

The Impact of Internet Use on Digital Behavior and Mental Health of Adolescents: Empirical Evidence from Global Data

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Abstract: The development of the internet and digital technology has significantly changed the behavioral patterns and psychosocial lives of adolescents worldwide. While the internet offers numerous positive opportunities for accessing information, learning, and social interaction, the increasing intensity of internet use has also raised concerns regarding its impact on adolescent mental health. This study aims to analyze the impact of internet use on adolescent digital behavior and mental health based on empirical evidence from global data, with particular attention paid to comparisons between Indonesia and global trends. This study used a qualitative approach with content analysis methods on global secondary data sourced from Our World in Data and the Global Burden of Disease for the period 2010–2021. The analysis was conducted through thematic coding and narrative interpretation of internet usage trends and mental health indicators, particularly anxiety and depression disorders, as context for changes in adolescent digital behavior. The results indicate a temporal relationship between increasing internet penetration and the increasing burden and prevalence of mental health disorders. The impact of internet use on adolescent mental health is contextual and multidimensional, influenced by social and cultural factors, digital literacy, and mental health support systems. Indonesia exhibits patterns consistent with global trends, albeit with different characteristics and prevalence rates. This study contributes to the growing literature by presenting a qualitative approach based on global data that broadens understanding of the dynamics of adolescent mental health in the digital age. Limitations of the study lie in the use of aggregate data and the lack of direct causal analysis. Future research is recommended to use individual-based longitudinal data and combine qualitative and quantitative approaches to deepen the analysis of the relationship between internet use and adolescent mental health.

Keywords: Internet use, Digital behavior, Adolescent mental health, Qualitative content analysis, Global data

Introduction

The development of the internet and digital technology in the last two decades has fundamentally changed the patterns of adolescent lives around the world. Adolescents are the age group that uses the internet for various activities, ranging from learning, entertainment, social communication, to self-identity formation. The Internet provides a great opportunity for increased information literacy, social participation, and 21st century skill development. However, the increasing intensity and complexity of internet use also raises various concerns related to problematic digital behaviors and their impact on adolescent mental health. Global health and psychological organizations note an increasing prevalence of anxiety, depression, stress, and sleep disorders in adolescents that go hand in hand with high exposure to digital media and social media (Orben, 2020; Twenge et al., 2018). This condition makes the relationship between internet use and adolescent mental health an important issue in the study of public health, education, and global social policy.

A number of previous studies have examined the relationship between internet use and adolescent mental health with mixed results. Meta-analysis studies show that excessive and addictive internet use is positively correlated with depression, anxiety, psychological stress, and low subjective well-being in adolescents (Anderson et al., 2017; Keles et al., 2020). Longitudinal research in several Asian and European countries has also found that high intensity of social media use is associated with an increased risk of emotional disorders, especially through social comparison mechanisms, cyberbullying, and sleep disorders (Ayaz et al., 2024; Boers et al., 2019). On the other hand, several studies confirm that the use of the internet aimed at positive educational and social goals can actually support adolescents' psychological well-being, increase a sense of social connectedness, and strengthen academic self-efficacy (Orben & Przybylski, 2019; Valkenburg et al., 2022). These findings suggest that the impact of the internet on adolescent mental health is complex and not entirely negative.

Although the literature on this topic continues to grow, there are still a number of significant research gaps. First, many studies still focus on specific national or regional contexts, so the generalization of findings globally is limited. Second, most studies use cross-sectional designs that have not been able to capture the long-term dynamics between digital behavior and adolescent mental health. Third, the variables of internet use are often reduced to the duration of use alone, regardless of the type of digital activity, the purpose of use, and the social and cultural context that surrounds it (Laffan et al., 2023; Mujahidah & Saraswati, 2025). In addition, there is limited research that integrates mediating and moderation factors, such as family support, digital literacy, and socioeconomic conditions, in explaining the variation in the impact of the internet on the mental health of transnational adolescents.

Based on this gap, this study offers novelty by presenting comprehensive global data-driven empirical evidence to

analyze the impact of internet use on adolescents' digital behavior and mental health. The main novelty of this research lies in the use of a cross-border comparative approach by utilizing large-scale global datasets, thus allowing the analysis of variations in the impact of the internet in different social, economic, and cultural contexts. In addition, this study not only measures the intensity of internet use, but also examines more specific dimensions of digital behavior, including the purpose of use, digital risk exposure, and online social interaction. By integrating mediation and moderation analysis, this study is expected to be able to explain the mechanism of how and under what conditions internet use has a positive or negative impact on adolescent mental health.

