

The Use of Web Analytics in Mental Health Assessment: Identifying Psychological Disorders through Online Behaviour

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Abstract

The use of web analytics in mental health research provides new opportunities for assessing psychological conditions based on online activity patterns. The integration of digital tools allows for a deeper understanding of user behaviour, contributing to the early detection of mental disorders and the development of targeted intervention strategies. The purpose of the study was to examine the relationship between internet activity and mental health by analysing the browsing patterns of individuals with different psychological disorders. The study aimed to determine how online behaviour correlates with mental health indicators and to evaluate the feasibility of using web analytics for preliminary psychological assessment. The tasks included analysing the duration and frequency of internet usage, identifying the types of websites visited, and conducting an empirical study using standardized psychological

tests. The empirical study involved 200 participants diagnosed with various mental disorders, including depression and anxiety. Web analytics tools were used to collect data on participants' online behaviour, while psychological evaluation was conducted using the Beck Depression Inventory (BDI-II) and the Hamilton Anxiety Scale (HAM-A). The results of the study confirmed a significant correlation between internet activity and mental health status. Participants with depression and anxiety disorders exhibited increased online activity, spending more time on websites related to mental health, psychological support forums, and social media platforms. Additionally, it was found that individuals with anxiety disorders frequently searched for information on symptoms and treatment options. The findings highlight the potential of web analytics as a supplementary tool for mental health assessment and emphasize the importance of further research into digital markers of psychological conditions. The study results underscore the necessity of integrating digital monitoring tools into mental health support programmes to enhance early intervention strategies.

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Keywords

Web Analytics • Online Behaviour • Mental Health • Depression • Anxiety Disorders • Psychological Assessment • Digital Intervention

1. Introduction

A growing body of research indicates that analysing internet search activity and website traffic can provide important information about the mental state of users. For example, frequent searches related to symptoms of anxiety or depression may be early indicators of psychological problems that require attention. The lack of clear research and methods for monitoring internet behaviour in the context of mental health highlights a serious gap in current science (Buniak, 2024; Spytka, 2023). There is considerable potential for developing tools that could use this data for the early diagnosis of mental disorders. This is especially relevant in the context of the growing mental health burden on society, when timely diagnosis and intervention can significantly improve the quality of life for many people. In addition, there is a need for a deeper understanding of how different aspects of online activity (social networks, online games, news sites, etc.) affect mental health (Oktay and Dağ, 2024; Zelenin *et al.*, 2024).

The relevance of the problem lies not only in the need for further research, but also in the creation of effective tools and methods for using this knowledge in practice. The study of Internet behaviour and its impact on mental health should be a priority for researchers, psychologists and healthcare professionals, as it opens up new opportunities to improve the quality of life and mental well-being of modern people (Karthik *et al.*, 2022). In the study by V. Gianfredi *et al.* (2021), the authors conducted a systematic review to examine the relationship between internet use behaviour and the impact of the COVID-19 pandemic on mental health. The results of this study provided valuable insights into the relationship between mental health and internet activity during the pandemic, identifying various aspects of internet use that can serve as indicators of mental health problems.

N. V. Babu and E. G. M. Kanaga (2022) analysed this potential in the context of social media, using advanced data mining techniques to identify specific patterns and properties of textual data that may indicate the presence of depression in social media users. The results of their study confirmed that social media sentiment analysis can be an effective tool for detecting mental disorders. For example, a study conducted by K. C. Moon *et al.* (2021) used qualitative analysis methods to examine the behavioural patterns of young people with mental disorders in the online environment. The findings of this study provided significant insights into what types of web search and activity may be associated with suicidal thoughts and behaviour among young people with mental disorders. The researchers highlighted the potential role of Internet search activity as a tool for identifying and intervening in suicidal ideation and behaviour.

