

**E-Health Interventions promoting Self-Compassion in mental disorders: A Scoping
Review**

Julia Sophie Kirchhoff

Master Thesis

Positive Clinical Psychology and Technology

University of Twente

1st Supervisor: dr. J. Piano Simoes, Assistant professor

2nd Supervisor: dr. M. Nieuwenhuis, Assistant professor

July 19, 2023

Abstract

Self-compassion interventions, teaching people to be kind and mindful to themselves, have been shown to be effective for various mental disorders. Given the increasing openness of applying technology in mental health care, different e-health interventions promoting self-compassion have emerged. However, the scope of the literature on their use in adults with mental illness has not been fully assessed and is therefore the aim of this review. A comprehensive literature search was conducted in Scopus, Web of Science, and PsycINFO. Inclusion criteria were (1) participants were >18 years and had at least subclinical levels of a mental disorder or moderate to high levels of self-criticism or stress, (2) interventions were digital and self-compassion-based, (3) articles were written in English or German. From a final set of 15 studies, data was collected and compared based on interventions, samples, measured outcomes and associated instruments, and intervention feasibility. The results indicated that the majority of participants in the selected studies were relatively young to middle-aged, predominantly female, and suffering from various mental disorders like depression, anxiety, or schizophrenia. Most interventions are offered as self-help programs, via the Internet/Web, with the common goal of alleviating psychopathology. The outcomes were categorized as symptomatology, well-being, secondary outcomes, and treatment evaluation. Mixed results were found regarding dropout and adherence. Although some individuals expressed negative effects on symptoms and emotions, most participants expressed moderate satisfaction and acceptance of the interventions. Conclusively, it is recommended to further investigate the efficacy of digitally enhancing self-compassion in various mental disorders.

Keywords: self-compassion, e-Health, mental health, adults, positive psychology

E-Health Interventions promoting Self-Compassion in mental disorders: A Scoping Review

E-health, which refers to the delivery or enhancement of health services and information via the Internet and related technologies (Eysenbach, 2001), is a growing trend in mental health care (Fairburn & Patel, 2017) as it allows interventions to be more accessible and cost-effective while addressing barriers such as fear of stigma, time and location issues (Andersson & Titov, 2014). Common technologies, used to offer support for people with mental health problems in cases where face-to-face therapy is not possible, include online programs, mobile applications, virtual reality, or serious games. The implementation of e-health interventions can be executed either through the accompaniment of mental health professionals via video conferencing or chat platforms, but individuals can also complete educational materials or homework as part of self-help programs (Koelen et al., 2022; Ybarra & Eaton, 2005).

Initial research focused on online applications of traditional cognitive behavioral therapy and demonstrated improvements for a range of mental health conditions, including depression, anxiety disorders, substance use disorders, and obsessive-compulsive disorder (Kumar et al., 2017, Ruwaard et al., 2012). This was complemented by a large body of research on new therapeutic approaches such as mindfulness-based online interventions (MBI) or smartphone apps on mindfulness and acceptance, which showed small but significant positive effects on depression, anxiety, and stress, but also on positive psychology factors such as well-being, mindfulness (Spijkerman & Bohlmeijer, 2016), self-acceptance, and self-compassion (Linardon, 2022). Self-compassion as a construct in its own right is also attracting increasing interest among positive psychologists. Although there are several studies examining its explicit practice in online settings, the scope of the literature on e-health interventions to promote self-compassion and their application by people with mental health problems has not yet been fully captured, which will therefore be the focus of the present study.

Self-compassion stems from Buddhist philosophy and means being “touched by and open to one’s own suffering, not avoiding or disconnecting from it, and generating the desire to alleviate one’s suffering and to heal oneself with kindness” (Neff, 2003). A widely used definition by Neff (2003) summarizes self-compassion within 3 domains: 1) Self-Kindness Versus Self-Judgment, 2) Common Humanity Versus Isolation, and 3) Mindfulness Versus Over-Identification. First, self-kindness involves being kind and understanding of one's own suffering rather than criticizing oneself. The component of common humanity means that

individuals recognize that making mistakes and having weaknesses is part of being human and avoid isolating themselves in response to perceived failures and shortcomings of their own. Finally, being mindful means observing own mental and emotional experiences with a more objective perspective, without over-identifying with or distancing oneself from the experience (Neff, 2003; 2022).

People who possess the characteristic of being self-compassionate show lower levels of depression, anxiety, and stress. These associations hold across multiple samples, including adults (MacBeth & Gumley, 2012), youth (Marsh et al., 2017), and sexual and gender minority (SGM) individuals, who also reported lower levels of suicidal ideation, internalized homophobia/transphobia, and stigma, and more well-being and social support (Carvalho & Guimar, 2022). Moreover, PTSD symptomology was found to negatively correlate with self-compassion (Winders et al., 2020), whereas both psychological and physical well-being are positively related to self-compassion (Hall et al., 2013). Based on this research highlighting self-compassion as a protective factor, a growing number of interventions have emerged explicitly focusing on cultivating self-compassion.

Elements of self-compassion interventions

The frequently used interventions are Compassion-Focused Therapy (CFT) by Gilbert (2009) with an element called Compassionate Mind Training (CMT), but also a Mindful Self-Compassion (MSC) program developed by Germer and Neff (2019). Other interventions are Cognitively Based Compassion Training, Attachment-based compassion therapy, Mindfulness-based Compassionate Living (MBCL; van den Brink et al., 2018), Emotion focused training for self-compassion and self-protection (EFT-ScP). Besides the more complex interventions, certain exercises such as compassion meditations are instructed as a single intervention (Wallmark et al., 2013), and thereby increasing positive emotions, mindfulness, feelings of purpose in life, social support (Leaviss & Uttley, 2015), and life satisfaction (Gu et al., 2022).

There is compelling evidence for the role of self-compassion in improving mental health and well-being by using different types of self-compassion interventions. This includes life-satisfaction, post-traumatic stress, or self-criticism (Luo et al., 2021; Wakelin et al., 2021), but also self-compassion, mindfulness (Ferrari et al., 2019), and work well-being (Kotera & van Gorden, 2021). A large meta-analysis has found large effects on eating behaviour and rumination, and medium effects on stress, depression, and anxiety (Ferrari et al., 2019). Despite the common goal of promoting self-compassion in various samples, it is

noticeable that interventions were constructed based on different protocols which include varying self-compassion approaches and exercises.

For instance, exercises that are used in CMT, the therapeutic element of CFT (Gilbert, 2009), are meditation, compassionate letter writing, and role-playing (Wakelin et al., 2022), which guide individuals toward greater empathy, compassion, and loving kindness toward themselves (Beaumont & Hollins-Martin, 2015). In addition, physiological processes such as breathing, imagery, posture, and vocalization are addressed to ground oneself and bring attention back to the present moment (Kariyawasam et al., 2022). The thinking behind the development of CFT (Gilbert, 2009) was that patients who have high levels of shame and self-criticism have difficulty generating kind and self-supportive inner voices when engaging in traditional therapy (Wakelin et al., 2022). Gilbert (2009) attributes this to the influence of three emotion regulation systems associated with human actions, namely the threat, drive, and soothing systems, as described in his evolutionary theory. Particularly, people with low levels of self-compassion have difficulty controlling the soothing system and achieving feelings of relief, reassurance, or safety. They are dominated by the threat system, which makes them sensitive to rejection and criticism, which is related with increased psychopathology such as worry, anxiety, or self-criticism (Gilbert, 2009). Hence, developing an inner, compassionate relationship with oneself and acquiring self-soothing skills helps to balance the threat system.

The MSC program by Germer and Neff (2019) aims to awaken mindfulness and self-compassion in everyday life and build sustainable resources. Initially it was constituted for the general public, but positive effects of the program were also found in clinical samples (Wakelin et al., 2021). Within their approach, they use the definition of self-compassion that comes from Neff (2003), mentioned previously. Techniques such as affectionate breathing meditation, compassionate body scan, or compassionate movement are thought to lead to greater appreciation for bodily functions and reduce stress and tension in the body, leading to a softer heart in times of discomfort (Germer & Neff, 2019). Other practices include yoga or mindful eating (Ferrari et al., 2019).

Conclusively, a pool of exercises and different approaches are available from which researchers can avail themselves when constructing new interventions. Hence, it is important to get an overview of how researchers assembled the tools and exercises in an online context to test in further steps whether the specific constellations result in effectiveness comparable to that of self-compassion interventions in a face-to-face setting. In addition, the presentation of technical characteristics leads to the formation of clusters of different types of eHealth

services, which can help future researchers evaluate or compare their benefits or limitations for patients in mental health care.

Previous literature reviews

Literature reviews on this topic are limited, focusing mainly on the scope of digitally delivered self-compassion interventions for the workforce (Begin et al., 2022), samples with chronic physical illnesses such as cancer or persistent pain (Austin et al., 2021), and the prevention of eating disorders in youth and emerging adults (Pellegrini et al., 2022). In a review by van Lotringen et al. (2023), however, a broader range of samples was assessed. Besides describing how technology is used to enhance self-compassion in people with self-perception problems related to body image and weight or medical issues like cancer, they provided initial insights into e-Health available for people with mental health problems. There are five studies that studied individuals who had exhibited levels of paranoia, depression, or self-criticism. In general, researchers relied primarily on technologies such as mobile self-compassion apps rather than Web-based interventions, whereas for those showing symptoms of mental illness virtual reality was commonly used. Nevertheless, van Lotringen et al. (2023) excluded 22 studies during their study selection that examined psycho-educational websites or specific self-compassion-based approaches such as CFT or the MSC program, thereby neglecting complex therapeutic interventions and leaving the full spectrum of e-health interventions on self-compassion for this group unclear.

To provide a comprehensive review of e-health interventions promoting self-compassion in adults with symptoms of mental disorders, the current review aims to extend the review by van Lotringen et al. (2023) by selecting studies that tested all available interventions, both simple and complex, and made use of different forms of technology. In this regard, individuals with problems in self-perception or physical health are not considered, as these have been studied in depth previously. Beyond that, new insights will be provided on the measurements used in this research area, as well as on interventions' feasibility and acceptability to patients. Subsequently, this review serves as a precursor to a systematic review and possibly a meta-analysis by providing a useful starting point for examining the effectiveness of diverse self-compassion interventions that are provided online, leading to more reliable conclusions and the possibility of creating guidelines for implementation, delivery and improvement of technologies in mental health care. In this way, it can be guaranteed that individuals are able to efficiently improve their mental state independent from time and location. Therefore, the following research questions were formulated:

- 1) How can clinical samples be characterized in terms of their mental disorders or symptoms, age and gender?
- 2) What are the characteristics of eHealth interventions promoting with self-compassion that are used in mental health care?
- 3) Which psychological health factors or other outcomes were measured, and which instruments were used?
- 4) What is the feasibility of the eHealth interventions? How do participants evaluate the interventions?

Method

Study design

To address the present objective and answer the research questions, a scoping review was performed which can be defined as a ‘Preliminary assessment of potential size and scope of available research literature and aims to identify nature and extent of research evidence (usually including ongoing research)’ on a particular topic (Grant & Booth, 2009). Therefore, a systematic and exhaustive search for information was conducted, which was reported by following the PRISMA-ScR guidelines that were particularly developed for scoping reviews (Tricco et al., 2018) to guarantee a comprehensive and explicit documentation and thus a replicable data extraction process (Sutton et al., 2019). A protocol was created and registered on Open Science Framework (OSF) on the 20th of February 2023 (https://osf.io/4r7dv/?view_only=7cd7131692d5478f8ff0151a0e2edd53).

Eligibility Criteria

All relevant inclusion and exclusion criteria are listed in detail in Table 1, and some will be explained more concretely in the following. This review included studies focusing on individuals aged 18 and over who belong to a clinical or subclinical population, defined as having any mental health disorder or subclinical levels of one (including depression, psychosis, post-traumatic stress, eating disorders, intellectual abilities, etc.). Further, it included samples with moderate to high levels of two transdiagnostic factors: self-criticism or stress. The diagnosis or high levels of a disorder must be assessed by validated interviews or self-report measures at baseline and clearly stated as such to ensure that it is not a self-perceived assessment. Self-criticism was included as it is the opposite of self-compassion and is seen as a basis for CFT due to the findings that self-critical individuals have problems with traditional CBT (Wakelin et al., 2022). Chronically elevated stress is associated with psychological and physiological disorder symptoms (Beshai et al., 2017). Although it is not pathological in itself, it can be described as a transdiagnostic factor for a variety of

psychological disorders (Dozois et al., 2009). Therefore, it seems important to gain more insights on the use of e-health interventions on self-compassion for both factors.

Studies with samples of workers (Begin et al., 2022) and patients suffering from medical issues (Austin et al., 2021) were assessed in previous literature and therefore excluded. Regarding eating disorders distinctively, a previous review (Pellegrini et al., 2022) focused on prevention, neglecting other intervention goals such as treatment or adherence. Thus, samples exhibiting high levels of an eating disorder were still included, this, however, did not entail obesity or self-perceptions like body image.

Concerning interventions, another inclusion criterion was that the content of an intervention should have a core focus on self-compassion (approximately > 60%), meaning that, for instance, the self-compassion components, mindfulness, common humanity, and self-kindness described by Neff (2003) or the three emotion regulation systems described by Gilbert (2010) were used for psychoeducation, or typical exercises of CFT or the MSC program were completed. Oppositely, interventions based on mindfulness such as Mindfulness-Based Stress Reduction (MBSR) or without an explicit focus on self-compassion, e.g., emotion focused training, loving kindness meditation, or yoga, were excluded.

