




# Application of Internet-based Cognitive Behavioral Therapy (ICBT) and Current Research Status

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Information of Article	ABSTRACT
<p><i>Article history:</i> Received: Jan 2024 Revised: Feb 2024 Accepted: Apr 2024 Available online: May 2024</p> <p><b>Keywords:</b> Cognitive behavioral therapy ICBT Internet Current Research Status</p>	<p>Internet-based Cognitive Behavioral Therapy (iCBT) represents a significant advancement in the field of psychotherapy, merging the principles of cognitive behavioral therapy (CBT) with the accessibility and efficiency of modern computer networking. As a relatively new and innovative therapeutic approach, iCBT has seen the development and implementation of numerous treatment platforms designed to make mental health care more accessible and cost-effective. This article provides a comprehensive overview of the historical development of iCBT, its key components, various treatment modes, a comparison with traditional CBT, and future prospects. The historical development of iCBT can be traced back to the early days of digital communication, where initial attempts were made to provide therapeutic support via email and chat rooms. As internet technology advanced, more sophisticated platforms emerged, offering structured CBT programs through websites and mobile applications. These platforms typically include interactive modules, multimedia content, and automated feedback, enhancing user engagement and adherence to therapeutic protocols. The evolution of these platforms reflects a broader trend towards integrating technology into healthcare, driven by the need for more scalable and flexible treatment options. Looking to the future, the prospects for iCBT are promising. Continued advancements in artificial intelligence and machine learning hold the potential to further personalize and enhance iCBT programs. Virtual reality (VR) is another exciting development, offering immersive environments for exposure therapy and other CBT techniques. As research continues to validate the efficacy of iCBT, it is likely to become an increasingly integral part of mental health care, providing scalable, effective, and accessible treatment options for diverse populations.</p>

## 1. Introduction

### 1.1 Background

Internet-based cognitive behavior therapy (ICBT) is a self-help or semi-self-help online learning and experiencing therapy grounded in the principles and techniques of cognitive behavior therapy (CBT). Guided and supported by professional counselors, ICBT utilizes a secure and user-friendly Internet platform to deliver therapeutic interventions (Furmark, 2009). Users engage with these programs through various devices, including PCs, tablets, and smartphones. While the content is predominantly text-based, modern ICBT programs increasingly incorporate videos, audio files, animations, images, and human-computer interactive features to enhance user engagement and effectiveness (Carlbring et al., 2006). The terminology within the research field of ICBT is inconsistent, with the term "Internet" itself not uniformly used to describe these interventions. Several alternative terms have emerged, such as "web-based," "online therapy," "computerized psychotherapy," "digital intervention," "e-intervention," "e-therapy," "psychiatry," "web therapy," "robot-based psychotherapy," "Internet interventions," and "CCBT," among others. Despite these variations in nomenclature, the essence of ICBT remains consistent. It revolves around delivering psychological interventions via the Internet and modern information technologies, grounded in the theories of cognitive behavioral therapy (Andersson, 2016). ICBT represents a significant advancement in making therapeutic interventions accessible and convenient for users. By leveraging digital platforms, ICBT provides a flexible and scalable approach to mental health care, allowing individuals to access therapy at their own pace and from their preferred location. This approach not only broadens the reach of CBT but also offers a cost-effective alternative to traditional face-to-face therapy, making mental health support more widely available to those in need. As technology continues to evolve, the potential for ICBT to incorporate more interactive and personalized elements will likely enhance its effectiveness and user experience even further.

## **2. Literature Review**

### *2.1 Contexts of Study*

The development of Internet-based cognitive behavior therapy (ICBT) is deeply rooted in several significant historical contexts that have shaped its evolution. Understanding these contexts provides insight into how ICBT emerged and evolved into a widely accepted therapeutic modality.

