Web Difficulties and Concerns: Teens with Autism
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Pediatric Academic Societies
April 30, 2016

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Have documented no financial relationships
to disclose or Conflicts of Interest (COIs) to resolve.
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Presenter: Cheryl Cohen has documented this presentation will not involve discussion of unapproved or off-label, experimental or investigational use.
Background
What is Autism Spectrum Disorder (ASD)?

• Core characteristics include (DSM-5, 2013):
  – Deficits in social communication and social interaction
  – Restricted, repetitive patterns of behavior, interests, activities
  – Sensory over- or under- reactivity
• Impairments in fine and gross motor skills, gait, and postural control common
Background
Autism Spectrum Disorder (ASD)

- Lifelong
- Prevalence is 1 in 68* (1.1 million children in US)
- Males to females - 4.5:1*
- It’s a spectrum
  - Non-verbal to verbal
  - 44% have average or above average intellectual ability*

*CDC, 2016

Images courtesy CDC, 2016.
Background

People with autism are not fully included in society.

Young adults and their parents reported*:

- In the first years out of high school, more than 1/3rd in the US had no jobs and were not involved in higher education. Higher than rates for comparison disabilities.

- Only 58% had paying jobs into their 20s. Most jobs were low wage or part time. Lower than rates for comparison disabilities.

- **Vocational skills** most important services needed

*Roux, 2015
Little research has focused on how people with autism use technology in their day-to-day lives and whether that technology is accessible to them to meet their occupational, economic, entertainment, and information needs.*

*Cohen, 2015
Objectives

To find out whether web use is a barrier by looking at:
- Which teens with autism were using the web
- Whether they could use that technology successfully

To determine the extent of problematic behaviors:
- Parents’ concerns with their teens’ online behaviors
Methods

• Anonymous online 80-question survey
• Administered to parents of children ages 13-17 living in the US with and without autism
• Subjects were recruited:
  – with the assistance of the Interactive Autism Network (IAN) Research Database and Community at the Kennedy Krieger Institute, Baltimore
  – social media
• September – October 2015
• University of Baltimore IRB: Exempt
Participants

• Completed surveys = 347

• Groups:
  – Parents reporting on their teens with ASD – 263 (76%)
  – Parents reporting on their typically-developing teens (TD) – 84 (24%)

• Male-to-female gender ratios
  – ASD (5.9:1) – within expected range
  – TD (1:1)
Analysis

Analysis groups (n=347):

- **ASD Normal** (129/37%) - Teens with ASD and parent-reported normal or higher intellectual ability
- **ASD Low** (134/39%) - Teens with ASD and parent-reported below-normal intellectual ability
- **TD** (84/24%) - Typically-developing teens with parent-reported normal or higher intellectual ability

No statistically significant differences between the groups in demographic characteristics (skewed toward higher SES)

Statistical model used Logistic Regression controlling for age, gender, white (vs. non-white), Hispanic (vs. non-Hispanic)
Does your teen use the internet or the web (go online)?
Which teens are going online?

Almost all teens going online:

- TD – 99%
- ASD Normal – 99%
- ASD Low – 89%

Why not?

- No ability (5)
- No interest (5)
- Only watches videos (2)
- Other (2)
Does your teen have problems with common web tasks?
Common web tasks:  
**Filling in web forms**

 Teens with ASD had significantly more difficulty filling in forms, with ASD Low group having the most difficulty.

<table>
<thead>
<tr>
<th></th>
<th>ASD-Low n = 117</th>
<th>ASD-Normal n = 127</th>
<th>TD n = 83</th>
<th>Difference between all groups</th>
<th>ASD-Normal vs. TD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filling in web forms</td>
<td>57%</td>
<td>20%</td>
<td>4%</td>
<td>χ²=84.54; p&lt;.001; d.f.=6</td>
<td>p=.004</td>
</tr>
</tbody>
</table>
Common web tasks:

**Finding information on a webpage**

 Teens with ASD had significantly more difficulty finding information on a webpage, with ASD Low group having the most difficulty.

<table>
<thead>
<tr>
<th></th>
<th>ASD Low n = 117</th>
<th>ASD Normal n = 127</th>
<th>TD n = 83</th>
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<th>ASD-Normal vs. TD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finding information on a webpage</td>
<td>42%</td>
<td>17%</td>
<td>6%</td>
<td>$\chi^2=50.14; \ p&lt;.001; \ d.f.=6$</td>
<td>p=.007</td>
</tr>
</tbody>
</table>
Common web tasks:
Using search engines

ASD Low group had significantly more difficulty using search engines.

<table>
<thead>
<tr>
<th></th>
<th>ASD Low ( n = 117 )</th>
<th>ASD Normal ( n = 127 )</th>
<th>TD ( n = 83 )</th>
<th>Difference between all groups</th>
<th>ASD Normal vs. TD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using search engines</td>
<td>28%</td>
<td>10%</td>
<td>4%</td>
<td>( \chi^2=36.99; \ p&lt;.001; \ d.f.=6 )</td>
<td>NS</td>
</tr>
</tbody>
</table>
Common web tasks:
Switching between websites or webpages

ASD Low group had significantly more difficulty.

