

## Associations between depressive symptomatology and Internet harassment among young regular Internet users\*

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\* Thank you to Dr. David Finkelhor and his colleagues at the University of New Hampshire for the use of the Youth Internet Safety Survey

\* Thank you for your interest in this presentation. Please note that analyses included herein are preliminary. More recent, finalized analyses can be found in: Ybarra, M. L. (2004). Linkages between depressive symptomatology and internet harassment among young regular internet users. *Cyberpsychology & Behavior*, 7(2), 247-257, or by contacting ISK for further information.

## Background: Youth Internet use characteristics

- 73% of youth between 12 and 17 years of age have used the Internet (Lenhart, Rainie, & Lewis, 2001)
- Home Internet access (US Department of Commerce, 2002)
  - Half of youth 10-13 years old
  - 61% of youth 14-17 years old
- Internet activities
  - 95% of youth use the Internet for email (Lenhart, Rainie, & Lewis, 2002).
  - 75% of youth between 12 and 17 Instant Message (Lenhart, Rainie, & Lewis, 2002).
  - 76% of older teens (15-17 years) have searched for health information (Kaiser Family Foundation, 2001)

## Background: Depressive symptomatology in childhood

- Point prevalence: 2-8% of youth (for a review, see Kazdin & Marciano, 1998; Weisman, Bruce, Leaf et al., 1991; Kesler & Walters, 1998; Roberts, Lewinsohn & Seeley, 1995)
- Significant public health burden
  - Increased risk for adult depressive episode and other disorders (Lewinsohn, Rohde, Klein & Seeley, 1999; Kesler, McGonagle, Swartz et al., 1993)
  - Increased health care utilization (Wu, Hoven, Bird et al., 1999)
- Demographic differences:
  - Affects more females than males (Simonoff, Pickles, Meyer et al., 1997; Kazdin & Marciano, 1998; Silberg, Pickles, Rutter et al., 1999)
  - Risk of onset increases through adolescence (Kazdin & Marciano, 1998)

## Context

- Public policy and research attention on the potential influence the Internet may have on youth behavior and development (e.g., Finkelhor, Mitchell & Wolak, 2000; Congress' Children's Internet Protection Act, 2000; Whitehouse press release, 2002; Lenhart, Rainie & Lewis, 2001)
- Most youth report positive experiences (Borzekowski & Rickert, 2001; National Public Radio, Kaiser Family Foundation, Harvard School of Public Policy, 2000; Lenhart, Rainie & Lewis, 2001).
- Still, concerns about potential negative online exposures cited by parents, and to a lesser extent, youth (UCLA Center for Communication Policy, 2001; NPR, Kaiser Family Foundation, Harvard School of Public Policy, 2000; Lenhart, Rainie, & Lewis, 2001).
- 6% of young regular Internet users report being the target of Internet harassment in the previous year. 33% of youth harassed felt very or extremely upset or afraid as a result (Finkelhor, Mitchell, & Wolak, 2000).

Hypothesized associations are based upon reports of in-person experiences of youth with depressive symptomatology, which serve as a guide and framework for the current study:

- Significant relationship between being a victim of bullying and depressive symptomatology cross-sectionally (Hawker & Boulton, 2000; Haynie, Nansel & Eitel et al., 2001) as well as over time (Kaltiala-Heino, Rimpela, Rantanen & Rimpela, 2000).

**Primary research objective** ⇒ Estimate the odds of unwanted harassment for youth reporting depressive symptomatology

## Sample description

- The Youth Internet Safety Survey (YISS) is a nationally representative telephone survey of 1,501 youth and one caregiver.
- The survey was conducted between Fall of 1999 and Spring of 2000 by the University of New Hampshire's Crimes Against Children Research Center
- Inclusion criteria consisted of the following:
  - Regular Internet use (at least 3 times in the previous 3 months)
  - Between the ages of 10 and 17 years old
  - English speaking
  - Spent time at that residence for at least 2 weeks in the previous year
  - Caregiver and youth informed consent

## Analytic Methods

1. Exploratory factor analysis used to identify Internet usage and depressive symptomatology factors.
2. Logistic regression used to estimate the odds of reporting an unwanted online harassment based upon the report depressive symptomatology.
3. Effect modification tested for significant difference in the association between depressive symptoms and unwanted Internet harassment as a function of age or substance use.
4. Sample stratified by gender and parsimonious model of significant characteristics related to the report of harassment online built.

## Results: Unwanted online harassment

- The odds of reporting an unwanted harassment online in the previous year is more than 3.5 times higher (OR: 3.53, CI: 2.19, 5.71) for youth reporting DSM IV major depressive-like symptoms compared to mild or no symptoms.
- After adjusting for other significant characteristics, the odds of reporting an unwanted harassment given the report of major depressive-like symptoms:
  - Males: OR: 3.43, CI: 1.08, 10.84
  - Females: 1.59, CI: 0.67, 3.74
- 38% of youth reporting major depressive-like symptoms were distressed by the incident, compared to 21% of youth reporting mild or no symptoms ( $X^2=4.27, p=0.04$ ).