Table 1

Eligibility criteria

	Inclusion criteria	Exclusion criteria
Population	Adults (age > 18) Clinical populations, defined as having (subclinical levels of) any mental health condition from DSM-5, or moderate to high levels of self-criticism or stress, which was assessed at baseline.	Nonclinical samples; Populations with medical (e.g., diabetes, persistent pain, cancer) or neurological (e.g., dementia) issues; Work-related problems; Obesity; Body image; Relatives or caregivers of ill patient

Intervention	<p><i>A core focus on self-compassion:</i> Compassion-Focused Therapy, Compassion mind training, Mindful compassion program, Cognitively Based Compassion Training, Attachment-based compassion therapy, Mindfulness-based Compassionate Living (MBCL) program, Emotion focused training for self-compassion and self- protection (EFT-ScP), self- compassion exercises: meditation/writing/letter</p>	<p><i>No explicit focus on self- compassion:</i> Mindfulness intervention, Compassion for others (e.g., compassion cultivating program), Emotion focused training, Loving kindness meditation, My changed body, Yoga.</p> <p><i>No technology used</i></p>
Comparisons	<p>Compared with any control group (including TAU, other interventions), or no comparator.</p>	
Outcomes	<p>Psychological health (mental symptoms/disorders or well-being outcomes); dropout rates, adherence, or satisfaction (feasibility)</p>	
Study (design)	<p>Empirical study (Protocol of) RCT Design Pilot studies</p>	<p>Non-RCT (i.e., non-observational study, cross-sectional) Reviews, Meta-analysis</p>
Other	<p>Language: English, German Peer reviewed</p>	<p>Document type: books, editorials, guidelines, letters</p>

Literature search

Data sources

To identify potentially relevant papers, a comprehensive literature search was conducted in February 2023, using the following databases: Scopus, Web of Science and PsycINFO. Scopus and Web of Science have the advantage of delivering a wide range and scope of high-quality literature from multiple disciplines like social sciences, technology, and medicine. PsycINFO provides narrower literature regarding psychology and related disciplines (medicine, education, social work, etc.). Web of Science is also a citation index that allows one to track who is citing whom and thereby enabling thorough literature reviews. Besides them, different technological databases were searched, but without delivering any papers on the examined topic. All databases allow exporting a large number of articles, including information on titles, abstracts, authors' names, journal name and DOI. Multiple iterations of search were executed to get an insight into existing literature and to make decisions regarding eligibility criteria or the specificity of the current scoping review.

Search strategy

Keeping the research question and eligibility criteria in mind, the search strings for all databases included related terms of the key concepts “self-compassion”, “eHealth/digital/online” and “intervention”. Within Web of Science, documents were searched in “all databases” instead of “Web of Science Core Collection”, and the terms were searched as “topic” encompassing a search in titles, abstracts, and indexing. Similarly, documents including the search terms were searched in Scopus within “article title, topics and abstract”. These adjustments served to broaden the search and consequently increase the number of papers containing only topics related to the search terms. All files were downloaded as RIS format. The search string and other filters or limits for each database are displayed in the Appendix A.

Study selection

To present the selection process, the PRISMA flow diagram (Page et al., 2021) was used as a template and is shown in Figure 1. The search within databases resulted in a set of 4.671 documents. After removing duplicates, using Covidence, the remaining 2.599 documents were exported as RIS format and several steps for selecting the studies were made.

In step 1, the title and abstract were screened, and irrelevant articles were removed, with the help of ASReview (van de Schoot et al., 2021). This open-source and free software helps to identify relevant papers quickly and efficiently for literature reviews (van de Schoot et al., 2021). This is achieved by an interaction process in which the researcher labels the

relevance of papers according to their expertise, while a machine learning tool rearranges unseen papers based on these previous indications and thus moves potentially relevant papers to the front. After a while, only irrelevant articles are presented, indicating that the most important articles are found (van de Schoot et al., 2021). As there is no golden rule on when to stop screening, a data-driven strategy was chosen, meaning that after a certain amount of consecutive irrelevant papers screening is stopped (van Haastrecht et al., 2021), for which an amount of 300 papers was set a priori, considering the large dataset of around 2.600 papers. For setting up a project, the datasets from all databases were added and prior knowledge was indicated. Namely, three papers that were identified as relevant in previous search trials were selected, next to 10 random studies which were marked as irrelevant. After choosing the default set-up as a model, the screening was started. The actual screening was finished after 303 articles were marked as irrelevant since the last relevant one. This was achieved after screening a total of 1000 studies (38,48% of the total set), which resulted in a total of 58 relevant papers for the subsequent step. An overview of the process can be found in the Appendix B.

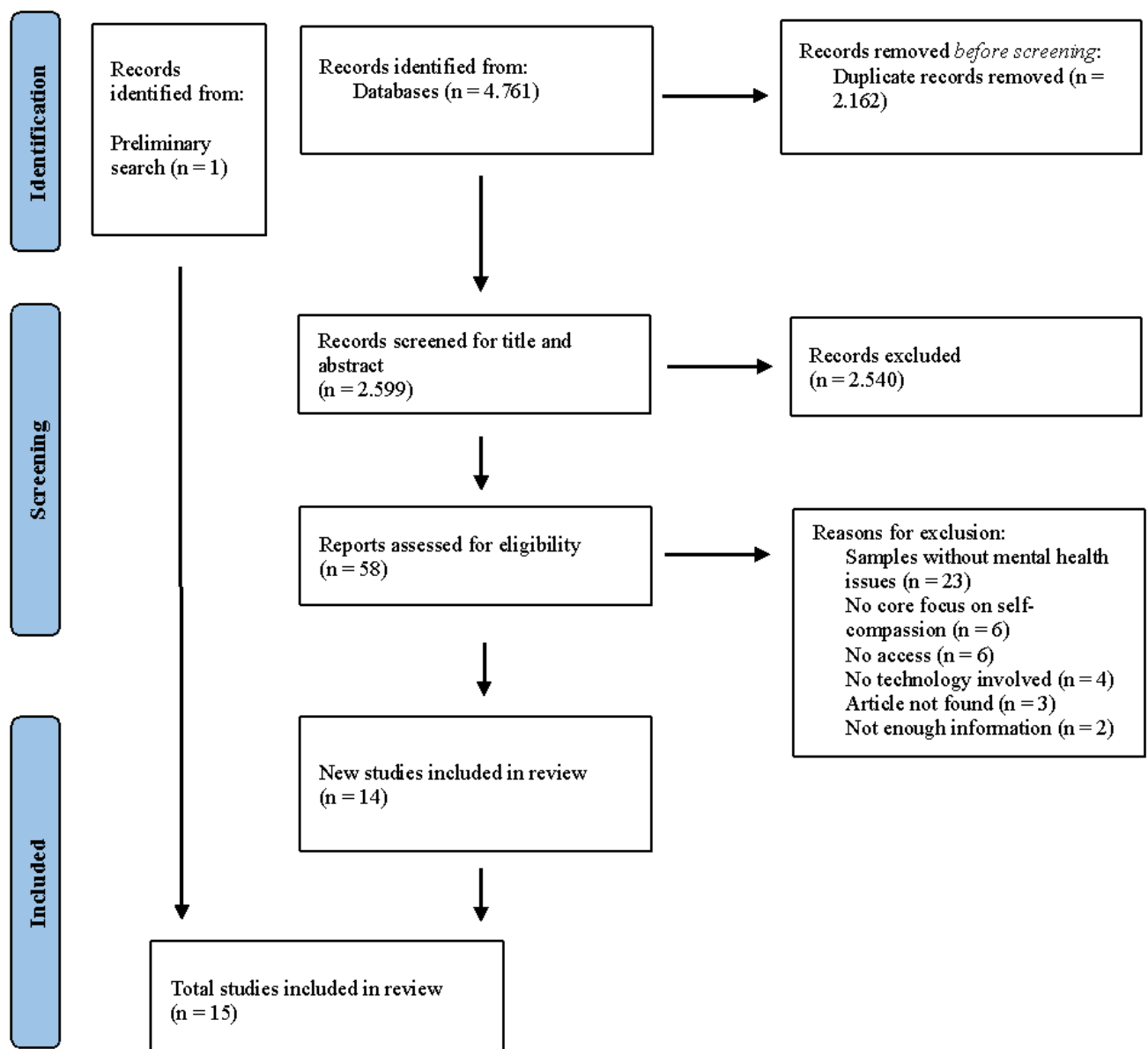
In step 2, 58 documents were searched and downloaded within Google Scholar and assessed for eligibility based on inclusion and exclusion criteria by reading the full-text articles. Articles were excluded if participants were mentally healthy or showed medical or neurological issues, or if interventions were based on Acceptance and Commitment Therapy (ACT), Cognitive Behavioral Therapy (CBT) or mindfulness such as MBSR or mindfulness cognitive therapy. After removing 44 irrelevant articles, the set consisted of 14 articles suitable for the scoping review.

In order to find other relevant articles that were not captured yet, the resulting 58 articles were also manually searched using backward and forward snowballing. The latter means that one searches papers which cited the applicable articles, using a function in Google Scholar, and examines the potential for inclusion. The former was done by looking at the reference list of each article and checking whether a paper could meet the eligibility criteria based on the title, publication venue and authors, and followingly the abstract (Wohlin, 2014). Backward snowballing was found to be a useful supplement to active learning, as this methodology accelerates screening by a factor of 6 (van Haastrecht et al., 2021). In a study by van Haastrecht et al. (2021), 17% of the relevant literature would not have been found without backward snowballing. In the current review, however, no new articles were identified, which suggests that the chosen stopping criterion seemed to be valid as no relevant articles were missed during the screening in ASReview.

Furthermore, independently from the database search, one article from the aforementioned scoping review by van Lotriningen et al. (2022), which meets the eligibility criteria and was not found in previous steps, was added to the final set, aiming to ensure an accurate outline of the scope. Thus, the final set of studies for this scoping review consists of 15 research articles. The whole process was completed by one researcher, namely the author, due to the context of a Master's thesis.

Figure 1

PRISMA flow diagram of the study selection process



Data Extraction

The following data was extracted from the articles and tabulated in a spreadsheet (Appendix C) for further analysis: (1) data on study characteristics were abstracted based on

items like, author(s) and year of publication, target group (e.g., depressed women, mothers, individuals with psychosis), sample size, age (mean or range), gender, primary and secondary outcome variables as well as assessed mediators or moderators (e.g., psychopathology, self-compassion, self-criticism, adherence, or engagement), as well as information on feasibility, acceptability, adherence, or credibility. (2) data on eHealth interventions with items concerning intervention name and comparator (e.g., treatment as usual, CBT, MBST), type of technology (virtual reality, smartphone app, website, audio guides via e-mail), the goal of interventions (e.g., treat patients, promote adherence to another intervention, or prevent a disorder). In addition, the theoretical background for the intervention was assessed, that is, whether the intervention was based on CFT or CMT, or based on the MSC program. Other items concerned characteristics of the intervention like its duration and frequencies of tasks, particular exercises, and the type of delivery, for instance whether it was provided as an unguided, blended or as a group intervention.

Synthesis of results

To answer the research questions, the relevant information was retrieved from the Excel forms and reported in a tabular form. To enable a qualitative summary of what has been done in research so far regarding e-Health interventions on self-compassion for adults suffering from mental disorders, numerical analyses was conducted to gain frequencies and amounts of studies that have been found on a particular topic.

Concerning the first research question, the names of the authors and how they described their sample were given, as well as the average age and the percentage of women in the sample. Regarding research question 2, the focus was on describing and comparing existing eHealth interventions on self-compassion. Particularly, it has been presented how long interventions were executed, whether there are exercises that were commonly used, and on which background approaches they were based. In order to compare the intensity of treatments, data on how frequently exercises were offered were coded according to low, moderate, and high intensity. Low intensity refers to interventions offered no more than once weekly or rather taking less than two hours per week. Moderate intensity means two to four times per week or between two and four hours per week. Lastly, high intensity means more than five times per week, including daily, or interventions lasting more than four hours in one week.

Additionally, the role of technologies was explored by highlighting which types of technologies were most used and the purpose for their use within mental health care, as well as which of these technologies were used by participants without guidance or in combination

with other treatments. For research question 3, all outcomes examined were grouped into three distinct categories, namely symptoms, well-being, and other secondary outcomes, including possible mediators and moderators. For each category, a list of measured concepts and corresponding instruments was provided. It was then indicated in which papers each instrument was used. Lastly, the feasibility and acceptability of particular interventions was described.

Results

This scoping review found and reviewed 15 studies that entail relevant information to answer the research questions. These were published between 2014 and 2023, and most were conducted within the last four years (10/14). The papers were sorted according to the psychopathologies from which the participants suffer, resulting in seven groups.

Sample characteristics

It was noticeable that there are a variety of patient groups that were studied (Table 2). Most interventions were tailored to individuals with high levels of self-criticism and stress ($n = 4$). Next, studies tended to investigate the benefits of certain interventions for patient groups suffering from symptoms of depression ($n = 3$) or anxiety ($n = 3$), some of which have a clinical and some of which have subclinical levels. There was one study that examined these factors together, namely depression, anxiety, and stress (Beshai et al., 2020). Four other papers examined participants presenting a brief psychotic disorder (BPD), a diagnosis for schizophrenia or typical and atypical anorexia nervosa, as well as those with subclinical scores for narcissism. The smallest sample recruited included 6 participants, while the largest sample contained 1002 participants. The average of all sample sizes was 178, but the number of participants between studies varies. Apart from one study, the samples are characterized by predominantly female participants. Three studies examined women exclusively. The lowest mean age was 21.6 years, and the highest mean age was 37.69 years. The average age of the samples was 29.81 years.

Characteristics of e-Health interventions dealing with self-compassion

Table 3 summarizes the characteristics of existing e-Health interventions on self-compassion within the field of mental health care for specific patient groups. Regarding treatment lengths, on average an intervention lasted 3.5 weeks, with a maximum of 8 weeks, and the shortest intervention was tested in a single session. Nearly half of the studies (47%) provided low intensity treatments, 33% offered their interventions at high intensity, and only 20% were of moderate intensity.