In his study, J. Li (2023) conducted a review of digital technologies aimed at improving mental health in the context of the COVID-19 pandemic. The results of the study provided important guidance for future research and practical applications. The researcher identified priority areas for further research and emphasized the need for further development and implementation of digital interventions for mental health in times of crisis. The study by S. Chang *et al.* (2021) aimed to explore self-help strategies among psychotherapy clients, providing an in-depth understanding of the coping mechanisms and resources used by people seeking support for their mental health. Using a systematic approach, the researchers analysed a wide range of coping strategies and resources used by clients of psychotherapy services. The results of the study provided unique insights into individual methods of coping with mental health difficulties and highlighted the importance of supporting psychotherapeutic interventions.

The study by M. Smith *et al.* (2023) focused on providing an overview and recommendations for creating more accessible digital mental health services. Their review highlighted strategies to increase the accessibility and effectiveness of digital interventions by addressing key barriers and issues in the delivery of mental health care through digital platforms. The analysis of existing research and practical experience in the field of digital mental health services provided crucial guidance for the development of more effective and accessible forms of psychotherapeutic support through digital technologies. The study of Internet activity in the context of mental health is based on the theory of behavioural analytics and cognitive behavioural analysis. Behavioural analytics suggests that users' online behaviour can reflect their mental state (Abdrasulov *et al.*, 2023). A study of behavioural analytics in the context of mental health has shown that it can be an effective tool for detecting mental disorders. Using machine learning algorithms to analyse big data on online behaviour, researchers found that specific behavioural patterns can accurately indicate the presence of mental disorders.

The study by Y. Wu *et al.* (2023) is a systematic review and meta-analysis of the effectiveness of internet-based cognitive behavioural therapy (IBCT) for the treatment of depression in adolescents. The findings point to new opportunities for using digital technologies in the treatment of depression in young people, emphasizing the importance of Internet-based psychotherapeutic approaches as an effective and accessible tool for improving mental health in the target group. The study by Y. P. S. Balhara *et al.* (2019) examines patterns of problematic internet use and internet addiction associated with mental health problems among psychiatric outpatients in a tertiary centre. The study found an association between

patterns of Internet use and mental health problems among psychiatric patients, highlighting the importance of monitoring and addressing problematic Internet behaviours in clinical settings. The researchers found that cognitive factors such as anxiety and depression can significantly influence the way users interact with the Internet, including their search queries and visits to certain websites. The analysis of the results shows that users' online behaviour can serve as an important indicator of their mental state.

The purpose of this study was to determine the possibilities of using Internet search activity and website traffic for the early diagnosis of mental disorders. The key objective of the present study is to identify specific patterns of Internet behaviour that may indicate the presence of mental disorders.

2. Materials and Methods

The study was designed as an observational, longitudinal analysis of internet behaviour in relation to mental health. A total of 200 participants aged 18 to 30 were recruited from psychotherapeutic centres and medical institutions. The sample was stratified into four groups based on their mental health status: (1) healthy individuals, (2) individuals with diagnosed depression, (3) individuals with anxiety disorders, and (4) individuals with other mental health conditions. The inclusion criteria required participants to have regular internet access and consent to web activity tracking. Exclusion criteria included diagnosed cognitive impairment, severe psychiatric disorders requiring inpatient care, and refusal to provide informed consent.

Participants were screened using a preliminary questionnaire assessing mental health status and internet usage habits. Additionally, information on current psychiatric treatment, including medication use and psychotherapeutic interventions, was collected to control for potential confounding factors. All personal identifiers were removed during data collection, and secure, encrypted servers were used for storage and analysis. Strict confidentiality measures, including de-identified participant codes, ensured that sensitive mental health information remained protected from unauthorized access.

The study was conducted over a 12-month period, during which participants' internet activity was monitored using web analytics tools, such as Google Analytics and SimilarWeb. The data collected included search queries, frequency of website visits, time spent on mental health-related platforms, and engagement with online forums. To ensure ethical considerations, data collection was anonymized, and participants had the option

to withdraw from the study at any stage. Participants' mental health was assessed at the beginning and end of the study using the Beck Depression Inventory (BDI-II) and the Hamilton Anxiety Scale (HAM-A). These standardized psychological assessments were used to track changes in mental health status over time. Additionally, periodic self-reports were collected to supplement web analytics data.