The focus of this study is to analyze the relationship between internet use, digital behavior, and adolescent mental health based on empirical evidence from global data. The purpose of this study is to identify adolescent internet use patterns, analyze their impact on mental health indicators, and evaluate the role of social and contextual factors as mediators and moderators of these relationships. The research questions posed include: (1) how is the relationship between internet use and adolescent mental health globally; (2) what digital behavioral factors have the most influence on adolescents' psychological well-being; and (3) how the impact varies between countries and social contexts. This study uses a quantitative approach with a secondary data analysis design from a global survey, and applies multivariate and multilevel statistical methods to ensure the accuracy of inference and the relevance of findings for the development of mental health policies and adolescent digital governance.

Literature Review

The use of the internet by adolescents has become an inevitable social phenomenon in the digital age (Kokka et al., 2021). The internet offers unlimited access to information, social relationships, and entertainment, but at the same time poses important consequences for the digital behavior and mental health of young generations (Pohl et al., 2024). Literature studies show that intensive internet use is related to various digital behavior dynamics, including exposure to social media content, involvement in online forums, as well as possible addictive behaviors that can interfere with daily activities. Findings from longitudinal studies state that usage patterns that show compulsive traits rather than just layer duration are more related to symptoms of emotional and behavioral disorders such as anxiety, depression, and suicidal thoughts or actions in adolescents than just the amount of time spent on the internet (The Guardian, 2025). This condition is influenced by complex psychological, social, and structural factors, so the effect of the internet on adolescent well-being cannot be understood through simple measures such as total time of use.

Empirical evidence from various countries shows a mixed link between internet use and adolescent mental health. Global data from the PISA study indicate that internet use behaviors including the use of the internet for discussion, learning, or positive social engagement can make a positive

contribution to adolescent psychological well-being when accompanied by educational expectations and parental support as mediators (Du et al., 2024). In contrast, a large longitudinal data-driven study in China found that internet use negatively impacts physical and mental health, including increased parent-child conflict, decreased academic achievement, and low self-efficacy as a mechanistic pathway that worsens adolescents' mental health conditions (Yang et al., 2025). Other research focusing on social media use in different countries also states that the relationship between online activity and mental health depends on the quality of content and the type of use where positive interactions can strengthen social connectedness, while exposure to negative content and cyberbullying increases the risk of emotional distress (Sala et al., 2024).

In aggregate, a global literature review shows that the relationship between the internet and adolescent mental health is contingency and multidimensional. Meta-analyses of thousands of adolescent participants showed that problematic internet use, particularly those that met the criteria for addiction, correlated strongly with scores of anxiety, depression, and general decline in psychological well-being (Soriano-Molina et al., 2025). These findings are consistent with various studies that show that phenomena such as online social pressure, social comparison, and exposure to extreme content can systematically exacerbate forms of psychological distress in adolescents. However, some studies also emphasize that the internet is not the only factor in the context of use, social support, and individual characteristics that determine different mental health outcomes in different settings of the adolescent population.

From an Indonesian perspective, the local literature reinforces international findings related to the relationship between internet use and adolescent mental health. A validation study of internet addiction instruments among Indonesian adolescents showed that the measured level of internet addiction was related to psychological and behavioral variables relevant to mental health, thus indicating the existence of internal challenges that are in line with global findings (Siste et al., 2021). The research of Indonesian adolescent respondents also found that the intensity of social media use is positively correlated with anxiety and depression, and inversely proportional to their psychological well-being, indicating the need for contextual digital literacy interventions and education (Adelia & Delia, 2025; Pahruraji et al., 2023). National statistics even reveal that more than one in three Indonesian adolescents experience mental health problems within a 12-month period, which shows the urgent need to understand the causative factors including the role of internet use in this phenomenon (Barus, 2022).

Compared to global findings, Indonesia's conditions show a similar pattern but are also unique due to different cultural, social, and educational structures. While the global literature highlights the phenomenon of addictive behavior and social media dynamics as major risk factors, studies in Indonesia show that intense internet use is often associated with academic stress and typical family dynamics, including family support that varies across different social

communities. This literature gap also includes a lack of longitudinal data in Indonesia that can capture the effects of internet use on adolescent mental health over time, so there are still many empirical questions that have not been answered in detail (Amriwijaya & Trirahardjo, 2021; Sarfika et al., 2024). This difference reflects that generalization of global findings to the Indonesian setting must be accompanied by consideration of a strong local context.