### *2.2 Emergence of Evidence-Based Psychotherapy*

The first historical context is the rise of evidence-based psychotherapy, which has led to the widespread acceptance of psychotherapy, particularly cognitive-behavioral therapy (CBT), as a part of routine healthcare. The focus on evidence-based practices has driven the adoption of therapies that are empirically validated, ensuring their effectiveness and reliability (Rachman, 2014). This movement towards evidence-based care has paved the way for innovative therapeutic approaches, including ICBT, as clinicians and researchers seek to leverage technology to deliver effective treatments. The second historical context involves the proliferation of literature on guided self-help therapy. Over the years, numerous controlled trials and clinician-authored guidebooks have highlighted the effectiveness of self-help interventions guided by professional input (Watkins and Clump, 2008). These resources provided a strong foundation for the principles of ICBT, emphasizing the importance of structured interventions that individuals can follow independently, with periodic professional support. This body of literature underscored the potential for self-help methods to be adapted to online platforms, making therapy more accessible and scalable. The third historical context is the early use of computerized assessments and interventions, which have been in practice since the mid-20th century. A notable example is the program Eliza, developed in the 1960s, which simulated a therapeutic conversation by prompting users to express their feelings and providing feedback (Epstein and Klingenberg, 2001). Eliza was an early demonstration of the potential for computers to facilitate psychological interventions. While rudimentary by today's standards, it highlighted the feasibility of using technology to support mental health care and set the stage for more sophisticated ICBT programs.

### *2.3 Early Perceptions and Technological Limitations*

In the early days of ICBT, it was often perceived as an extension of bibliotherapy, with additional supportive elements such as email communication (Marks, 2010). This perception was largely influenced by the technological limitations of the time. Although the Internet was widely available over 20 years ago, its slow information interaction speeds and reliance on text-based communication restricted the capabilities of early online interventions (Andersson, 2008). Many psychological interventions during this period were text-based and lacked the support of real-time video, voice, and other interactive technologies, limiting their scope and effectiveness. With the rapid advancement of technology, the potential for ICBT expanded significantly. Faster Internet speeds and the development of PCs, smartphones, and other mobile devices allowed for greater interaction and accessibility. These technological improvements enabled ICBT to evolve beyond its origins in reading therapy, incorporating multimedia elements such as videos, audio files, animations, and interactive features. This evolution has allowed ICBT to develop into a standalone therapeutic system, providing a more immersive and effective treatment experience (Andersson, 2018). While the primary focus of ICBT research and clinical practice has traditionally been on therapy, the scope of Internet interventions has broadened to include other essential functions. For instance, the Internet is now used for computerized tests, such as online questionnaires (Balletgoing, 2016) and cognitive assessments (Lindner et al., 2016). Additionally, data collection via various online platforms has become a critical component of ICBT, facilitating large-scale research studies and enabling the continuous improvement of therapeutic interventions (Luxton et al., 2011).

### *2.4 Comprehensive Therapeutic Framework*

The incorporation of diverse functions into ICBT has contributed to its development as a comprehensive therapeutic framework. This multifaceted approach ensures that ICBT can address various aspects of mental health care, from assessment and diagnosis to treatment and follow-up. By leveraging the capabilities of modern technology, ICBT can provide a holistic and integrated approach to psychological care, making it a valuable tool in the mental health field. In summary, the historical contexts of evidence-based psychotherapy, guided self-help therapy literature, and early computerized interventions have all played crucial roles in shaping the development of ICBT. Technological advancements have further propelled its evolution, allowing ICBT to become a sophisticated and effective therapeutic modality. Today, ICBT stands as a testament to the potential of integrating psychological theory with modern technology, offering accessible, scalable, and evidence-based mental health care to individuals worldwide. As research

and clinical practice continue to advance, ICBT is likely to further refine its capabilities, ensuring its relevance and effectiveness in the ever-evolving landscape of mental health care.

### **3. Components of ICBT**

Internet-based cognitive behavior therapy (ICBT) consists of several essential components that work together to provide effective and secure online mental health care. These components include a secure and stable digital platform, digital questionnaires, appropriate treatment protocols, and counselor guidance.