The collected data were analyzed using a combination of statistical and machine learning methods. Statistical analyses included correlation analysis, regression analysis, and Student's t-test for comparing mean values before and after the study. Non-parametric tests, such as the Wilcoxon and Mann-Whitney tests, were used where necessary. Machine learning techniques, including clustering and classification algorithms such as Random Forest and Support Vector Machines (SVM), were applied to identify patterns in internet behaviour indicative of mental health conditions. All statistical analyses were performed using IBM SPSS Statistics (version 26) and R, while data processing and algorithm training were conducted using Python and MATLAB. Servers with specialized data storage and processing capabilities were used to manage the large dataset. By employing a structured and multidisciplinary approach, this study aimed to establish a robust framework for analyzing the intersection between internet behaviour and mental health.

3. Results

The study included 200 participants aged 18 to 30, divided into groups according to their mental state: healthy, depressed, anxiety disorders and other mental disorders. The sample was non-random, formed on the basis of a preliminary screening using a questionnaire to identify mental disorders. Participants were recruited from various psychotherapeutic centres and medical institutions. The study was conducted over a 12-month period using web analytics tools. The data was collected using special software that tracked participants' internet search activity and website traffic. The data collected included search queries, frequency of website visits, duration of stay on various web resources, and other parameters of Internet activity. Standardized tests and scales, such as the Beck Depression Inventory (BDI-II) and the Hamilton Anxiety Scale (HAM-A), were used to assess the participants' mental state. These tests were administered at the beginning and end of the study, which allowed us to assess changes in the participants' mental state. The results of the tests showed that participants with depression and anxiety disorders had significant improvements after 12 months of participation in the study.

The test results were subjected to statistical analysis using Student's t-test to compare the mean values before and after the study. Wilcoxon and Mann-Whitney tests were also used to analyse non-parametric data. Correlation analysis revealed the relationship between Internet activity and the mental state of participants. For example, the correlation between the frequency of search queries on depression and BDI-II scores was $r=0.76$ ($p<0.01$). Statistical methods such as correlation analysis, regression analysis, and cluster analysis were used to analyse the data. The data on search queries were divided into categories by topic (depression, anxiety, psychotherapy, etc.). Website traffic was analysed in terms of the frequency of visits and the length of time spent on the sites. For example, it was found that participants with anxiety disorders were more likely to visit medical websites and websites dedicated to psychotherapy.

Machine learning methods, including clustering and classification, were used to process and analyse large amounts of data. Machine learning algorithms helped to identify patterns of online behaviour typical of various mental disorders. Algorithms such as Random Forest, SVM, and neural networks were used. For example, the Random Forest algorithm allowed classifying online behaviour with an accuracy of 85%. Computers with specialized software for data collection and analysis, such as Python, R, SPSS, and MATLAB, were used to conduct the study. Servers were used to store large amounts of data and ensure the security and confidentiality of information. This equipment allowed for efficient collection and analysis of the large amounts of data needed to study internet behaviour and its relationship to mental health.

One of the main limitations of the study was the non-random sampling, which could affect the generalizability of the results. In addition, the data analysis was limited to only those participants who consented to the tracking of their Internet activity, which could also affect the results. Another limitation was that the data on internet behaviour could be incomplete or unreliable due to the use of private browsers or other anonymization methods. The study used a comprehensive approach to analysing internet behaviour to identify mental disorders. The use of various data analysis methods and standardized tests provided detailed information on the relationship between Internet activity and mental health. The results obtained may contribute to the development of new methods of diagnosing and treating mental disorders using data on Internet behaviour.

The research was based on the synthesis and analysis of existing scientific sources, process modelling, and the development of conceptual frameworks and algorithms, using scientific articles published in peer-reviewed journals related to Internet behaviour and mental health. Sources published within the last five years were

analysed to ensure the relevance and accuracy of the information. Reports and studies conducted by mental health organizations were also used. Data obtained from online platforms that monitor users' internet behaviour was also processed. One of the stages of the study was a systematic literature review to identify the main trends, findings, and conclusions related to the analysis of Internet behaviour and mental health. More than 100 scientific articles, reports, and books were analysed. The main findings of the literature review indicated that Internet behaviour can reflect the mental state of users. For example, frequent search queries on depression or anxiety may be indicators of relevant mental disorders (Brown *et al.*, 2019; Smith *et al.*, 2020).

