Enhancing Compassionate Care in Digital Mental Health: Development of the Compassionate Technology Scale for Clients (CTS-C)

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Master's Thesis
27th January 2025

Abstract

Background: As the use of digital mental health interventions (DMHIs) increases, there is a lack of client-centred evaluation tools to investigate their impact on compassion, a core value of mental health care that is fundamental to quality care. To address this gap, we developed the Compassionate Technology Scale for Clients (CTS-C) and its short form (CTS-C-SF).

Methods: Using q-methodology, a mixed-methods approach, we explored mental health client's viewpoints on technology in compassionate care to select and refine items of a scale. Sixteen participants sorted 35 statements based on the five elements of compassion (Strauss et al., 2016) in a card-sorting task and participated in semi-structured interviews. The data was analysed using inverted-by-person factor analysis and thematic analysis to identify clusters of opinions and themes.

Results: Four distinct opinion clusters with unique priorities regarding compassionate technology emerged: connection-seeking, feeling-focused, action-oriented, and authentic expression-oriented clusters. Key themes included the technology's facilitation of communication and expression, the risks of misattributing compassion and overemphasising shared suffering, and the therapist's role as the primary responsible for compassion in care. These insights were used to create the final CTS-C, a 20-item evaluation scale with four items per compassion element and its 4-item short form.

Discussion: The findings revealed that clients view compassion as a human emotion linked to the therapeutic relationship, which technology facilitates. Clients also emphasised the importance of personalising DMHIs and the human connection in compassionate care. This highlights the need to carefully operationalise compassion and involve clients in the design of DMHIs. Future research should explore the scale's factor structure, validity, and reliability through psychometric validation, as well as the development of a scale to assess the impact of digital health technologies on compassion in general health care.

Conclusion: The CTS-C allows for evaluating and comparing the extent to which DMHIs influence the five elements of compassion. Its use enables prioritising the value of compassion in developing and using digital mental health interventions.

Keywords: Digital Mental Health Interventions, Compassion, Q-methodology, Scale development, Client-centred Care

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In recent years, the use of digital mental health interventions (DMHIs) has increased due to growing demands for psychological services and expanding waiting lists. DMHIs refer to mental health interventions implemented using technology. Broadly, DMHIs can be technology, such as video calling, internet-based interventions – therapeutic programs with objectives conveyed through modules or lessons, smartphone applications, wearables, or mixed realities, such as virtual and augmented reality (Baños et al., 2022; Borghouts et al., 2021).

The use of DMHIs has become popular due to their reported benefits. If used well, DMHIs can provide increased personalisation, guidance, and on-demand usability for both the client and the mental health practitioner (Borghouts et al., 2021; Kemp et al., 2020). Additionally, the physical distance and anonymity offered by DMHIs for clients make them attractive. They remove inhibitions from communication (called the online disinhibition effect, Lapidot-Lefler & Barak, 2015) and allow clients to be socially still connected inside their homes when using online platforms with forums (Borghouts et al., 2021; Kemp et al., 2020).

A scoping review of 22 DMH(I) studies found that DMH(I)s were primarily applied for general or unspecified mental health and/or suicidality, as well as depression, psychosis, anxiety, loneliness, and addiction (Balcombe & De Leo, 2023). Most studies focused on evaluating the technical aspects of DMHI, such as feasibility, usability and effectiveness, or the user experience (Balcombe & De Leo, 2023). Even though these evaluations provide an extensive overview of the efficacy of DMHIs, domain-specific aspects that DMHIs might interact with remain understudied. In the case of (mental) health care, one of these overlooked aspects is the value of compassion (Fotaki, 2015; Lown, 2015; Mascaro et al., 2020).

Compassion and DMHIs

Compassion, the recognition and action to alleviate suffering (Strauss et al., 2016), is considered a fundamental value of health care and is essential for delivering quality care (Fotaki, 2015; Lown, 2015; Mascaro et al., 2020). It plays a crucial part in client recovery and well-being and improves the therapeutic alliance—the collaborative relationship between health care providers and clients (Horvath & Luborsky, 1993). Recent reviews on patients' perceptions of compassionate encounters and treatments found that compassion made clients feel heard, understood, and respected (Barker et al., 2023; Malenfant et al., 2022). In the

same way, the absence of compassion in care was detrimental to well-being and the therapeutic alliance (Barker et al., 2023; Fotaki, 2015; Sinclair, McClement, et al., 2016; Sinclair, Norris, et al., 2016).