#### *3.1 Secure and Stable Digital Platform*

A secure and stable digital platform is fundamental to the implementation of ICBT. This platform uses the Internet to connect digital devices, facilitating direct communication between patients and psychologists and conducting psychological assessments. It must address data security issues and obtain relevant regulatory authorizations to ensure compliance and protect patient confidentiality (Bennett et al., 2010). Security measures typically include secure logins, similar to those used in internet banking systems. These systems encrypt logins and require a double authentication process. For example, a patient might log in with a password and then receive a verification code via a security card or text message sent to their mobile phone. These measures ensure that sensitive information remains protected from unauthorized access. Most ICBT programs incorporate digital questionnaires, which streamline the data collection process. These questionnaires are standardized, eliminating the need for handwriting and paper, and facilitating efficient pre- and post-tests as well as data analyses (Carlbring, 2007). Digital questionnaires enhance reliability and efficiency, making it easier to monitor patient progress and evaluate the effectiveness of the treatment. By automating data collection and analysis, these questionnaires allow for timely and accurate assessments, which are crucial for tailoring treatment plans to individual needs.

#### *3.2 Treatment Protocols*

ICBT programs are equipped with comprehensive treatment protocols that guide the therapeutic process. The primary format for these protocols is textual, including instruction manuals and self-help guides. Increasingly, video and audio files are also included to enhance user engagement and understanding (Andersson, 2008). These multimedia resources help users comprehend the use of ICBT and support their online learning. Treatment plans within ICBT programs also include homework assignments that users must complete on a scheduled basis. The platform provides feedback and encouragement on these assignments, and clinicians can offer support and advice on the treatment process. This interactive component is vital for reinforcing learning and ensuring that patients are actively participating in their therapy. The role of counselor guidance in ICBT is a subject of ongoing debate. Research indicates that having guidance from a counselor can reduce dropout rates and improve treatment outcomes (Baumeister et al., 2014). However, the necessity of counselor involvement varies depending on the patient's needs. Some patients may require frequent interaction with a counselor to address their psychological problems, while others might only need occasional reminders (Titov et al., 2013). Studies highlight the benefits of counselor guidance, particularly in reducing dropout rates and enhancing treatment adherence (Kleiboer et al., 2015). For example, in treating generalized anxiety disorder, counselors play a crucial role in encouraging patients to complete their homework assignments (Paxling, 2013). However, the nature of counselor support can be more technical and practical rather than psychotherapeutically oriented (Titov, 2010). While some patients may not be concerned about who provides the guidance, the support they receive can significantly impact their treatment experience (Almlö, 2011; Almlö, 2009). The debate continues about the extent and type of counselor involvement required, but it is clear that some level of professional guidance can enhance the effectiveness of ICBT for many individuals. In summary, the key components of ICBT—secure digital platforms, digital questionnaires, structured treatment protocols, and counselor guidance—work together to create a comprehensive and effective online therapy system. These components ensure that ICBT can provide accessible, scalable, and evidence-based mental health care. As technology continues to evolve, these components will likely become even more integrated and sophisticated, further enhancing the reach and impact of ICBT in the field of mental health care.

### **4. Models of ICBT and Efficacy Research**

In 2004, Andersson et al. founded the International Society for Research on Internet Interventions (ISRII), which is dedicated to the development of Internet-based cognitive behavior therapy (ICBT). This organization marked a significant milestone in the formalization and promotion of ICBT research and practice. In 2012, the European Society

for Research on Internet Interventions (ESRII) was established, further solidifying the international collaboration in this field. Additionally, the scientific journal "Internet Interventions" was launched, providing a dedicated platform for publishing research related to online mental health interventions. These developments have contributed to the steady advancement of ICBT research (Andersson, 2016).