Although the current literature is rich in empirical findings, there are still important research gaps to address. First, many studies are cross-sectional and have been unable to capture the clear causality between internet use and long-term mental health outcomes. Second, digital behavioral variables are often measured simply (e.g., screen duration), even though the contextual dimensions of internet use such as the type of content, the quality of interaction, and the role of sociocultural factors are still underrepresented in the current research model. Third, most global studies still lack to account for mediation and moderation of factors such as family support, digital literacy, and the level of social stigma on adolescent mental health, which has the potential to modify the relationship between digital behavior and psychological well-being.

The novelty of this research lies in a comprehensive approach that not only examines the relationship between internet use and mental health from representative global data, but also explores mechanistic frameworks involving mediating and moderation factors such as parental support, educational expectations, as well as cultural context. By integrating cross-border analysis and contextual variables, this study seeks to map a more holistic dynamic, going beyond just a measurable relationship between duration of use and psychological symptoms. In addition, the effort to compare findings between Indonesian and global contexts makes it an important contribution to the literature that has been inadequate in cross-cultural explanations and social structures.

Based on previous literature findings, the proposed research framework positions internet use as the main variable influencing adolescents' digital behavior and mental health through several mediation and moderation pathways. In this model, mediating factors such as educational expectations and parental support are expected to explain how internet use behaviors impact psychological well-being, while moderator factors such as sociocultural context, type of digital content, and digital literacy levels can strengthen or weaken these relationships accommodating variations between countries or communities. This conceptual framework is expected to not only explain the variability of empirical outcomes, but also support contextual policy recommendations based on evidence from global and national data.

Method

In an effort to comprehensively understand the impact of internet use on adolescents' digital behavior and mental health, this study uses a qualitative research type with

content analysis. This approach was chosen because the focus of the study was on the interpretation of meanings, themes, and patterns that appear in large-scale digital text data related to the phenomenon of internet use and adolescent mental health (Mahdizadeh et al., 2017). Qualitative content analysis allows researchers to delve deeper into complex and contextual social phenomena, rather than simply measuring the numerical correlation between variables, this is important given that the relationship between internet use and mental health is thought to be influenced by a variety of social, cultural, and digital environmental factors that cannot be directly measured through descriptive statistics alone (Forsman & Nordmyr, 2017). By examining the content, themes, and narratives contained in global digital data, this study seeks to uncover significant patterns of meaning in the discourse on internet use and its impact on adolescent mental health spread across various regions of the world.

The qualitative big data analysis approach is the main foundation of the methodological strategy, because the data used is very large and multi-dimensional. Qualitative big data differs from traditional qualitative analysis which is usually based on interviews, observations, or limited documents; This approach involves reading and interpreting a huge text as well as a diverse range of sources, including news articles, research publications, global reports, as well as other relevant digital content, with the utilization of software and thematic coding techniques to identify key themes and sub-themes relevant to the research objectives (Çetinkaya, 2025). All the data analyzed were then processed iteratively through the stages of data reduction, category identification, and the formation of deep meaning patterns, resulting in a holistic understanding of internet relationships, digital behavior, and adolescent mental health in a global context.

The main source of data for this study is <https://ourworldindata.org/>, a global data repository maintained by the Global Change Data Lab with academic support from the University of Oxford. Our World in Data provides global open empirical data on internet trends including internet usage statistics as well as relevant mental health data, which can be downloaded and used free of charge under the Creative Commons CC BY license. The site features visualizations and datasets from various sources such as the World Bank, the Institute for Health Metrics and Evaluation (IHME), and other global surveys related to the prevalence of mental illness and internet user engagement in various countries. These data not only provide statistical figures, but also accompanied by explanatory articles that contain context and empirical interpretations of the global phenomenon studied, making them suitable for qualitative analysis as part of an effort to interpret the meaning of digital trends on adolescent mental health.

The data collection procedure was carried out through the download of datasets and related articles from Our World in Data which contained internet usage variables and mental health indicators based on countries, age groups, and specific time periods. The researchers then screened the data to select pieces of information relevant to the focus of the study, such as reports on the prevalence of mental disorders and statistics

on adolescent internet access per country. Furthermore, text data from articles, narrative graphs, and methodological explanations are treated as qualitative material to be analyzed more deeply, not just as statistical numbers, thus allowing researchers to understand not only numerical trends, but also the social, economic, and cultural contexts that influence the phenomenon.