Looking at the self-compassion approaches on which the e-health interventions were based, it appears that the majority of the studies (40%) examined used the evolutionary theories or the content of CFT by Gilbert (2010) in constructing their treatments ($n = 6$). Four studies (27%) constructed the intervention based on Neff and Germer's (2013) MSC program. A single study (Gu et al., 2022) combined both approaches, CFT and MSC. Other approaches used were Mindfulness-Based Compassionate Living (Van den Brink & Koster, 2015) ($n = 1$) or Emotion Focused Training for Self-Compassion and Self-Protection (EFT-SP; Halamova, 2018) ($n = 1$). Two studies did not indicate the use of a background approach.

Interventions which were based on CFT implemented exercises like Compassionate letters, soothing breathing rhythm, safe compassionate place, compassionate other imagery, compassionate self, and compassion for difficult emotions (e.g., Andersson et al., 2021; Stevenson et al., 2019). In two studies, a virtual reality situation was created in which the participant receives a compassionate response of their own pre-recorded voice and movements (Falconer et al., 2014; 2016). Those programs that were inspired by the MSC program (Neff & Germer, 2013) gave psychoeducation on self-compassion, common humanity, and mindfulness; instructed guided meditations or self-compassion journals; or worked with difficult and positive emotions. The study based on the MBCL program also conveyed compassionate breathing, letters, and a journal, but further introduced loving-kindness meditations, the concept of gratitude, and a compassionate companion (Krieger et al., 2019). Exercises in the online EFT-SP (Barankova & Vađurová, 2022) included: How would you take care of a friend, emotive drawing of a self-critic, practicing saying no, negative feedback practice, self-protective language, and looking at memories of compassion. In summary, there is a wide range of self-compassion exercises that can be categorized as psychoeducation, meditation, drawing, writing, and imagination.

The type of technology that was most often chosen to implement the treatment is the Internet or websites ($n = 8$), which could imply the use of computer or smartphone programs with texts, audios, or a diary function. Concerning this, three studies explicitly stated that participants received a link to access the online intervention or platform. Another e-health technology used in two studies was the smartphone itself; more specifically, in one study, it enabled participants to receive messages with texts, videos, images, or audios. In addition, self-compassion interventions were also delivered through online counselling or video calls ($n = 2$), supplemented by audio files for home practice or the ability to contact the therapist through an open-messenger service (Cheli et al., 2020; Gu et al., 2022). In one study by Barankova and Vađurová (2022), email instructions served as a technological modality to

implement the intervention. Finally, virtual reality was used, mediated in a laboratory with the assistance of researchers ($n = 2$).

In addition to providing technology in a face-to-face setting, as with virtual reality, 80% of the studies reviewed offered interventions as self-help or independent programs ($n = 12$). In three cases, self-help served as an adjunct to other therapies, namely inpatient treatment to improve treatment and medication adherence (Dong et al., 2022), online individual therapy to enable coping after inpatient treatment (Cheli et al., 2020), and once as blended care alongside psychotherapy (Krieger et al., 2019). Mostly self-help was used without any support, in one study guidance or feedback was offered on request (Krieger et al., 2019) and in two studies feedback was given on tasks, by trained nurses (Dong et al., 2022) or the first author (Cândeia & Szentágotai-Táatar, 2018). Another form of provision was individual online counselling (Gu et al., 2022).

Regarding the purpose of the application, eight out of 15 studies provided an intervention to reduce patients' psychopathology, such studies by Shapira and Mongrain (2010) or Falconer et al. (2014). Besides that, promoting self-compassion was intended to build participants' skills ($n = 3$), inter alia, to be able to prevent postpartum depression in women (Guo et al., 2020). Another study used a self-compassion e-Health intervention for the prevention of illness by improving transdiagnostic factors such as self-criticism. In addition, some programs have been used to address coping after inpatient treatment, as well as treatment adherence, as mentioned related to self-help programs.

Table 2*Sample characteristics*

Author(s)	Sample (mental health issue)	Sample size (N)	Gender and mean age
1. Krieger et al. (2019)	Highly self-critical individuals	121	female = 78%; M (age) = 37.7
2. Andersson et al. (2021)	Stressed and self-critical university students	57	female = 68%, diverse = 1.8%, M (age) = 34.3
3. Gu et al. (2022)	Chinese international students who have a high level of self-criticism	32	female = 88%; M (age) = 22.5
4. Falconer et al. (2014)	Highly self-critical females	44	female = 100%; M (age) = 22
5. Guo et al. (2020)	Pregnant women at risk for postpartum depression	354	female = 100%; M (age) = 30.6
6. Shapira and Mongrain (2010)	Moderately distressed sample	1002	female = 82%; M (age) = 34
7. Falconer et al. (2016)	Major depressive disorder (MDD)	15	female = 66%, M (age) = 32
8. Teale Sapach and Carleton (2023)	Social anxiety disorder (SAD)	59	female = 68%, M (age) = 34.3
9. Stevenson et al. (2019)	Individuals with elevated levels of social anxiety trait	119	female = 77%; M (age) = 29

10. Căndea and Szentágotai-Tătar (2018)	Socially anxious individuals	136	female = 88%, M (age) = 21.9
11. Beshai et al. (2020)	Participants reporting heightened depression, anxiety, or stress	456	female = 44%, M (age) = 35.1
12. Cheli et al. (2020)	Brief psychotic disorder (BPD) at risk for a psychotic episode	6	female = 66%; age range = 19-27
13. Dong et al. (2022)	Schizophrenia	n.a.*	n.a.*
14. Barankova and Vad'urová (2022)	People with increased levels of narcissism (non-clinical)	63	female = 70%, M (age) = 32.5
15. Kelly and Waring (2018)	Nontreatment-seeking individuals with typical & atypical anorexia nervosa	40	female = 100%; M (age) = 21.6

Note. SC: Self-Compassion, CG: Control Group, WL: Waitlist; n.a.*: not assessed yet, but planned in study protocol

Table 3*Characteristics of e-health interventions promoting self-compassion*

Paper	Intervention (+ length, intensity)	Self-compassion approach as a basis	Exercises	Type of e- Health	Purpose	Delivery
<i>Psychopathology: Self-criticism (and stress)</i>						
1.	Care as usual (CAU) + internet-based mindfulness- based compassionate living (MBCL) (8 weeks, LI)	MBCL program by Van den Brink and Koster (2015)	Mindfulness exercises, Breathing space with compassion, Loving-kindness meditations (for self, a good friend, a difficult person & all beings), Compassionately dealing with resistance or inner patterns, a compassionate companion, Compassionate breathing, Compassionate letter, gratitude, diaries.	Internet: Computer & Smartphone (+text, audio, dairy function)	Transdiagnostic prevention	Self-help, guidance from a psychologist on request

Paper	Intervention (+ length, intensity)	Self-compassion approach as a basis	Exercise(s)	Type of e- Health	Purpose	Delivery
2.	Smartphone compassion mindset intervention (6 weeks, LI)	Emotion regulation from Gilbert (2010)	Theory, guided meditations, reflective exercises, breathing exercises, practical exercises, Content: compassion, self-compassion, model of affect regulation, compassion mindset, giving compassion to others, gratitude and wisdom	Smartphone	Skills training for psychological health and mental illness (coping)	Self-help
3.	Compassion- focused therapy-based online intervention (4 weeks, MI)	CFT (Gilbert, 2010) MSC (Neff & Germer, 2010)	Cognitive education on 3 emotion regulation systems, finding and validating the inner critical voice, imagery practice, mindfulness meditation, compassion meditation	Online counselling (+audio-files)	Reduce psychopathology	Individual online counselling

Paper	Intervention (+ length, intensity)	Self-compassion approach as a basis	Exercises	Type of e- Health	Purpose	Delivery
4.	Virtual reality in an embodied first-person perspective (self-to-self simulation) (1 session, LI)	CFT (Gilbert, 2010)	1. embodied in an adult avatar: interacting compassionately with a crying child (1. Validating the child's situation, 2. Redirecting the attention of the child to something positive, 3. Motivating to recall a memory of a loved person). 2. embodied in a child avatar: receiving the previously recorded compassionate response (own voice and physical movements)	Virtual reality	Reduce psychopathology	In-laboratory

Paper	Intervention (+ length, intensity)	Self-compassion approach as a basis	Exercises	Type of e- Health	Purpose	Delivery
<i>Psychopathology: Depression</i>						
5.	Internet-based Mindful self- compassion program (MSCP) (6 weeks, LI)	Mindfulness and compassion with self and others/MSCP by Neff and Germer	Different types of exercises with guided instructions	Internet	Promote self- regulatory skills & disorder prevention	Self-help
6.	Daily self- compassion exercise (1 week, HI)	-	Compassionate letter about a distressing event from the day	Website/Inter net	Reduce psychopathology	Self-help

Paper	Intervention (+ length, intensity)	Self-compassion approach as a basis	Exercise(s)	Type of e- Health	Purpose	Delivery
7.	3 virtual reality sessions on embodying self-compassion (3 weeks, LI)	CFT (Gilbert)	Studying compassionate sentences (1. validation, 2. redirecting attention, 3. Recalling a memory of loved one), 1. phase: embodied in adult avatar expressing compassion to child which responds positively 2. phase: embodied in child avatar and reexperience compassionate response from adult (own recorded voice and movements)	Virtual reality	Reduce psychopathology	In-laboratory
<i>Psychopathology: Social anxiety</i>						
8.	Audio-guided self-help course (6 weeks, LI)	MSC program (Neff & Germer, 2013)	Psychoeducation, guided meditations, and practical sessions Content: self-kindness, mindfulness, common humanity; using self-compassion to work with difficult emotions; embracing life and working with positive emotions	Internet (+audio-guides)	Reduce psychopathology	Self-help

Paper	Intervention (+ length, intensity)	Self-compassion approach as a basis	Exercise(s)	Type of e- Health	Purpose	Delivery
9.	Brief online self-compassion intervention (2 weeks, HI)	Evolutionary model by Gilbert (2010)	Rational/education about emotion regulation, Exercise: recall a recent, distressing social situation & write a compassionate letter	Online (Link via e-mail)	Reduce psychopathology	Independent
10.	Self-compassion training (2 weeks, MI)	MSC (Neff, 2012)	Learning about self-compassion Exercise: recall & describe a negative situation from the last 2 days + answer questions on self-kindness, common humanity and mindfulness	Online (Link via e-mail)	Reduce psychopathology	Independent (Feedback and tips if needed)

Paper	Intervention (+ length, intensity)	Self-compassion approach as a basis	Exercise(s)	Type of e- Health	Purpose	Delivery
<i>Psychopathology: Depression, Anxiety and Stress</i>						
11.	Mind-OP intervention (4 weeks, LI)	-	Psychoeducation, meditations, motivational exercises Content: mindfulness, body scan, self-compassion, loving kindness, common humanity, self-kindness, self-compassion break exercise	Online crowdsourcin g platform (+audio- guides)	Reduce psychopathology	Self-help
<i>Psychopathology: Psychosis</i>						
12.	Online Compassion- focused crisis intervention (CFCI) (4 weeks, MI)	CFT (Gilbert, 2014)	1. soothing breathing rhythm & compassionate mindfulness 2. safe compassionate place, compassionate other imagery 3. compassionate self, compassion for difficult emotions 4. self-compassion, compassion for suffering others	Video-call and open- messenger service (+audio- records)	Coping after in- patient treatment	Self-help + individual online CFCI

Paper	Intervention (+ length, intensity)	Self-compassion approach as a basis	Exercise(s)	Type of e- Health	Purpose	Delivery
<i>Psychopathology: Schizophrenia</i>						
13.	WeChat-based self-compassion intervention (3 weeks, HI)	MSC program (Neff & Germer, 2013)	1. reading (self-compassion, stories of being self-kindness to oneself, stories of coping with difficult feelings), 2. meditation (compassionate body scan, loving-kindness meditation, affectionate breathing), 3. self-compassion journal (perspectives of mindfulness/common humanity/kindness or finding own strengths or encouraging oneself to recovery)	Smartphone messages (+text, videos, pictures, audios)	Improve adherence to medical treatment in the hospital (not psychotherapy)	Guided Self-help (reminders & feedback by nurses)

Paper	Intervention (+ length, intensity)	Self-compassion approach as a basis	Exercise(s)	Type of e- Health	Purpose	Delivery
<i>Psychopathology: Narcissism</i>						
14.	Online Emotion focused training for self- compassion and self-protection (EFT-SCP) (2 weeks, HI)	EFT-SP (Halamova, 2018)	14 various exercises: How would you take care of a friend, emotive drawing of a self-critic, practicing saying no, negative feedback practice, memory projection memories, expressing protective anger, self-protective language, memories of compassion, a compassionate letter from a friend, expressing self- compassion, self-compassionate touch/language, self-compassion in everyday life	E-mail instructions	Skills building	Self-help

Paper	Intervention (+ length, intensity)	Self-compassion approach as a basis	Exercise(s)	Type of e- Health	Purpose	Delivery
<i>Psychopathology: Eating Disorder</i>						
15.	Daily self-compassionate letter-writing intervention (2 weeks, HI)	CFT (Gilbert, 2005)	Compassionate letter 1. to someone else, 2. towards oneself	Link to online website (+text & audio-guides)	Reduce psychopathology	Self-help

Note. LI = low intensity, MI = moderate intensity, HI = high intensity

Outcome variables and instruments

All variables and the corresponding instruments that were listed in the papers' method sections are displayed in Tables 4 to 7. The concept of self-compassion was measured in most studies ($n = 13$) and five different instruments were used, with the self-compassion scale by Neff (2003) as the most prominent one ($n = 9$). One study also used its short form (Beshai et al., 2020). Seven studies measured depression which was completed with six different questionnaires, including the Beck Depression Inventory II (BDI; Beck et al., 2009) and the Patient Health Questionnaire – 9 (PHQ-9; Spitzer et al., 2000). Additionally, self-criticism/self-attacking ($n = 6$) and anxiety ($n = 8$), including generalized anxiety disorder or social anxiety, were concepts which were often assessed. Notably, the Depressive Experiences Questionnaire (DEQ-SC; Blatt et al., 1976) was not only used to measure depression but also self-criticism. Some outcomes were measured with related constructs, for example regarding social anxiety, studies assessed fear and avoidance in social interactions, state negative self-evaluation, or fear of negative evaluation.

