A Scoping Review on the Risks and Benefits of Online Therapy for Adults with Major Depression

Master Thesis

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Abstract

Introduction: Depression is one of the most prevalent mental disorders leading to functional impairments in daily life. During COVID-19, depression rates increased even further up to 90% compared to prior times. The possibilities to receive treatment are meagre, with only one third of patients receiving sufficient mental health care. Recent online therapeutical approaches, such as online delivered cognitive behavioural therapy or problem-solving therapy, have received increased attention in treating patients with major depression. By exploring different databases, this scoping review aimed at disclosing benefits, risks and efficacy of online treatments for major depression.

Methods: Literature was collected scoping four databases: PsychInfo, Scopus, Web of Science, and Pubmed. In total, 16 studies were selected for the inclusion of this review after a systematic literature search. Those studies were analyzed to explore various study characteristics, the form of diagnostics used in online treatment to determine major depression, the effects of three different online-approaches (Cognitive Behavioural Therapy (CBT), Interpersonal Psychotherapy (IPT), Problem-solving Therapy (PST)) on major depression, and the risks and benefits of online therapy.

Results: Studies were conducted in eleven different countries and greatly varied in their sample size. The majority of study participants were female in all studies. Fourteen studies made use of online CBT, one used IPT and one PST. By using online CBT, a substantial reduction of depression rates was to be noted. Those effects were realized faster by PST than by CBT. IPT generated similar outcomes as online CBT with lower participant satisfaction. High drop-out rates were presented for the majority of included studies, whereas only a few studies showed better adherence to the intervention compared to standard face-to-face therapy.

Discussion: In line with prior reviews, studies mostly identify internet therapy as an effective treatment for this mental health disorder. However, nonadherence is a major problem in online therapy and

should be investigated by future studies. Since depression rates are still rising, further research advancements are needed to investigate the issue of high drop-out rates.

Keywords: Online therapy, major depression, adults, treatment

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Introduction

Depression is a leading cause for disability worldwide (López-López et al., 2019). High prevalence rates of depression were reported for various countries in the past decades (ESEMeD/MHEDEA 2000 Investigators, 2004; Kessler et al., 2003). According to the World Health Organisation (2021), 5.0% of adults suffer from depression, globally. In the Netherlands more than 700.000 people per year have a depression (European Commission, 2022). During the outbreak of the COVID-19 pandemic and over its course, the risk for a clinical depression ranges from 46% to 61% with an increase up to 90% in depression rates compared to the time prior the pandemic (Lakhan, Agrawal, & Sharma, 2020). Due to this increase of depressive symptoms and the potential of technology to scale up and sidestep certain problems of F2F technology, online delivered interventions might offer a solution. These interventions contain similar information to conventional F2F therapy, where the patient is connected with the therapist by text messages or video calls. Interventions delivered through the internet provide anonymity, as the service is sought out for stigmatized conditions, and are easily accessible, therefore are a suitable feasibility to for individuals with depressive symptomatic to receive help (Damaskos, 2010; Gega, Marks, & Mataix-Cols, 2004). Thus, this review investigates the efficiency, risks and benefits of online therapy in treating major depression.

Depression is a highly prevalent mental illness that often leads to substantial functional impairment in daily life, a decrease of quality of life, and an increase of medical services (Ayuso-Mateos et al. 2001; Kessler et al., 2007). The disorder refers to a broad spectrum of mental health problems characterized by a lack of positive affect (loss of interest and pleasure in everyday things and experiences), low mood, and a range of associated emotional, cognitive, physical, and behavioural symptoms (National Collaborating Centre for Mental Health, 2010). The determination of major depression is based not only on its severity, but also on its persistence, the presence of other symptoms,

and the degree of functional and social impairment (Lewinsohn et al., 2000). The average age for the first episode of major depression is around the age of 25 years. Although the first episode can occur at any time from early childhood to old age, a significant proportion of people experience their first depression in childhood or adolescence (Fava & Kendler, 2000). With the average age of onset being between 25 and 32 years (Liu et al., 2015), this review focuses on adults from 18 to 85 years of age.