In qualitative content analysis, this study applies systematic stages consisting of open coding, thematic categorization, and interpretive narrative formation. This stage is carried out by carefully reading the entire data text, labeling the initial code on the identified text meaning unit, and then grouping similar codes into broader categories (open coding) to then draw significant patterns of meaning (Özden, 2024). This analysis is iterative, meaning that researchers repeatedly review the data to verify the consistency of the theme and ensure that the resulting interpretations reflect the social realities captured in the vast data.

The reliability of data quality findings is maintained through several classic qualitative strategies such as data source triangulation, where information from Our World in Data is compared with other credible research literature as well as international empirical reports on internet use and adolescent mental health. In addition, this study applies a detailed documentation *trail audit* to all stages of content analysis carried out so that the final results can be traced, understood, and if necessary retested by other researchers, a common approach in qualitative research to increase the credibility and transparency of data interpretation.

The main advantage of this method is that it is able to capture the nuances of meaning and complex social contexts in the phenomenon of internet use and adolescent mental health, which are often unreached by conventional quantitative methods. By combining a freely licensed global dataset and systematic qualitative content analysis techniques, this research is expected to be able to present a deeper understanding of cross-cultural and multifaceted phenomena, as well as make theoretical and practical contributions to the field of digital behavior and adolescent mental health studies.

Results

This section presents the results of secondary data analysis sourced from *the Global Burden of Disease* (GBD) by the Institute for Health Metrics and Evaluation (IHME) and *Our World in Data* for the period 2010–2021. The analysis focused on three main aspects, namely: (1) the development of the burden of mental disorders, (2) the prevalence of mental health disorders globally and regionally with an emphasis on Indonesia, and (3) the increase in the use of the internet as a context for digital behavior change relevant to adolescent mental health. The presentation of the results aims to provide an empirical picture of the relationship between the expansion of internet use and the dynamics of mental health on a global and national scale.

Development of the Burden of Mental Disorders in Indonesia

Analysis Based on data on *Disability-Adjusted Life Years* (DALYs) per 100,000 population, mental disorders in Indonesia show a consistent increasing trend throughout the

2010–2021 period. Of the various categories of mental disorders analyzed, *anxiety disorders* and *depressive disorders* are the largest contributors to the burden of disease.

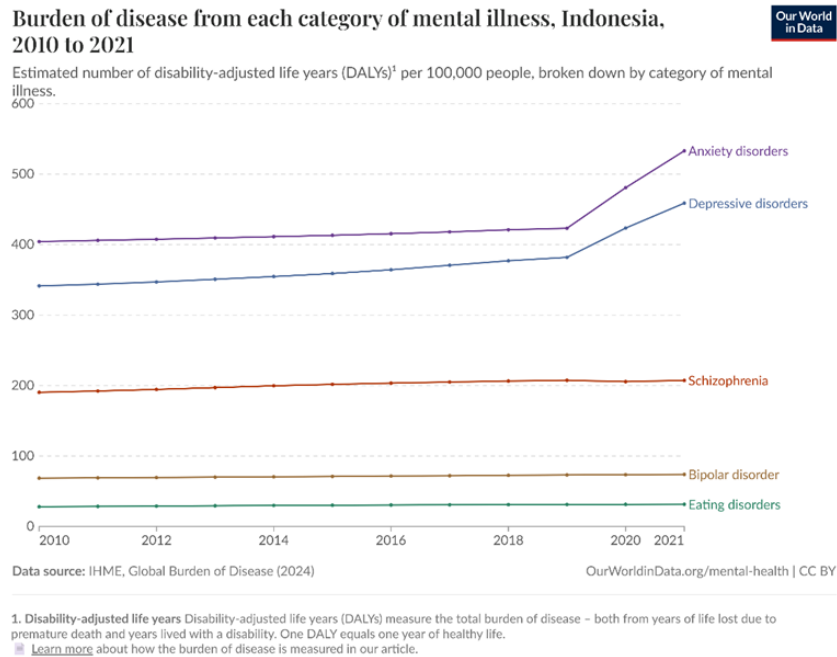


Figure 1. Burden of disease from each category of mental illness Indonesia 2010-2021

Anxiety disorders occupy the highest position in the contribution of mental health disease burden. In 2010, the burden of anxiety disorder disease was in the range of 400 DALYs per 100,000 population and gradually increased to more than 520 DALYs per 100,000 population in 2021. The most significant increase occurred in the 2019–2021 period, which indicates an acceleration of disease burden in the final phase of the observation decade.

