Twin Cities Healthy Start
Pregnancy Psychosocial Risk Screening Validation Study

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Background and context for the research study

Twin Cities Healthy Start

Screening and Case Management System
System components

- Prenatal and postpartum screening interviews.
- Automated program eligibility determination.
- Automated identification of case management requirements.
- Tracking of encounters, referrals, referral follow-up, and receipt of required health education.
- Record of client, birth, family, and interconception information.
**System features**

- Web-based, HIPAA-compliant security.
- Staff from each program site enter data on their clients and have access only to their own site data.
- Healthy Start administrative staff have access to all data from participating sites.
- Facilitates:
  - Quality monitoring and technical assistance in real time.
  - Data aggregation for program reports.
  - Customized individual site reports.
Prenatal Risk Overview (PRO)

13 psychosocial risk domains

- **Basic needs:** phone, transportation, food, housing.
- **Interpersonal relationships:** social support, partner violence, other physical/sexual abuse.
- **Behavioral health:** depression; cigarette smoking; alcohol use; other drug use.
- **Other:** Legal problems and child protection involvement.
PRO domains with items from other instruments

- Social support
  8 items from the Maternal Social Support Index.

- Intimate partner violence
  4 items from the Abuse Assessment Screen.

- Other physical and sexual abuse
  Same 4 items as IPV but asking about “anyone else.”
PRO domains with items from other instruments

- Food insecurity
  - 4 items from the Current Population Survey Food Security Scale.

- Housing instability
  - 3 items from the Homelessness Supplement to the Diagnostic Interview Schedule plus 1 new item to address residence at delivery.
TCHS screening and case management system

PRO domains with items from other instruments

- Depression (10 items).

The Patient Health Questionnaire (PHQ-9) with one item broken into two questions but scored as one.

Only domain that includes a “Very High Risk” category.
PRO domains with items from other instruments

- Cigarette smoking (4 items).
- Alcohol use (8 items).
- Illicit drug use (3 items).

Frequency/quantity items are from the National Household Survey on Drug Use and Health.

Alcohol/drug symptom questions are from the Rapid Alcohol Problem Screen (RAPS-4).

Items address use since knowing of pregnancy and 12 months prior.
**PRO risk levels**

**Low:** no indication of current problem.

**Moderate:** some issues suggest the need for education, emotional support, or other help, but typically do not indicate the need for a referral for specialized professional services.

**High:** reserved for when a referral is needed for specialized professional services or further assessment. If the client is already obtaining the services, an additional referral is not required.

**Very High:** used only for Depression.
**TCHS screening and case management system**

**PRO screening protocol**

- Program sites screen all prenatal clients at first prenatal appointment.
- Screening determines eligibility for case management services.
- Screening results outline a case management plan.
PRO results and program eligibility

- Automated scoring of the PRO identifies eligibility for case management services based on psychosocial risks.
- Protocols specify minimum level of services required based on risk level.

Note: women are also eligible if under 18 years of age or there is a clinical determination of psychosocial risk.
Pregnancy Psychosocial Risk Screening Validation Study

- This study is funded by grant R40 MC07840, through the U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Research Program.

- IRB approval was received from the Minnesota Department of Health and the University of Minnesota, including for the participation of minors.
Four study components

- PRO Interviewer Equivalence Study (RN vs CHW).
- PRO Re-screening Study (8-12 weeks later).
- PRO validation against the Structured Clinical Interview for DSM-IV (SCID) and the Composite Abuse Screen (CAS) for depression, alcohol use, drug use, and partner violence.
- Medical Encounter Data Comparison with PRO results (for depression, alcohol & drug use, partner violence).
Pregnancy Psychosocial Risk Screening Validation Study

Participation and participant tracking

- 3 Healthy Start clinic sites and 1,434 pregnant women participated in one or more study components.

- A module was added to the TCHS system to electronically track participant recruitment, consent, interview completion, compensation, and other administrative variables.
Interviewer Equivalence Study overview

- Objective: to determine whether Community Health Workers (CHW) could administer a structured screening interview as effectively as Registered Nurses (RN).
- Conducted at the largest TCHS program site.
- Interviewers included 2 RNs and 3 CHWs over period of study; participants were randomly assigned to interviewer type.
- Randomization was based on day of the week of initial prenatal appointment.
- Participants received a gift card worth $10.
### Participant recruitment

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total prenatal patients</td>
<td>1413</td>
</tr>
<tr>
<td>English language eligible</td>
<td>1033</td>
</tr>
<tr>
<td>Language eligibility rate</td>
<td>73%</td>
</tr>
<tr>
<td>Ineligible/other reasons (e.g., staff unavailability)</td>
<td>241</td>
</tr>
<tr>
<td>Eligible/selected</td>
<td>792</td>
</tr>
<tr>
<td>Consenters (final sample)</td>
<td>735</td>
</tr>
<tr>
<td>Consent rate</td>
<td>93%</td>
</tr>
<tr>
<td>Assigned to RN (50%)</td>
<td>366</td>
</tr>
<tr>
<td>Assigned to CHW (50%)</td>
<td>369</td>
</tr>
</tbody>
</table>
Interviewer Equivalence Study