A variety of effective psychological and pharmaceutical approaches can be used to treat depression (Cuijpers, 2018). In the treatment of moderate to severe major depression, cognitive behavioural therapy (CBT) has been shown to be equally effective as pharmacotherapy regarding symptoms reduction and long-term recovery, with the added benefit of lower relapse rates (Butler et al., 2006). A-Tjak et al. (2018) indicated in a recent study that acceptance and commitment therapy (ACT) is equally effective as CBT. However, a large percentage of those suffering with this disorder receive insufficient or no treatment at all (Bebbington et al. 2000). The accessibility to healthcare has been a major problem, with two thirds of patients do not get access to basic care (Wang et al., 2005). Since the COVID-19 outbreak in 2019 mass home-confinement directives are relevant, including quarantine, isolation, and stay-at-home orders (Pfefferbaum, & North, 2020). Evidence-based self-guided interventions which can be used at home are proven to be effective on reducing depression and stress, however, are consistently less effective compared to CBT and ACT-based therapy (Fischer, Bortolini, & Karl et al., 2020). Especially, the development of appropriate accessible support systems for the vast majority, concerned with highly prevalent problems such as depression, is a crucial public health challenge. The potential to address this gap is given by online therapy and online interventions (Barak et al., 2008), because of its increased usage and an awareness of its efficiency in treating emotional disorders and mental illnesses, such as depression and anxiety (Andersson, 2016; Berryhill et al., 2019).

Outcome studies indicate that online therapy has been found to lead to similar outcomes as those generated by conventional face-to-face therapy (Aboujaoude, Salame, & Naim, 2015). Also, it was

found that online therapy used with diverse populations has good user satisfaction (Campos et al., 2018; Paris et al., 2018; Salone et al., 2012). Adherence to therapy and to pharmaceutical interventions is a major problem in the treatment of depression (Stein-Shvachman, Karpas, & Werner, 2013). With online therapy, treatments can be obtained at any time or place, patients can work at their own pace and revise the material as often as desired (Gega, Marks, & Mataix-Cols, 2004). Disinhibition and internalization can encourage the expressions between therapist and patient, online therapists report text-based self-disclosure including a great degree of honesty and intimacy from the first exchange on (Rochlen, Zack, & Speyer, 2004). Moreover, the process of enhanced self-reflection is gained through the operation of writing (Rochlen, Zack, & Speyer, 2004). A qualitative study on patients' expectations and experiences about online CBT has shown that this form of therapy is a fitting approach for their daily routine (Beatti et al., 2009). Finally, Spence et al. (2011) conducted a randomized controlled trail and found online delivered CBT tools to be equally effective as face-to-face sessions.

Nevertheless, others have pointed out the many difficulties that could arise while using this form of therapy. For instance, the psychical discomfort, the temptation to check e-mails, emotional distancing, and most importantly the remote risk of violence and suicide (Markowitz et al., 2021). Also, difficulties with online therapy could occur in regards of third-party interception, so the therapists are obligated to invest in encrypted online services, so the client's information is protected (Damaskos, 2010).

With online based therapy, clients can be supported in various ways, from guided self-help to complex expert-system-based therapy. Also, the level of therapist involvement can vary from minimal contact by telephone or email, to the amount of involvement seen in the classic individual therapy setting. Hence, the possibility appears to reduce therapist involvement and maintain the treatment's efficacy (Wright et al., 2005). Additionally, it may be possible for people to receive treatment for their condition who might not otherwise receive help. These benefits of online therapy outline the support

that online therapy has received.

The aim of this scoping review was to evaluate to what extent online therapy for individuals at least 18 years old, with major depression is able to diminish depressive symptoms. Additionally, this research focuses on identifying whether interventions using online therapy to treat depression in adults are being used effectively by investigating the benefits and risks of these interventions. This review is done merge information together and add important information to the availability of research that is increasing on this topic. Accordingly, the following research questions guide the literature review of this paper.

1. Is online therapy for adults an efficient treatment alternative to traditional face-to-face therapy in terms of treatment duration, drop-out rates and symptoms reduction?
2. What are the benefits of online therapy for adults with major depression?
3. What risks can occur for adults with severe depressive symptomatic using internet-based therapy?
4. Do the benefits prevail the risks of online delivered therapy for adults?

Methods

Study design

To understand the effectiveness of internet-based therapy for adults with depression a systematic literature review was conducted, targeting previous studies that give information about risks, benefits and the efficiency of this form of intervention. The Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA) (Moher et al., 2009) recommendations were used to structure the review.

Literature Search

The literature search was conducted by one researcher in the period of March 2022 to July 2022. According to the research questions the focus of the study was identified and the PICOC framework was applied to assist its focus (Petticrew & Roberts, 2006). The framework focuses on five categories that specify component concepts to define the focus of the literature search, namely population, intervention, comparison, outcome, and context. Table 1. shows the component concepts for the current literature review.

Table 1.

