Problematic Internet use (PIU) by adolescents is of growing concern among both parents and pediatricians. Early controversies may have contributed to challenges in defining and measuring PIU. A variety of screening tools have evolved, aligned with different constructs of PIU, although a validated screening tool does exist. Current data and American Academy of Pediatrics policy reflect evidence-driven screening for PIU for all youth.
PROBLEMATIC INTERNET USE

Internet use is nearly ubiquitous among adolescents and young adults. Current US data suggest that 93% of adolescents and adults between 12 and 29 years of age go online, and up to 25% of teens describe themselves as "constantly connected." Given these high rates of Internet use, problematic Internet use (PIU) is a growing concern. Researchers have identified a rising number of consequences associated with increased Internet use among adolescents, including, but not limited to, psychological issues, behavior problems, attention problems, and physical problems. Given that Internet use begins increasingly earlier in adolescence and even during the childhood years, pediatricians are uniquely positioned to conduct early screening for PIU.

The Controversial History of PIU

An initial principle important to understanding this topic is the notion that Internet addiction and PIU represent different concepts. Although these terms have been used interchangeably in the past, they represent 2 separate frameworks for identifying Internet overuse. Internet addiction may be considered more analogous to a classic substance addiction, with loss of control and feelings of withdrawal. PIU represents a broader array of problems related to Internet use, including social, behavioral, and emotional issues. An extreme case of PIU may involve Internet addiction, but PIU is a broader, more multifaceted concept.

Efforts toward developing diagnostic criteria for PIU began 2 decades ago. Reviewing the evolution of the concept of PIU illustrates the dilemma around whether PIU represents a behavioral addiction, impulsivity, or a broader range of behaviors. The focus on aspects of addictive behaviors likely stems from 2 initial approaches to defining PIU, grounded in existing Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, disorders: substance abuse and/or dependency and pathologic gambling. After this early work came the introduction of 3 conceptual approaches. First, PIU was more broadly described as a general behavioral addiction. Second, a cognitive-behavioral model of PIU drew attention to the impact of an individual's thoughts on his or her development of problematic behaviors and separated PIU into "generalized" PIU (or multidimensional overuse of the Internet) and "specific" PIU. Specific PIU was defined as dependence on a specific function of the Internet, such as online shopping. Third, a model proposed that PIU should be more widely classified as an impulse control disorder with criteria, including maladaptive preoccupation with Internet use characterized by either irresistible use or use that is excessive and longer than planned, clinically significant distress or impairment, and the absence of other Axis I disorders.

Current Definition of PIU

At present, the current definition of PIU arose from a previous study that was focused on developing stakeholder-driven consensus-based criteria. In this study, the authors used a concept mapping approach, which integrates qualitative and quantitative data from key stakeholders with expertise or investment in the topic. For this study, investigators incorporated data from researchers in the fields of adolescent health, addiction science, and technology, as well as from adolescents and young adults themselves. The authors identified 7 specific constructs within PIU: (1) psychosocial risk factors (ie, anxiety) that increase because of PIU behavior, (2) physical impairment, (3) emotional impairment, (4) social and/or functional impairment, (5) risky Internet use, (6) impulsive Internet use, and (7) dependent Internet use. The strength of this definition is supported by its thorough review of the phenomenon as it may present among adolescents. From this study's findings, PIU was defined as "Internet use that is risky, excessive, or impulsive in nature, leading to adverse life consequences, specifically physical, emotional, social, or functional impairment."

It is important to note that PIU among adolescents goes beyond just spending too much time online. The definitions and constructs above represent both how much time is spent online (ie, the quantity of use) as well as the relationship with the online world, which represents quality of use.

It is estimated that 7% to 11% of adolescents in the United States suffer from PIU. Hence, it is possible that it affects 1 in every 10 adolescent patients. This is a consequential statistic because PIU is associated with conduct problems (fighting), hyperactivity, symptoms of depression, a negative impact on daily functions and physical health, trouble concentrating, suicidal ideation among women in college, and poor interpersonal relationships.

Screening for PIU

One of the more problematic aspects of PIU is the challenge of screening for it. In comparison to a dependence on a substance, PIU is a maladaptive relationship with tools that one needs to function in society. Hence, there are 3 strategies that can potentially serve to help identify patients with PIU: know the risk factors, use an established screening tool, and identify opportunities to screen.