Consent bias

- Married women, foreign-born women, and Asian women were less likely to consent to participate.
Interviewer Equivalence Study

Participant characteristics

- Mean age 22.5 years
- 83% unmarried
- 27% foreign-born
- 70% African American, 10% Asian, 5% Hispanic, 4% white, 1% American Indian, 1% biracial
- 56% screened during first trimester
- There were no significant differences between the demographic characteristics of women interviewed by and RN and those interviewed by a CHW.
<table>
<thead>
<tr>
<th>Prenatal Risk Overview domains</th>
<th>RN (n=366)</th>
<th>CHW (n=369)</th>
<th>RN (n=366)</th>
<th>CHW (n=369)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% Moderate or High Risk</td>
<td>% Moderate or High Risk</td>
<td>% High Risk</td>
<td>% High Risk</td>
</tr>
<tr>
<td>Telephone access</td>
<td>7.4</td>
<td>16.0***</td>
<td>2.2</td>
<td>2.7</td>
</tr>
<tr>
<td>Transportation access</td>
<td>39.9</td>
<td>44.4</td>
<td>7.1*</td>
<td>12.5*</td>
</tr>
<tr>
<td>Food insecurity</td>
<td>30.7</td>
<td>39.3*</td>
<td>6.6</td>
<td>5.7</td>
</tr>
<tr>
<td>Housing instability</td>
<td>47.8</td>
<td>62.6***</td>
<td>25.1</td>
<td>33.9***</td>
</tr>
<tr>
<td>Lack of social support</td>
<td>59.0</td>
<td>64.2</td>
<td>5.7</td>
<td>10.0*</td>
</tr>
<tr>
<td>Intimate partner violence</td>
<td>6.3</td>
<td>5.1</td>
<td>2.7</td>
<td>2.4</td>
</tr>
<tr>
<td>Other physical or sexual abuse</td>
<td>7.4</td>
<td>6.0</td>
<td>3.6</td>
<td>3.3</td>
</tr>
<tr>
<td>Cigarette smoking</td>
<td>23.0</td>
<td>24.9</td>
<td>3.0</td>
<td>4.4</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>18.9</td>
<td>17.9</td>
<td>2.7</td>
<td>0.8*</td>
</tr>
<tr>
<td>Drug use</td>
<td>27.0</td>
<td>30.4</td>
<td>15.3</td>
<td>16.0</td>
</tr>
<tr>
<td>Legal problems</td>
<td>6.8</td>
<td>5.1</td>
<td>6.8</td>
<td>5.1</td>
</tr>
<tr>
<td>Child protection involvement</td>
<td>6.0</td>
<td>5.7</td>
<td>1.1</td>
<td>1.1</td>
</tr>
</tbody>
</table>

*p<.05 ***p<.001
Interviewer Equivalence Study

Results

- 3 of the 4 basic needs domains were reported significantly more often in CHW interviews at moderate/high risk levels.
- 2 of the 4 basic needs domains were reported significantly more often in CHW interviews at high risk levels.
- There were no significant differences for interpersonal, behavioral, or system involvement domains for moderate/high risk levels combined.
- The difference in social support reported to CHWs was significant for high risk only.
- The difference for alcohol use reported to RNs was significant for high risk only.
Interviewer Equivalence Study

Conclusions and recommendations

- Psychosocial risk screening with a structured interview can be effectively administered by trained CHWs.
- CHWs could conduct screening at a lower cost than RNs -- in our area at about 44% the hourly cost of RNs (considering only salary/wages and not fringe benefits).
Objective: To determine the extent to which psychosocial risk factors unreported during an initial screening interview were identified during a subsequent screening interview.

Procedure: The PRO was to be re-administered approximately 8 weeks after the first interview.

3 community clinic sites.
Re-screening study overview

- Initial and second interviews completed between July 2007 and April 2010.

- Consent forms and interview translated into Hmong, Somali and Spanish. Interpreters provided translation for other languages.

- Interviewers included nurses, social workers, and community health workers.

- Study completers received a gift card worth $25.

- The average interval between interviews was 12 weeks.
## Participant recruitment

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total prenatal patients</td>
<td>1555</td>
</tr>
<tr>
<td>Ineligible (n=40)/omitted for other reasons (n=262)</td>
<td>302</td>
</tr>
<tr>
<td>Eligible/selected</td>
<td>1253</td>
</tr>
<tr>
<td>Consented to participate</td>
<td>1093</td>
</tr>
<tr>
<td>Consent rate</td>
<td>87.2%</td>
</tr>
<tr>
<td>Completed 2(^{nd}) interview</td>
<td>708</td>
</tr>
<tr>
<td>Completion rate</td>
<td>64.8%</td>
</tr>
</tbody>
</table>
Re-screening Study

Sample bias due to nonconsent and attrition

- Consenters were more likely to be African American or white, U.S.-born, English-speaking, unmarried, younger, and at high risk for at least one domain.