## Additional findings

Among young, regular Internet users, after adjusting for other significant characteristics:

- Internet usage characteristics, including average daily Internet use and harassing others online, are significantly related to the odds of reporting Internet solicitation for both males and females.
- Males that report being the target of in-person victimization are more than 3 times as likely to report being the target of online harassment.
- Females of Hispanic ethnicity are almost 3 times as likely as otherwise similar females of non-Hispanic ethnicity to report Internet harassment.

## Implications

- Differences in Internet usage alone are not sufficient to explain the odds of reporting an Internet harassment.
  - Males who report harassment are likely experiencing significant psychosocial challenge (i.e., depressive symptoms, in-person victimization)
- Health care professionals who treat adolescents should be knowledgeable about Internet harassment, including associated characteristics and the potential for subsequent distress

## Future Studies

- Identify the temporality of events
- Investigate the underlying mechanisms contributing to differences in the association of depressive symptomatology and Internet harassment by sex.
- Research additional vulnerable subpopulations

## Conclusion

Understanding the complex interplay between mental health and online interactions, especially the influence of malleable characteristics such as Internet usage and depressive symptomatology, is an important area of emerging public health research.

## Strengths & Limitations

- **Limitations**
  - These cross sectional data preclude temporal inferences.
  - Definition of depressive symptoms does not represent 'caseness'.
  - Because of the relative infancy of Internet research, replicated and validated scales and questions are lacking.
  - Only English-speaking respondents were included, preventing generalization to households speaking different languages.
- **Offsetting Strengths**
  - This is the most detailed survey of youth Internet usage and experiences to date.
  - The data are both timely and nationally representative of young, English-speaking regular Internet users across the US.
  - Given the general newness of the field, extreme care was taken in crafting the survey tool, including focus groups and pilot testing.
  - Stringent data quality controls led to very little missing data.

## Measures: Internet harassment\*

The report of at least one type of aggression towards the youth while online in the previous year:

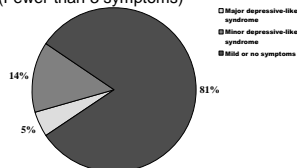
Internet harassment is an overt, intentional act of aggression towards another person online

- **Physical threats**
  - "Someone threatened to beat me up."
  - "Someone was threatening to kill me and my girlfriend."
- **Embarrassment/humiliation**
  - "They were mad at me and they made a hate page about me."
  - "Some friends from school were posting things about me and my boyfriend, then they found a note between me and my boyfriend and they scanned it and put it on their website, then sent it through e-mail to people in school."

\*Quotes are from Youth Internet Safety Survey respondents

## Measures: Depressive symptomatology

- DSM-IV based check-list of 9 depressive symptoms (American Psychological Association, 1999)
- Current (previous month) symptoms, except dysphoria (all day, nearly every day for 2 weeks)
- 3 categories of reported symptomatology
  1. Major depressive-like symptoms
    - 5+ symptoms, 1 of which is anhedonia or dysphoria
    - Functional impairment (school, hygiene, or self-efficacy)
  2. Minor depressive-like symptoms (3+ symptoms)
  3. Mild or no symptoms (Fewer than 3 symptoms)



## Additional Measures and Indicators

| Measurement category           | Specific Measures                                                                                                                                                                               |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Psychosocial characteristics   | 2+ negative life events**, 2+ in-person victimization events**, substance use***, # of close friends, # of times/week interact with friends outside of school, physical or sexual victimization |
| Internet usage characteristics | Daily Internet use, interactive Internet use****, most frequent Internet activity, harassing others online, household Internet service provider                                                 |
| Demographics                   | Age, gender, household income, race, Hispanic ethnicity                                                                                                                                         |

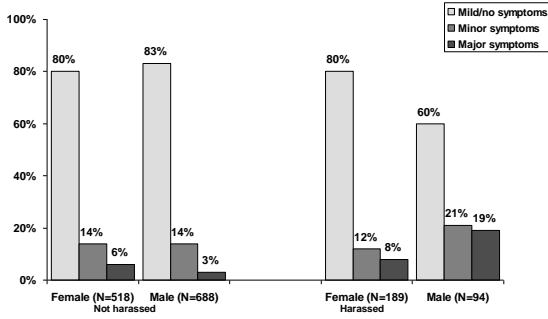
\*Includes death in immediate family, divorce, loss of job, and relocation within the previous year

\*\*Includes having something stolen, being the target of physical violence either by a gang or another individual, or being "picked on" within the previous year