PICOC framework applied

Population	Intervention	Comparison	Outcome	Context
Adults with major depression	Online therapy	Face to face therapy	Reduction of depressive complaints, benefits prevail risks	Psychological online therapy/ internet-based therapy/ e-therapy/ F2F therapy

To identify studies that provide information about the components in the table (see Table 1) search terms were included. Keywords were generated from the four research questions. Main

keywords for the literature search were 'adults', 'depression', 'online therapy' to identify the population, the outcome and the context. Synonyms of the keywords were collected to most effectively specify the literature search. Search queries were made up with the synonyms and keywords to search in four databases within abstracts and titles. Different scientific databases Psych Info, Scopus, PubMed and Web of Science were used, as well the academic searchable database google scholar to search for articles found by scanning reference lists from relevant articles. Scientific databases were included based on their large number of peer-reviewed records and psychological articles. Search strings (table 2) were used and adjusted during an iterative search process to test the fit of the search results.

More matching results were generated by rechecking keywords found in articles including different terms in combination with those from the PICOC framework. In this way, as many relevant articles as possible were identified. Articles that focused on adults with other psychological disorders than depression, as well as other forms of therapy than internet based were excluded. Operators such as AND NOT were included in the search string to narrow the hits of irrelevant articles in the search process. One search query which turned out to give the most suiting and inclusive literature results was chosen to be used (Table 2).

Table 2.

Search queries

Database	Search query
PsycInfo	(adults OR adult OR aged) AND (depression OR depressive disorder OR depressive symptoms OR major depressive disorder) AND (online therapy OR online counselling OR internet therapy OR e-therapy)

Scopus	(TITLE-ABS-KEY(adults) OR TITLE-ABS-KEY(adult) AND TITLE-ABS-KEY(depression) OR TITLE-ABS-KEY(depressive AND disorder) OR TITLE-ABS-KEY(depressive AND symptoms) OR TITLE-ABS-KEY(major AND depressive AND disorder) AND TITLE-ABS-KEY(online AND therapy) OR TITLE-ABS-KEY(online AND counselling) OR TITLE-ABS-KEY(internet AND therapy) OR TITLE-ABS-KEY(e-therapy) AND TITLE-ABS-KEY(risks AND benefits)
Web of Science	(adults OR adult OR aged) AND (depression OR depressive disorder OR depressive symptoms OR major depressive disorder) AND (online therapy OR online counselling OR internet therapy OR e-therapy)
PubMed	adults OR adult OR aged AND depression OR depressive disorder OR depressive symptoms OR major depressive disorder AND online therapy OR online counselling OR internet therapy OR e-therapy

Literature selection

Based on the identification of the population, intervention, comparison, outcome, and context the studies included in the review were defined. The date of publication of the articles was not restricted. Articles were selected which titles fit accordingly the PICOC framework and the focus of the four research questions. Further selection was made by screening the abstracts of the selected articles according to the frameworks content. Articles with matching information to the reviews interest were selected for closer examination, by considering the introduction, methods, results, and the discussion section. These article's references were used to screen for further relevant articles that might were not covered by the search ques used in the literature search.

Inclusion and exclusion criteria

Articles selected for more detailed screening were examined whether the following criteria were met: (1) Article is published in a scientific database; (2) Article is available in English language and full-text format; (3) Study participants were 18 years of age or older and diagnosed with major depression receiving online treatment; (4) Qualitative or mixed-method or randomised controlled trial studies that include experiences of patients with online treatment. Additionally, articles dealing with professional's working online with adults with major depression were included.

Studies focusing on online therapy for children were excluded. This was chosen because only benefits and risks of online therapy for adults were to be examined. Additionally, articles focusing on mental illnesses other than major depression were not included in the review.