Depressive disorders show a similar pattern to anxiety disorders, albeit with lower levels of load. The burden of depressive disorder disease increased from about 340 DALYs per 100,000 population in 2010 to more than 450 DALYs per 100,000 population in 2021. A fairly sharp spike also occurred after 2019, indicating a significant increase in psychological distress in the population.

Meanwhile, schizophrenia and bipolar disorder show relatively slower and more stable improvements. The burden of schizophrenia increased from about 190 DALYs per 100,000 population at the beginning of the period to about 205 DALYs per 100,000 population in 2021. Bipolar disorder has a mild increase from about 70 to 75 DALYs per 100,000

population. Eating disorders are the category with the lowest burden, but they still show an increasing trend even on a small scale.

These findings indicate that mental disorders related to emotional and psychological distress, such as anxiety and depression, are more rapidly escalating than severe chronic mental disorders. This pattern is relevant to lifestyle changes, social interactions, and increasingly intensive digital exposure in daily life, especially in adolescent age groups.

The Prevalence of Mental Disorders in Global and Regional Perspectives

Data on the proportion of the population experiencing mental health disorders shows that the prevalence of mental disorders globally was relatively stable in the 2010–2019 period, but increased sharply in the 2020–2021 period. Globally, the proportion of the population with mental disorders increased from around 12.7% at the beginning of the period to almost 14% in 2021.

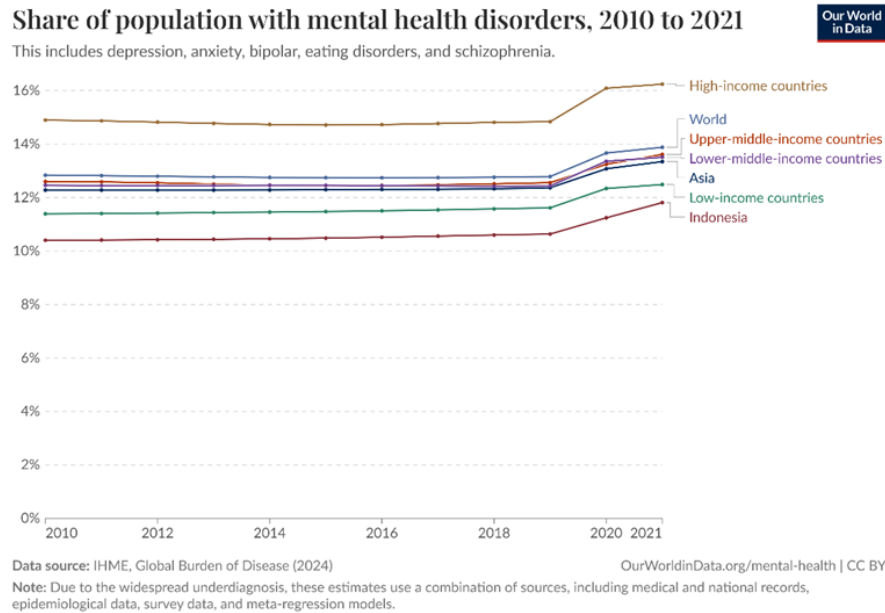


Figure 2. Share of population with mental health disorders 2010-2021

High-income countries recorded the highest prevalence of mental disorders compared to other groups of countries. In 2021, more than 16% of the population in high-income countries experienced mental health disorders. In contrast, low-income countries show the lowest prevalence, although they continue to experience a consistent upward trend.

Indonesia is positioned below the global and Asian averages, with the prevalence of mental disorders increasing from around 10.4% in 2010 to almost 11.8% in 2021. Although the figure is relatively lower than that of developed countries, the steady upward trend suggests that mental health issues are becoming more significant in the national context.

The increase in the prevalence of mental disorders in Indonesia and the Asian region has become more pronounced after 2019. This phenomenon shows the existence of cross-

regional factors that affect mental health broadly. In the context of this study, the increase goes hand in hand with the intensification of the increasingly massive use of digital technology and the internet, especially among adolescents.

Dynamics of Anxiety Disorder Prevalence

Further analysis of anxiety disorders shows that these disorders have increased significantly on a global and national scale. Globally, the prevalence of anxiety disorders was relatively stagnant in the range of 3.7–3.8% throughout the 2010–2019 period, then increased sharply to around 4.5% in 2021.