Given the information gathered, several models have been developed to explain the relationship between internet behaviour and mental health. The behavioural analytics model is a model that takes into account how users' online behaviour can reflect their mental state. For example, people with depression often search for information about depression symptoms, ways to improve their mood, and various self-help methods (Datskovsky *et al.*, 2018; Mukambaeva *et al.*, 2023). The cognitive-behavioural model is based on the relationship between cognitive processes and behavioural responses of users on the Internet (Efremov, 2025). People with anxiety disorders may be more likely to visit health-related websites, looking for information about various diseases and their symptoms (Komilova *et al.*, 2024).

For the practical application of the models, algorithms were developed to analyse large amounts of data on Internet user behaviour. Machine learning methods such as clustering, classification and neural networks were used. Particular attention was paid to Random Forest and Support Vector Machines (SVM) algorithms. These algorithms allowed determining characteristic patterns of online behaviour for various mental disorders. The developed models and algorithms were tested on datasets that include the online behaviour of users with known mental disorders. Testing was conducted using simulation methods to verify the accuracy and reliability of the models. For example, for a group of participants with depression, it was found that their search queries were more likely to relate to topics related to sadness, despair, and psychotherapy.

Various statistical methods were used to test the results, including correlation analysis, regression analysis and Student's t-test. All statistical calculations were performed using statistical analysis software such as SPSS and R. Correlation analysis showed a significant relationship between certain types of Internet behaviour and the presence of mental disorders. For example, frequent queries about depression were highly correlated with a diagnosis of depression ($r=0.8$, $p<0.01$) (Table 1).

Group	Average number of requests for depression per week	Average BDI-II score before the study	Average BDI-II score after the study
Healthy	2	5	4
Depression	15	25	18
Anxiety disorders	8	15	12
Other mental disorders	10	20	15

Table 1. Frequency of search queries on depression and level of depression (BDI-II). Source: created by the author

Group	Average number of visits to medical websites per week	Average length of time spent on websites (minutes)
Healthy	5	3
Depression	20	15
Anxiety disorders	25	20
Other mental disorders	18	12

Table 2. Traffic to medical websites. Source: created by the author

Table 1 shows the average number of searches for depression per week for different groups of participants, as well as changes in BDI-II scores before and after the study. As it is possible to see, the group with depression had the highest number of queries and the highest BDI-II scores, which confirms the hypothesis that there is a link between Internet activity and depression. These data were obtained through surveys and analysis of the Internet activity of the study participants. Participants were interviewed using standardized questionnaires about their online activity, including the amount of time they spend online and the types of searches they make. The researchers analysed web analytics data to find out what specific depression-related queries users make online using website analytics tools such as Google Analytics. To obtain data on search queries, the researchers used search tools such as Google Trends or Google Keyword Planner to find out which depression-related queries were the most popular or most frequently used. Some social media platforms, such as Twitter or Facebook, provide data on popular topics and hashtags related to depression. Researchers have also analysed this data to understand which aspects of the topic are of interest to users. The data was then processed and analysed to identify the links between online activity and depression (Table 2).

Table 2 shows the average number of visits to health-care websites per week and the average length of time

spent on these websites for different groups of participants. Medical websites that people visited for health information: WebMD, Mayo Clinic, MedicineNet, Healthline, Medscape, National Health Service, Centres for Disease Control and Prevention, PubMed, Hopkins Medicine, American Heart Association. These sites have a wide range of information on medical conditions, treatments, and frequently asked questions and were selected for the study based on several criteria:

1. Reliability and credibility. Websites such as Mayo Clinic, NHS, CDC, and PubMed are known for their reliability and authority in medical information. They are research-based and run by medical experts.
2. Popularity. Websites that are widely known and used, such as WebMD, Healthline, and Medscape, were included because of their wide audience and accessibility.
3. Licence and relevance. Medical websites that are properly licensed and regularly updated with new information about medicine and the latest medical discoveries have been included.
4. Ease of use. Websites that are easy to use and provide clear information for a wide range of users were also taken into account.

