Cross-sectional study

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Key issues

- Why research?
- Descriptive study
- Hypothesis testing
- Association
- Sampling
- An example of cross-sectional study
Why research?

- To guide health practice and policy
- Because local research is often needed to guide local health practice and policy
- Because carrying out research strengthens research capacity
Why research?

- Research data can help in:
  - Defining needs and solutions
  - Understanding the context of illness
  - Planning and evaluating services
  - Solving specific problems in practice
  - Contributing to the scientific base
What is a hypothesis

• A statement which describes what you expect to find in a specific manner
• Clearly stated
• Testable and refutable
• Not a mere research question or objective
• Backed by sample size calculation, and an appropriate design and analysis
Example

• Statement of the problem: Postnatal depression is a serious mental health problem and research that examined the association between depression and childrearing attitude is limited.
• Aim: to determine the prevalence or probable depressive state among mothers in Vietnam and to examine its risk factors with respect to social support and maternal childrearing attitude
• Question: Is depressive state associated with unfavorable childrearing attitude?
• Hypothesis: Mothers with depressive moods are more likely to have less confidence and less relaxed feeling regarding childrearing
Advantages of hypothesis-driven research

• Greater credence given to validity of findings

• Less risk of type I and II errors
  o Type I error: mistakenly see association while there isn’t.
  o Type II error: mistakenly see no association while there is.

• Ease of replication
Epidemiology

- The study of the distribution and determinants of health-related states or events in specified populations, and its application to the prevention and control of health problems (Last, 1995).
What do epidemiologists do?

• **Describe**
  - Distribution of health-related states in a population
  - Extent, type, severity
  - Who, where, when?

• **Explain**
  - Analytical epidemiology
  - Hypothesis-driven etiological research
  - Risk factors and causes

• **Evaluate**
  - Quasi-experimental studies
  - Randomized controlled trials
Association

Risk factor  →  True association?  ←  Disease

Exposure  →  Independent

Independent  →  Chance

Chance  →  Bias

Bias  →  Confounding

Confounding  →  Dependent

Dependent
Descriptive studies

- Case series
- Cross-sectional study
  - Multi-center (geographic variance)
  - Ecological correlation
  - Repeated surveys (temporal variance)
Who to study?

• Population

• Sample
  o Advantage:
    • time and cost
  o Disadvantages:
    • sampling error,
    • bias if sample is not representative of population
Random sampling

- Simple
- Systematic
- Stratified
- Multi-stage and cluster
How big a sample?

- Sample size calculation is important to avoid errors in interpreting findings:
  - Type I errors:
    - The null hypothesis is rejected when it is in fact, true (p value)
  - Type II errors:
    - The null hypothesis is accepted when it is, in fact, false (power)
• Power of test
• Probability of correctly rejecting the null hypothesis
  i.e., failing to detect a true association
• Depends on sample size, estimated using formulas (or computers)
• G-power: http://wwwpsycho.uni-duesseldorfede/abteilungen/aap/gpower3/
• Significance level
Original Article

Postnatal depression and associated parenting indicators among Vietnamese women

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Keywords
depression, mass screening, parenting, postpartum, prevalence

Abstract

\textbf{Introduction}: Postnatal depression is a serious mental health problem. In low-income countries, there has been only limited research investigating the direct link between childrearing attitude and maternal mood. The present study sought to determine the prevalence of probable depressive state among mothers in Vietnam, and to examine its risk factors with respect to social support and maternal childrearing attitude.

\textbf{Methods}: A questionnaire survey was conducted in 299 consecutive mothers who visited Tu Du Obstetrical and Gynecological Hospital, a tertiary hospital, for regular check-up between one and three months postpartum. The questionnaire was administered by trained pediatricians in October through December 2007. Depression was assessed using a two-question case-finding instrument for depression.

\textbf{Results}: Sixty-eight of the 294 (23.1\%) mothers of singletons were assessed as having probable depressive state. Parental and familial conflict and recent moving was strongly associated with probable depressive state. In terms of childrearing attitude, the following factors increased risk of

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Methods: A questionnaire survey was conducted in 299 consecutive mothers who visited Tu Du Obstetrical and Gynecological Hospital, a tertiary hospital, for regular check-up between one and three months postpartum. The questionnaire was administered by trained pediatricians in October through December 2007. Depression was assessed using a two-question case-finding instrument for depression.