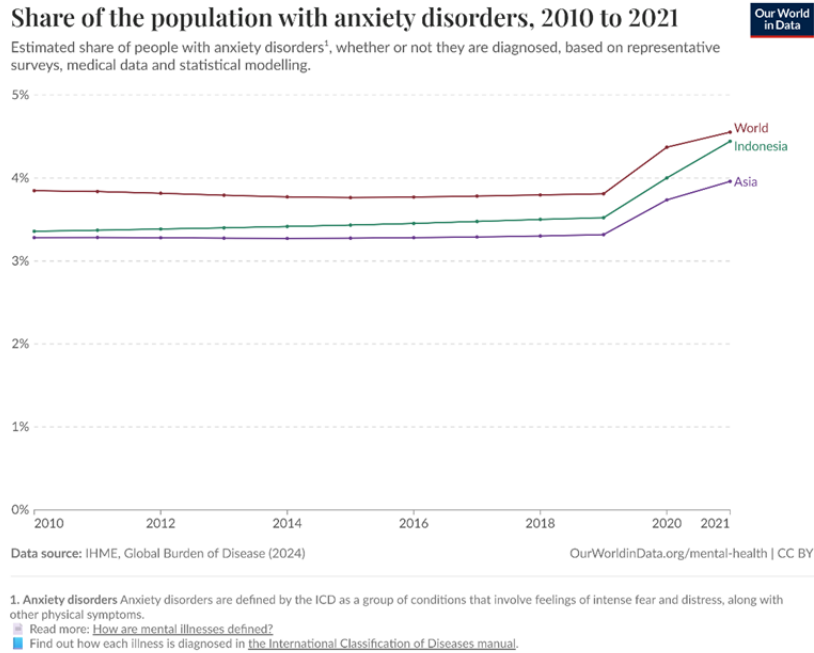


Figure 3. Share of the population with anxiety disorders 2010-2021

Indonesia shows an increasing pattern that is in line with global trends, but with a slightly higher prevalence rate than the Asian average. The prevalence of anxiety disorders in Indonesia increased from around 3.4% in 2010 to more than 4.4% in 2021. The sharpest increase occurred between 2019 and 2021. Asia as a region has also increased, although with a lower prevalence than Indonesia and the world. This shows that anxiety disorders are a cross-regional issue that develops simultaneously, with variations in intensity between regions.

In the context of adolescent digital behavior, anxiety disorders are often associated with social pressure, excessive exposure to information, intense online interactions, and the dynamics of social comparison in the digital space. Although the data used did not specifically measure the adolescent age

group, the trend of increasing anxiety disorders in general reflects the social and digital environment conditions that also affect that age group.

The Growth of Internet Users as a Context for Digital Behavior

Data on the number of internet users showed a very significant increase throughout the observation period. Globally, the number of internet users increased from about 2 billion people in 2010 to more than 5 billion people in 2021. Asia accounted for the largest proportion of the increase, with the number of users nearly tripling in the same period.

