IMPACT OF TECHNOLOGY AND CYBER (ONLINE) RISKS ON CHILDREN

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INTRODUCTION

Digital age presents many new challenges for kids and parents, including excessive screen time, inappropriate online content, and cyberbullying. About 42% of US children (4-14 years) spend over 30 hours a week. Media usage increased by 17% post pandemic. Average screen time in tweens (6-12 years) is 5.5 hours/day and teens (13-18 years) is 8.6 hours/day. Six out of ten children (8-12 years) are exposed to cyber risks. Cybercrimes against children increased 144% just in 2020. The annual financial loss with cybercrimes against children was USD $660,000 (2020). According to Revised Parenting in the Age of Digital Technology: A National Survey, parent's media usage time impacts children screen time.

METHODOLGY

A comprehensive Literature review was performed on available peer reviewed publications approximately 60 articles [12] using the search terms “impact of technology on kids”, “types of effects”, “cyber security for kids”, “cyber risks for children”. This study is an additional outcome of a more broader study Impact of technology on young children.

DEVELOPMENTAL DOMAINS IN CHILDREN

Children grow in different developmental aspects or domains. The key domains of child development are cognitive, language, physical, and social & emotional. These domains are further divided into sub-domains.

IMPACT OF TECHNOLOGY ON CHILDREN (0-7 YEARS)

Use of technology can have both positive and negative effects on child’s developmental domains such as cognitive, physical, language, social and emotional.

<table>
<thead>
<tr>
<th>Research</th>
<th>Age Group</th>
<th>Development Domain</th>
<th>Impact on Child development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahearn et al., 2016</td>
<td>1-3 years</td>
<td>Cognitive, Physical</td>
<td>Acquiring skills to handle touch-screen technologies.</td>
</tr>
<tr>
<td>Cespedes et al., 2014</td>
<td>1-7 years</td>
<td>Physical</td>
<td>Emotional dysregulation and behavioral issues.</td>
</tr>
<tr>
<td>Coyne et al., 2021</td>
<td>2-3 years</td>
<td>Socio-emotional</td>
<td>Effects sleep onset</td>
</tr>
<tr>
<td>Cox et al., 2012</td>
<td>2-6 years</td>
<td>Physical</td>
<td>Obesity in due to inactive/ sedentary activities.</td>
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<tr>
<td>Dayanin et al., 2015</td>
<td>15 months</td>
<td>Cognitive</td>
<td>Learn new information and acquire knowledge.</td>
</tr>
<tr>
<td>Duch et al., 2013</td>
<td>0-6 years</td>
<td>Language</td>
<td>Child’s language development.</td>
</tr>
<tr>
<td>Mcculler et al., 2015</td>
<td>6-24 months</td>
<td>Language</td>
<td>Enhancing communication skills.</td>
</tr>
<tr>
<td>Nathanson, 2021</td>
<td>6-7 years</td>
<td>Physical</td>
<td>Child’s sleep.</td>
</tr>
<tr>
<td>Radesky et al., 2014</td>
<td>0-2 years</td>
<td>Socio-emotional</td>
<td>Emotional dysregulation problems.</td>
</tr>
<tr>
<td>Radesky et al., 2016</td>
<td>15-36 months</td>
<td>Socio-emotional</td>
<td>Emotional and behavioral problems.</td>
</tr>
<tr>
<td>Tompoupolous et al., 2010</td>
<td>6-14 months</td>
<td>Cognitive</td>
<td>Language development.</td>
</tr>
</tbody>
</table>

Table 1. Impact of Technology On Children

IMPACT OF CYBER RISKS ON CHILD DEVELOPMENT

Types of Risks | Progression of Risk Variations | Impact on Children | Level of Risk by Age |
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Privacy</td>
<td>Social Networks, Smart Toys, Tracking</td>
<td>Social and emotional</td>
<td>Low Medium Medium</td>
</tr>
<tr>
<td>Online Harassment</td>
<td>Cyber Bullying, Stalking</td>
<td>Behavioral and psychological</td>
<td>Low Medium High</td>
</tr>
<tr>
<td>Stranger Danger</td>
<td>Cat phishing, Impersonation</td>
<td>Social and Emotional</td>
<td>Low Medium Medium</td>
</tr>
<tr>
<td>Content Risks</td>
<td>Inappropriate Content, Targeted Ads</td>
<td>Cognitive and Behavioral</td>
<td>Medium High High</td>
</tr>
<tr>
<td>Economics</td>
<td>Scam Call, Financial Scams, Gambling</td>
<td>Psychological and Socio-emotional</td>
<td>Low Low Low</td>
</tr>
<tr>
<td>Addiction</td>
<td>Excessive media use, Gaming, Social media</td>
<td>Cognitive and Emotional behavior</td>
<td>Medium High High</td>
</tr>
</tbody>
</table>

Table 2. Impact of Cyber Risks on Children

PREVENTION TO KIDS SAFE ONLINE

<table>
<thead>
<tr>
<th>USE OF CYBER SECURITY TOOLS AND SOFTWARE</th>
<th>SETTING RULES AND BOUNDARIES</th>
<th>SAFETY GUIDELINES</th>
<th>MONITORING KIDS ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications and Build Trust</td>
<td>SETTING PARENTAL CONTROLS</td>
<td>TEACH ABOUT PRIVACY AND PASSPORTS</td>
<td>COMMUNICATION GUIDELINES</td>
</tr>
<tr>
<td>Increasing Parental Awareness</td>
<td>Educating Children</td>
<td>Monitoring kids activities</td>
<td>Teaching guidelines</td>
</tr>
</tbody>
</table>

Figure 3. Measures To Minimize Cyber Risks In Children

PREVENTIONS FOR KIDS IN CYBER SPACE

Incorporating IEEE 2089-2021, IEEE Standard for an Age-Appropriate Cyber (Online) Risks Framework based on the 5Rights Principles for Children offering information in an appropriate manner safeguarding children’s rights, extending fair terms for children, acknowledging childhood, and placing children ahead of commercial benefits, this guideline states that cyber risks can ensure safer online products for children. This standard may help the organizations in designing their services by taking children into consideration, establishing commitment to social responsibility.

CONCLUSION

• Longer exposure to screens can have adverse developmental impacts and it also exposes children to various online risks. Therefore, Parents must be aware of the potential harms of technology, cyber risks and child’s excessive screen time.
• Parents need to follow certain guidelines to balance the benefits and possible harms of technology and safeguard the infant’s health.
• A combined training program that includes both parents and children with real-time tasks may deliver enhanced awareness.

KEY REFERENCES

12. Vaishnavi Naidu Panjeti Madan Research Scholar Email - vaishnavisedu@gmail.com