#### *4.1 Development of Digital Treatment Platforms*

Numerous digital treatment platforms for ICBT have been developed both domestically and internationally, targeting various psychological symptoms. One prominent example is MoodGYM, created by the Mental Health Research Center at the Australian National University. MoodGYM focuses on depression and includes five modules: feelings, thinking, changing distorted thoughts, stress reduction, and interpersonal relationships (Calear et al., 2009). Another notable platform is E-couch, also developed by the Australian National University, which primarily targets anxiety disorders. E-couch consists of eight modules: introduction to the intervention program, psychoeducation, identifying and correcting distorted perceptions, understanding, and changing core beliefs, cognitive restructuring, behavioral strategies, establishing support systems, and reinforcing change (Griffiths et al., 2006). Controlled trials based on these platforms have consistently demonstrated the effectiveness of ICBT, particularly for conditions such as social anxiety, depression, alcohol dependence, and insomnia (Andersson, 2014). ICBT is especially advantageous for treating social anxiety due to its ability to provide therapy without face-to-face interaction, which can be anxiety-inducing for sufferers. This form of treatment allows individuals to avoid socially stressful scenarios while still receiving effective therapy, making them more likely to engage in and benefit from the treatment. ICBT programs for social anxiety typically follow established CBT models. For example, Titov et al. designed an eight-week course with six sessions aimed at addressing social anxiety (Titov et al., 2010). Similarly, Carlbring et al. developed a nine-week guided self-help program (Carlbring et al., 2007), and Anderson et al. created a nine-week self-help course specifically for social phobia (Anderson et al., 2006). Despite variations in duration and structure, these programs share a common approach: participants complete the tasks of the current session and follow up with post-session assignments. This two-step process involves course content delivery and participant homework feedback, both grounded in CBT principles.

#### *4.2 ICBT Across Different Symptoms*

The modular approach of ICBT, combining course content with homework assignments, is a hallmark of its effectiveness. This structure is applied to various psychological symptoms, with courses tailored to address specific issues faced by participants. While ICBT and traditional CBT share the same theoretical foundation, the application of information technology introduces some differences in counseling practices. Though ICBT and traditional CBT are derived from the same theoretical origins, the integration of digital technologies in ICBT introduces several distinctions. For instance, ICBT offers greater accessibility and convenience, allowing users to engage in therapy from their own homes at their own pace. The digital format also facilitates the inclusion of multimedia elements, such as videos and interactive modules, which can enhance user engagement and comprehension. In contrast, traditional CBT typically involves in-person sessions with a therapist, offering a more personalized and immediate therapeutic interaction. This face-to-face format can be crucial for individuals requiring more intensive support or those who benefit from direct interpersonal communication. Despite these differences, both forms of therapy aim to achieve similar outcomes through the application of CBT techniques and principles. In conclusion, the establishment of organizations like ISRII and ESRII, along with the development of dedicated digital platforms and scientific journals, has significantly advanced the field of ICBT. These platforms have demonstrated their effectiveness in treating various psychological conditions, particularly social anxiety, and continue to evolve with technological advancements. While ICBT and traditional CBT share common goals and theoretical foundations, the use of digital technologies in ICBT offers unique advantages and challenges, highlighting the need for ongoing research and adaptation in this rapidly developing field.

#### *4.3 Cost of counseling*

Compared to traditional face-to-face cognitive-behavioral therapy (CBT), Internet-based cognitive-behavioral therapy (ICBT) has additional requirements regarding counseling conditions. Visitors need access to electronic devices such as computers, tablets, or smartphones, as well as a stable internet connection. They must also possess the ability to operate these devices independently, navigate the internet, read text and video content, input and select text, and utilize various web applications (e.g., logging onto web pages, sending and receiving emails, or downloading applications).