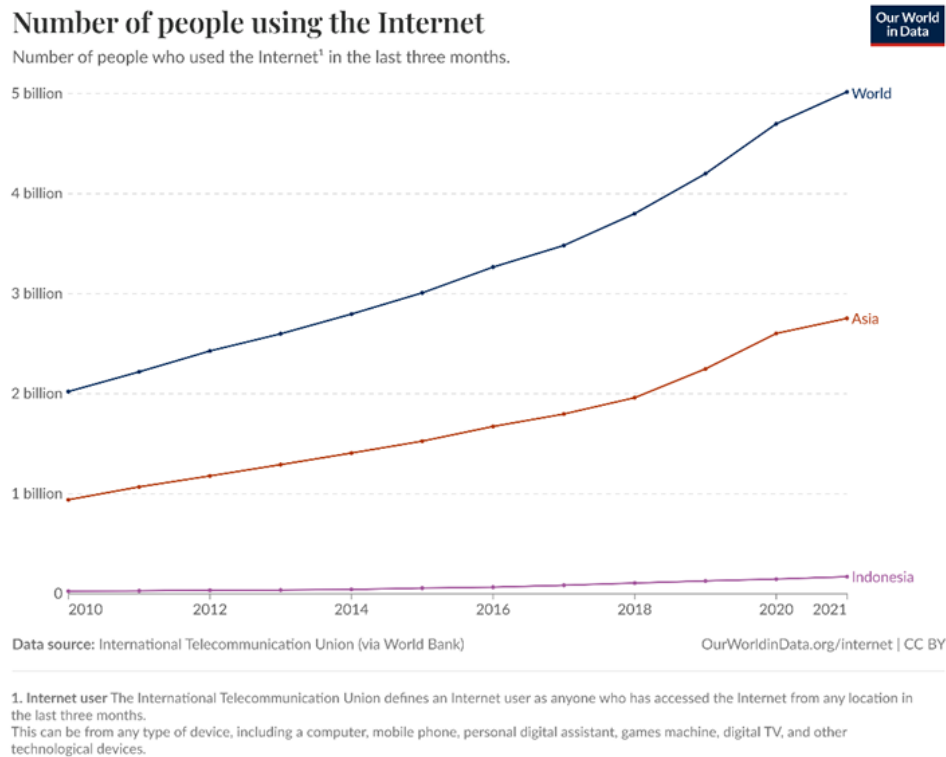


Figure 4. Number of people using the internet

Indonesia recorded a very rapid growth in internet users. In 2010, the number of internet users in Indonesia was still in the range of tens of millions. However, in 2021 the number increased dramatically to close to 200 million users. This growth reflects the wider penetration of the internet, including among children and adolescents.

The rapid increase in internet use shows a major transformation in communication patterns, social interactions, access to information, and entertainment. Adolescents are the most adaptive group to digital technology and tend to be active users of social media, digital entertainment platforms, and other online interaction spaces.

Synthesis of Empirical Findings

Based on the overall data, there is a temporal pattern that shows that the increase in internet use goes hand in hand with the increasing burden and prevalence of mental health disorders, especially anxiety disorders and depression. The period of the sharpest spike in mental health indicators occurred during a phase when internet use had reached very high levels globally and nationally.

Although the data used are aggregate and do not directly measure causal relationships, the temporal association between the expansion of internet use and the increase in mental disorders provides an empirical indication that is relevant to the purpose of this study. In the context of adolescents, these findings reinforce the argument that changes in digital behavior are an important environmental factor in understanding the mental health dynamics of young people in the digital age.

Overall, the results of the study show that mental health is becoming an increasingly prominent issue amid the rapid global digitalization. Indonesia, as part of the Asian region with a very rapid growth in internet users, faces similar challenges to other countries, albeit with different characteristics and prevalence levels. These findings provide a strong empirical basis for further analysis of the impact of internet use on adolescents' digital behavior and mental health.

Discussion

The results of this study show that the increase in internet use globally has a complex relationship with digital behavior and adolescent mental health. Qualitative content analysis of global data from Our World in Data reveals that increasingly widespread internet access has shaped new digital behavior patterns among adolescents, such as increasing intensity of online interaction, social media consumption, and indefinite exposure to digital information. These findings are in line with the literature that states that the internet has become an integral part of the lives of modern adolescents and serves as a social, educational, and recreational space (Koroglu & Saki, 2025; Odgers & Jensen, 2020; Twenge et al., 2018). However, the results of this study confirm that increased internet access and use is not always directly proportional to the improvement of adolescent psychological well-being.

More specifically, the study's findings show that countries with high internet penetration rates tend to show an increase in the intensity of potentially risky digital

behaviors, such as excessive social media use and reduced time for face-to-face social interactions. This reinforces the argument of previous research highlighting the link between excessive internet use and symptoms of depression, anxiety, and sleep disorders in adolescents (Keles et al., 2020; Orben & Przybylski, 2019). A global study by Twenge et al. (2018), for example, found that a surge in smartphone and social media use correlates with increased mental health problems among adolescents in the United States and other developed countries. The findings of this study elaborate on these results by showing that similar patterns are also seen in the global context, albeit with different intensities and implications between regions.

On the other hand, the results of this study also support a more moderate view in the literature, which states that the impact of the internet on adolescent mental health is not entirely negative, but rather highly depends on the context of use and the social conditions surrounding it. Several studies show that productive use of the internet such as for online learning, access to health information, and strengthening positive social networks can provide psychosocial benefits for adolescents (Best et al., 2014; Valkenburg et al., 2022). The findings of this study affirm this perspective by identifying narratives in global data that emphasize the role of the internet as a means of empowerment, particularly in countries that have successfully integrated digital literacy and institutional support into education systems and public policies.