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</tr>
</thead>
<tbody>
<tr>
<td>Switching between</td>
<td>15%</td>
<td>5%</td>
<td>1%</td>
<td>$\chi^2=26.33; \ p&lt;.001; \ d.f.=6$</td>
<td>NS</td>
</tr>
<tr>
<td>websites or webpages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What are your concerns with your teen’s online behavior and safety?
Communication/judgment:

Does your child *purchase* online offers or online subscriptions or sign up for websites that he/she shouldn't?

Important problem for all groups, with ASD Low having the most problematic behavior.

<table>
<thead>
<tr>
<th></th>
<th>ASD Low</th>
<th>ASD Normal</th>
<th>TD</th>
<th>Difference between all groups</th>
<th>ASD-Normal vs. TD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inappropriate purchasing and joining</td>
<td>53%</td>
<td>35%</td>
<td>19%</td>
<td>$\chi^2=14.65; \ p=.023; \ d.f.=6$</td>
<td>$p = 0.05$</td>
</tr>
</tbody>
</table>
Communication/judgment:
In the past year, has your child been **taken advantage of or bullied** on social media, photo sharing sites, discussion forums, or chat rooms?

**Cyber bullying** a problem for all groups, but no statistically significant difference between groups.

- Bullying a problem for individuals with ASD (38% past month/63% lifetime) (Zablotsky, 2014)
- Kowalski (2011) showed that parents of teens with ADHD and Asperger’s unaware of cyber bullying occurrence and don’t discuss with teens.

<table>
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<tr>
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<th>TD</th>
<th>Difference between all groups</th>
<th>ASD Normal vs. TD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyber bullying</td>
<td>15%</td>
<td>25%</td>
<td>14%</td>
<td>NS</td>
<td>NA</td>
</tr>
</tbody>
</table>
Communication/judgment:
Are you concerned about the **content of your child’s comments or postings on social media**?

Behavior a problem for all groups, but no statistically significant difference between groups.

<table>
<thead>
<tr>
<th></th>
<th>ASD Low</th>
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<th>TD</th>
<th>Difference between all groups</th>
<th>ASD Normal vs. TD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment or posting content</td>
<td>51%</td>
<td>44%</td>
<td>41%</td>
<td>NS</td>
<td>NA</td>
</tr>
</tbody>
</table>
Behavior:

Are you concerned about your child's **video viewing habits**?

Behavior a problem for all groups, but especially ASD Normal.

<table>
<thead>
<tr>
<th>Video viewing habits</th>
<th>ASD Low</th>
<th>ASD Normal</th>
<th>TD</th>
<th>Difference between all groups</th>
<th>ASD Normal vs. TD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>45%</td>
<td>59%</td>
<td>35%</td>
<td>$\chi^2=13.88; p=.031; d.f.=6$</td>
<td>$p = 0.006$</td>
</tr>
</tbody>
</table>
Behavior:
Are you concerned about your child's **gaming habits**?

Teens’ **gaming habits** were problematic for all groups, but **being male** was the biggest risk factor.

<table>
<thead>
<tr>
<th>Gaming habits</th>
<th>ASD Low</th>
<th>ASD Normal</th>
<th>TD</th>
<th>Difference between all groups</th>
<th>ASD Normal vs. TD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>27%</td>
<td>41%</td>
<td>29%</td>
<td>$\chi^2=18.61; p=.005; d.f.=6$ (gender male $p=.005$)</td>
<td>NS</td>
</tr>
</tbody>
</table>
Concerns of Parents of Teens with ASD

“He spends far too much time playing games, he's addicted to them. If I take the device(s) away he has a meltdown.”

“He tends to look for videos that are either violent, or that trigger excitement.”

“He has had problems in the past about looking at porn and we have to be diligent to keep him from those sites.”

“I am afraid that he could get so involved in it, if not being monitored, that he could forget about everything else.”

“In the past she's talked to strangers and watched things she shouldn’t. I'm very afraid of predators.”
Summary

• Most of the teens were going online
• **Performing common web tasks** more difficult for teens with ASD, but especially ASD Low
• **Content of social media postings** was problem across groups
• **Cyber bullying** a minor concern of parents for all groups (but underestimated)
• **Inappropriate joining and purchasing** big problem for all groups, especially ASD Low
• **Time spent gaming and gaming content** problematic for many male teens across groups
• **Time spent watching videos and content** problematic for all groups, but especially ASD Normal
Acknowledgements

- Individuals with autism and their parents and guardians for their generous contribution of time and effort
- Subjects were recruited with the assistance of the Interactive Autism Network (IAN) Research Database at the Kennedy Krieger Institute, Baltimore