Despite established research on the significance of compassion, studies on the DMHIs' impact on compassion are limited and primarily focused on the professional perspective, which leaves the client's perspective unexplored. This negatively impacts the adoption of DMHI: professionals' hesitancy to implement DMHIs can be linked to concerns about technology's impact on care. The *Levels of Adoption of eMental Health* model (LAMH; Feijt et al., 2018) suggests that a professional's willingness to adopt DMHIs depends on the knowledge and evidence demonstrating the benefits of technology. Likewise, Kemp et al., (2020) found that some professionals fear that digital technologies detract from compassionate care, which creates a barrier to use. Addressing these concerns requires a deeper understanding of how DMHIs affect compassion from professional and client perspectives.

While a recent study established a scale to measure how DMHIs affect the perception of compassion from a professional's perspective (van Lotringen et al., 2024), the client perspective remains unexplored. The lack of a structured and validated tool to assess how DMHIs affect the client's perception of compassion might lead to poor intervention implementation without meeting the client's needs. This emphasises the importance of creating a measurement tool to explore how DMHIs affect the perception of compassion within the therapeutic process and improve adoption and quality of care.

Defining and Measuring Compassion

Varying conceptualisations of compassion co-exist within research without consensus on how to define compassion (Gilbert, 2019; Goetz & Simon-Thomas, 2017; Sinclair, Norris, et al., 2016; Strauss et al., 2016), impeding straightforward measurement of this concept. Reviews have discovered conceptualisations stemming from diverse perspectives, including but not limited to evolutionary, literary, and religious, and those viewing it as a motivational system, a caring system or an emotion (for comprehensive overviews, see Goetz & Simon-Thomas, 2017; Strauss et al., 2016). The definition proposed by Strauss et al. (2016) consolidates previous definitions and defines it as a process with five elements that together lead to the presence of compassion:

> "1) Recognizing suffering; 2) Understanding the universality of suffering in human experience (Common Humanity); 3) Feeling empathy for the person suffering and connecting with the distress (emotional resonance); 4) Tolerating uncomfortable

> feelings aroused in response to the suffering person (e.g. distress, anger, fear) so remaining open to and accepting of the person suffering; and 5) Motivation to act/acting to alleviate suffering." (Strauss et al., 2016, p. 19)

This definition serves as a fitting foundation for this study, synthesising diverse perspectives and definitions of compassion, allowing for a broad-spanning analysis. Furthermore, it was established to facilitate and unify the measurement of compassion within research (Strauss et al., 2016) and aligns with a previous study (van Lotringen et al., 2024) aimed at improving the assessment of compassion in DMHIs. Therefore, this definition enables a consistent and robust approach to evaluating compassion, which enhances integration with future studies assessing compassion.

Compassionate Technology

The concept of "Compassionate Technology" can be used to explore the integration of compassion in DMHIs. The systematic scoping review by van Lotringen et al. (2023), defines "Compassionate Technology" as integrating compassion into technology-mediated mental health services, expanding compassion into the digital landscape. The review identifies three roles through which technology contributes to compassion: a) it can show compassion *to* the client, b) it can *enhance* self-compassion in people, and c) it can *facilitate* compassion between people (van Lotringen et al., 2023). They also propose ways that technology can foster elements, such as conveying the universality of suffering by connecting the client to similar experiences of others (van Lotringen et al., 2023). Using the compassionate technology framework allows for systematic measurement of compassion in DMHIs based on a clear, technology-focused conceptualisation.

Current Study's Objective and Contribution to Research

This paper aims to establish a tool for clients to evaluate the presence of the compassion elements in DMHIs during the therapeutic process: the Compassionate Technology Scale for Clients (CTS-C), comparable to the Compassionate Technology Scale for Professionals (van Lotringen et al., 2024). Such a scale can assess current DMHIs and guide the design of new DMHIs to be client-centred and compassionate in the wake of the rise of DMHIs. Creating an evaluation of compassion can also enhance the client-centeredness of DMHIs and improve mental health services by integrating compassion-based criteria into design and technology assessment (van Lotringen et al., 2023).