Results: Sixty-eight of the 294 (23.1%) mothers of singletons were assessed as having probable depressive state. Parental and familial conflict and recent moving was strongly associated with probable depressive state. In terms of childrearing attitude, the following factors increased risk of probable depressive state of mothers; lack of confidence (adjusted odds ratio = 2.74, 95% confidence interval: 1.40–5.38), and less relaxed feeling (adjusted odds ratio = 2.85, 95% confidence interval: 1.21–6.71) after controlling for subjective health.

Discussion: Mothers who felt unconfident and were less relaxed in childrearing were more likely to report a probable depressive state. Social support factors may have played a role in the depression. A brief screening tool for depression is useful to identify mothers in need of additional support in childrearing.

Background

- Prevalence of mental health problem around delivery
  - Baby blue: 50-60%
  - Antenatal depression:
  - Postnatal depression: 3-60%
    - 10-15% in Western
    - 20-30% in VN
    - 10-20% in Japan
  - Postnatal psychosis:
    - 1-2 cases in 1000 postpartum women

Methods

- Setting:
  At a tertiary hospital, Tu Du Obstetrical and Gynecological Hospital

- Participants:
  The mothers who visited for regular check-up from 1 to 3 months after the delivery (300 were approached)

- Sampling:
  Consecutive sampling from October to December 2007

- Data collection:
  Interview by trained pediatricians using questionnaires

- Questionnaires:

- Main outcome:
  Depression:, a two-question case-finding instrument

- Other measurements:
  - Psychological well-being, Self-efficacy, the General Perceived Self Efficacy (GSE)
  - Pregnancy related factors, social support, parenting attitudes

Depression

- Two-item case finding instruments (Whooley, et al. 1997)
  - “During the past month, have you often been bothered by feeling down, depressed, or hopeless?”
  - “During the past month, have you often bothered by little interest or pleasure in doing things?”
Prevalence rate of probable depressive state and probable depression

- 77% (n=226) with 0 points
- 16% (n=47) with 1 point
- 7% (n=21) with 2 points

Table 1. Characteristics of participants and babies in the screening program

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Probable depressive state</th>
<th>Not probable depressive state</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
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<tr>
<td>Maternal sociodemographic status</td>
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<tr>
<td>Age in years, median (min, max)</td>
<td>30</td>
<td>(19, 48)</td>
<td>30</td>
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<td>Employment</td>
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<tr>
<td>Employed</td>
<td>233</td>
<td>79.3</td>
<td>56</td>
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<tr>
<td>Not employed</td>
<td>61</td>
<td>20.8</td>
<td>12</td>
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<tr>
<td>Education</td>
<td></td>
<td></td>
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<tr>
<td>Primary or secondary school</td>
<td>91</td>
<td>31.0</td>
<td>19</td>
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<tr>
<td>High school or higher†</td>
<td>203</td>
<td>69.1</td>
<td>49</td>
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<td>Financial difficulty</td>
<td></td>
<td></td>
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<tr>
<td>Yes</td>
<td>19</td>
<td>6.5</td>
<td>6</td>
</tr>
<tr>
<td>No</td>
<td>275</td>
<td>93.5</td>
<td>62</td>
</tr>
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<td>Low SES§</td>
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<tr>
<td>Yes</td>
<td>11</td>
<td>3.7</td>
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<td>No</td>
<td>283</td>
<td>96.3</td>
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<td>Subjective health</td>
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<tr>
<td>Good</td>
<td>274</td>
<td>93.2</td>
<td>59</td>
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<tr>
<td>Poor</td>
<td>20</td>
<td>6.8</td>
<td>9</td>
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<td>255</td>
<td>86.7</td>
<td>60</td>
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<td>Baby’s health</td>
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<td>Age in months, median (min, max)</td>
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<td>(1, 3)</td>
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<td>Birth weight</td>
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<td>&lt;2,500 g</td>
<td>17</td>
<td>5.8</td>
<td>4</td>
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<tr>
<td>≥2,500 g</td>
<td>277</td>
<td>94.2</td>
<td>64</td>
</tr>
<tr>
<td>Abnormal finding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>17</td>
<td>5.8</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>277</td>
<td>94.2</td>
<td>67</td>
</tr>
</tbody>
</table>

†χ² test, Fisher’s exact test or Man-Whitney test was used depending on the variable property; †Including vocational school; ‡Primary or secondary school graduation and with financial difficulty.

df, degree of freedom.