To evaluate treatments, different measurements assessed outcomes like motivation for treatment, adherence, client satisfaction, negative intervention effects, knowledge and engagement, homework compliance, treatment credibility, and program acceptability (Table 6). On the one hand, a few researchers developed their own questions to assess certain variables, such as negative intervention effects or knowledge (Krieger et al., 2019) and engagement (Beshai et al., 2020). On the other hand, for other variables, existing scales were accessible, for example, the Homework Rating Scale (HRS; Kazantzis et al., 2004) or the Intervention Satisfaction Scale (Campo et al., 2017). Adherence was measured with a scale, the Medication Adherence Rating Scale (MARS; Thompson et al., 2000), or variables like login data, minutes of practice, completed exercises, or the number of written words (Beshai et al., 2020; Krieger et al., 2019; Stevenson et al., 2019). Some studies investigated variables like acceptability (e.g., Guo et al., 2020) or adherence (e.g., Andersson et al., 2021) without mentioning a certain instrument.

Table 4*Outcomes on psychopathology*

Concept	Instrument	Paper(s)
Self-criticism or self-attacking	Depressive Experiences Questionnaire (Blatt et al., 1976)	Shapira and Mongrain (2010)
	Self-Compassion and Self-Criticism Scale (SCCS; see Falconer et al., 2013)	Falconer et al. (2014, 2016)
	Self-criticizing/Attacking and Self-reassuring Scale (FSCRS; Gilbert et al., 2004)	Barankova and Vařurová (2022); Falconer et al. (2014); Krieger et al. (2019)
	- Subscale: The Inadequate Self and the Hated Self	Stevenson et al. (2019)
Stress	Depression Anxiety Stress Scales short form (DASS-21; Lovibond & Lovibond, 1995)	Cheli et al. (2020); Krieger et al. (2019)
	Perceived Stress Scale (PSS-10; Cohen & Williamson, 1988)	Andersson et al. (2021); Beshai et al. (2020)
Parenting stress	Chinese Parenting Stress Index (PSI)	Guo et al. (2020)

Postnatal depression	Edinburgh Postnatal Depression Scale (EPDS; Cox et al.; 1987)	Guo et al. (2020)
Depression	Beck Depression Inventory II (BDI; Beck et al., 2009)	Gu et al. (2022); Guo et al. (2020)
	State-Trait Anxiety Inventory I and II (STAI-T; Spielberger et al., 1983)	Guo et al. (2020)
	Depression Anxiety Stress Scales short form (DASS-21; Lovibond & Lovibond, 1995)	Cheli et al. (2020); Krieger et al. (2019)
	The Patient Health Questionnaire – 9 (PHQ-9; Spitzer et al., 2000)	Beshai et al. (2020); Falconer et al. (2016)
	Self-criticism Scale of the Depressive Experiences Questionnaire (DEQ-SC; Blatt et al., 1976)	Gu et al. (2022)
	Centre for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977)	Shapira and Mongrain (2010)
Anxiety	State-Trait Anxiety Inventory I and II (STAI-T; Spielberger et al., 1983)	Guo et al. (2020)
	- Chinese version (Li & Qian, 1995) of the STAI-T	Gu et al. (2022)
	Depression Anxiety Stress Scales Short form (DASS-21; Lovibond & Lovibond, 1995)	Cheli et al. (2020); Krieger et al. (2019)

Generalized anxiety disorder	Generalized Anxiety Disorder – 7 (GAD-7; Spitzer et al., 2006)	Beshai et al. (2020)
Social anxiety symptoms	Social Interaction Phobia Scale (SIPS; Carleton et al., 2009)	Teale Sapach and Carleton (2023)
	Social Phobia Inventory (SPIN; Connor et al., 2000)	Stevenson et al. (2019)
	Liebowitz Social Anxiety Scale: Self-Report Version (LSAS-SR; Fresco et al. 2001)	Cândeia and Szentágotai-Táatar (2018)
	Brief Fear of Negative Evaluation scale (BFNE; Leary 1983)	Cândeia and Szentágotai-Táatar (2018)
Fear and avoidance in social interactions	Liebowitz Social Anxiety Scale, Self-Report Version (LSAS-SR; Liebowitz, 1987)	Teale Sapach and Carleton (2023)
	Social Phobia Scale (SPS; Mattick & Clarke, 1998)	Stevenson et al. (2019)
	Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998)	Stevenson et al. (2019)
Narcissism	Narcissistic Personality Inventory-16 (NPI-16; Raskin & Terry, 1988)	Barankova and Vaďurová (2022)
Anorexia Nervosa	Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 2008)	Kelly and Waring (2018)
Psychosis symptomatology	Symptom Check-List 90-R (SCL-90-R; Derogatis, 1994)	Cheli et al. (2020)

Psychological problems (well-being, symptoms, functioning and risk)	Clinical outcomes in routine evaluation-outcome measure (CORE-OM; Evans et al., 2000)	Andersson et al. (2021)
---	---	-------------------------

Table 5*Well-being outcomes*

Concept	Instrument	Paper(s)
Self-compassion	Self-Compassion Scale (SCS; Neff, 2003) - A Chinese version of the SCS (Neff, 2003)	Andersson et al. (2021); Căndea and Szentágotai-Tătar (2018); Dong et al. (2022); Gu et al. (2022); Kelly and Waring (2018); Krieger et al. (2019); Teale Sapach and Carleton (2023); Stevenson et al. (2019) Guo et al. (2020)
	Self-Compassion Scale – Short Form (SCS-SF; Raes et al., 2011)	Beshai et al. (2020)
	Sussex-Oxford Compassion Scale for Self (SOCS-S; Gu et al., 2020)	Barankova and Vaďurová (2022)
	Self-Compassion and Self-Criticism Scale (SCCS; see Falconer et al., 2013)	Falconer et al. (2014, 2016)
	Coding self-compassion letters	Stevenson et al. (2019)

Social Self-Compassion	Social Self-Compassion Scale (SSCS; Flett, 2017)	Stevenson et al. (2019)
Compassion for others	Chinese Compassion Scale (CCS; Gu, 2021)	Gu et al. (2022)
Mindfulness	Comprehensive Inventory of Mindfulness Experience (CHIME; Bergomi et al., 2014)	Krieger et al. (2019)
- Dispositional	The Five Facet Mindfulness Questionnaire – 15 (FFMQ-15; Gu et al., 2016)	Beshai et al. (2020)
- State	Toronto Mindfulness Scale (TMS; Lau et al., 2006)	Beshai et al. (2020)
Mindfulness attention awareness	Chinese version of the Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan, 2003)	Guo et al. (2020)
Positive and negative emotions	Positive and Negative Affect Schedule (PANAS; Watson & Clark 1999) - International Positive and Negative Affect Schedule, Short Form (I-PANAS-SF; Thompson, 2007)	Cândea and Szentágotai-Tătar (2018); Falconer et al. (2014)
	Two Forms of Positive Affect Scale (TFPAS)	Falconer et al. (2014)
Self-esteem	German version of the Rosenberg Self-Esteem Scale (RSES; Collani & Herzberg, 2003)	Krieger et al. (2019)
Satisfaction with life	Satisfaction With Life Scale (SWLS; Diener et al., 1985)	Krieger et al. (2019)
Happiness	Steen Happiness Index (Seligman et al., 2005)	Shapira and Mongrain (2010)

Social support	Social Support Rating Scale (SSRS; Xiao & Yang, 1987)	Dong et al. (2022)
Maternal well-being	Chinese version of the Well-Being Index World Health Organization Five (WHO-5; Hajos et al., 2013)	Guo et al. (2020)

Table 6

Secondary outcomes (possible moderators, mediators)

Concept	Instrument	Paper(s)
Shame proneness	Test of Self-Conscious Affect-3 (TOSCA-3; Tangney et al. 2000)	Cândeia and Szentágotai-Táatar (2018)
Shame		
- Existential	Subscale of the Shame Assessment Scale for Multifarious Expressions of Shame (SHAME; Scheel et al., 2014)	Krieger et al. (2019)
- State	Personal Feelings Questionnaire-2 (PFQ-2; Harder & Zalma 1990)	Cândeia and Szentágotai-Táatar (2018)
	Experience of Shame Scale (ESS; Andrews et al., 2002)	Kelly and Waring (2018)
External shame	Other as Shamer Scale (OAS, Goss et al., 1994)	Kelly and Waring (2018)
	Chinses version of the OAS (Yang et al., 2019)	Gu et al. (2022)

Fear of self-compassion	Fear of Compassion Scale (FCS; Gilbert et al., 2011)	Kelly and Waring (2018); Krieger et al. (2019); Teale Sapach and Carleton (2023); Stevenson et al. (2019)
Activation of the soothing system	Safe Positive Affect subscale of the Types of Positive Affect Scale (TPAS; Gilbert et al., 2008)	Stevenson et al. (2019)
	Social Safeness and Pleasure Scale (SSPS; Gilbert et al., 2009)	Stevenson et al. (2019)
Emotion awareness	Toronto Alexithymia Scale (TAS-20; Parker et al., 2003)	Andersson et al. (2021)
Perceived likelihood of negative social events and the perceived consequences	Event Probability and Cost Questionnaire (EPCQ; Rapee et al., 2009)	Stevenson et al. (2019)
State Negative Self-Evaluations	Automatic Thoughts Questionnaire Short Version (ATQ; Netemeyer et al. 2002)	Cândeia and Szentágotai-Táatar (2018)
Fear of negative evaluation	Brief Fear of Negative Evaluation Scale (BFNE-S; Weeks et al., 2005)	Teale Sapach and Carleton (2023)
Fear of positive evaluation	Fear of Positive Evaluation Scale (FPES; Weeks et al., 2008)	Teale Sapach and Carleton (2023)

Stigma (socialization, competence, therapy)	Stigma Assessment Scale for mental illness (Zeng et al., 2009)	Dong et al. (2022)
Irrational/Rational beliefs	The Attitude and Beliefs Scale II (ABS-II; DiGiuseppe et al., 1988)	Cândea and Szentágotai-Táatar (2018)
Dispositional non-attachment	The Nonattachment Scale – Short Form (NAS-SF; Chio et al., 2018)	Beshai et al. (2020)
Maternal warmth and negativity towards the baby	Comprehensive Parenting Behavior Questionnaire 1-year Chinese version	Guo et al. (2020)
Infant temperament	Chinese version of Infant Behavior Questionnaire (Putnam et al., 2014)	Guo et al. (2020)

Table 7*Measures for treatment evaluation*

Motivation for treatment	Autonomous and Controlled Motivation for Treatment Questionnaire (ACMTQ; Zuroff et al., 2007)	Kelly and Waring (2018)
	Readiness Ruler (adapted from Miller & Rollnick, 2002)	Kelly and Waring (2018)
Adherence	The Medication Adherence Rating Scale (MARS; Thompson et al., 2000)	Dong et al. (2022)
	Login data	Krieger et al. (2019)

	Minutes of practice	Beshai et al. (2020); Krieger et al. (2019)
	Variables (completed exercises, minutes of practice, number of written words)	Stevenson et al. (2019)
Client satisfaction	Adapted version of the German Client Satisfaction Questionnaire (ZUF-8; Schmidt et al., 1989)	Krieger et al. (2019)
Negative intervention effects	Two questions (“Did working with the self-help program lead to an aggravation of symptoms you have had before?”; “Did working with the self-help program lead to new psychological complaints that you have not experienced before?”)	Krieger et al. (2019)
Knowledge/Engagement	Two multiple choice or true and false knowledge questions (e.g.: “Which of the following is NOT a quality of mindful attention?”)	Beshai et al. (2020)
Homework compliance	Homework Rating Scale (HRS; Kazantzis et al., 2004)	Teale Sapach and Carleton (2023)
Virtual reality experience	Virtual Reality Experience Questionnaire	Falconer et al. (2014, 2016)
Treatment credibility	Credibility Expectancy Questionnaire (CEQ; Devilly & Borkovec, 2000)	Kelly and Waring (2018); Stevenson et al. (2019)
Program feasibility	Enrolment, recruitment and retention rate	Dong et al. (2022)

Acceptability	Intervention Satisfaction Scale (Campo et al., 2017)	Dong et al. (2022)
	Rating (1-10)	Beshai et al. (2020)

Feasibility and acceptability

Table 8 shows the results of the treatment evaluations, which were assessed with different variables in 12 of the 15 studies examined, to these belong objective factors such as adherence and dropout, but also participants' subjective ratings of acceptability and credibility.

Regarding objective evaluations, it was shown that the number of participants who dropped out differed between studies, as some indicated no dropout ($n = 2$) in the intervention group while others noted dropouts ($n = 4$), ranging between 3.8% and 70%. Most studies found that more participants dropped out in the control groups that practiced, amongst others, online cognitive reappraisal or applied relaxation, such as in the studies by Căndea and Szentágotai-Tătar (2018) or Teale Sapach and Carleton (2023). Interestingly, both studies found that the fewest participants dropped out when the self-compassion course was offered to participants who had previously been on the waiting list. When a self-help program on self-compassion was combined with traditional psychotherapy, the dropout rate was significantly higher (21.7%) than when participants pursued psychotherapy alone (1.6%). Nevertheless, the majority of the remaining participants were found to complete the tasks frequently, 4-6 times per week over a period of 8 weeks.

Comparing participants' investment in a smartphone compassion intervention and a mindfulness app, slight discrepancies were noted. Specifically, 25% of participants used the self-compassion intervention every other day and 30% used it twice a week, whereas the mindfulness app was used by 26% of participants every other day, but only 10% of participants completed it twice a week (Andersson et al., 2021). Greater discrepancies were observed when compared to cognitive restructuring and applied relaxation. Although adherence was higher for the e-health interventions promoting self-compassion, the investment of the participants was lower than in the control conditions. First, the intervention group wrote less, spent less time on the exercises, and completed fewer assessments, and their subjective feedback entailed rating the treatment as less credible. Second, the self-compassion intervention was practiced on fewer days, and participants had slightly lower homework compliance scores, but they spent more minutes practicing each week and their subjective ratings indicated that the majority benefited somewhat from it ($n = 11/17$) and continued to practice it over the following three months ($n = 12/17$).