Furthermore, assessing which elements of compassion are present within DMHIs would provide a more precise understanding for the users of DMHIs (clients and professionals) of which elements of compassion are respected or threatened by DMHIs. This

would allow for informed decision-making and adoption of DMHIs and help prevent the current hesitancy to adopt, which is linked to the unclear role of technology in compassion (Feijt et al., 2018; Kemp et al., 2020).

Approach

The 'Compassionate Technology Scale for Clients' (CTS-C) will be developed using q-methodology. Q-methodology is a mixed-method approach that uses a card-sorting task with potential scale items and semi-structured interviews to explore participants' subjective viewpoints. This results in clusters of perceptions (Ten Klooster et al., 2008), enabling us to establish a complete and short form of the CTS-C to evaluate compassion in DMHIs from clients' perspectives.

Research Questions

a. Which potential items for the CTS-C best represent the theoretical elements of compassion and the different clusters of clients in mental health care, both on a full-scale and a short-form scale?
b. What are the opinions and associations expressed by participants while reflecting on statements related to the application of technology to support compassion within mental health care?
c. What is a suitable full and short-form scale for clients to evaluate how technology is used on compassion?

Methodology

Research Design

Phase 1: Development & Translation of Q-Set

Q-Set Development.

The potential items for the scale were developed simultaneously with items for a similar scale focused on mental health care professionals as reported in van Lotringen et al. (2024). Explained in further detail by van Lotringen et al. (2024), the potential items were informed by desk research, a focus group with six mental health care professionals, a systematic scoping review (van Lotringen et al., 2023), and an expert session. The initial item set consisted of 35 items and is, from here on, referred to as the "q-set". These items were based on the five elements of compassion proposed by Strauss et al. (2016), including five overarching items regarding compassion, were composed in Dutch, and primarily based on the third role of technology in compassion: the *facilitation* of compassion between people (van Lotringen et al., 2023).

Translation Procedure

The q-Set was translated using translation procedures for standardised quality-of-life questionnaires by the EORTC (Koller et al., 2007, 2012; Kuli et al., n.d.). Three translators (two from the Psychology, Health and Technology (PH&T) research department (including AZ) and one independent professional translator with ISO 17100 certification) initially translated the Dutch items. AZ then consolidated these translations with the input of CvL and a second expert from the PH&T department. The reconciliation was back-translated into Dutch by two additional translators, one from the PH&T department and an additional independent professional translator with ISO 17100 certification. These translations were compared with the original Dutch q-set, and AZ created a final English version (see Appendix A – Provisional Questionnaire for details).

Phase 2: Q-Sort Methodology and Scale Design

Approach

Q-methodology is a mixed-method approach that uses both quantitative and qualitative data. It is designed to provide insight into the multiple perspectives that can be found within a group of people (Damio, 2018). The views are captured using "q-sorts," a card-sorting task within a near-normal distribution. In q-methodology, similar views are grouped into clusters using factor analysis and qualitative data. This approach allows for analysis beyond a purely mathematical viewpoint, enhancing the voice of the participants (Ramlo, 2016).

Participants

The study was conducted with 16 clients over 18 who were in MH care in the past 18 months. The participants were recruited through convenience sampling and the University of Twente SONA test subject pool. Individuals from the Sona Systems test subject pool were awarded 1.5 credits for participating in the experiment.

Table 1

Demographic Characteristics of Participants

Baseline characteristic	*n*	%
Gender		
Female	9	56.25
Male	7	43.75
Current educational level		
Secondary Education	1	6.25
Tertiary Education	15	93.75
Recency of psychological treatment		
< 3 months ago	11	68.75
3-6 months ago	2	12.5
6-12 months ago	1	6.25

12-18 months ago	2	12.5
Use of Technology in Treatment[a]	14	87.5

Note. *N* = 16. Participants were, on average, 23.4 years old (*SD* = 2.98, min = 18, max = 29).
[a] Reflects the number and percentage of participants answering "yes" to the question "Was/Is technology (such as applications, online (video) calling, webpages, VR/AR) used during your mental health treatment?".