<table>
<thead>
<tr>
<th>Psychological indicators</th>
<th>All (n=294)</th>
<th>Probable depressive state (n=68)</th>
<th>Crude OR 95%CI</th>
<th>Adjusted model*† OR 95%CI</th>
<th>P-value</th>
<th>Adjusted model* P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological wellbeing</td>
<td>2 (1.15)</td>
<td>2 (1.15)</td>
<td>1.19 (1.10–1.28)</td>
<td>&lt;0.001</td>
<td>1.18 (1.08–1.28)</td>
<td>&lt;0.001</td>
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<td>Self-efficacy (10–40)</td>
<td>30 (13, 40)</td>
<td>28 (14, 40)</td>
<td>0.91 (0.87–0.96)</td>
<td>&lt;0.001</td>
<td>0.92 (0.88–0.96)</td>
<td>&lt;0.001</td>
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<td>Pregnancy Intention</td>
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<td></td>
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<tr>
<td>Intended</td>
<td>203 69.1</td>
<td>41 60.3</td>
<td>1.00</td>
<td></td>
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<tr>
<td>Unintended</td>
<td>91 31.0</td>
<td>27 39.7</td>
<td>1.67 (0.95–2.93)</td>
<td>0.077</td>
<td>1.56 (0.88–2.78)</td>
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<td>Age difference of partners</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>≤5 years</td>
<td>216 73.5</td>
<td>50 73.5</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;5 years</td>
<td>78 26.5</td>
<td>18 26.5</td>
<td>1.00 (0.54–1.84)</td>
<td>0.990</td>
<td>0.93 (0.50–1.75)</td>
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<td>Social support</td>
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<td></td>
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<tr>
<td>Parental conflict</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>290 98.6</td>
<td>65 95.6</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>4 1.4</td>
<td>3 4.4</td>
<td>10.38 (1.06–101.52)</td>
<td>0.044</td>
<td>11.46 (1.17–112.33)</td>
<td>0.036</td>
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<tr>
<td>Familial conflict</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>No</td>
<td>289 98.3</td>
<td>64 94.1</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>5 1.7</td>
<td>4 5.9</td>
<td>14.06 (1.54–128.04)</td>
<td>0.019</td>
<td>11.06 (1.17–104.62)</td>
<td>0.036</td>
</tr>
<tr>
<td>Recent moving</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>48 16.3</td>
<td>18 26.5</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>246 83.7</td>
<td>50 73.5</td>
<td>2.35 (1.21–4.56)</td>
<td>0.011</td>
<td>2.34 (1.20–4.57)</td>
<td>0.013</td>
</tr>
</tbody>
</table>

\*Adjusted for subjective health; \*Adjusted for subjective health, age, employment status, education and perceived financial difficulty.
Relationship between depression assessment and other psychological aspects

- Depressive state
- Psychological well-being (Face scale: 1-20)
- Self-efficacy (10-40)

OR = 1.2**
OR = 0.9**
Relationship with depression and pregnancy related factors

Unintended Pregnancy

Age difference of partners (5 year or more)

Depressive state

OR=1.6 (n.s.)

OR=0.9 (n.s.)
Relationship between social support and depressive state

- Parental conflict → Depressive state: OR=11.5**
- Familial conflict → Depressive state: OR=11.1**
- Recent moving → Depressive state: OR=2.3**
Table 3. Associations between probable depressive state and childcare indicators in Vietnamese mothers in the screening program