The group with anxiety disorders has the highest number of visits and the longest time spent on medical websites, which may indicate their increased need for health information. The results of the study showed that online behaviour can be an indicator of mental health. The analysis of search queries and website traffic revealed characteristic patterns that correlate with various mental disorders. Groups of participants with depression and anxiety disorders had higher rates of search queries and visits to medical websites, which supports the hypothesis of a link between Internet activity and mental health.

The findings can be used to develop new methods of diagnosing and treating mental disorders that include the analysis of internet behaviour. Further research with a larger sample of participants and improved data collection methods can help to deepen the understanding of this relationship and develop more effective tools for monitoring mental health (Table 3).

Table 3 shows the average number of visits to psychotherapy-related websites and the average length of time spent on these websites for different groups of participants. Participants with depression and anxiety disorders have higher rates, which may indicate their need for additional information and support. Table 4 shows the correlation between different parameters of Internet activity and mental health, measured by the BDI-II and HAM-A scales. The highest correlations were observed between the frequency of depression-related

Group	Average number of visits to psychotherapy websites per week	Average length of time spent on websites (minutes)
Healthy	3	2
Depression	18	10
Anxiety disorders	22	15
Other mental disorders	12	8

Table 3. Traffic to psychotherapy-related websites. Source: created by the author

Internet activity parameter	Correlation with depression (BDI-II)	Correlation with anxiety (HAM-A)
Frequency of search queries on depression	0.76	0.6
Frequency of visits to medical websites	0.55	0.7
Frequency of visits to psychotherapy websites	0.72	0.65

Table 4. Correlation between Internet activity and mental health. Source: created by the author

searches and BDI-II depression scores, and between the frequency of visits to psychotherapy websites and HAM-A anxiety scores.

According to the study, Internet activity, including the frequency of search queries and visits to medical websites, has a significant impact on the mental state of participants. Participants with depression and anxiety disorders are more likely to visit sites related to psychotherapy and medical issues, which supports the hypothesis that Internet activity can be an indicator of mental health. The correlation analysis showed a high correlation between the frequency of search queries on depression and the level of depression on the BDI-II scale ($r=0.76$, $p<0.01$). A significant correlation was also found between the frequency of visits to medical websites and the level of anxiety on the HAM-A scale ($r=0.6$, $p<0.01$). The results confirm that Internet activity can be used as an indicator for detecting mental disorders.

Participants who had high levels of depression and anxiety at the start of the study showed significant improvements after 12 months. This may be due to the fact that they actively sought information and support through online resources, which helped them to better understand and control their mental state. The results of the study showed that online behaviour can be an effective tool for

detecting mental disorders. The analysis of search queries and website traffic allowed identifying characteristic patterns that correlate with various mental disorders. The groups of participants with depression and anxiety disorders had higher rates of search queries and visits to medical websites, which confirms the hypothesis of a link between Internet activity and mental health.

The findings can be used to develop new methods of diagnosing and treating mental disorders that include the analysis of internet behaviour. Further research with a larger sample of participants and improved data collection methods can help to deepen the understanding of this relationship and develop more effective tools for monitoring mental health. Further research with a larger and more representative sample of participants is recommended to confirm the findings. Additionally, new data collection tools and methods should be developed to ensure greater accuracy and completeness of information about users' Internet behaviour. It is also advisable to study the impact of different types of Internet content on mental health and develop recommendations for users on how to use the Internet safely. These findings are of great importance for the development of psychology and psychotherapy, as they open up new opportunities for the diagnosis and treatment of mental disorders using modern technologies and data on user behaviour on the Internet (Pantic, 2014).