Materials

Q-Sort materials. The sorting task was conducted through a computer, using screen sharing and recording via Microsoft Teams and a website called "QsortWare" (*QSortWare*, n.d.). Participants were invited via email to complete the sorting in the browser. The Ken-Q Analysis Desktop Edition (KADE; Banasick, 2019), an open-source q-analysis program, was used for the quantitative data analysis. KADE was used as it offered great functionality, the ability to visualise composite sorts, and enabled several analysis methods while being free and open source. The data extracted from the QsortWare was first formatted into a "Type 2 Sample File" (Banasick, 2023) before it could be processed. Atlas.ti (version 25.0.1 (32922)) for Mac was used for the qualitative analysis of the think-aloud data and interviews.

Ethics Declaration

The ethics committee of the Faculty of Behavioural, Management, and Social Sciences (BMS) at the University of Twente granted ethical approval to this study (registration number: 241035). Before participating, all participants were asked to sign an informed consent form.

Procedure

Data collection lasted from the 11th of October to the 7th of November. The one-to-one card sorting tasks were held in an online or in-person session (depending on participant preference, online: 10, in-person: 6), which, on average, lasted 55min26s (SD = 16m50s, min = 36m35s, max = 1h48m22s [outlier] with second max = 01h04m29s). Individuals were asked to bring their laptops for the in-person sessions to enable accessing the platform. The sessions were all screen and audio-recorded through Microsoft Teams, and the Teams automatic transcription software was used for an initial timestamped transcript. The collected data was later anonymised, so information could not be traced back to participants.

Before the start of the session, participants received the ethical consent and information sheet (see Appendix B). Once they filled out this form, they received verbal information about compassion and its elements, the aim of the current study, the scale development, and

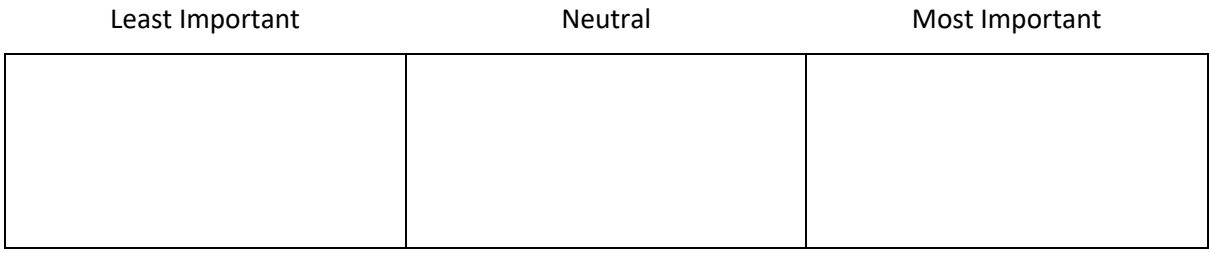
the procedure. Participants were prompted to think aloud during the tasks, narrating their thoughts and decision-making process.

Next, the participants accessed the QsortWare website, after which the first part of the sorting task was explained. Emphasis was given to the fact that there were no wrong answers, that they could change the placement of the items throughout the sorting process, and that we cared about their personal experience.

During the first part of the q-sort, the participants distributed 35 items in 3 columns based on the instruction, "How important are these items for evaluating whether **technology supports compassion in treatment**, according to you? Drag the statements to one of the three boxes below." The three columns had the following headings: "least important to measure", "neutral", and "most important to measure" (see Figure 1). Participants could drag the items presented above the columns and sort them according to their wishes. All participants were presented with the items in the same order. During this, they were asked to think aloud. At the same time, the researcher observed their actions and took notes. Once satisfied with their initial sort, participants could continue to part 2.