Summary of included studies

A total of 11,529 studies were found during the literature search. Additionally, 6 articles were found by screening of reference lists and manual search. The process of the study selection based on the retrieval of 11,535 articles in the systematic literature search is displayed in an overview in figure 1.
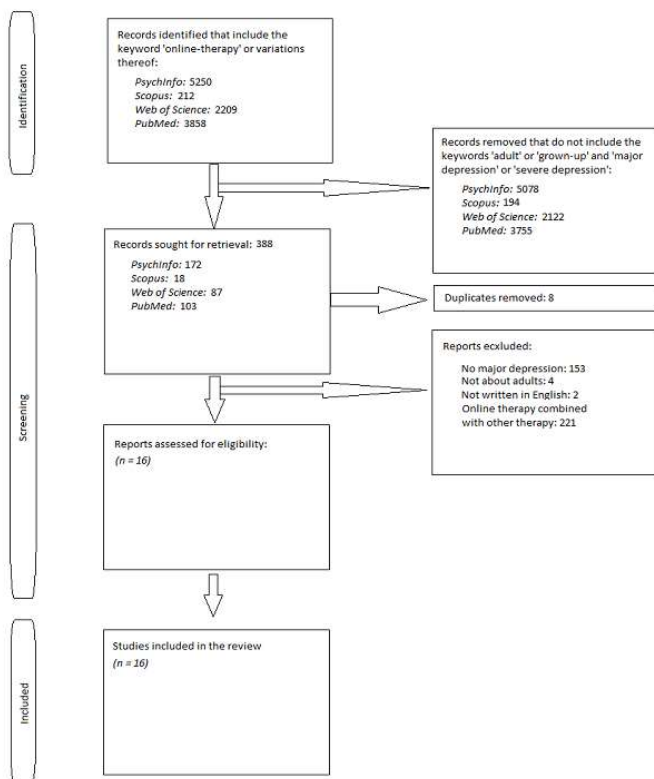
Figure 1. Overview data selection

After applying the search queries (Table 2) in PsycInfo, Scopus, Web of Science, and PubMed,
11,529 articles were found (Figure 1). The results were limited to articles including the keywords 'adults'
or 'grown-ups' and 'major depression' or 'severe depression'. The remaining articles (388) were
examined for including internet-based therapy as its form of intervention. In the following, a reference

managing program (Endnote X9) was used to identify duplicates among the remaining 154 articles. After removal of the duplicates, 146 articles were left to be screened by information given in the title and abstract. Articles were removed when the title or the abstract showed an online self-help therapy or a combination of both self-help therapy and classic face-to-face therapy. Also, articles not written in English language were excluded (n=2)

After completing these selection rounds, 42 articles were analysed more in-depth and checked for the remaining inclusion and exclusion criteria. Articles that did not focus on online therapy where the therapist communicates online with the patient (n = 22), interventions including a different age group (n = 4) were not included. Finally, 16 articles remained for the current review.

Risks and Benefits

The remaining 16 articles were analysed based on information from log data given about the risks and benefits of online therapy. Risks of online therapy are factors, which influence the patient negatively, such as discontinuing the therapy or an increase in depression symptoms. Benefits are factors, the patient profits from. These factors could be easier accessibility to therapy or better usability. Risks and benefits will be set against each other to determine which factors overlie.

Results

Study characteristics

Sixteen studies were included (Table 3). Most studies (n=8) presented from 22 to 77 participants, four studies [7, 8, 10, 14] between 84 and 176 participants in the online therapy group. Four studies [3, 11-13] reported a large participant group between 484 to 1543 in the intervention condition. The mean age ranged from 25 to 64.52 with an age range from 18 to 83. Most studies having populations aged between 18 and 67 (n=6). One study [7] focused on adults between 61 and 69 years of age. Two studies [11, 12] age range was from 18 years to > 80. The total age range from 18 to 83 years represents adults from each age. All the sixteen studies [1-16] had a majority of female participants in the intervention group ranging from proportion of 54% to 81%. Most studies (n=7) were conducted in Australia. The remaining studies were administered in Europe (n=5), in America (n=2), and in South America (n=2). In total, studies were conducted in eleven different countries, which represents diversity in ethnicity, income and education.

The way participants were diagnosed with a major depression differed (see Table 4), either in a clinical interview via telephone (n=4), online (n=2), face-to-face (n=5) or by self-report questionnaires (n=3). One study [2] made use of both face-to-face clinician-administered and self-report measures. Ruwaard et al. (2012) conducted a telephone interview and self-report questionnaires for diagnostic means.

Twelve of the sixteen studies [1-3, 6-8, 10, 13-16] are randomized controlled trials (RCT), one [4] is a feasibility open trial study, one [5] a secondary analysis, one [9] a randomized experiment, one [11] a naturalistic study, one [12] a cohort study, and one [13] uncontrolled before and after study. As the majority of included studies for this review are RCTs, the benefits and risks of online therapy can be analysed with a greater reliability based on the comparison to the control group.