<table>
<thead>
<tr>
<th>Childrearing lack of confidence</th>
<th>Crude (95% CI)</th>
<th>OR</th>
<th>P-value</th>
<th>Adjusted model† (95% CI)</th>
<th>OR</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes or not sure</td>
<td>2.60 (1.34–5.04)</td>
<td>0.005</td>
<td>2.74 (1.40–5.38)</td>
<td>0.003</td>
<td>2.59 (1.30–5.15)</td>
<td>0.007</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Abusive feelings</th>
<th>Crude (95% CI)</th>
<th>OR</th>
<th>P-value</th>
<th>Adjusted model† (95% CI)</th>
<th>OR</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes or not sure</td>
<td>2.03 (0.89–4.63)</td>
<td>0.094</td>
<td>1.87 (0.80–4.34)</td>
<td>0.146</td>
<td>1.94 (0.83–4.54)</td>
<td>0.125</td>
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</table>

<table>
<thead>
<tr>
<th>Relaxed mood</th>
<th>Crude (95% CI)</th>
<th>OR</th>
<th>P-value</th>
<th>Adjusted model† (95% CI)</th>
<th>OR</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No or not sure</td>
<td>2.97 (1.28–6.91)</td>
<td>0.011</td>
<td>2.85 (1.21–6.71)</td>
<td>0.016</td>
<td>2.71 (1.14–6.44)</td>
<td>0.024</td>
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<table>
<thead>
<tr>
<th>Childrearing advice</th>
<th>Crude (95% CI)</th>
<th>OR</th>
<th>P-value</th>
<th>Adjusted model† (95% CI)</th>
<th>OR</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>No</td>
<td>1.24 (0.57–2.73)</td>
<td>0.589</td>
<td>1.24 (0.56–2.75)</td>
<td>0.589</td>
<td>1.06 (0.47–2.41)</td>
<td>0.884</td>
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<table>
<thead>
<tr>
<th>Cooperative husband</th>
<th>Crude (95% CI)</th>
<th>OR</th>
<th>P-value</th>
<th>Adjusted model† (95% CI)</th>
<th>OR</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No, not sure</td>
<td>1.11 (0.54–2.28)</td>
<td>0.767</td>
<td>1.02 (0.49–2.13)</td>
<td>0.951</td>
<td>1.07 (0.51–2.25)</td>
<td>0.860</td>
</tr>
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</table>

† Adjusted for subjective health; ‡ Adjusted for subjective health, age, employment status, education and perceived financial difficulty.

Relationship between depressive state and parenting attitudes

Depressive mood

- OR=2.6** to Childrearing confidence
- OR=1.9** to Abusive feeling
- OR=2.7** to Relaxed mood
- OR=1.1 to Childrearing advice
- OR=1.1 to Cooperative husband
Figure 1  Distribution of total score of childrearing items (score range 0–5) between mothers with probable depressive state and those without (n = 294).

Discussion points

- Summary of the results
- Comparison with other studies

Prevalence
- Risk factors
- Socioeconomic status, e.g., educational level
- Family conflicts, moving, from cultural perspective
- Parental attitude

Limitations
- Causality is unknown
- Validation of two item depression screener in VN
- Special clinical setting—problem of ...
- On cultural note, expressing emotions is not common in VN, threat of underreporting
Summary

Among women at a tertiary hospital for baby-checkup in Vietnam,

Prevalence of

- probable depressive state was 23%
- probable depression was 7%.

Probable depressive state was associated with:

- Poor psychological well-being and poor self-efficacy
- Parental conflict, familial conflict and recent moving
- Unconfidence in childrearing, abusive feeling, and unrelaxed mood

Those with probable depressive state tended to have more items of unfavorable parenting attitude.

These suggest needs to intervene mothers with depressive mood to have better parental attitude.

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Questions

- Please hand calculate OR of parable depression with regard to the exposure of lack of confidence in childrearing.
Answer

- Please hand calculate OR of parable depression with regard to the exposure of lack of confidence in childrearing.

\[
\text{OR} = \frac{\text{odds of exposure in } D^+}{\text{odds of exposure in } D^-} = \frac{54/13}{139/87} = 54 \times 84 / 13 \times 139 = 2.60
\]

<table>
<thead>
<tr>
<th>Depression</th>
<th>+</th>
<th>-</th>
<th>subtotal</th>
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<tbody>
<tr>
<td>Lack of confidence</td>
<td>54</td>
<td>139</td>
<td>193</td>
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<tr>
<td>Lack of confidence</td>
<td>13</td>
<td>87</td>
<td>100</td>
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<tr>
<td>subtotal</td>
<td>67</td>
<td>226</td>
<td>293</td>
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