It is recommended that further research be conducted with a larger and more representative sample of participants to confirm the findings. Additionally, new data collection tools and methods should be developed to ensure greater accuracy and completeness of information about users' online behaviour. It is also advisable to study the impact of different types of Internet content on mental health and develop recommendations for users on how to use the Internet safely. These findings are of great importance for the development of psychology and psychotherapy, as they open up new opportunities for the diagnosis and treatment of mental disorders using modern technologies and data on user behaviour on the Internet.

4. Discussion

The findings of the study revealed interesting links between internet behaviour and mental health. For example, it was found that people with depression and anxiety disorders are more likely to use the internet to find information about symptoms, treatment, and support. They are also more likely to visit health-related websites, forums, and blogs where health and mental health issues are discussed. This knowledge can be important for developing more effective methods of diagnosing and treating mental disorders. For instance,

analysing online activity can serve as an additional tool for early detection of symptoms of depression and anxiety disorders, allowing treatment to begin at the stage when it is most effective. However, it is also critical to consider the ethical aspects of using such information. For example, it is necessary to ensure the confidentiality and privacy of research participants' data, as well as to avoid stigmatizing people with mental disorders. It is also relevant to conduct further research with a larger representative sample of participants to confirm the results and develop more accurate algorithms for analysing online behaviour.

The study by Y. Zhang (2022) examined the role of Internet use in the relationship between occupational status and depression. The researchers noted that socioeconomic status and the availability of social support can affect this relationship. They pointed out the need to take these factors into account in further research to obtain more accurate and generalizable results. The study found that internet use may be associated with depression, but this relationship may be modified by occupational status and social support. The researchers emphasized the importance of taking into account socioeconomic status and social support in future studies to obtain more accurate and generalizable results. Comparison of the results of the study with the work by Y. Zhang demonstrates a common interest in exploring the relationship between Internet use and mental health. Both studies point out the need for further research to better understand these relationships. However, the study by Y. Zhang puts more emphasis on the impact of social factors, such as socioeconomic status and social support, on the relationship between Internet use and depression. Considering socioeconomic status and social support is significant because these factors can significantly modify the impact of the Internet on mental health. For example, people with higher socioeconomic status may have better access to mental health resources and more social support, which can mitigate the negative effects of excessive internet use (Ravshanov *et al.*, 2024). Developing integrated approaches will allow us to better understand these relationships and develop effective interventions.

While taking into account socioeconomic status and social support is paramount, it does not mean that they are the only or even the main factors that influence the relationship between internet use and depression. There are many other factors, such as individual characteristics, personality traits, stress levels, and the presence of other mental health conditions, that can also play a significant role. For example, some people may be more vulnerable to depression due to genetic or psychological characteristics, regardless of their socioeconomic status or social support (Lako *et al.*, 2023). Focusing solely on

socioeconomic status can lead to an underestimation of other crucial aspects, such as the quality and content of internet use. For example, not only the amount of time spent online, but also the type of activity (social media, work, school, entertainment) can have different effects on mental health (Shamne *et al.*, 2019). While agreeing that it is important to consider socioeconomic status and social support in the study of the relationship between internet use and depression, it should also be recognized that this approach does not exhaust all possible influencing factors (Birnbaum *et al.*, 2020).

In a study by A. Horgan and J. Sweeney (2010), the authors found that the impact of Internet activity on mental health may vary by age group. They found that younger users were more active on the Internet, suggesting that further research on age-related aspects of the impact of the Internet on mental health is needed. The study by A. Horgan and J. Sweeney found that the impact of Internet activity on mental health may be different for different age groups. The authors found that younger users are more active on the Internet, which indicates the need for further research on age-related aspects of the impact of the Internet on mental health. A comparison of the results with the study by A. Horgan and J. Sweeney shows that both studies highlight different aspects of this impact. In particular, the study by A. Horgan and J. Sweeney emphasizes the importance of taking into account age factors when studying the relationship between Internet activity and mental health.