Table 3

Demographic characteristics of included studies

First Author (Year)	Participants	Mean age (SD); range	% Female (*n* total)	Country
Ritvo (2021)	22	25 (3.319); 18-30	54 (12)	Canada
Rosso (2016)	35	29.2 (7.69); 18-45	62.2 (23)	Australia
Donker (2013)	1843	/* (/*); 18 - >55	1334 (72.38)	Australia, New Zealand, UK, US, Canada
Dear (2013)	20	63.4 (5.08); ≥60	65 (13)	Australia
Richards (2018)	67	36.6 (10.4); 18-58	59 (88)	Ireland
Pérez (2021)	84	39.56 (11.06); 20-63	77 (65)	Chile
Titov (2015)	27	64.52 (2.58); 61-69	81.5 (22)	Australia
Salamanca-Sanabria (2020)	107	22.24 (5.4); 18-52	69.2 (74)	Colombia
Thase (2018)	77	46 (13.7); /*	33.33 (51.33)	US
Warmerdam (2008)	176	45.4 (/*); /*	67.05 (108)	The Netherlands
Mewton (2014)	484	41.9 (/*); 18-83	60.3 (292)	Australia
Hedman (2014)	1203	37.9 (11.8); 18-80	67.2 (808)	Sweden

Ruwaard (2012)	413	40 (11); /*	68 (280)	The Netherlands
Titov (2010)	87	42 (12.305); 20-66	75.86 (66)	Australia
Wagner (2014)	32	37.25 (11.41); 20-67	78 (25)	Switzerland
Williams (2013)	35	44.28 (11.78); /*	77 (27)	Australia

Note. *no data provided

Study contents

All studies [1-16] made use of Cognitive Behavioural Therapy (CBT). Two studies [1, 16] combined CBT with other forms of therapy, such as mindfulness training and cognitive bias modification. Elements of mindfulness training included exercises such as meditation. Cognitive bias modification focuses on modifying the assignation of negative or threatening appraisals to ambiguous information into more realistic thoughts. Intervention durations ranged from four weeks [3] to 6 months [1]. Of the fifteen studies using CBT, the majority, five studies [4, 5, 7, 14, 15] conducted an 8-week intervention with at least 3-month follow-up measurements. Five of the studies [1-3, 10, 11, 16] did not include follow-up measurements to monitor the interventions effectiveness or other baseline measures. All study interventions are based on the principles of CBT, which include behavioural activation, cognitive restructuring, and activity scheduling.

Two studies made use of Interpersonal Psychotherapy (IPT) [1] and Problem-Solving Therapy [16] to compare to CBT. Donker et al. (2013) included online IPT for one intervention group, with modules focusing on grief, role disputes, role transition, and interpersonal deficits. Additionally, a personal workbook containing 13 exercises and assessments was used. Problem solving therapy was used as an intervention by Williams et al. (2013) to treat depression. Components of this form of therapy are to address solvable problems by a six-step procedure: (1) describing the problem, (2)

brainstorming, (3) choosing the best solution, (4) making a plan for carrying out the solution, (5) actually carrying out the solution, (6) evaluation. Pérez et al. (2021) made use of a health-provider assisted online platform, which includes psycho-educative information, monitoring of depressive symptoms and feedback, and management of emergencies based on the principles of CBT. All interventions [1-16] reduced depressive symptoms.

Benefits of Online Therapy

Several benefits were revealed during the included studies. Ritvo et al. (2021) [1] found that participants in the online cognitive behavioural therapy intervention group show less self-critical self-judgment compared to participants in the standard-care psychiatry group. Rosso et al. (2016) [2] do not only note a statistically significant and clinically meaningful reduction in depression rates but also in distress-related symptoms by using the iCBT (internet-based CBT) intervention. Additionally, to obtain these results a minimal clinician time is required, which makes this type of intervention efficacious and cost-effective [2, 4, 7, 8, 12]. Thase et al. (2018) had the online-intervention group receiving 38% of the amount of therapist contact the face-to-face group received. High cost-effectiveness was also found by Dear et al. (2013) [4], who had little clinician input (73 min) over a period of 8 weeks and by Titov et al. (2015) where only 45 minutes were required per person in the same period of time. The intervention was also able to decrease cognitive deficits and anxiety even though it focused on depression only, resulting in a classification as recovered for over 50% of participants. Other studies [5, 11, 12] with different geographical allocations show the significant effectiveness to reduce suicidal ideation in an age range from 18 to 83. Furthermore, it was found [6] that the online-delivered cognitive behavioural therapy provides easily accessible professional treatment, even in times of COVID-19 in lockdown conditions. ICBT is an effective, viable, and acceptable treatment alternative for individuals, who are unwilling or unbale to seek traditional forms of therapy [13]. Overall, cost-efficacy, accessibility and the reduction of symptoms not directly targeted by the online CBT intervention are benefits for this type of

treatment. Additionally, the significant reduction of suicidal ideation, displayed by the results of three studies, is a huge benefit for online therapy, as these patients are mostly at risk while suffering from a major depression.