Figure 1

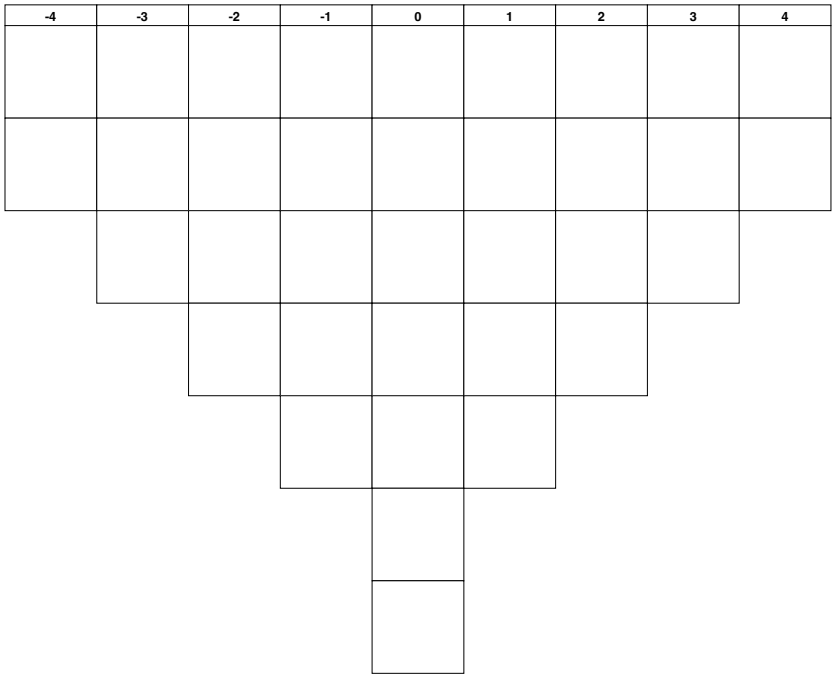
Display of the first Q-sort Distributions Grid



The participants were then introduced to the second sorting, where they received some guidance on how to get started with the detailed sorting. In the second part of the task, the participants sorted the items in a near-normal distribution of 9 columns (see Figure 2) with two items in the extremes (-4 and +4), gradually increasing to seven items in the neutral middle column. They pulled the items from the three columns of their previous sort from the top of the page. Participants could move items around the categories until they were satisfied with their distribution. Once again, they were encouraged to think aloud during the process, and the researcher took notes.

Figure 2

Display of the Second Q-sort Distributions Grid



When participants finished the q-sort, a prompt appeared to save the q-sort or delete it. Next, a short semi-structured interview was conducted, asking about their thoughts regarding the task and the items, how they made decisions in sorting, and whether items were superfluous or missing (see Appendix C: Q-Sort Instructions & Materials for procedure & interview guide).

Data Analysis

The resulting 16 q-sorts were analysed following the mixed-method principles of the q-methodology approach.

Quantitative Data. The 16 q-sorts were analysed using a by-person (inverted) factor analysis. In this analysis, the participants are correlated to each other based on the similarities of their final sorts (Valenta & Wigger, 1997). Each extracted factor thus represents a participant cluster with an opinion, representing a different viewpoint on compassion in DMHI within the sample. Once the data was formatted correctly, it was imported into KADE (Banasick, 2019). The file was checked for potential errors by comparing the sorts from the Qsortware and the imported sorts in KADE.

In the first step of the analysis, a correlation matrix is computed, intercorrelating each q-sort with each other, reflecting the similarities and differences between all the q-sorts (Ten Klooster et al., 2008). Next, the factors were extracted using Principal Component Analysis (PCA) to extract unrotated factors. The Kaiser-Guttman criterion and a scree plot were used to indicate how many factors should be rotated. The final factors were then rotated using

varimax, extracting the maximum amount of study variance (Watts & Stenner, 2012), automatic flagging of significant sort loadings (p >0.01) and with a required majority of common variance (in line with Mullen et al., 2022; van Lotringen et al., 2024). The analysis also identified non-significant and confounding q-sorts.

To ensure a good fit with the data, it was checked that at least two q-sorts loaded significantly ($p > 0.01$) on only "their" factor (in line with Watts & Stenner, 2012) and not on any other factor. This meant that the correlations of two q-sorts with their factor should be at least 0.5 (in line with van Lotringen et al., 2024), and the cross-loadings with other factors should be below the significance level of 0.44 ($p < 0.01$, in line with Damio, 2018). Bipolar factors were split for analysis. Next, the factors were checked for their interpretability and substance using the qualitative data and by computing their factor array: a q-sort representing a given factor (Paige, 2015). The identified factors and their prioritised items act as a basis for the item selection for the final scale.

