acknowledgements
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- Special Thanks to the Menomonie, WI Health Department for their support, guidance, commitment, and cooperation.

Intimate Partner Violence

A surprising number of persons reported history of physical and sexual violence. Of the sample, 23% reported having been physically harmed by an intimate partner.

Intimate partner violence and social networks

<table>
<thead>
<tr>
<th>Density</th>
<th>Multiplexity</th>
<th># in network</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>0.9</td>
<td>2.0</td>
</tr>
<tr>
<td>1.5</td>
<td>1.2</td>
<td>2.5</td>
</tr>
<tr>
<td>2.0</td>
<td>1.4</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Intimate violence experience was significantly related to multiplexity. Those who have experienced physical threats and physical abuse have social networks that provide significantly fewer sources of social support. *p < .05.

Social Network Profiles Of Clients Accessing A Rural Health Department Clinic

Joseph R. Pruis, Student Research Collaborator, Rosemary A. Jadack, PhD, RN, Professor
Department Of Nursing, College Of Nursing And Health Sciences
University Of Wisconsin-Eau Claire