Online delivered interpersonal psychotherapy and problem-solving therapy were both to be effective in reducing the symptoms of major depression. Moreover, problem-solving therapy was effective in reducing depressive symptoms, disability, distress, rumination, and anxiety in patients diagnosed with major depression compared to a waiting list control group. It was found that this form of therapy has rapid effects on symptom reduction over a period of just one week, via seven 20 minutes sessions and no additional homework. Furthermore, the effects were realized faster by PST than by CBT. 34.1% of the participants were recovered completely at follow-up.

Risks of Online Therapy

One of the risks of online therapy are the high dropout rates. Drop-out rates range from 8% [2] to 90.7% [10] for the online CBT interventions. Drop-out rates for face-to-face range from 7% [15] to 61% [1]. In the study by Ritvo et al. (2021) the drop-out rate is much higher (61%) for the face-to-face control group compared to the intervention group (9%). However, the majority of included studies implicate the contrary. Reasons for high drop-out rates or low completing rates (85,6%) [3] were technical issues and personal problems. Personal problems included lack of time, disease-specific barriers such as feeling too depressed to work on the program or not being convinced about the program being effective. Also, intervention problems happened to have an impact on the adherence of participants. Some participants complained about the intervention being too long and including too much text to read, being boring or too repetitive, and some of the examples were not relevant to the participants. Usability in general appears to have a decisive influence on the participants adherence to the intervention. Lastly, engagement issues occurred, as participants preferred to obtain help from a professional in a face-to-face setting other than a computer. A study conducted in Columbia [10]

justifies high drop-out rates (50.4%) with a lack of motivation for change, personal stigma, or a negative perception of psychological treatments. Additionally, young adults who go to college were used as study population. Thus, a packed schedule was another reason for the low adherence to the intervention. Interventions with higher adherence rates and completion rates give similar reasons for drop-out. Furthermore, text-complexity, demanding treatment processes, lack of face-to-face contact, language skills, lack of reminders, the easiness to disappear from the online intervention, and low IT-confidence were causes. High drop-out rates were also reported by Salamanca-Sanabria et al. (2020) and Wagner et al. (2014) found higher adherence rates for the face-to-face comparison group. All in all, the drop-out rates are lower for standard care psychiatry in comparison to online-delivered cognitive behavioural therapy. The high drop-out rates in comparison to standard care are a risk for patients suffering from major depression.

Donker et al. (2013) found that only 169 (27.3%) of the 620 participants for the interpersonal psychotherapy intervention completed all modules. Dropout reasons were stated as technical problems, lack of time, disease-specific barriers (not convinced that the program would help; too depressed to work on the program), general intervention problems (intervention was taking too long; boring; too much to read), specific intervention issues (examples not relevant to the participant), or engagement issues (preferred other help). The study Williams et al. (2013) making use of online PST noted an attrition rate of 41%. The high attrition rate reasoned with having other treatments, feeling better, problems understanding the program and lack of time.

Another risk of online therapy is the satisfaction with the intervention. Several reasons for dropping out or not adhering to the interventions are given. Additionally, Donker et al. (2013) found that compared to the CBT condition of this study, the IPT participants showed lower satisfaction with the treatment.

Concluding, the high risk for patients to drop-out of treatment can have serious consequences and may worsen their mental condition. Thus, the benefits of online therapy do not outweigh the risks.

Table 4

Type of study, control group, drop-out rates control group, diagnostics

First Author (Year)	Type of study	Control group	Drop-out	Diagnostics
Ritvo (2021)	RCT	Face-to-face	61%	Screening visit
Rosso (2016)	RCT	Monitored-attention control group	25%	Clinician-administered and self-report
Donker (2013)	RCNT	Self-help intervention group	89.1%	Clinical interview
Dear (2013)	Feasibility open trial	*	*	Telephone interview
Richards (2018)	Secondary analysis	*	*	Self-report
Pérez (2021)	RCT	Face-to-face	54%	Clinical interview
Titov (2015)	RCT	Delayed treatment waitlist	*	Telephone interview
Salamanca-Sanabria (2020)	RCT	Waiting list	50.4%	Self-report
Thase (2018)	Randomized Experiment	Face-to-face	21%	Clinical interview
Warmerdam (2008)	RCT	Problem-solving therapy	62.5%	Self-report
Mewton (2014)	Naturalistic study	*	*	Clinical interview