Qualitative Data. The think-aloud and interview data were transcribed verbatim. This data was then coded in a bottom-up procedure, following the six steps of thematic analysis by (Braun & Clarke, 2006). First, all transcripts were read, and AZ initially coded them. These codes were merged into potential initial themes. The five compassion elements (Strauss et al., 2016) were also coded under the theme "compassion" using top-down coding. The themes were then reviewed, and a thematic analysis map was created; all themes were named and defined to develop a coding scheme. A second coder (CvL) applied the coding scheme to 13% of the data. Due to time constraints, a full-inter-rater reliability process, including resolving disagreements, was not feasible. However, an initial check showed 72% agreement, which can be deemed acceptable. As a result, the findings of this partial reliability check did not influence the final data interpretation or conclusions presented in this study.

Results

Research Question 1: Clusters of Clients

The model with three factors was found best to explain the different clusters of distributions of the participants. Each factor had an eigenvalue over 1, with the 3-factor model showing a total explained variance of 57%. The q-sorts 9 and 12 loaded >.44 on a secondary factor, making it a confounding q-sort, but were retained while flagging only the highest loading. The sorts were not removed as the retention of confounding variables reflects the nuanced perspectives of individuals and allows for a more in-depth understanding of the subject (Ramlo, 2016; Watts & Stenner, 2012). On the other hand, the q-sorts T2 and T16 did not significantly load on any factor. They were, therefore, removed from the

statistical analysis, resulting in a total of 14 q-sorts used in the final factor and the analysis of the clusters**.**

Factor 2 had q-sorts that loaded positively (n = 4) and negatively (n = 1), meaning the factor is bipolar (Watts & Stenner, 2012). A negatively loading q-sort reflects the reverse distribution of items compared to a positively loading q-sort. This indicates almost polar opposite viewpoints on the same topic of the participants belonging to either the negative or positive loading q-sort within one factor. To account for the bipolarity, factor 2 was split into two clusters (2a and 2b) and interpreted twice (in line with Watts & Stenner, 2012), resulting in four separate opinion clusters for the analysis. While cluster 2b had only one participant, it was retained due to its contrasting and unique viewpoint, which aligns with the q-methodology aim of discovering multiple distinct perspectives within a group of people (Ten Klooster et al., 2008).

Below, each cluster will be described using the qualitative data collected in the theme "compassion" (see Table 2) and the factor analysis results. The full results of the factor analysis, including factor loadings for each q-sort and factor, q-sorts flagged in each factor and item z-scores, can be found in Appendix D: Factor Analysis Results.

Table 2

Quotations Associated with Compassion per Element

Theme Code	Nº of Quotations	% of participants
Compassion	**290**	**100**
General	40	67
Recognizing Suffering	35	73
Understanding the Universality of Suffering	84	93
Empathy	52	87
Distress Tolerance	35	80
Alleviating Suffering	54	93

While participants were grouped in distinctive clusters, they had a range of opinions that overlapped with other clusters. Cluster 1 correlated moderately with 2a ($r = 0.30$) and 3 ($r = 0.22$). Cluster 2b negatively correlated with cluster 2a ($r = -0.43$) and positively correlated with cluster 3 ($r = 0.42$) (Table E). Additionally, the qualitative data revealed that participants sometimes changed their minds or contradicted themselves within their sorts and interviews. The clusters discussed are based on the final recorded q-sort. The items referred to can be found in Table 3 based on their prepended number.

