Rates of mental health service utilization by children and youth across service settings: A meta-analysis

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• Rates of mental health disorders in children and adolescents are at historically high rates and rising
• Yet, a minority of youth who would benefit from mental health intervention actually access treatment
• There is a clear need for national, state, and local strategies that guide how to finance, manage, and support provision of accessible, effective mental health services (Hoagwood et al 2018).
Youth access mental health treatment from many sources beyond specialty mental health:

- Primary care
- Schools
- Juvenile Justice
- Child protective services
- Other human service agencies
BACKGROUND

• Reliable information on rates of access and utilization across service sectors can guide decision-making:
  • Which segments of the workforce to target
  • Specific prevention and treatment strategies
  • Collaboration required across sectors
  • Information sharing and management functions in which to invest.
• Many studies over the past 30 years have investigated how children and youth actually use mental health services and in what settings
Past research has yielded a range of conclusions:

- That certain systems serve as the “de facto” MH service system for youths
- That services are distributed equitably across sectors

Variation can be explained by methodological or sampling differences:

- Population-based surveys
- Public service system data
- Evaluation data from national service programs

Results of studies may also be influenced by national/local policies and shifts in policies:

- Introduction of SCHIP, expansion of Medicaid
- Recession of 2008 and subsequent cuts to MH funding
THE CURRENT STUDY

- Systematic review and meta-analysis of U.S. studies of service utilization rates across settings
- Primary aim was to estimate proportions of youth receiving services across sectors for samples drawn from:
  - General population (“universal”)
  - Youth already receiving services or enrolled in a system of care (“at risk”/”targeted”)
- Also aimed to explore study variables that might explain variance in utilization estimates
METHOD

• Electronic searches in Ovid Medline, PsycInfo, and Cumulative Index to Nursing & Allied Health
• Years: 2000 to present
• Search terms: Focused on mental health, health services, pediatric populations AND
• A range of service settings (e.g., “school* or charter school* or elementary school* or high school* or institutional schools* or junior high schools* or kindergartens* or middle schools*).
METHOD

• Eligibility criteria:
  • Empirical article (Reviews, study protocols, and news articles excluded)
  • Publication in peer-reviewed journals, books/book sections, theses and dissertations, conference proceedings, or government reports.
  • Conducted in the United States.
  • Study sample included children, defined as 5-18 years old or grades K-12.
  • Results provided estimates of mental health service utilization in at least two settings.

Search yielded 1452 titles
This screening process yielded

- 39 distinct samples drawn from 32 manuscripts
- 16 samples from general population (166,137 youth total)
- 23 samples of at-risk / targeted youth (285,334 youth total)
• Settings coded: All settings included in at least 2 studies
  • Outpatient, inpatient, primary care, school, juvenile justice, child welfare, “other”

• Study moderators coded:
  • Region of country, year of publication, type of sample, urbanicity, insurance status, sex, age, race/ethnicity

• Four trained coders coded all studies

• Reliability of coding:
  • ICVs (continuous variables) ranged from .83 to 1.00 (M = .96).
  • Kappas (categorical variables) ranged from .74 to .83 (M = .78)
Because of between-study variation in sampling and methodology, a random effects meta-analytic model was used.

Proportions were logit transformed prior to analyses and then transformed back into proportions for presentation and interpretation of results.

Mixed effects meta-regression models were used to test moderators of service utilization rate estimates.

To assess publication bias, funnel plots of ES by standard errors with Egger’s regression tests for asymmetry.

- Final effects sizes will be adjusted for funnel plot asymmetry using Duval and Tweedie’s trim and fill method.
Proportions of youth receiving MH services across care settings from 16 general population samples (166,137 youth total) and 23 high-risk/targeted samples (285,334 youth total)

<table>
<thead>
<tr>
<th>Setting</th>
<th>General population</th>
<th>High risk/Targeted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools</td>
<td>9.16%</td>
<td>32.12%</td>
</tr>
<tr>
<td>Outpatient</td>
<td>7.03%</td>
<td>37.78%</td>
</tr>
<tr>
<td>Primary care</td>
<td>2.83%</td>
<td>21.46%</td>
</tr>
<tr>
<td>Child welfare</td>
<td>0.80%</td>
<td>0.60%</td>
</tr>
<tr>
<td>Juvenile justice</td>
<td>12.58%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Inpatient/residential</td>
<td>1.80%</td>
<td>10.02%</td>
</tr>
</tbody>
</table>
ESTIMATED PROPORTION OF YOUTH SERVED IN SCHOOLS