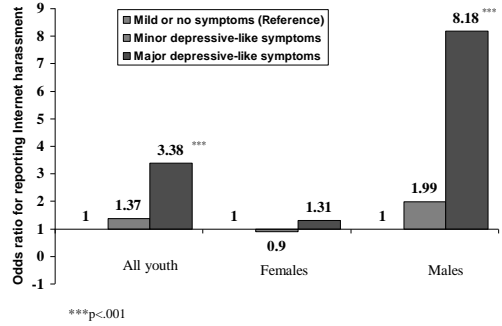
\*\*\*Substance use factor includes the number of times in the previous year the youth has engaged in: cigarette smoking; alcohol; inhalants; marijuana; or any other controlled substance within the previous year

\*\*\*\*Internet usage factor includes: Using the Internet (ever) for checking movie information, to enter chat rooms, surf web pages, access newsgroups, download files, email, or Instant Messaging; self-rated importance of Internet to self; self-rated Internet expertise; accessing the Internet (ever) at home; average number of days per week youth uses the Internet

### Internet harassment by sex and depressive symptoms



### Odds of Internet harassment given report of depressive symptomatology (N=1,489)



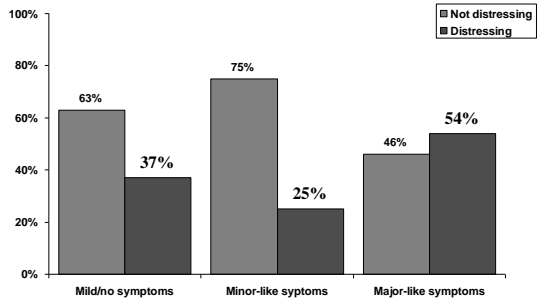
### Male Internet users: Final logistic regression model of Internet harassment (N=789)

| Youth characteristics                         | Adjusted OR (95% CI) | P-Value |
|-----------------------------------------------|----------------------|---------|
| <b>Depressive symptomatology</b>              |                      |         |
| Major depressive-like symptoms                | 3.43 (1.08, 10.84)   | 0.04    |
| Minor depressive-like symptoms                | 1.59 (0.67, 3.74)    | 0.29    |
| Mild/Absent symptomatology                    | 1.00 (Reference)     |         |
| <b>Internet usage characteristics</b>         |                      |         |
| Average daily Internet use                    |                      |         |
| Intense (3+ hrs/day)                          | 4.27 (2.07, 8.79)    | <.01    |
| Moderate (2 hrs/day)                          | 0.97 (0.42, 2.25)    | 0.95    |
| Low (<=1 hr/day)                              | 1.00 (Reference)     |         |
| Harasser of others online                     | 4.37 (2.14, 8.93)    | <.01    |
| <b>Psychosocial characteristics</b>           |                      |         |
| Target of in-person victimization (2+ events) | 3.08 (1.55, 6.10)    | 0.00    |

### Female Internet users: Final logistic regression model of Internet harassment (N=707)

| Youth characteristics                 | Adjusted OR (95% CI) | P-Value |
|---------------------------------------|----------------------|---------|
| <b>Depressive symptomatology</b>      |                      |         |
| Major depressive-like symptoms        | 0.93 (0.28, 3.03)    | 0.86    |
| Minor depressive-like symptoms        | 0.89 (0.31, 2.55)    | 0.83    |
| Mild/Absent symptomatology            | 1.00 (Reference)     |         |
| <b>Internet usage characteristics</b> |                      |         |
| Average daily Internet use            |                      |         |
| Intense (3+ hrs/day)                  | 3.54 (1.45, 8.62)    | 0.01    |
| Moderate (2 hrs/day)                  | 2.35 (1.18, 4.68)    | 0.02    |
| Low (<=1 hr/day)                      | 1.00 (Reference)     |         |
| Most frequent Internet activity       |                      |         |
| Instant Messaging                     | 3.19 (1.16, 8.76)    | 0.02    |
| Email                                 | 2.93 (1.34, 6.40)    | 0.01    |
| Chat room                             | 1.76 (0.55, 5.67)    | 0.35    |
| All other                             | 1.00 (Reference)     |         |
| Harasser of others online             | 2.87 (1.47, 5.61)    | <.01    |
| Internet service provider             |                      |         |
| America Online ISP                    | 1.00 (Reference)     |         |
| All other                             | 0.36 (0.17, 0.79)    | 0.01    |
| Don't know/refused                    | 0.31 (0.12, 0.76)    | 0.01    |
| <b>Demographic characteristics</b>    |                      |         |
| Hispanic ethnicity                    | 2.73 (1.07, 6.93)    | 0.04    |

Very/extremely upset or afraid *because of*  
harassment experience (N=97)



$\chi^2=5.81, p=0.55$