Despite these requirements, ICBT offers several significant advantages and opportunities. Firstly, ICBT is generally less time-consuming than traditional CBT. The modular therapeutic structure of most ICBT programs requires participants to spend about 30 minutes per day on therapy, which includes both sessions and assignments (Tine et al., 2018). This streamlined approach can be more convenient for individuals with busy schedules. Secondly, ICBT is less costly for visitors compared to traditional face-to-face interventions. Face-to-face CBT often entails higher time commitments, effort, and financial costs (Kodal et al., 2017). These barriers can limit access to therapy, especially in areas where counselor resources are unevenly distributed. By contrast, ICBT can be more affordable and accessible, providing therapeutic support to a broader audience. Moreover, ICBT is easier to integrate into daily life. While many people might not seek face-to-face counseling due to the inconvenience or stigma associated with visiting a therapist's office, they can more readily participate in online therapy sessions from the comfort of their own homes (Kishimoto, 2016). This accessibility can encourage more individuals to seek help, reducing the overall burden of untreated mental health issues. ICBT's ability to lower barriers to access is particularly relevant in today's digital age. Traditional face-to-face therapy often requires scheduling appointments, commuting to a therapist's office, and setting aside significant time blocks, all of which can be challenging for individuals with demanding work schedules or family responsibilities. In contrast, ICBT allows for more flexible scheduling, enabling users to engage in therapy at times that are most convenient for them. Additionally, the anonymity provided by online platforms can help reduce the stigma associated with seeking mental health treatment. Many individuals may feel uncomfortable or embarrassed about visiting a therapist's office, but they may be more willing to participate in therapy sessions from the privacy of their own homes. This anonymity can be especially beneficial for those dealing with social anxiety or other conditions that make face-to-face interactions difficult. The cost-effectiveness of ICBT also extends to the healthcare system as a whole. By reducing the need for in-person sessions, ICBT can help decrease the overall costs associated with mental health care. This includes not only the direct costs of therapy sessions but also indirect costs such as transportation and time off work. Moreover, the scalability of ICBT programs means that they can reach a larger number of individuals without a corresponding increase in costs, making it a sustainable option for widespread mental health support. As technology continues to advance, the potential for ICBT to provide effective, accessible, and affordable mental health care will likely increase. Developments in artificial intelligence and machine learning could enhance the personalization of ICBT programs, tailoring interventions to individual needs and improving outcomes. Additionally, the integration of virtual reality and other immersive technologies could offer new ways to engage users and deliver therapeutic content. In summary, while ICBT requires certain technological capabilities and user skills, it offers numerous advantages over traditional face-to-face CBT. Its time efficiency, cost-effectiveness, ease of implementation, and ability to reduce barriers to access make it a valuable option for delivering mental health care in the digital age. As technology continues to evolve, ICBT is poised to become an increasingly important tool in the mental health treatment landscape.

#### *4.4 Modes of counseling*

In Internet-based Cognitive Behavioral Therapy (ICBT), the modes of counseling are designed to be highly flexible, allowing both the counselor and the visitor to arrange their sessions in a way that fits seamlessly into their daily lives. This flexibility is one of the key advantages of ICBT, as it removes many of the logistical barriers associated with traditional face-to-face therapy. The freedom to schedule sessions at convenient times is a significant benefit of ICBT. Unlike traditional CBT, which requires fixed appointments and often involves travel to a therapist's office, ICBT sessions can be conducted from any location with internet access. This means that both the counselor and the visitor can choose times that are most suitable for them, whether that's early in the morning, late at night, or during a lunch break. This flexibility helps to accommodate individuals with busy schedules, those who work irregular hours, or those who have caregiving responsibilities. One mode of counseling in ICBT involves asynchronous communication, where interactions between the counselor and the visitor do not occur in real-time. This can include email exchanges, messages through a secure platform, or completing assignments and receiving feedback at different times. Asynchronous communication allows visitors to reflect on their thoughts and responses without the pressure of immediate interaction, which can be particularly beneficial for individuals who experience anxiety during face-to-face or real-time conversations (Andersson et al., 2014). Synchronous communication, such as live chat sessions, video calls, or phone calls, is another mode of counseling in ICBT. These real-time interactions can mimic the feel of traditional therapy sessions while still providing the convenience of remote access. Synchronous communication is particularly useful for building rapport and providing immediate support or clarification when needed. It also allows for a more dynamic exchange of ideas and feedback between the counselor and the visitor. Many ICBT programs utilize a blended approach, combining both synchronous and asynchronous methods to create a comprehensive treatment experience. For example, a visitor might watch pre-recorded video sessions or complete written exercises at their own pace (asynchronous) and then discuss their progress and any challenges during a scheduled live chat or video