[Diagram showing estimated proportions with confidence intervals for various studies, e.g., Alegría, 2004: 0.07 [-0.52, 0.68], Amaral, 2011: 0.15 [-0.25, 0.59], Angold, 2002: 0.09 [-0.58, 0.76], Baranowski, 2013: 0.66 [-0.16, 1.49], Baranowski, 2013: 0.66 [-0.3, 0.17], Barkdale, 2010: 0.83 [0.27, 0.99], Canino, 2002: 0.28 [-0.92, 1.38], Chavira, 2009: 0.64 [-0.16, 1.43], Colognori, 2012: 0.14 [-0.23, 0.51], Cummings, 2010: 0.04 [-0.32, 0.41], Fetters, 2009: 0.37 [-0.02, 0.75], Garland, 2001: 0.16 [-0.36, 0.67], Greffet-Jinsky, 2014: 0.11 [-0.27, 0.49], Gudino, 2008: 0.45 [-0.14, 1.09], Gudino, 2000: 0.60 [0.11, 1.08], Hazen, 2004: 0.71 [0.26, 1.16], Hoagwood, 2004: 0.90 [-0.23, 2.03], Horwitz, 2001: 0.34 [-0.38, 1.07], Leslie, 2008: 0.14 [-0.61, 0.89], Lindsey, 2010: 0.04 [-0.51, 0.98], Lyon, 2013: 0.43 [-0.21, 1.07], McChesney, 2015: 0.53 [-0.47, 1.54], McChesney, 2015: 0.27 [-0.26, 0.81], Mendonça, 2011: 0.33 [-0.22, 0.88], Narendorf, 2011: 0.49 [-0.01, 0.99], Ringl, 2016: 0.12 [-0.06, 0.31], Simon, 2015: 0.19 [-0.26, 0.63], Tegethoff, 2014: 0.23 [-0.16, 0.62], Thomas, 2007: 0.00 [0.02, 1.78], Walrath, 2004: 0.09 [-0.17, 0.34], Wilcox, 2016: 0.34 [0.05, 0.62], Williams, 2011: 0.23 [-0.26, 0.73], Williams, 2011: 0.34 [0.06, 0.59], Wu, 2010: 0.07 [-0.98, 1.12], Wu, 2010: 0.07 [-0.82, 0.96], Wu, 2010: 0.10 [-0.74, 0.94]]
### MODERATOR ANALYSIS

#### Study Methods

<table>
<thead>
<tr>
<th>Moderator</th>
<th>estimate</th>
<th>SE</th>
<th>p</th>
<th>k</th>
<th>Q</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of publication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>34</td>
</tr>
<tr>
<td>Intercept</td>
<td>25.1504</td>
<td>106.54</td>
<td>0.8134</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year of publication</td>
<td>-0.0130</td>
<td>0.0530</td>
<td>0.8063</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

#### Characteristics of Sample

<table>
<thead>
<tr>
<th>Moderator</th>
<th>estimate</th>
<th>SE</th>
<th>p</th>
<th>k</th>
<th>Q</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample sex (% male)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>38</td>
</tr>
<tr>
<td>Intercept</td>
<td>-1.2378</td>
<td>0.4894</td>
<td>0.0114</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample % male</td>
<td>.1848</td>
<td>0.7338</td>
<td>0.8012</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>32</td>
</tr>
<tr>
<td>Intercept</td>
<td>-0.6602</td>
<td>0.9187</td>
<td>0.4724</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample mean age</td>
<td>-0.0345</td>
<td>0.0687</td>
<td>0.6149</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample race</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>62</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.9060</td>
<td>0.2178</td>
<td>&lt;.0001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Caucasian in sample</td>
<td>0.2038</td>
<td>0.3959</td>
<td>0.6067</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Note: This analysis based on proportion of youth in school-based services.
SUMMARY OF FINDINGS

• Is there really a de facto service system for children and youth?
  • Schools were the most common service setting for all children and youth (9% versus 7% for outpt), however…
  • Among youth with elevated symptoms or already enrolled in a service system, outpatient services were most common (38% versus 32% for schools)
• Moderator analysis did not find study variables with significant influence on rates (but small N of studies)
SUMMARY OF FINDINGS

• Schools may be most likely to be first point of receipt of service or entry to service systems. However:
  • Outpatient care is still quite prevalent among all youth
  • Outpatient is also more common once children are “known to systems”
  • A large proportion of youth with identified need are served in JJ, CW, and residential/inpatient settings
The current study clarifies that youth are served across all these service settings.

- Schools likely need most attention for building surveillance, screening, early engagement and treatment efforts.
  - But many other settings clearly do as well.

- Primary care is an obvious setting to invest in as well, but results suggest it lags in current utilization.
  - This despite primary care’s promotion as a point of screening and prevention as well as integration of care.

**IMPLICATIONS?**
Given the low relative rates of youth in CW and JJ (against the prevalence of MH problems among US youth), relative rates of utilization via these systems appears quite high

- Many youth continue to have to experience abuse/neglect or commit offenses to access MH services
- However, this may be a result of a relatively low N of studies (only 4) with both CW and school data
LIMITATIONS

- Data limited to what is available in original empirical articles and may be non-representative
  - Many of the articles on children involved in services are of youth with serious and complex needs
  - 3/4 studies with CW rates conducted by 1 team in San Diego Co.
- Unable to assess the overlap across service settings or movement between settings by individual children/youth
CONTINUED RESEARCH DIRECTIONS

• More research needed:
  • Community/state level variation
  • Overlap among systems through which kids access services
  • More on how youth travel through and across these systems over time
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