Hedman (2014)	Cohort study	*	*	Online clinical interview
Ruwaard (2012)	Uncontrolled before and after study	*	*	Telephone interview and self-report
Titov (2010)	RCNT	Delayed treatment waitlist	*	Telephone interview
Wagner (2014)	RCNT	Face-to-face	7%	Online clinical interview
Williams (2013)	RCT	Waiting list	*	Telephone interview

Note. *no data provided

Abbreviations. **Study type:** RCT, Randomized Controlled Trial; RCNT, Randomized Controlled Non-inferiority Trial

Discussion

The aim of this literature review was to evaluate previous literature on online therapy for adults with major depression in order verify the risks and benefits regarding its effectiveness. This review suggests that internet-based therapy can adequately address major depressive complaints in all adult ages.

Online interpersonal psychotherapy has been shown to be as effective as iCBT, which could be used as an alternative online treatment for major depression next to iCBT. Furthermore, problem-solving therapy realized the same effects as iCBT in less time. This benefit makes PST a time-efficient addition to internet-based mental health treatments. With CBT as the most common treatment for depression, two alternatives arise in the online therapy setting. Compared to face-to-face therapy and medication only therapy, online interpersonal psychotherapy is as effective (Gellis, & Kenaley, 2008; Mynors-Wallis et al., 2000).

Online CBT interventions with the focus to reduce major depressive symptoms have shown to not only significantly reduce depressive symptoms but also to reduce self-critical self-judgment, distress-related symptoms and anxiety symptoms (Ritvo et al., 2021; Rosso et al., 2016). CBT is shown to have positive effects on symptoms not influenced by the intervention itself but by reducing depression symptoms in the first place (Tay, Subramaniam, & Oei, 2019). Additionally, three studies conducted in Ireland, the Netherlands, and Australia have shown online therapy to be effective in reducing suicidal ideation (Richards et al., 2018; Mewton et al., 2014; Warmerdam et al., 2008). Research conducted on internet-based interventions often exclude individuals with suicidal ideation as an ethical consideration as these patients require specific attention due to the severity of their disorder (Vuorilehto et al., 2014).

Five of the sixteen studies suggest online indicated CBT to be an efficacious and cost-effective alternative to standard face-to-face therapy. The required therapist time was at a maximum of 2.5 hours in the study by Hedman et al. (2014), which is comparable to two to three therapy sessions in traditional

therapy. Therefore, a duration of 2.5 hours for each patient over a course of 12 weeks is about a 4-fold increase compared to conventional face-to-face therapy for depression. A full-time working therapist in the internet-delivered CBT setting could treat 80 patients simultaneously (Hedman et al., 2014). Titov et al. (2015) obtained the least required psychologist time needed per patient with 45 minutes average, which increases the factor of cost-effectiveness compared to the results of Hedman et al. (2014) enormous.

High levels of acceptability were found in one third of the studies included [4,6,7,14,16], which makes online therapy one of the most important means to enable access to evidence-based mental health treatments for a large patient group. Furthermore, during times of COVID-19 and lockdowns a huge benefit of online interventions is the accessibility from anywhere at any time. However, Thase et al. (2018) state that a personal computer or tablet is needed to attend the internet-based therapy, which may appear as an obstacle in less fortune or less educated populations.

Drop-out rates were high for some studies compared to the control group. Warmerdam et al. (2008) found that only 9.3% of the participants in the iCBT group completed all measures. Also, Donker et al. (2013) had a high non-adherence rate of 85.6% in their study. In general, adherence was worse in the online-delivered therapy setting than in the standard face-to-face setting. Several reasons were given for these high rates, such as technical problems, but also intervention issues. Technical problems can occur while working in an online mental health setting with technology, which was not used before. Therefore, it is important to have the possibility to contact technicians or have therapists who are trained to solve these kinds of problems (Sander et al., 2022). Especially, for patients with major depression, it is crucial to be in contact with the therapist in critical situations (Almlöv et al., 2009).