call (synchronous). This approach leverages the strengths of both modes, providing flexibility while also ensuring that personalized support and guidance are available when needed (Carlbring et al., 2007). A core component of ICBT is the use of homework assignments and self-guided modules. Visitors are often given tasks to complete between sessions, which may include exercises such as journaling, cognitive restructuring tasks, or behavioral experiments. These assignments are designed to reinforce the concepts discussed during sessions and help visitors apply what they have learned to their daily lives. The self-paced nature of these modules allows visitors to work through the material at their own speed, ensuring that they fully understand and internalize the therapeutic techniques. The flexibility of ICBT modes also enhances accessibility for individuals who may face barriers to traditional therapy. This includes those living in remote or rural areas where mental health services are scarce, individuals with physical disabilities that make travel difficult, or those who have social anxiety and find in-person interactions overwhelming. By providing multiple modes of counseling, ICBT ensures that a wider range of individuals can access the mental health support they need. In conclusion, the diverse modes of counseling available in ICBT offer significant advantages in terms of flexibility, accessibility, and convenience. By allowing both counselors and visitors to arrange sessions around their schedules, utilizing both synchronous and asynchronous communication, and incorporating homework and self-guided modules, ICBT provides a versatile and effective approach to mental health treatment. This flexibility not only makes it easier for individuals to seek help but also ensures that they can integrate therapy into their lives in a sustainable and meaningful way.

#### *4.5 Creating a working alliance*

Building a strong working alliance between counselors and clients is crucial for the effectiveness of any therapeutic intervention, including Internet-based Cognitive Behavioral Therapy (ICBT). The working alliance refers to the collaborative relationship and bond formed between the counselor and the client, characterized by mutual trust, agreement on therapy goals, and a shared commitment to the tasks of therapy. Effective communication plays a key role in establishing and maintaining this alliance, but the digital nature of ICBT introduces unique challenges and opportunities. The methods of communication available in ICBT are varied, but they generally include email, chat, instant messaging, and sometimes voice calls. According to Sucala et al. (2013), the limited means of communication in ICBT can negatively impact the development of a strong working alliance. This is because fewer communication channels can lead to misunderstandings, reduced emotional connection, and a lack of immediacy in responses. In contrast, face-to-face therapy offers richer communication through verbal and non-verbal cues, such as body language, facial expressions, and tone of voice, which are essential for building rapport and understanding (Bengtsson, 2014). Nonverbal cues play a significant role in traditional face-to-face therapy, helping counselors to gauge clients' emotions, reactions, and engagement levels. The absence of these cues in ICBT can make it more challenging to assess clients accurately, particularly for sensitive issues such as suicidal ideation. One participant in Bengtsson's (2014) study noted that the lack of nonverbal cues in ICBT made it more difficult to evaluate clients' mental states, adding to the stress experienced by counselors. This limitation highlights the importance of finding ways to enhance communication and compensate for the lack of physical presence in ICBT. To mitigate the drawbacks of limited communication methods, ICBT programs can incorporate various strategies to enhance interaction and build a stronger working alliance. For example, incorporating video calls can provide some of the benefits of face-to-face communication, allowing counselors and clients to see each other's facial expressions and body language. Additionally, using secure platforms that support multiple forms of communication can offer flexibility and responsiveness, helping to foster a more dynamic and engaging therapeutic relationship. ICBT often relies on structured communication and feedback mechanisms, such as regular check-ins, progress reports, and scheduled sessions. These structures help to maintain consistency and provide clients with a clear framework for their therapy. By setting expectations for regular interaction, counselors can ensure that clients feel supported and understood, even in the absence of real-time, in-person communication. This approach can also help to build trust and commitment to the therapeutic process. One of the strengths of ICBT is its flexibility, allowing clients to engage with therapy at their own pace and on their own schedule. However, this flexibility needs to be balanced with sufficient structure to ensure that clients remain engaged and motivated. Counselors can facilitate this balance by providing clear guidelines, regular assignments, and timely feedback. Establishing a routine for communication and check-ins can help to create a sense of continuity and stability, which is essential for building a strong working alliance. Despite the advantages of flexibility and accessibility in ICBT, it is important to address the challenges associated with digital communication. Counselors should be trained to recognize and respond to the nuances of online communication, developing skills to compensate for the lack of nonverbal cues. This may include being more explicit in their language, using emojis or other visual aids to convey tone, and ensuring that written communication is clear and empathetic. In conclusion, creating a strong working alliance in ICBT requires careful consideration of the unique challenges posed by digital communication. While the