Regarding subjective ratings of participants, varying results were indicated, which overall can be viewed as a moderately to highly positive attitude towards the self-compassion e-Health interventions. High acceptability was assessed in two studies, namely on the

Internet-based mindful self-compassion (MSCP) program and the Mind-OP intervention, with the latter being acceptable as a whole program, but also the modules themselves. One self-help program, called MBCL, was found to be somewhat to very satisfactory by most participants and some individuals experienced negative effects, such as increases in symptoms, new complaints, or feelings of sadness and anxiety (Krieger et al., 2019). In another study, moderate emotionality and comfortability were experienced during the daily writing of self-compassionate letters, which was expressed as feeling moved and overwhelmed (Kelly & Waring, 2018). In addition, virtual reality experiences were rated as positive, and depressed subjects perceived the self-compassion scenario similarly to healthy controls (Falconer et al., 2016). The two studies who provided online individual therapy have not assessed feedback of clients. Nevertheless, one evaluated the therapeutic alliance in which most participants (4/6) reported a stable alliance throughout the treatment and two participants felt that the alliance with the therapist increased over time (Cheli et al., 2020).

Table 8*Treatment evaluations*

Paper	Objective evaluation	Subjective evaluation of participant
1.	<p>Dropout</p> <ul style="list-style-type: none"> - Overall N = 14/122 participants (11.6%) - Intervention group (CAU + online self-compassion intervention) n = 13/60 (21.7%) - CAU n = 1/62 (1.6%) <p>→ Significant difference</p> <p>Adherence</p> <ul style="list-style-type: none"> - Daily: 6 P. (8.9%) - 4–6 times a week: 13 P. (28.9%) - 2–3 times a week: 12 P. (26.7%) - Once a week: 9 P. (20%) - Less than once a week: 7 P. (15.5%) <p>Program usage</p> <ul style="list-style-type: none"> - Intervention group: the average completed 4.46 (from 7) modules, spent 418 minutes in the program, filled in 18.5 exercises and 6.9 diary entries. 	<p>Client satisfaction</p> <ul style="list-style-type: none"> - Participants in the intervention group reported a high level of satisfaction with the self-help program - Average = 3.25 (between “somewhat satisfied” (3) and “very satisfied” (4)) <p>Negative effects</p> <ul style="list-style-type: none"> - 3 reported aggravations of symptoms - 3 reported new psychopathological complaints - 2 felt transient anxiety, sadness and emotional instability - one reported to become feeling lonier - others felt more impatient and experienced rushes through meditation (transient) - one started to miss appointments

2.	Adherence	n.a.
	<ul style="list-style-type: none"> - Compassion Mindset Intervention: 25% were using the application every other day and 30% two times a week. <ul style="list-style-type: none"> ➔ considerable variation between participants - Mindfulness App (Control): 26% were using the application every other day and 10% two times a week 	
3.	Dropout	n.a.
	<ul style="list-style-type: none"> - CFI group n = 0/10 (0%) - Rational Emotive Behaviour Therapy (REBT) group n = 2/10 (20%) - Waitlist n = 0/12 (0%) 	
4.	n.a.	n.a.
5.	Dropout (until T1 assessment)	Acceptability/satisfaction (rated by 95% of P.): high
	<ul style="list-style-type: none"> - MBSP n = 6/157 (3.8%) - Control group n = 8/157 (5.1%) ➔ Feasible <p>Attendance</p> <ul style="list-style-type: none"> - Overall N = 325/354 (91.8%) 	
6.	Dropout	n.a.
	<ul style="list-style-type: none"> - Overall N = 799/1002 (79.7%) 	

7.	n.a.	<p>Overall experience: positive</p> <p>Experience with VR: patients' initial perception of the immersive virtual reality self-compassion scenario was very similar to that of healthy volunteers (studied previously)</p>
<hr/>		
8.	<p>Dropout</p> <ul style="list-style-type: none"> - Intervention group n = 19/40 (47.5%) - Applied Relaxation (Control) group n = 15/21 (71.4%) - Intervention after waitlist n = 8/19 (42.11%) <p>Adherence</p> <ul style="list-style-type: none"> - Compared to applied relaxation condition, P. in the self-compassion condition took more weeks to complete the program, practiced fewer days, showed slightly lower scores on homework compliance, but spend more minutes practicing each week <p>Completion</p> <ul style="list-style-type: none"> - 71% P. completed all six modules in 6 weeks, and 29% extended the completion due to specific reasons. <ul style="list-style-type: none"> ➔ both self-help programs were acceptable to participants ➔ the self-compassion training appeared to be practiced in longer intervals over fewer days 	<p>Perspective on benefits and enjoyment (n=17)</p> <ul style="list-style-type: none"> - 2 people benefitted a little, 11 people reported benefitting somewhat and 4 benefitted very much, no one completely. - Regarding SAD symptoms: for 8 people it helped a little, for other 8 people it helped somewhat, and 1 person very much. - 1 person did not enjoy it all, 3 a little, 7 somewhat and 6 very much. - 12 people would recommend it to a friend, 4 maybe, 1 not. - 12 people continued to practice it sometimes and 2 often in following 3 months. ➔ No significant difference to applied relaxation condition assessed.

9.	Adherence	Credibility
	<ul style="list-style-type: none"> - Compared to cognitive restructuring (control group): Self-compassion intervention group wrote less and spend less time on exercises & completed less assessments (when dropouts included) 	<ul style="list-style-type: none"> - Compared to cognitive restructuring (control group): Self-compassion intervention group judged treatment as less credible
10.	Dropout	n.a.
	<ul style="list-style-type: none"> - Overall n = 36/136 (26.5%) - Self-compassion group n = 8/42 (19.05%) - Cognitive reappraisal group n = 22/51 (43.14%) - Waitlist: 6/43 (13.95%) 	
11.	Dropout	Acceptability
	<ul style="list-style-type: none"> - Intervention group n = 159/227 (70%) - Control group n = 138/229 (60%) 	<ul style="list-style-type: none"> - Module ratings: 7.91-8.24 (10 = excellent) - Whole program rating: 8.23 (10= excellent)
	Adherence	
	<ul style="list-style-type: none"> - Intervention group n = 68/227 (30%) 	
12.	No dropout	Therapeutic alliance
	No acute psychotic episode, cancellation of a session, or interruption of pharmacological treatment.	<ul style="list-style-type: none"> - 4/6 reported a stable alliance from before treatment to after treatment - 2 reported increased alliance

13.	(planned in protocol)	n.a.
14.	n.a.	n.a.
15.	Adherence	Credibility
	- Intervention group n = 20/21 (95%)	- Average = 71.7%
	Completion	Expectations
	- All P. completed over 75% of daily letters.	- The average participant expected that it reduces eating and body-related distress by 51.7%.
		Comfortability with completing intervention
		- Moderate (M = 4.13/7)
		Emotionality while performing intervention
		- Moderate (e.g., moved and overwhelmed) (M = 4.87/7)

Note. n.a. = not assessed; CAU = care as usual

Discussion

The purpose of this review was to explore the scope and nature of the existing literature on e-health interventions that aim to promote self-compassion, and how these are used for adults with mental health problems. Next to looking at simple interventions, the current study also included complex interventions, meaning those that were based on approaches on self-compassion, and thereby enabling an extension of the scoping review by van Lotringen et al. (2023). To this end, the review was guided by four research questions to be answered.

Summary of evidence

How can samples be characterized in terms of their mental disorders or symptoms, age, and gender?

The findings show that e-Health interventions promoting self-compassion are mostly tailored to patients presenting high levels of self-criticism, depression, or different forms of anxiety. Besides one study including a heterogeneous sample with participants suffering from depression, anxiety, and stress (Beshai et al., 2020), mostly one specific disorder was the focus of studies. It was noticeable that the samples were relatively young, averaging between 21 and 37 years of age, and that predominantly women (78%) were recruited. Three studies even examined only women with self-criticism, anorexia nervosa, and a risk for developing postpartum depression.

What was previously known about the scope of the samples with mental health problems was outlined by van Lotringen et al. (2023). In addition to reviewing studies with participants who wanted to lose weight or were dissatisfied with their bodies, they identified five studies that focused on target groups suffering from MDD or increased levels of self-criticism, and a risk for paranoia or postpartum depression. The current investigation yields additional target groups in e-health intervention research who do not have mildly elevated levels of a disorder but have subclinical symptoms or have received a diagnosis of a disorder.

When combining these findings, it becomes apparent that a broad spectrum of diseases has been studied. Thus, it can be assumed that the former assumptions about the relevance of self-compassion as a target for transdiagnostic interventions can be supported (Krieger et al., 2019). Because low levels of self-compassion are associated with several mental disorders (Krieger et al., 2019), different types of patients tend to not demonstrate the ability to be kind to themselves and accept their own condition but are more prone to self-criticism (Finley-Jones, 2017), leading them to experience shame and feelings of being flawed or undesirable to others (Waite et al., 2015). For example, people who suffer from anxiety or depression have

the trait of appraising neutral or negative events as having negative implications for their sense of self. In turn, they show higher levels of threat-based negative affect, such as fear and shame, and a lack of control over their emotions (Finley-Jones, 2017). Likewise, people with psychosis who face social stigma due to their illness-related behaviors often experience external and internal shame. This means that they are confronted with negative evaluations not only from others, but also from themselves, resulting in having negative self-esteem (Waite et al., 2015). Following from this, self-criticism and shame can be assumed to be common factors among several patient groups reviewed, making the enhancement of self-compassion as a counterpart to self-criticism a relevant topic to be further investigated.

However, other patient populations who also have psychopathology associated with emotions such as fear and internal shame, such as individuals with PTSD who have experienced violent crime, are overlooked in the testing of e-health interventions to promote self-compassion. For them, promising results have already been noted when using compassionate therapy in a face-to-face setting (Iron & Lad, 2017; Winders et al., 2020). Thus, they could benefit from promoting self-compassion online, which helps them break the cycle of self-criticism and feelings of inferiority or inadequacy (Irons & Lad, 2017). Subsequently, further consideration should be given to which patients would benefit most from e-health interventions to promote self-compassion, as no conclusions about effectiveness can be drawn from this scoping review.

Another conspicuity was that women were mainly studied. This observation has also been made by a study on self-guided Internet-based CBT for depressive symptoms on a large sample with 66% females (Karyotaki et al., 2017), and the review by Austin et al. (2021) on online self-compassion intervention for participants with physical health issues noted that approximately 70% were women. Multiple explanations for such findings exist. First, women may be more sampled because they tend to suffer more often from the disorders studied, such as depression and anxiety (MacBeth & Gumley, 2012). This can also be seen in three studies in this review that examined only women with self-criticism, postpartum depression, and eating disorders, which are mental disorders that typically occur in women (Afifi, 2007). Second, with special regard to self-compassion interventions, women may have higher motivation to follow treatments to improve their mental health and address their needs. More specifically, although research on gender differences in self-compassion is still inconsistent, one meta-analysis sought to clarify this and examined that men had slightly higher levels of self-compassion than women (Yarnell et al., 2014). This suggests that women are more self-critical of themselves or tend to prioritize the needs of others due to their perceptions of

gender roles (Yarnell et al., 2014), and therefore may be more willing to participate in self-compassion interventions to counteract this.

Another issue to consider is older adults' attitudes toward e-health services to promote self-compassion, due to the young research sample found in this study. Older adults may be more reluctant to use technology for a variety of reasons, including not owning a device, technological barriers such as lack of Wi-Fi, or fear of invasion of privacy. It has been shown that the prevalence of mental disorders among older adults should not be underestimated, as one in three suffered from a mental disorder within the past year, and nearly one in four had a mental disorder at the time of the study (Andreas et al., 2017). They most commonly suffer from anxiety disorders, as well as affective and substance use disorders (Andreas et al., 2017). Knowing their attitudes would help tailor e-health interventions on self-compassion to specific age groups, meeting the needs of all generations so that older people can also take advantage of online interventions.

What are characteristics of e-Health interventions dealing with self-compassion that are used in mental health care?

Regarding the second research question, it became clear that there was not one standard eHealth intervention that was simply provided to different samples; rather, researchers developed many individual programs that varied in length and intensity. Inventors based their treatment protocols on one of four different approaches to self-compassion, with CFT and MSC as the most prominent ones. Despite that, many studies used similar self-compassion exercises such as meditations, self-compassion letters, or journaling, as well as psychoeducational material. Most e-Health interventions were aimed to reduce participants' psychopathological symptoms, and some to build skills or prevent a disease. To this end, researchers were turning primarily to self-help programs, which were also used in combination with medical in-patient treatment (Dong et al., 2022), online individual counseling (Cheli et al., 2020), or psychotherapy as blended care (Krieger et al., 2019). Although patients followed these independently, guidance could be provided on request for which different disciplines like trained nurses, psychologists or researchers were integrated. More than half of the studies used the Internet and websites accessible on computers or smartphones to deliver the interventions, while fewer delivered them through smartphone messages, online counselling, or virtual reality.

Existing literature provided similar findings. For the workforce, e-Health interventions on self-compassion and mindfulness gave instructions on psychoeducational or informational content about the specific topic, meditation exercises and capsules, but also have included

other types of exercises like discussion boards or journals (Begin et al., 2022). Self-compassion exercises that were used to prevent eating disorders in emerging adults (18-25 years) included a meditation podcast and an online writing exercise (Pelligrini et al., 2022), which were not established in the currently reviewed studies.