A study by A. M. Khalaf *et al.* (2023) found that the impact of internet activity on mental health may vary depending on the type of content consumed. This study did not take into account different types of content, which is a significant difference. For a deeper understanding, further research is needed to examine how different types of online content (e.g. self-help information, support forums, or entertainment content) affect users' mental health. In a study by M. Maj *et al.* (2023), it was shown that the analysis of search queries can serve as an indicator of early signs of depression. They also found a link between visiting health websites and anxiety levels. In their review, Q. Wang *et al.* (2023) investigated the use of psychotherapy and self-help websites among adolescents and college students. The results of their study showed that these sites are often visited by people with high levels of stress and anxiety. The researchers of the study agree that high levels of stress and anxiety are important factors that drive people to seek help online. However, the conclusion that visiting such sites alone is sufficient to reduce stress levels should be partially disputed, as the research showed that without additional professional support, such measures may be less effective.

H. Liu *et al.* (2023) investigated the impact of virtual reality on depression in stroke patients. The results

showed that the use of virtual reality can have a positive effect on the mental health of these patients. These findings are fully consistent with the research conducted and also confirm that innovative technologies such as virtual reality can significantly improve the mental state of patients, reducing depression and anxiety through interactive and immersive experiences. In their review, M. A. Budd *et al.* (2022) investigated the psychosocial consequences of spinal cord injury. According to their findings, they found that activity on websites can serve as an indicator of the mental state of patients with spinal cord injuries. Indeed, online activity can be a useful indicator of the mental state of patients (Efremov, 2024). However, the results of the study show that other factors, such as personal counselling and professional support, should also be taken into account for more accurate mental health monitoring.

The study by R. Katikalapudi *et al.* (2012) presented an analysis of behavioural analytics in the context of mental health among college students. They found that there are certain patterns of Internet activity that correlate with mental disorders. The study supports the conclusion that there are such patterns that can be indicators of mental health. At the same time, it was found that an accurate diagnosis requires a comprehensive approach that includes not only the analysis of Internet activity, but also other methods of assessing mental health. A study by M. Maj *et al.* (2020) found that the impact of Internet activity on mental health can vary by age group. The results of the study also show that different age groups respond differently to the impact of the Internet on their mental health. This is especially true for young people, who may be more vulnerable to the negative impact of social media.

The findings of these studies point to various aspects of the Internet's impact on mental health and the possibilities of their practical application. Thus, the study by Q. Wang *et al.* (2023) indicates a link between visiting psychotherapy and self-help websites and levels of stress and anxiety among adolescents and college students. A meta-analysis by H. Liu *et al.* (2023) confirms the positive impact of virtual reality on the mental health of stroke patients. A narrative review by M. A. Budd *et al.* (2022) points to the possibility of using website activity as an indicator of the mental state of patients with spinal cord injuries. The study by R. Katikalapudi *et al.* (2012) shows that there are patterns of Internet activity that correlate with mental disorders among college students. The research by M. Maj *et al.* (2020) indicates that the impact of the Internet on mental health may vary depending on the age group. All these studies confirm the findings in the current study and add to the overall understanding of the impact of the Internet on mental health, in particular, by pointing to the variety

of factors that can influence this relationship and the potential for using Internet behaviour to improve the diagnosis and treatment of mental disorders. Each of these studies aims to examine the impact of Internet activity on mental health, depending on different aspects of the socioeconomic status of users.

A study by S. S. M. Lam *et al.* (2020), conducted among older adults in England, found a long-term association between internet use and mental health. The study by F. Aliverdi *et al.* (2022) investigated the impact of social media and online emotional relationships on students' mental health and quality of life. A study by L. Zhang *et al.* (2024), conducted among older adults in China, investigated whether there is a link between internet use and mental health in this age group. All these studies have shown that the impact of Internet activity on mental health may vary depending on the economic status of users.