absence of nonverbal cues and the limited methods of communication can hinder the development of a therapeutic bond, strategies such as incorporating video calls, structured feedback, and regular check-ins can help to overcome these obstacles. By balancing flexibility with structure and enhancing communication methods, ICBT can effectively build a strong working alliance, fostering trust, collaboration, and therapeutic success.

## **5. Conclusion**

The advancement of information technology has significantly impacted the field of psychotherapy, with Internet-based Cognitive Behavioural Therapy (ICBT) emerging as a viable and effective alternative to traditional face-to-face therapy. The integration of ICBT into mainstream therapeutic practices is facilitated by several factors. Firstly, the widespread development and diversification of information technology have created a conducive environment for the adoption of ICBT. Both counsellors and clients are adapting to these technological changes. The new generation of counsellors, who are more familiar with digital tools, may find it easier and more efficient to incorporate Internet interventions into their services. Similarly, clients, particularly younger individuals, are more open to receiving counselling through digital platforms, making ICBT a more attractive option for many. Secondly, the commercial potential of web-based counselling services has driven their development and proliferation. The commercial value of ICBT has attracted investment and innovation, leading to the creation of various online counselling services. For instance, platforms like One Psychology and Reuters Psychological Consulting have demonstrated the viability and profitability of online counselling services in the domestic market. This commercial success not only validates the effectiveness of ICBT but also promotes its rapid development through marketing and service expansion. Moreover, the future of online counselling is expected to be heavily influenced by the integration of artificial intelligence (AI), sensors, and big data analytics. These technologies have the potential to revolutionize ICBT by providing more personalized and data-driven therapeutic interventions. AI can be used to analyse large datasets generated from online counselling sessions, offering insights into treatment efficacy and client progress. Additionally, sensors and wearable technology can provide real-time data on clients' physiological and emotional states, allowing for more precise and timely interventions. The combination of AI, big data, and psychology in the context of ICBT will likely lead to large-scale psychological controlled experiments. These experiments will recruit participants from diverse geographical locations, providing a more comprehensive understanding of the effectiveness of ICBT across different populations. The data collected from these experiments will be instrumental in refining and advancing ICBT techniques, making them more effective and accessible. In conclusion, the integration of information technology into psychotherapy, particularly through ICBT, offers significant benefits and opportunities. The adaptability of both counsellors and clients to digital tools, the commercial potential of online counselling services, and the future advancements in AI and big data analytics all contribute to the growing acceptance and effectiveness of ICBT. As technology continues to evolve, so too will the methods and efficacy of online counselling, ensuring that it remains a valuable tool in the field of mental health care.

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