Regarding the types of technology used, other studies examining different populations, such as workers (Begin et al., 2022) and patients with chronic physical illnesses (Austin et al., 2021), also found that web-based interventions are frequently employed to promote self-compassion. Strikingly, previous investigations on adults with mental health issues by van Lotringen et al. (2023) revealed that solely VR was used to deliver self-compassion exercises. However, their review did not encompass digitally implemented compassion-focused approaches. When included, as was done in the current study, additional information regarding the technologies employed to administer self-compassion interventions can be uncovered. The complexity of the interventions seems to be a determining factor in the choice of technology. Notably, simpler self-compassion exercises involving repeated practice were often delivered through VR, as demonstrated by Falconer et al. (2014; 2016), which aligns with the findings of van Lotringen et al. (2023). Conversely, a noteworthy discovery is that interventions incorporating variations of tasks rooted in CFT or MSC were implemented using technologies such as websites, email (Barankova & Vaďurová, 2022), or smartphone messages (Dong et al., 2022).

In general, the utilization of VR to enhance self-compassion has been limited. The current study indicates that VR applications for psychopathology have only been examined in two studies, involving individuals with MDD and subclinical levels of self-criticism (Falconer et al., 2014; 2016), which were also corroborated by van Lotringen et al. (2023). Besides that, they identified two additional studies, but these focused on individuals with occasional paranoid thoughts rather than formal diagnoses (Ascone et al., 2020; Brown et al., 2020). The majority of research investigating the use of VR to enhance self-compassion was conducted in non-clinical samples, comprising six studies. One study was found that utilized the Compassion-Mind Training (CMT) program to provide support to individuals undergoing cancer treatment (Žilinský & Halamová, 2023).

Despite the limited integration of VR into e-health interventions aimed at promoting self-compassion, especially for patients with mental health problems, it is remarkable that diverse scenarios have been developed. For example, participants have been immersed in the perspective of a child or an adult (Falconer et al., 2014; 2016), embarked on simulated astronaut missions to the moon, or engaged in tasks involving the observation of people,

avatars, objects, or nature (Žilinský & Halamová, 2023). Consequently, VR offers a wide range of possibilities for designing self-compassion interventions and is anticipated to become more affordable (Žilinský & Halamová, 2023), making it increasingly appealing for implementation beyond the confines of a laboratory setting.

In summary, these findings suggest that e-health self-compassion interventions are not equivalent. Depending on how much time is available, what patients expect from their interventions, or what technical skills are present, it is possible to select a particular intervention or set of exercises that will help patients addressing their specific needs.

Which psychological health factors or other outcomes were measured, and which instruments were used?

Generally, a variety of outcomes have been assessed, such as emotion awareness, mindfulness, self-esteem, happiness, and so forth, alongside patient symptomatology, including depression, anxiety, or anorexia nervosa. For measuring self-compassion, Neff's (2003) Self-Compassion Scale (SCS) was found to be the most commonly used instrument. It should be noted that despite studies showing good internal consistency, predictive validity, convergent validity, discriminant validity, and test-retest reliability (Neff, 2016), the factor structure of the SCS is the subject of ongoing controversy. The short form of the SCS, which has been used by Beshia et al. (2020), appears to be an effective and efficient alternative to the full SCS in settings where it is helpful to save time and money (Raes et al., 2011). Other questionnaires used include the Sussex-Oxford Compassion Scale (SOCS-S; Gu et al., 2020) and the Self-Compassion and Self-Criticism Scale (SCCS; see Falconer et al., 2013). Generally, research has not yet agreed on a standard measurement for self-compassion (Rakhimov et al., 2023).

It was striking that there is much variability in measuring and reporting adherence and dropout. In some studies, adherence was measured as the percentage of individuals who completed the program; in other studies, the number of sessions completed was summarized or usage was described. Similar discrepancies have been found in studies of online mindfulness interventions (Winter et al., 2022), and this appears to be a general problem with e-health interventions (Donkin et al., 2011). By implication, it is difficult to compare outcomes on how adherence relates to outcomes. Specifically, factors such as time spent on the exercises may be influenced by processing speed, cognitive or reading ability (Donkin et al., 2011). Furthermore, if participants are not trained in the use of the technology, they may encounter difficulties that affect, for example, the number of words written or exercises completed, thereby moderating the effects on adherence. It has been suggested that

researchers should clearly define their adherence variables (Donkin et al., 2011) or agree on one instrument.

How is the feasibility of the eHealth interventions? How do participants evaluate the treatments?

Given the abovementioned issues, the results on adherence and dropout rates should be evaluated with caution, especially because no review to date has examined the value of implementing e-health interventions on self-compassion for people with mental disorders. Study results suggest that dropout rates and treatment adherence differ between different types of self-compassion interventions. A tendency was noted for more participants to drop out of the control interventions than the e-health interventions on self-compassion. Nevertheless, adherence of the remaining participants was not always better than that of participants who participated in cognitive reappraisal, REBT, or applied relaxation. Therefore, e-Health interventions to promote self-compassion are feasible and acceptable, but feasibility is not significantly different from the compared interventions. With respect to satisfaction, participants rated self-help interventions as very acceptable and somewhat to very satisfactory, and video calls enabled the development of a stable therapeutic alliance in most participants with BPD, and an increasing therapeutic alliance in some (Cheli et al., 2020).

Maintaining participant engagement is an issue mentioned in the context of various online programs and apps (Mrazek et al., 2019) and was previously cited as a challenge in a review of online mindfulness and self-compassion interventions for workers by Begin et al. (2022). They suggested that the use of reminders and notifications could address high attrition without investigating this further. Only one study in the current review created an intervention protocol in which participants would receive regular reminders from nurses, but it has not yet been tested and cannot provide clarification. However, based on comparisons of dropout rates across studies, it can be highlighted that adherence is influenced by the level of guidance provided during treatment, particularly the mandatory presence of a psychologist or assistant. Four studies with dropout rates greater than 20% used self-help interventions, whereas studies with online counselling or video calls with a therapist had no or low (3.9%) dropout rates. However, when feedback on demand was offered in the self-help programs, dropout rates were still 19% and 21%. This issue seems particularly important because adherence to online programs may be even lower in the real world (Fleming et al., 2018). One study found that ongoing use of digital self-help interventions in the real world ranged from less than 1% to more than 28% of users with depression, low mood, or anxiety, while a systematic review of

adherence to controlled trials for the same patient groups found rates ranging from 43% to 99% (Fleming et al., 2018).

In summary, although online self-help programs on self-compassion are enjoyed by participants, it is questionable how likely they are to adhere to the intervention, as adherence was generally lower than for guided interventions. Therefore, special attention needs to be paid to the role of guidance or regular reminders when developing e-health interventions to promote self-compassion, and research should uncover other factors that influence adherence to motivate participants, especially when made public.

Limitations

This review has several limitations. Although the eligibility criteria were clearly defined and served as a clear guideline, much attention had to be put on the wording of studies when, for example, they described the degree of symptoms in the sample as clinical, subclinical, or healthy. A second limitation is that because the goal of a scoping review is to assess a broad area, a quality assessment was not conducted. Third, problems arose in the analysis of e-health interventions because there are different synonyms for some aspects in this research area, such as online or web-based or unguided and self-directed. That is, it is not clearly defined what the difference between the terms is, which makes categorization or comparison difficult.

Directions for future research

Having an overview of the scope of the available e-Health interventions and samples, it is now possible to compare different treatments for a given patient group. Systematic reviews or meta-analyses should determine how effectively e-health interventions on self-compassion can improve psychological outcomes and which mental disorders benefit most. Besides that, based on the finding that e-health interventions on self-compassion are not equivalent due to the variability of exercises, it might be useful to compare the effectiveness of different exercises such as compassionate letters or meditations. In this context, further emphasis should be placed on how factors such as duration of treatment, gender differences among participants, and guidance vs. non-guidance influence treatment outcomes. A next step could be to investigate how therapists can effectively participate in e-health interventions to increase participants' engagement and satisfaction. To be able to do these investigations adequately, future research should aim to clarify the psychometric properties of the SCS and compare it to other alternative measures that are slowly receiving more attention.

Research gaps identified through this review are that some available self-compassion approaches such as cognitively based compassion training or attachment-based compassion

therapy have not yet been tested in an online setting, which can be a possible aim. Further, one topic that was not included in the current review was health conditions such as obesity or related self-perceptions such as body image and weight stigma. During the literature search, it was apparent that a variety of papers examined e-health interventions on self-compassion for such variables. However, as this was beyond the scope of the current study, being mental health conditions, and the effort of a master's thesis, it was not possible to investigate further, but subsequent research may do so.

Conclusion

From the 15 studies reviewed, it became apparent that e-health interventions on self-compassion are mainly tested on relatively young to middle-aged samples composed mainly of women suffering from various mental disorders, and most interventions are delivered as self-help programs, via the Internet, and with the common goal of alleviating psychopathology, which was measured with various instruments. Assessments yielded contrasting results in dropout and adherence rates, and despite some negative effects on symptoms and emotions, participants perceived moderate satisfaction and mostly accepted the interventions. Further elaboration on efficacy could pave the way for transdiagnostic e-health interventions that promote self-compassion and enable accessible and cost-effective options for various treatment goals that can be offered by psychologist or pursued independently by individuals.

References

(References included as part of the review are marked with an asterisk)

- Afifi, M. (2007). Gender differences in mental health. *Singapore Medical Journal*, 48(5), 385.
- Andreas, S., Schulz, H., Volkert, J., Dehoust, M., Sehner, S., Suling, A., Ausín, B., Canuto, A., Crawford, M., Da Ronch, C., Grassi, L., HersHKovitz, Y., Muñoz, M., Quirk, A., Rotenstein, O., Belén Santos-Olmo, A., Shalev, A., Strehle, J., Weber, K., ... Härter, M. (2017). Prevalence of mental disorders in elderly people: The European MentDis_ICF65+ study. *The British Journal of Psychiatry*, 210(2), 125–131.
<https://doi.org/10.1192/bjp.bp.115.180463>
- *Andersson, C., Bergsten, K. L., Lilliengren, P., Norbäck, K., Rask, K., Einhorn, S., & Osika, W. (2021). The effectiveness of smartphone compassion training on stress among Swedish university students: A pilot randomized trial. *Journal of Clinical Psychology*, 77(4), 927–945. <https://doi.org/10.1002/jclp.23092>
- Andersson, G., & Titov, N. (2014). Advantages and limitations of internet-based interventions for common mental disorders. *World Psychiatry*, 13(1), 4–11.
<https://doi.org/10.1002/wps.20083>
- Ascone, L., Ney, K., Mostajeran, F., Steinicke, F., Moritz, S., Gallinat, J., & Kühn, S. (2020). Virtual reality for individuals with occasional paranoid thoughts. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems* (pp. 1-8). <https://doi.org/10.1145/3334480.3382918>
- Austin, J., Drossaert, C. H. C., Schroevers, M. J., Sanderman, R., Kirby, J. N., & Bohlmeijer, E. T. (2021). Compassion-based interventions for people with long-term physical conditions: A mixed methods systematic review. *Psychology & Health*, 36(1), 16–42.
<https://doi.org/10.1080/08870446.2019.1699090>
- *Baránková, M., & Vad'urová, K. (2022). Effectiveness of emotion focused training for self-compassion and self-protection in individuals with increased narcissism. *Journal of Evidence-Based Psychotherapies*, 22(1), 169–182.
<https://doi.org/10.24193/jebp.2022.1.9>
- Beaumont, E., & Hollins Martin, C. J. (2015). A narrative review exploring the effectiveness of compassion-focused therapy. *Counselling Psychology Review*, 30(1), 21–32.
- Bégin, C., Berthod, J., Martinez, L. Z., & Truchon, M. (2022). Use of mobile apps and online programs of mindfulness and self-compassion training in workers: A scoping review. *Journal of Technology in Behavioral Science*, 7(4), 477–515.
<https://doi.org/10.1007/s41347-022-00267-1>

- *Beshai, S., Bueno, C., Yu, M., Feeney, J. R., & Pitariu, A. (2020). Examining the effectiveness of an online program to cultivate mindfulness and self-compassion skills (mind-op): Randomized controlled trial on Amazon's Mechanical Turk. *Behaviour Research and Therapy*, *134*, Article e103724.
<https://doi.org/10.1016/j.brat.2020.103724>
- Beshai, S., Mishra, S., Mishra, S., & Carleton, R. N. (2017). Personal relative deprivation associated with functional disorders via stress: An examination of fibromyalgia and gastrointestinal symptoms. *PLoS ONE*, *12*(12), Article e0189666.
<https://doi.org/10.1371/journal.pone.0189666>
- Brenner, R. E., Heath, P. J., Vogel, D. L., & Credé, M. (2017). Two is more valid than one: Examining the factor structure of the self-compassion scale (SCS). *Journal of Counseling Psychology*, *64*(6), 696–707. <http://dx.doi.org/10.1037/cou0000211>
- Brown, P., Waite, F., Rovira, A., Nickless, A., & Freeman, D. (2020). Virtual reality clinical-experimental tests of compassion treatment techniques to reduce paranoia. *Sci Rep* *10*(1), Article e8547. <https://doi.org/10.1038/s41598-020-64957-7>
- *Cândeia, D. M., & Szentágotai-Tătar, A. (2018). The impact of self-compassion on shame-proneness in social anxiety. *Mindfulness*, *9*, 1816–1824.
<https://doi.org/10.1007/s12671-018-0924-1>
- Carvalho, S. A., & Guiomar, R. (2022). Self-compassion and mental health in sexual and gender minority people: A systematic review and meta-analysis. *LGBT Health*, *9*(5), 287–302. <https://doi-org.ezproxy2.utwente.nl/10.1089/lgbt.2021.0434>
- *Cheli, S., Cavalletti, V., & Petrocchi, N. (2020). An online compassion-focused crisis intervention during COVID-19 lockdown: A cases series on patients at high risk for psychosis. *Psychosis*, *12*(4), 359–362.
<https://doi.org/10.1080/17522439.2020.1786148>
- Craig, C., Hiskey, S., & Spector, A. (2020). Compassion focused therapy: A systematic review of its effectiveness and acceptability in clinical populations. *Expert Review of Neurotherapeutics*, *20*(4), 385–400. <https://doi.org/10.1080/14737175.2020.1746184>
- *Dong, D., Mu, T. Y., Xu, J. Y., Dai, J. N., Zhou, Z. N., Zhang, Q. Z., & Shen, C. Z. (2022). A wechat-based self-compassion training to improve the treatment adherence of patients with schizophrenia in China: Protocol for a randomized controlled trial. *Frontiers in Psychology*, *13*, Article e931802.
<https://doi.org/10.3389/fpsyg.2022.931802>