In the context of comparison between Indonesia and global trends, the results of the study show that there is a significant gap. Indonesia has experienced a very rapid growth in internet users in the past decade, especially among teenagers, but this increase has not been fully offset by the readiness of the mental health support ecosystem. These findings are in line with previous research that highlighted that developing countries often face challenges in managing the social and psychological impacts of rapid digital transformation (Chen et al., 2025). In contrast to several developed countries that have developed digital mental health policies and media literacy education from an early age, Indonesia still faces limitations in the integration of internet policies, education, and adolescent mental health services.

Furthermore, the results of this study show that globally there is considerable variation in the prevalence of adolescent mental disorders amid the increasing use of the internet. Countries with strong social welfare systems and mental health services tend to show more controlled negative impacts, despite high rates of internet use. These findings support the argument of Odgers and Jensen (2020) who state that digital technology is not a single determinant of mental health, but rather interacts with structural factors such as social inequality, quality of education, and access to health services. Thus, this study confirms that the discourse on "the internet as a mental health threat" needs to be placed in a more contextual and multidimensional framework.

However, the results of this study also show findings that contrast with some of the literature that concludes that the

influence of the internet on adolescent mental health is relatively small or not substantively significant. Orben and Przybylski (2019), for example, argue that the correlation between digital media use and adolescent well-being is very weak and often exaggerated. The study does not deny this view, but expands on it by showing that although the quantitative relationship may be small, the qualitative and long-term impacts of intense digital exposure remain significant, especially in the context of countries with limited digital regulation and mental health literacy.

From a methodological perspective, the use of qualitative content analysis based on global data makes an important contribution to scientific discourse that has been dominated by quantitative approaches. The results of this study show that the qualitative approach allows researchers to capture the narrative, context, and meaning behind the statistical figures of internet use and the prevalence of mental disorders. This is in line with previous researchers' calls to emphasize the importance of mixed and interpretive approaches in digital mental health studies (Keles et al., 2020; Valkenburg et al., 2022). Thus, this study not only confirms previous findings, but also enriches understanding of how and why internet use impacts adolescent mental health in various global contexts.

Overall, the discussion of these results confirms that the impact of internet use on adolescents' digital behavior and mental health is ambivalent and contextual. The Internet can be a source of risk as well as opportunity, depending on the usage patterns, social support, public policy, and level of digital literacy that adolescents have. The findings of this study reinforce the need for a holistic and evidence-based policy approach, which not only limits the use of the internet, but also encourages its use in a healthy, critical, and balanced manner to support adolescents' mental well-being in the global digital age.

Conclusion

The conclusions of this study show that internet use has a complex and contextual impact on digital behavior and adolescent mental health globally. Based on qualitative content analysis of global data from Our World in Data and Global Burden of Disease, this study found a temporal relationship between increased internet penetration and increased burden and prevalence of mental health disorders, especially anxiety disorders and depression. These findings answer the research question by emphasizing that the expansion of internet use goes hand in hand with changes in adolescents' increasingly intensive and potentially risky digital behavior. However, these impacts are not homogeneous between countries. Countries with stronger social support systems, digital literacy, and mental health services tend to be able to mitigate the negative impact of internet use. Thus, this study confirms that the internet is not the sole determinant of adolescent mental health, but rather interacts with the social, cultural, and policy contexts that surround it.

The main contribution of this research lies in the enrichment of the literature on the relationship between internet use and adolescent mental health through a qualitative approach based on global data that has been relatively rarely used. This study not only strengthens previous quantitative findings, but also provides a deeper understanding of the patterns, meanings, and contexts of changes in adolescent digital behavior in various regions of the world. By elaborating global findings and comparing them with the Indonesian context, this research contributes to a cross-cultural understanding of mental health challenges in the digital age. In addition, the use of qualitative content analysis on big data opens up new methodological spaces in the study of digital mental health, as well as providing an empirical basis for the formulation of more holistic public policies, especially in the development of digital literacy and adolescent mental health services.

However, this study has several limitations that need to be considered. First, the data used are aggregate and do not specifically separate adolescent age groups in all indicators, so that inference on adolescents is carried out contextually. Second, a qualitative approach based on secondary data does not allow drawing direct causal conclusions between internet use and mental health disorders. Therefore, further research is recommended to combine qualitative and quantitative approaches with more detailed longitudinal data at the individual level and adolescent age groups. In addition, future research also needs to explore the role of digital content type, intensity of online interaction, and mediating factors such as family support and digital literacy in more depth. These efforts are expected to produce a more comprehensive and contextual understanding in formulating intervention strategies and policies for adolescent mental health in the digital era.

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