Cluster 1: "Compassionate Connection through Technology - Connection-Seeking" (n = 5), factor eigenvalue: 4.22; explained variance 26%

The participants of the connection-seeking cluster (n = 5) focused on the connection with the therapist and found it most important that DMHIs facilitate building a compassionate relationship with the therapist. General items that focused on how technology could improve the compassionate relationship (Item 7, 26, 18) were ranked highly because "*Therapy does not work [without a compassionate relationship]*" (T1). They also saw potential in the platform as a tool to facilitate the connection with the therapist by enabling communication (items 17, 18), feeling respected and not judged (items 28, 20) and fostering mutual understanding (items 2, 11, 30). One participant explained that "*if [the therapists] do not understand the problem, then how are they going to help? (...) It is better if I can explain everything much easier [using the platform].*" (T5)

The participants saw the role of technology supporting goal-setting and other specific functionalities of the platform as neutral, whereas this cluster found it least important that the technology improves the client's knowledge of the universality of suffering. This was especially the case with items referring to other people's suffering. One of the participants explained: *"I feel like…[knowing] that other people can also feel the same emotions [as me](...) I already know that, so that would not really be as important"* (T8), with similar sentiments being expressed by the majority of the cluster.

Bipolar Factor 2: "Manner of Therapy Engagement" (n = 5), factor eigenvalue: 3.27, explained variance: 20%

The second identified factor extracted was a bipolar factor, meaning that some participants loaded positively (n = 4) on the factor, and one participant loaded negatively (n = 1). For ease of interpretation, the factor was split into two sub-clusters with quasi-opposite correlations and opinions, highlighting contrasting views on the therapeutic process and how technology facilitates it. This factor explored the balance between the *feeling* and *doing* aspect of therapy. There was a tension between the need for emotional validation, understanding and personal connection (seen in factor 2A) and the desire for goal and action-oriented progress and the practical application of therapy (as seen in factor 2B).

Cluster 2a: "Technology-Mediated Empathetic Relationship & Validation – Feeling-Focused" (n = 4).

Cluster 2a focused on the need for emotional validation, empathetic connection, and safety that the therapist could provide through technology. They found that feeling comfortable sharing difficult emotions and experiences (Item 9) without judgement (Item 20) was the most important during therapy and the first stepping stool of compassion. One participant explained, "*You have to feel safe to share [difficult emotions] before you can feel*

the other parts of compassion. You are not gonna be able to feel understood when you are not feeling safe to express those emotions" (T10). Additionally, this cluster valued feelings of understanding, empathy, and acceptance highly, seeking validation for their emotions from the therapist through technology: *"Knowing that my therapists can emphasise with my feelings makes me feel more seen. And also it gives more of a feeling that they will actually act upon it because they understand what I'm trying to tell them and what I'm going through*." (T15)

This cluster was neutral about general statements regarding how technology improves compassion and informing the therapist about their suffering. They found such tasks relevant but not urgent for a compassionate experience of technology. The participants found using the platform for goal setting and tasks linked to alleviating suffering least important: their focus was less on platform features and concrete actions but more on *feeling* understood, supported and respected: *"Sharing experiences and [when I am] feeling hurt is like the main [focus in therapy] and I think like alleviate my sufferings is usually a consequence of it"* (T13).

Cluster 2B: "Technology-Aided Goal Achievement - Action-Oriented" (n=1)

In contrast to Cluster 2A, Cluster 2B was defined by a more practical and active perspective of technology in therapy. Despite being represented by only one participant, it provided a contrasting view on compassionate technology to other clusters. The participant valued the platform's ability to support the tasks and practicalities of therapy, such as working on goals (Item 6) with the therapist: taking action to alleviate their suffering was central to their progress. Most highly ranked statements followed wordings such as "The platform helps/enables…" (Item 8, 11, 18, 22, 23, 32) and "Using the platform" (Item 6, 16, 29), showing the more practical and goal-oriented focus of this cluster. Additionally, they saw the platform as a tool to facilitate structured communication (Item 16) and aid the therapist's recognition of suffering to reach therapeutic goals: "*I just think it's important [that the platform enables to share problems and receive help], like that's one of the most important [parts] of therapy*" (T14).

According to this participant, technology does not need to support awareness of the universality of suffering (Item 12, 33, 5) and the therapist's non-judgement and respect (Item 20, 15). Conveying respect was something they did not think the platform could do and, therefore, doesn't need to be measured: "*I'm not sure how a platform can [measure and show] respect because I feel like that's very much a thing that you can feel in contact [with*

the therapist] and it's very subtextual. It's not spoken at that. You really have to notice it. But that's why I don't really think of the platform can do much in that." (P14).