- Donkin, L., Christensen, H., Naismith, S. L., Neal, B., Hickie, I. B., & Glozier, N. (2011). A systematic review of the impact of adherence on the effectiveness of e-therapies. *Journal of Medical Internet Research*, *13*(3), Article e52. <https://www.jmir.org/2011/3/e52/>
- Dozois, D. J. A., Seeds, P. M., & Collins, K. A. (2009). Transdiagnostic approaches to the prevention of depression and anxiety. *Journal of Cognitive Psychotherapy*, *23*(1), 44–59. <https://doi.org/10.1891/0889-8391.23.1.44>
- Eysenbach, G. (2001). What is e-health? *Journal of Medical Internet Research*, *3*(2), Article e833. <https://doi.org/10.2196/jmir.3.2.e20>
- Fairburn, C. G., & Patel, V. (2017). The impact of digital technology on psychological treatments and their dissemination. *Behaviour Research and Therapy*, *88*, 19–25. <https://doi.org/10.1016/j.brat.2016.08.012>
- *Falconer, C. J., Rovira, A., King, J. A., Gilbert, P., Antley, A., Fearon, P., Ralph, N., Slater, M., & Brewin, C. R. (2016). Embodying self-compassion within virtual reality and its effects on patients with depression. *BJPsych Open*, *2*(1), 74–80. <https://doi.org/10.1192/bjpo.bp.115.002147>
- *Falconer, C. J., Slater, M., Rovira, A., King, J. A., Gilbert, P., Antley, A., & Brewin, C. R. (2014). Embodying compassion: A virtual reality paradigm for overcoming excessive self-criticism. *PLOS ONE*, *9*(11), Article e111933. <https://doi.org/10.1371/journal.pone.0111933>
- Ferrari, M., Hunt, C., Harrysunker, A., Abbott, M. J., Beath, A. P., & Einstein, D. A. (2019). Self-compassion interventions and psychosocial outcomes: A meta-analysis of RCTs. *Mindfulness*, *10*(8), 1455–1473. <https://doi.org/10.1007/s12671-019-01134-6>
- Finlay-Jones, A. L. (2017). The relevance of self-compassion as an intervention target in mood and anxiety disorders: A narrative review based on an emotion regulation framework. *Clinical Psychologist*, *21*(2), 90–103. <https://doi.org/10.1111/cp.12131>
- Fleming, T., Bavin, L., Lucassen, M., Stasiak, K., Hopkins, S., & Merry, S. (2018). Beyond the trial: Systematic review of real-world uptake and engagement with digital self-help interventions for depression, low mood, or anxiety. *Journal of Medical Internet Research*, *20*(6), Article e199. <https://www.jmir.org/2018/6/e199/>
- Germer, C., & Neff, K. (2019). *Teaching the mindful self-compassion program: A guide for professionals*. Guilford Publications.
- Gilbert, P., & Procter, S. (2006). Compassionate mind training for people with high shame and self-criticism: Overview and pilot study of a group therapy approach. *Clinical*

- Psychology & Psychotherapy: An International Journal of Theory & Practice*, 13(6), 353–379. <https://doi.org/10.1002/cpp.507>
- Gilbert, P. (2009). Introducing compassion-focused therapy. *Advances in Psychiatric Treatment*, 15(3), 199–208. <https://doi.org/10.1192/apt.bp.107.005264>
- Gu, J., Baer, R., Cavanagh, K., Kuyken, W., & Strauss, C. (2020). Development and psychometric properties of the sussex-oxford compassion scales (SOCS). *Assessment*, 27(1), 3–20. <https://doi.org/10.1177/10731911198609>
- *Gu, X., Li, S., & Hyun, M. H. (2022). Does compassion-focused therapy-based online intervention work for Chinese international students with high self-criticism? A randomized controlled trial. *SAGE Open*, 12(3), Article e21582440221121596. <https://doi.org/10.1177/2158244022112159>
- Gu, X., Luo, W., Zhao, X., Chen, Y., Zheng, Y., Zhou, J., Zeng, X., Yan, L., Chen, Y., Zhang, X., Lv, J., Lang, Y., Wang, Z., Gao, C., Jiang, Y., & Li, R. (2022). The effects of loving-kindness and compassion meditation on life satisfaction: A systematic review and meta-analysis. *Applied Psychology: Health and Well-Being*, 14(3), 1081–1101. <https://doi.org/10.1111/aphw.12367>
- *Guo, L., Zhang, J., Mu, L., & Ye, Z. (2020). Preventing postpartum depression with mindful self-compassion intervention: A randomized control study. *The Journal of Nervous and Mental Disease*, 208(2), 101–107. <https://doi.org/10.1097/NMD.0000000000001096>
- Hall, C. W., Row, K. A., Wuensch, K. L., & Godley, K. R. (2013). The role of self-compassion in physical and psychological well-being. *The Journal of psychology*, 147(4), 311–323. <https://doi.org/10.1080/00223980.2012.693138>
- Irons, C., & Lad, S. (2017). Using compassion focused therapy to work with shame and self-criticism in complex trauma. *Australian Clinical Psychologist*, 3(1), Article e1743.
- Kariyawasam, L., Ononaiye, M., Irons, C., & Kirby, S. E. (2022). Exploring the cross-cultural applicability of a brief compassionate mind training: A study comparing Sri Lankan and UK people. *Mindfulness*, 14, 429–447. <https://doi.org/10.1007/s12671-022-02041-z>
- Karyotaki, E., Riper, H., Twisk, J., Hoogendoorn, A., Kleiboer, A., Mira, A., Mackinnon, A., Meyer, B., Botella, C., Littlewood, E., Andersson, G., Christensen, H., Klein, J. P., Schröder, J., Bretón-López, J., Scheider, J., Griffiths, K., Farrer, L., Huibers, M. J. H., ... Cuijpers, P. (2017). Efficacy of self-guided internet-based cognitive behavioral

- therapy in the treatment of depressive symptoms: A meta-analysis of individual participant data. *JAMA Psychiatry*, 74(4), 351–359.
<https://doi.org/10.1001/jamapsychiatry.2017.0044>
- *Kelly, A. C., & Waring, S. V. (2018). A feasibility study of a 2-week self-compassionate letter-writing intervention for nontreatment seeking individuals with typical and atypical anorexia nervosa. *International Journal of Eating Disorders*, 51(8), 1005–1009. <https://doi.org/10.1002/eat.22930>
- Koelen, J. A., Vonk, A., Klein, A., de Koning, L., Vonk, P., de Vet, S., & Wiers, R. (2022). Man vs. machine: A meta-analysis on the added value of human support in text-based internet treatments (“e-therapy”) for mental disorders. *Clinical Psychology Review*, 96, Article e102179. <https://doi.org/10.1016/j.cpr.2022.102179>
- Kotera, Y., & Van Gordon, W. (2021). Effects of self-compassion training on work-related well-being: A systematic review. *Frontiers in Psychology*, 12, Article e1142. <https://doi.org/10.3389/fpsyg.2021.630798>
- *Krieger, T., Reber, F., von Glutz, B., Urech, A., Moser, C. T., Schulz, A., & Berger, T. (2019). An internet-based compassion-focused intervention for increased self-criticism: A randomized controlled trial. *Behavior Therapy*, 50(2), 430–445. <https://doi.org/10.1016/j.beth.2018.08.003>
- Kumar, V., Sattar, Y., Bseiso, A., Khan, S., & Rutkofsky, I. H. (2017). The effectiveness of internet-based cognitive behavioral therapy in treatment of psychiatric disorders. *Cureus*, 9(8), Article e1626. <https://doi.org/10.7759/cureus.1626>
- Leaviss, J., & Uttley, L. (2015). Psychotherapeutic benefits of compassion-focused therapy: An early systematic review. *Psychological Medicine*, 45(5), 927–945. <https://doi.org/10.1017/S0033291714002141>
- Linardon, J. (2020). Can acceptance, mindfulness, and self-compassion be learned by smartphone apps? A systematic and meta-analytic review of randomized controlled trials. *Behavior Therapy*, 51(4), 646–658. <https://doi.org/10.1016/j.beth.2019.10.002>
- Luo, X., Che, X., Lei, Y., & Li, H. (2021). Investigating the influence of self-compassion-focused interventions on posttraumatic stress: A systematic review and meta-analysis. *Mindfulness*, 12(12), 2865–2876. <https://doi.org/10.1007/s12671-021-01732-3>
- MacBeth, A., & Gumley, A. (2012). Exploring compassion: A meta-analysis of the association between self-compassion and psychopathology. *Clinical Psychology Review*, 32(6), 545–552. <https://doi.org/10.1016/j.cpr.2012.06.003>

- Marsh, I. C., Chan, S. W., & MacBeth, A. (2018). Self-compassion and psychological distress in adolescents - a meta-analysis. *Mindfulness*, 9(4), 1011–1027.
<https://doi-org.ezproxy2.utwente.nl/10.1007/s12671-017-0850-7>
- Mrazek, A. J., Mrazek, M. D., Cherolini, C. M., Cloughesy, J. N., Cynman, D. J., Gougis, L. J., Landry, A. P., Reese, J. V., & Schooler, J. W. (2019). The future of mindfulness training is digital, and the future is now. *Current Opinion in Psychology*, 28, 81–86.
<https://doi.org/10.1016/j.copsyc.2018.11.012>
- Neff, K. D. (2003). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity*, 2(2), 85–101.
<https://doi.org/10.1080/15298860309032>
- Neff, K. D. (2016). The self-compassion scale is a valid and theoretically coherent measure of self-compassion. *Mindfulness*, 7, 264–274.
<https://doi.org/10.1007/s12671-015-0479-3>
- Neff, K. D. (2022). Self-compassion: Theory, method, research, and intervention. *Annual Review of Psychology*, 74. <https://doi.org/10.1146/annurev-psych-032420-031047>
- Neff, K. D., Tóth-Király, I., Yarnell, L. M., Arimitsu, K., Castilho, P., Ghorbani, N., Guo, H. X., Hirsch, J. K., Hupfeld, J., Hutz, C. S., Kotsou, I., Lee, W. K., Montero-Marin, J., Sirois, F. M., de Souza, L. K., Svendsen, J. L., Wilkinson, R. B., & Mantzios, M. (2019). Examining the factor structure of the self-compassion scale in 20 diverse samples: Support for use of a total score and six subscale scores. *Psychological Assessment*, 31(1), Article e27. <https://doi.org/10.1037/pas0000629>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *International Journal of Surgery*, 88, Article e105906. <https://doi.org/10.1016/j.ijso.2021.105906>
- Phillips, W. J., & Hine, D. W. (2021). Self-compassion, physical health, and health behaviour: A meta-analysis. *Health Psychology Review*, 15(1), 113–139.
<https://doi.org/10.1080/17437199.2019.1705872>
- Raes, F., Pommier, E., Neff, K. D., & Van Gucht, D. (2011). Construction and factorial validation of a short form of the self-compassion scale. *Clinical Psychology & Psychotherapy*, 18(3), 250–255. <https://doi.org/10.1002/cpp.702>

- Rakhimov, A., Realo, A., & Tang, N. K. (2023). The self-compassion scale: Validation and psychometric properties within the exploratory structural equation modeling framework. *Journal of Personality Assessment*, *105*(3), 422–435. 1)
<https://doi.org/10.1080/00223891.2022.2093731>
- Ruwaard, J., Lange, A., Schrieken, B., Dolan, C. V., & Emmelkamp, P. (2012). The effectiveness of online cognitive behavioral treatment in routine clinical practice. *PLoS ONE*, *7*(7), Article e40089.
<https://doi.org/10.1371/journal.pone.0040089>
- *Shapira, L. B., & Mongrain, M. (2010). The benefits of self-compassion and optimism exercises for individuals vulnerable to depression. *The Journal of Positive Psychology*, *5*(5), 377–389. <https://doi.org/10.1080/17439760.2010.516763>
- Spijkerman, M. P. J., Pots, W. T. M., & Bohlmeijer, E. (2016). Effectiveness of online mindfulness-based interventions in improving mental health: A review and meta-analysis of randomised controlled trials. *Clinical Psychology Review*, *45*, 102–114.
<https://doi.org/10.1016/j.cpr.2016.03.009>
- *Stevenson, J., Mattiske, J. K., & Nixon, R. D. (2019). The effect of a brief online self-compassion versus cognitive restructuring intervention on trait social anxiety. *Behaviour Research and Therapy*, *123*, Article e103492.
<https://doi.org/10.1016/j.brat.2019.103492>
- *Teale Saphach, M. J., & Carleton, R. N. (2023). Self-compassion training for individuals with social anxiety disorder: A preliminary randomized controlled trial. *Cognitive Behaviour Therapy*, *52*(1), 18–37. <https://doi.org/10.1080/16506073.2022.2130820>
- Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., Horsley, T., Weeks, L., Hempel, S., Akl, E. A., Chang, C., McGowan, J., Stewart, L., Hartling, L., Aldcroft, A., Wilson, M. G., Garritty, C., ... Straus, S. E. (2018). PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Annals of Internal Medicine*, *169*(7), 467–473.
<https://doi.org/10.7326/M18-0850>
- Turk, F., & Waller, G. (2020). Is self-compassion relevant to the pathology and treatment of eating and body image concerns? A systematic review and meta-analysis. *Clinical Psychology Review*, *79*, Article e101856. <https://doi.org/10.1016/j.cpr.2020.101856>
- van De Schoot, R., De Bruin, J., Schram, R., Zahedi, P., De Boer, J., Weijdem, F., Kramer, B., Huijts, M., Hoogerwerf, M., Ferdinands, G., Harkema, A., Willemsen, J., Ma, Y., Fang, Q., Hindriks, S., Tummers, L., & Oberski, D. L. (2021). An open source