Risk Factors for PIU

There are some categories of individuals who might be at higher risk for PIU. First, any of the associated consequences noted above may serve as indicators. This is
because causal connections between PIU and Internet addiction and the various outcomes have yet to be strongly established in the literature. Previous research supports that there are particular groups at increased risk, including males, those who experience depressive symptoms and use the Internet for relationships and mood regulation, adolescents with high levels of narcissism and the feeling of a need to belong, and those who experience fear of missing out. Family risk factors can also play a role, including adolescents who experience family dissatisfaction and adolescents who have parents with mental health issues.

Screening Tools for PIU

Given the number of different definitions proposed for PIU, it may not be surprising that a number of different tools have been developed to assess for PIU and Internet addiction. However, a systematic review that was focused on PIU screening instruments illustrated that many tools were not supported by evidence. For example, most tools had one or more of the following flaws: they were designed for adults, used different conceptual foci than PIU, had varied or seemingly random cutoff points for indicating an at-risk individual, and had a lack of scientific validation for the tool. One pediatric-focused validated screening tool for PIU is the Problematic and Risky Internet Use Screening Scale (PRIUSS), an 18-item scale that has 3 distinct subscales: social impairment, emotional impairment, and risky and/or impulsive Internet use (see Supplemental Information). At present, this remains the only validated screening tool for pediatric populations.

Nonrecommended Screening Approaches for PIU

It is also important to point out a nonrecommended approach, which is to focus on time spent online. Whereas early screening approaches asked patients and families to report the number of hours of “screen time,” the 2016 American Academy of Pediatrics (AAP) policy statement on media use in school-aged children and adolescents no longer recommends that strategy for this population. This shift in screening focus represents newer evidence that illustrates time spent online is not the only factor involved in PIU as well as a lack of evidence to support strict hour-based recommendations that can apply across various developmental stages.

When To Screen for PIU

An opportune time to screen is during routine health supervision visits because many pediatricians use paper or digital screening tools to assess multiple behavioral concerns at these visits. The 18-item PRIUSS typically takes 5 minutes or less to complete; however, a shorter, validated screening tool is the 3-item PRIUSS, which has 3 questions regarding anxiety when away from the Internet, loss of motivation when on the Internet, and feelings of withdrawal when away from the Internet. These 3 questions can be incorporated with other commonly used behavioral screening tools. Positive screens on the 3-item PRIUSS can be followed-up with the full scale, similar to the use of the Patient Health Questionnaire-2, which is commonly used to identify those who would benefit from screening with the Patient Health Questionnaire 9.

Other opportunities to screen children and adolescents may be in cases when parents are concerned about sleep patterns or have challenges in limiting screen time around bedtime. Children and adolescents who experience a dramatic change in grades may also benefit from screening.

The Role of the Pediatrician After Screening

Unfortunately, there are currently no evidence-based prevention strategies or interventions to rely on if a pediatric patient screens at risk for PIU. In absence of this evidence, one tool to consider is the Family Media Use Plan (https://www.healthychildren.org/english/media/pages/default.aspx), developed by the AAP. This tool allows families to view suggested structure and ideas for Internet and media use and select (or create) items that fit their families’ needs and values. It also includes a “media time calculator” that allows individuals to consider a typical day’s activities and how much media or Internet time fits in alongside critical health activities such as sleep and physical activities, social activities (ie, family or friend time), and academic activities (ie, school and homework). This tool can be used at any age, and it is recommended that the plan be reviewed and updated at least yearly or with changes in schedule (eg, school schedule to summer schedule). The Family Media Use Plan was developed alongside the 2016 AAP policy statement on media use among school-aged children and adolescents in an effort to translate those evidence-based recommendations into a parent-facing tool.

Future Directions for Research

Given that PIU remains a newer pediatric concern, there are a number of important areas for future research. Much of the past research has been focused on developing different conceptual approaches and screening tools. More recently, there have been a number of new screening tools that are focused on different aspects of PIU. This includes screening tools specifically for social media addiction and smartphone addiction. At this point, research has become semisaturated with new screening tools with little scientific
validation or clinical usefulness. However, there is a dearth of research in the areas of prevention and intervention. Teenagers may tell pediatricians anecdotal reports of teachers who institute “screen-free weeks” or about their experiences with losing Internet access on summer vacation and how different they feel. These unpublished stories support the need for research to understand pediatric patients’ experiences and leverage them for effective prevention and intervention approaches.

CONCLUSIONS

Although PIU is still a relatively new phenomenon, there is general agreement that it is a serious issue that adolescents face and can present patients with an array of negative consequences. It is important for pediatricians to understand this emerging literature, the risk factors, and how to screen and counsel to best support their patients.

ABBREVIATIONS

AAP: American Academy of Pediatrics
PIU: problematic Internet use
PRIUSS: Problematic and Risky Internet Use Screening Scale

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