Intervention issues included reasons for drop-out such as the intervention being too repetitive or having too much information to read. Motivation levels are lower in individuals with depression than in mentally healthy individuals (Grahek et al., 2019) thus, it is easier for patients to drop out. Face-to-

face therapy involve more social control compared to internet-based therapy, for some individuals it might be inappropriate to discontinue the therapy once they know the psychologist personally (Wagner, Horn, & Maercker, 2014). In the internet-based setting patients are eased to stop communicating to the therapist by just disappearing (Williams et al., 2013). Both from technical issues and intervention problems risks arise for patients while using internet-based therapy. A drop-out of therapy can have severe consequences for the patient with major depression. Suicidal ideation is common for individuals suffering from depression, contributing to suicide attempts in severe cases (Ordaz et al., 2018). Thus, not being able to adhere to the intervention because of technical issues might cause negative consequences. The agreement of goals and tasks is important for creating an alliance of the patient and the online therapist, which decreases the drop-out rates of patients (Pihlaja et al., 2018). Automated reminders could benefit the adherence to the program as well (Titov et al., 2013). Another risk to online therapy was displayed by five studies administering self-report diagnostics. Self-diagnosis can lead to misdiagnosis and overuse of online therapies, resulting in an incorrect application for healthy individuals. Well-trained therapists are needed to circumvent this obstacle of lack of diagnosis in the internet-based therapy setting (Thase et al., 2018; Warmerdam et al., 2008). Furthermore, Donker et al. (2013) found iCBT more likely to be recommended when the therapists are trained.

In total, more benefits of online therapy for the treatment of major depression were revealed compared to risks. However, the risks overweight the benefits as one major flaw in the online therapy setting is the high dropout rate. Discontinuing therapy could worsen the state of the individual at risk (Kato et al., 2021).

Strengths and Limitations

One limitation of this study is that it could not be controlled for if all patients are in fact suffering from major depression. Half of the included studies made use of telephone interviews or self-reports to diagnose the participants for their intervention. Sigmon et al. (2005) found that a response

bias in self-reports result in misinterpretation of own depressive symptoms.

The key strength of this study was to line out risks and benefits of online therapy for individuals with a major depression. Here, an overview was drawn up to understand the importance of internet-based therapy but also the aspects to be cautious about. Whereas previous research mainly focuses on the effectiveness of online therapy, this review analysed the risks and benefits of online psychological approaches. This sets a basis for internet-delivered psychological treatment for severe depressed individuals, increasing the practical applicability of the gathered information and knowledge in this study. Moreover, the extensive iterative search process in this systematic review increased the chances to generate the highest number of existing articles of interest for the synthesis. Based on this, studies and experiences from various countries and age groups were taking into consideration for a far-reaching collection of risks and benefits.

A limitation of this study concerns the reliability, as the literature search was conducted by one researcher only. Additionally, the exclusion of professionals and therapists within the search query might have led to missed articles, which include therapists' experiences and opinions about online treatment. Accordingly, a risk is given that articles were missed that focussed on different perspectives, other than those of individuals receiving treatment. However, it was tried during the search process to complement any missed articles by an additional scan of reference lists for relevant literature.

Another limitation of this review is that mainly internet forms of CBT therapy were analysed. CBT is the most researched type of therapy to treat patients with depression (Cuijpers et al., 2008). Additionally, it is the most used form of therapy used for online treatment (Cuijpers et al., 2008). Other forms of therapy were only vaguely represented. Interpersonal psychotherapy and problem-solving therapy were represented by only one study each. Risks and benefits for both of these therapy types cannot be seen as reliable and should be interpreted with caution.

Lastly, the generalisability is lowered despite including studies from a variety of different

countries, since only articles in English language were considered for the synthesis, where studies using other languages were therefore missed.

Practical Implications and Recommendations

This review included studies most fitting to the PICOC framework and the appropriate search query. However, results mainly focussed on studies conducting online CBT interventions. Other forms of therapy, such as Problem-Solving Therapy and Interpersonal Psychotherapy were only included to little extend. Thus, future research should investigate the risks and benefits of these two approaches to examine the reliability of their effectiveness to conduct them in an internet-based setting. Moreover, future research should focus on creating universal guidelines for the conductance of online psychological treatment and synthesise current scientific evidence about benefits and risks into the consideration of what is essentially important to reduce both the clients and the therapists' risks.

Conclusion

In conclusion, this systematic literature review shows that online therapy is effective in dealing with major depressive patients aged from 18 – 85 and is more cost-efficient than traditional therapy. In addition, several symptoms not focused on by the intervention were reduced, such as distress and anxiety. The overall benefits of online therapy are the effectiveness of the treatment and its accessibility. And the risks are high dropout and attrition rates. So far, the most promising internet-based treatment to address major depression symptoms in adults seems to be Cognitive Behaviour Therapy. However, risks can occur while conducting internet therapy without knowledge about solving technical problems, thus trained therapists are needed. Furthermore, own technical devices are required to attempt online therapy, which might be a burden for low-income patients. Nonetheless, internet-based mental health treatment can be the futures standard to provide broader mental health care, which can be delivered at any time and any place when this obstacle is overcome.

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