- machine learning framework for efficient and transparent systematic reviews. *Nature Machine Intelligence*, 3(2), 125–133. <https://doi.org/10.1038/s42256-020-00287-7>
- van den Brink, E., Koster, F., Norton, V., & Williams, M. (2018). *A practical guide to mindfulness-based compassionate living: Living with heart*. Routledge.
- van Haastrecht, M., Sarhan, I., Yigit Ozkan, B., Brinkhuis, M., & Spruit, M. (2021). SYMBALS: A systematic review methodology blending active learning and snowballing. *Frontiers in Research Metrics and Analytics*, 6, Article e685591. <https://doi.org/10.3389/frma.2021.685591>
- van Lotringen, C., Lusi, B., Westerhof, G. J., Ludden, G. D., Kip, H., Kelders, S. M., & Noordzij, M. L. (2023). The Role of Compassionate Technology in Blended and Digital Mental Health Interventions: Systematic Scoping Review. *JMIR Mental Health*, 10(1), Article e42403. <https://doi.org/10.2196/42403>
- Waite, F., Knight, M. T., & Lee, D. (2015). Self-compassion and self-criticism in recovery in psychosis: An interpretative phenomenological analysis study. *Journal of Clinical Psychology*, 71(12), 1201–1217. <https://doi.org/10.1002/jclp.22211>
- Wakelin, K. E., Perman, G., & Simonds, L. M. (2022). Effectiveness of self-compassion-related interventions for reducing self-criticism: A systematic review and meta-analysis. *Clinical Psychology & Psychotherapy*, 29(1), 1–25. <http://dx.doi.org.ezproxy2.utwente.nl/10.1002/cpp.2586>
- Wallmark, E., Safarzadeh, K., Daukantaitė, D., & Maddux, R. E. (2013). Promoting altruism through meditation: An 8-week randomized controlled pilot study. *Mindfulness*, 4(3), 223–234. <https://doi.org/10.1007/s12671-012-0115-4>
- Winders, S. J., Murphy, O., Looney, K., & O'Reilly, G. (2020). Self-compassion, trauma, and posttraumatic stress disorder: A systematic review. *Clinical Psychology & Psychotherapy*, 27(3), 300–329. <https://doi-org.ezproxy2.utwente.nl/10.1002/cpp.2429>
- Winter, N., Russell, L., Ugalde, A., White, V., & Livingston, P. (2022). Engagement strategies to improve adherence and retention in web-based mindfulness programs: Systematic review. *Journal of Medical Internet Research*, 24(1), Article e30026. <https://www.jmir.org/2022/1/e30026>
- Wohlin, C. (2014). Guidelines for snowballing in systematic literature studies and a replication in software engineering. *International Conference on Evaluation & Assessment in Software Engineering*, 38, 1–10. <http://dx.doi.org/10.1145/2601248.2601268>

- Yarnell, L. M., Stafford, R. E., Neff, K. D., Reilly, E. D., Knox, M. C., & Mullarkey, M. (2015). Meta-analysis of gender differences in self-compassion. *Self and Identity*, 14(5), 499–520. <https://doi.org/10.1080/15298868.2015.1029966>
- Ybarra, M. L., & Eaton, W. W. (2005). Internet-based mental health interventions. *Mental Health Services Research*, 7(2), 75–87. <https://doi.org/10.1007/s11020-005-3779-8>
- Zessin, U., Dickhäuser, O., & Garbade, S. (2015). The relationship between self-compassion and well-being: A meta-analysis. *Applied Psychology: Health and Well-Being*, 7(3), 340–364. <https://doi.org/10.1111/aphw.12051>
- Žilinský, T., & Halamová, J. (2023). The effects of virtual reality on enhancement of self-compassion and self-protection, and reduction of self-criticism: A systematic review. *International Journal of Environmental Research and Public Health*, 20(3), Article e2592. <https://doi.org/10.3390/ijerph20032592>

Appendix A

Search strings and limitations within the literature search

Web of Science (N = 1.969)	
Search string #1	("self-compassion*" or "self compassion*" or "self-compassion based" or "compassion-based" or "compassion-focused" or "compassion focused" or "compassion-meditation*" or "compassion meditation*" or "self-kindness") AND (Online or digital or "digital intervention*" or technolog* or internet or app* or telehealth or e-health or "social media" or smartphone* or "internet-based" or "internet based" or website or "mobile-based" or video* or "chat-based" or "online intervention*" or "online treatment*" or "digital treatment*" or "online therap*" or "digital therap*" or "Technolog*-supported" or tele*)
Filters and Limit to	Language: English, German Document type: Article, Other, Early Access & Clinical Trial
PsycINFO (N = 1.151)	
Search string	Search string #1
Filters and Limits	Language: English, German Age: adulthood (18 yrs & older), young adulthood (18-29 yr.), thirties (30-39 yrs), middle age (40-64 yrs), aged (65 yrs & older), very old (85 yrs & older) Methodology: empirical study, quantitative study, interview, qualitative study, clinical trial, follow-up study, treatment outcome, longitudinal study, focus group, clinical case study, prospective study, experimental replication, field study
Scopus (N = 1.641)	
Search string	Search string #1
Filters and Limits	Language: English, German Document type: article, conference paper, erratum, editorial or short survey

Appendix A. Search strings for 3 databases.

Appendix B

ASReview Output

Analytics

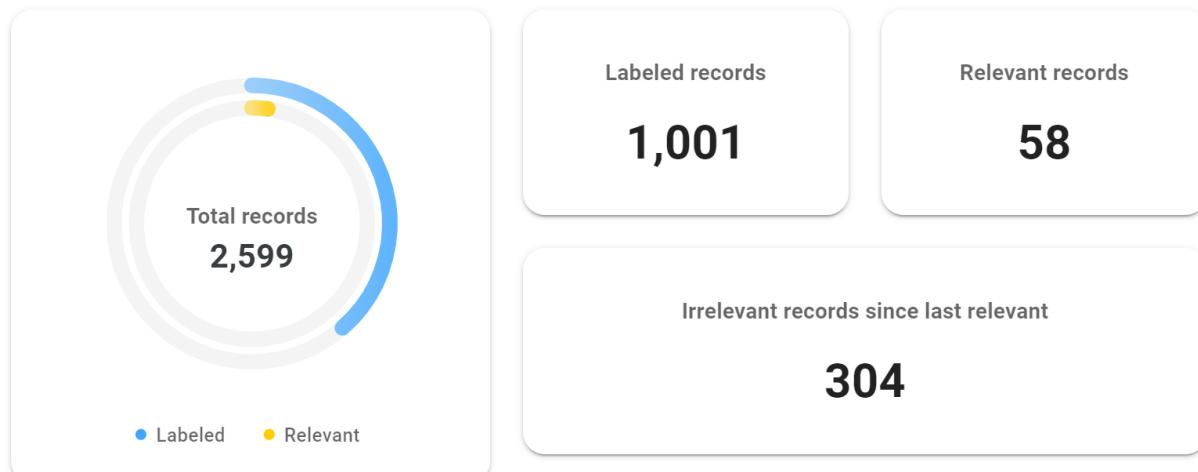


Figure B1.

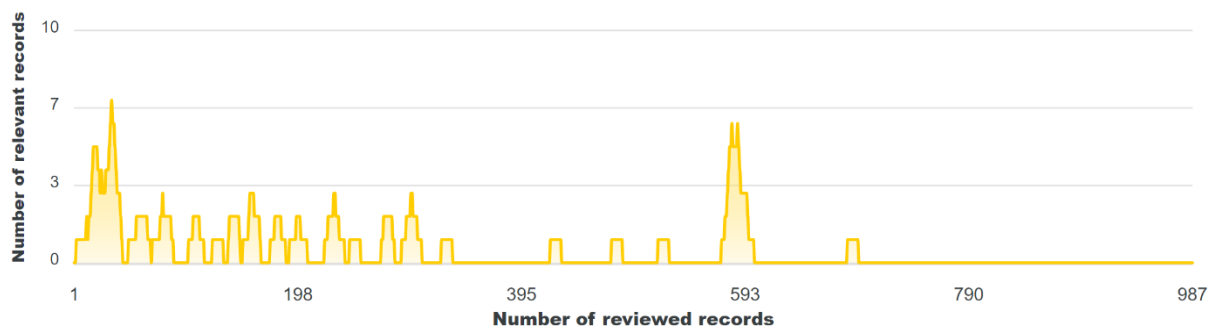


Figure B2.

Appendix C

Examples of Excel Tables

Study characteristics							
Author	Design	sample size	target group	age	gender	outcomes	acceptability & feasibility
1. Dong et al. (2020)	protocol for a parallel RCT	x (N > 392)	schizophrenia	x (18-65)	x	primary: patient adherence	not assessed yet
2. Guo et al. (2021)	two-arm, open-label, randomized	N = 354, Control group	pregnant women with high self-critical	M=30.6 (IG: 100% women)		depressive and anxiety symptoms	17 participants dropped out, 91
5. Krieger (2019)	RCT	N=121	highly self-critical individuals	M=37.69 (IG: m = 27, f = 94)		primary: depression, anxiety	"someone to very satisfied" - high
12. Sapach et al. (2023)	3-arm parallel group, randomized	N=59, SC n=20	social anxiety disorder	M=34.3 (IG: m = 19, f = 40)		SAD symptoms, fear and anxiety	after intervention rated by n=17
15. Andersson (2020)	pilot RCT	N=57; SC n=23, minimalist	stressed and self-critical	M=25 (IG: M=17, F=39, D=1)		primary: stress and self-criticism	n.a.
19. Barankova (2022)	??	N=63; IG(n=32), control	people with increased levels of self-criticism	M=32.49 (IG: M=19, F=44)		self-compassion, narcissism	n.a.
26. Beshaiia (2022)	two-arm randomized, parallel	N=456 (IG n=227 -> control)	depression, anxiety, stress	M=35.14 (IG: M=256, F=200)		primary: GAD, depressive symptoms	high attrition rate 159/227 in IG
27. Stevenson (2019)	RCT? follow up, moderate	N=119 (SC n=60)	individuals with elevated self-criticism	M=29.04 (IG: M=28, F=91)		PRIMARY: trait social anxiety	SC group wrote less and spent less
29. Candea (2018)	RCT?	N=136 (SC n=42 -> control)	socially anxious individuals	M=21.85 (IG: M=16, F=120)		social anxiety symptoms	dropout: overall 26.5%, SC 19.0%
36. Drabu (2022)??	Randomized-waitlist control	N=63 (SC n=30)	non-suicidal self-injury	(M=23.24 M=16, F=45)		self-reports: self-critical	no dropout
38. Gu et al. (2022)	RCT + 2 week follow up	N=32 (SC n=10)	Chinese international students	M=22.50 (IG: M=4 F=28)		self-criticism, external self-criticism	no dropout in CFI, 2 in REBT, 0 in
39. Shapira (2010)	1-,3- and 6-months follow up	N=1002 (SC n=327)	moderately distressed sample	M=34 (18-7; M=164 F=817)		depressive experience (self-criticism)	overall dropout 799/1002 (79.7%)

Table C1. Items of study characteristics

Author	Intervention (comparator)	Duration	Technology	Usage/Goal	application background	exercise(s)	delivery
1. Dong et al. (2020)	WeChat-based self-compassion intervention	3-weeks	smartphone, messages	improving treatment adherence	meditation from MSC program	"Self-compassion Tour: 3 tasks"	self-help, next to hospital
2. Guo et al. (2021)	Internet-based Mindful self-compassion	6-weeks	online, web-based	promoting self-regulation	Mindfulness and compassion training	36 episodes x15 min (6 per week)	next to treatment in hospital
5. Krieger (2019)	care as usual (CAU) + internet-based self-compassion	8 weeks	computer & smartphone	for high self-criticism	MBCL program by Van den Brakke	7 modules (each 50-60min)	self help; guidance from therapist
12. Sapach et al. (2023)	audio-guided self-help course vs. control	6 weeks	automated e-mail access	mitigate clinically significant symptoms	Mindful self-compassion program	6 sessions (each per week)	self-help
15. Andersson (2020)	smartphone compassion mindset training	6 weeks	smartphone	training compassion, emotion regulation	compassion mindset intervention	6 modules (one per week)	self-help
19. Barankova (2022)	Online Emotion focused training	14 days	daily e-mail instructions	focus on emotions of self-criticism	EFT-SP (Halamova, 2018)	14 various exercises (one per session)	self-help
26. Beshaiia (2022)	Mind-OP intervention vs. active control	4 weeks	online crowdsourcing platform	cultivate mindfulness and self-compassion	??	4 modules with psychoeducational content	self-guided
27. Stevenson (2019)	brief online self-compassion intervention	2 weeks	link via e-mail	? (reduce symptoms)	(instructions from Shapira and Neff)	instructions for exercises (evolutionary)	independent
29. Candea (2018)	self-compassion training vs. cognitive behavioral therapy	2 weeks	link (internet address) via email	reducing social anxiety symptoms	(procedure similar to Leary et al.)	1 exercise (3 times a week, independent)	completion
36. Drabu (2022)??	Brief online self-compassion training	1 week	daily e-mail with audio-guided exercises	reducing levels of self-criticism	MSC program	2 x Loving kindness for course	1 lab session before online
38. Gu et al. (2022)	Compassion-focused therapy-based online intervention vs. Rational Emotive Behavior Therapy	4 weeks	online, audio-files	improve on self-criticism	CFT (Gilbert) & MSC (Neff & Germer)	2h online individual counseling	online therapy and home practice

Table C2. Items of e-health interventions