A study by P. M. T. Abad Santos *et al.* (2023), conducted among university students in the Philippines, found that the impact of online activity on mental health may be mediated by the availability of online social support. This means that interacting with others via the Internet can have an impact on mental health. The paper identifies a "double effect" of Internet use on students' mental health, which means that the Internet can be both a risk factor and a source of support for mental health. This study highlights the importance of understanding the role of social support in the online environment in order to develop more effective mental health support strategies for the student community. In the study by D. Meshi and M. E. Ellithorpe (2021), the authors found that problematic social media use and receiving social support in real life versus social media is associated with levels of depression, anxiety, and social isolation. This indicates that communication in a virtual environment can affect mental health, but not always positively (Timchenko *et al.*, 2017). In a study by F. Acoba Evelyn (2024), the author found that social support can affect mental health through perceived stress. This suggests that support from others can reduce the impact of stress on mental well-being. In a study by Z. Cai *et al.* (2023), the authors found associations between problematic internet use and mental health outcomes in students. This is a meta-analytical review that provides an overview of the research findings in this area.

R. Godard and S. Holtzman (2024) conducted a meta-analysis of 141 studies that investigated the relationship between active and passive use of social media and mental health, well-being, and social support. This provides a generalized picture of the impact of social media on mental health. The study by A. M. Khalaf *et al.* (2023) is a systematic review of the impact of social media on mental health in adolescents and young adults. This study provides a synthesis of research in this area.

B. Keles *et al.* (2019) conducted a systematic review of the impact of social media on depression, anxiety, and psychological stress in adolescents. This study provides a synthesis of the scientific evidence in this area. The study by L. Marciano *et al.* (2022) extends the RI-CLPM model to include contextual factors to examine the relationship between depression, duration of internet use, and social connectedness in adolescence over time. In the work of J. A. Naslund *et al.* (2020), the authors explore the relationship between social media and mental health, and outline the benefits, risks, and opportunities for research and practice in this area.

In general, the study confirms the findings of many other studies that Internet activity can be an indicator of mental health. The main differences lie in the methodological approaches and the inclusion of additional factors such as age, socioeconomic status, and type of content. This indicates the need for further research to take these variables into account and confirm the results. The results of the study showed that participants with depression and anxiety disorders had higher rates of search queries and visits to medical websites, which supports the hypothesis of a link between Internet activity and mental health. The analysis of search queries and website visits revealed characteristic patterns that correlate with various mental disorders. The groups of participants with depression and anxiety disorders had higher rates of search queries and visits to medical websites, which confirms the hypothesis of a link between Internet activity and mental health.

5. Conclusion

The study, conducted on a sample of 200 participants aged 18 to 30, aimed to examine the relationship between internet behaviour and mental health. Participants were divided into groups according to their mental health status, including healthy individuals, individuals with depression, anxiety disorders and other mental disorders. Standardized tests such as the Beck Depression Inventory

(BDI-II) and the Hamilton Anxiety Scale (HAM-A) were used to assess mental health. The results of the study show significant improvements in the mental state of participants with depression and anxiety disorders after 12 months of participation in the study. The analysis also showed a high correlation between mental health and participants' Internet activity, in particular, the frequency of search queries on depression and the level of depressive symptoms according to the BDI-II scale. In addition, machine learning methods were used to analyse online behaviour, which allowed us to identify characteristic behavioural patterns associated with various mental disorders. Random Forest, SVM, and neural network algorithms were used to classify online behaviour with an accuracy of 85%. The findings can be used to develop new methods for diagnosing and treating mental disorders, as well as to increase understanding of the link between online behaviour and mental health.

The study confirms the link between Internet activity and the mental state of participants, in particular, people with depression and anxiety disorders. The results show that participants with these disorders have higher rates of search queries and visits to medical websites compared to healthy individuals. This indicates that Internet activity can be an essential indicator of mental health, the analysis of which can help in the early diagnosis and treatment of mental disorders. Significant improvements in the mental state of participants with depression and anxiety disorders after participating in the study confirm the effectiveness of certain intervention strategies.

It is also important to consider methodological approaches and additional factors such as age, socioeconomic status and type of content that may influence the results. This highlights the need for further research in this area to better understand the link between internet activity and mental health, as well as to develop more effective methods of diagnosing and treating mental disorders. Practically, these insights could guide the development of digital monitoring tools and tailored interventions that leverage user behavior data to support early detection and management of mental health issues.

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