- Completers were more likely to have had initial interview before 3rd trimester and not be at high risk for any domain.
Re-screening Study

Participant characteristics

- Mean age 23.3 years
- 75% unmarried
- 38% foreign-born
- 52% African American, 19% Asian, 16% Hispanic, 7% white, 4% American Indian, 2% biracial/unknown
- 84% of interviews conducted in English, 10% in Spanish, 2% in Hmong, 2% in Somali, 2% other.
Re-screening study

Results

- Results from the two interviews were compared to determine the proportions of participants newly identified as at risk by the second interview.

- Comparisons were made for combined Moderate/High risk classifications and for High Risk only.
Participants classified as high risk or moderate or high risk at the initial (or both) interviews vs. only at the second interview (N=708)

<table>
<thead>
<tr>
<th>PRO Domain</th>
<th>Moderate or High Risk identification</th>
<th>High Risk identification only</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>By the first or both PROs</td>
<td>By the second PRO only</td>
</tr>
<tr>
<td>Telephone access</td>
<td>79</td>
<td>38</td>
</tr>
<tr>
<td>Transportation access</td>
<td>290</td>
<td>93</td>
</tr>
<tr>
<td>Food security</td>
<td>235</td>
<td>42</td>
</tr>
<tr>
<td>Housing stability</td>
<td>333</td>
<td>92</td>
</tr>
</tbody>
</table>
Participants classified as moderate or high risk or high risk at the initial (or both) interviews or only at the second interview (N=708)

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<thead>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>By the first or both PROs</td>
<td>By the second PRO only</td>
</tr>
<tr>
<td>Social support</td>
<td>463</td>
<td>83</td>
</tr>
<tr>
<td>Partner violence</td>
<td>49</td>
<td>18</td>
</tr>
<tr>
<td>Physical/sexual abuse by non-partner</td>
<td>49</td>
<td>24</td>
</tr>
</tbody>
</table>
Participants classified as moderate or high risk or high risk at the initial (or both) interviews or only at the second interview (N=708)

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</thead>
<tbody>
<tr>
<td></td>
<td>By the first or both PROs</td>
<td>By the second PRO only</td>
</tr>
<tr>
<td>Depression</td>
<td>108</td>
<td>35</td>
</tr>
<tr>
<td>Cigarette smoking</td>
<td>175</td>
<td>22</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>132</td>
<td>29</td>
</tr>
<tr>
<td>Drug Use</td>
<td>166</td>
<td>25</td>
</tr>
</tbody>
</table>
Participants classified as moderate or high risk or high risk at the initial (or both) interviews or only at the second interview (N=708)

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<tbody>
<tr>
<td></td>
<td>By the first or both PROs</td>
<td>By the second PRO only</td>
</tr>
<tr>
<td>Legal problems*</td>
<td>36</td>
<td>2</td>
</tr>
<tr>
<td>Child protection involvement</td>
<td>32</td>
<td>9</td>
</tr>
</tbody>
</table>

*No moderate level
PRO risk factors scored as moderate or high risk at the initial screening interview or for the first time at the subsequent interview (n=708)

- Child protection involvement
- Legal problems
- Drug use
- Alcohol use
- Cigarette smoking
- Depression
- Physical/sexual abuse by non-partner
- Partner violence
- Social support
- Housing stability
- Food security
- Transportation access
- Telephone access

% identified at initial or both PROs % identified only at second PRO

- Telephone access: 11.2, 5.4
- Transportation access: 41.0, 13.1
- Food security: 33.2, 5.9
- Housing stability: 47.0, 13.0
- Social support: 65.4, 11.7
- Partner violence: 6.9, 2.5
- Physical/sexual abuse by non-partner: 6.9, 3.4
- Depression: 15.3, 4.9
- Cigarette smoking: 24.7, 3.1
- Alcohol use: 18.6, 4.1
- Drug use: 23.4, 3.5
- Legal problems: 5.1, 0.3
- Child protection involvement: 4.5, 1.3
Re-screening study

Results

- At re-screening, almost half (47.9%) of study participants had at least one newly identified risk factor at the Moderate/High Risk level.

- At re-screening, almost one-fourth (24.3%) had at least one newly identified risk factor at the High Risk level.
Conclusions and recommendations

- Re-screening pregnant women identified psychosocial risks unreported or nonexistent at an earlier interview.

- This finding supports the recommendation of the American Congress of Obstetricians and Gynecologists that pregnant women be screened for depression and other psychosocial risks more than once during pregnancy.

- Screening and re-screening are recommended for low-income and other populations at risk for poor maternal and birth outcomes.
Study personnel contact information

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