Cluster 3: "Technology-Enabled Emotional Transparency – Authentic Expression-Oriented", factor eigenvalue: 1.7, explained variance: 11%, n = 4

Cluster 3 groups the participants who focused on the platform's ability to create a safe space for authentic expression of difficult feelings together. They valued not having to downplay their emotions (Item 31) and having the space to tell the therapist when they are doing poorly (Item 13), showing their focus on emotional transparency and the therapist's distress tolerance. Participants of this cluster explained that the aim of the platform is "*for communication"* (T11), indicating to the therapist "*what is wrong at the moment*" (T3) and feeling safe with reaching out in "*crisis situations*" (T12), helping them to express themselves through the use of the platform autonomously and enabling self-determined engagement within therapy.

Technology did not need to alleviate suffering: participants rated items about specific platform-dependent alleviation elements the least, finding that they are *"not directly related to compassion"* (T6, similarly in T3). This underlines this cluster's prioritisation of emotional expression over the more practical application of therapy. The participants also found that the technology didn't need to remind them about the universality of suffering in human experience: the items explicitly mentioning suffering as part of human life (Item 15) and that other people may also have similar experiences (Item 24) were ranked the lowest. This cluster generally found it unnecessary to be reminded of the common humanity in suffering: "*In my experience, [the awareness of other's suffering] is more one of those things where it's like, yeah, obviously there are other humans [that suffer]. I'm very aware of that, and I don't think every tool needs to inform you of this again*" (T12).

Representative Items per Factor

A composite (representative) q-sort was made for each cluster to select the final items for a final scale. For each compassion element, the item that was, on average, sorted highest by each cluster was selected, ensuring the scale reflected the priorities of all clusters. When several clusters selected the same item as most important for a compassion element, the selection proceeded as follows. A minimum of three items and a maximum of four items per compassion element were selected. If multiple clusters agreed on the most important item, the selection proceeded to the next-most important item for those overlapping clusters. The item with the highest z-score for those overlapping clusters was then selected. To establish the short form of the scale, the highest-scoring general compassion item for each cluster was

chosen, following the same procedure when multiple items were rated most important by the clusters.

Table 3

Scores of Composite Q-sorts of each Factor for each Statement

Nº	Statements	Factor 1	Factor 2A	Factor 2B	Factor 3
1	The platform helps me set goals with the therapist.	-2	-4	0	-1
2	**Using the platform, I can share my experiences with the therapist.**	**1**	**2**	**0**	**-1**
3	**The platform makes me feel that the therapist is open to my problems.**	**2**	**3**	**-1**	**1**
4	**The platform helps me explain my situation to the therapist.**	**0**	**2**	**2**	**3**
5	The platform helps me understand that everyone can experience suffering.	-4	0	-4	-2
6	**Using the platform, I can work on my goals together with the therapist.**	**0**	**-4**	**4**	**0**
7	*The platform makes a compassionate relationship with the therapist possible.*	*4*	*1*	*-2*	*2*
8	**The platform helps me indicate to the therapist how I am doing.**	**1**	**-2**	**3**	**3**
9	**The platform makes me feel that I can also share difficult emotions with the therapist.**	**-1**	**4**	**-1**	**2**
10	The platform motivates me to work on my problems with the therapist.	0	-3	0	-1
11	**The platform encourages me to share my thoughts and feelings with the therapist.**	**0**	**-1**	**3**	**1**
12	The platform helps me recognise that difficult feelings are a part of human life.	-4	1	-4	-3
13	**The platform gives me the space to share with the therapist when I am having a hard time.**	**0**	**0**	**0**	**4**
14	**The platform makes me feel that the therapist empathises with my difficult feelings.**	**2**	**3**	**-1**	**1**
15	The platform helps me realise that having problems is part of being human.	-3	1	-3	-4
16	**Using the platform, I can let the therapist know when I am having a hard time.**	**-1**	**-2**	**2**	**3**
17	With the platform I can share my point-of-view with the therapist.	1	-2	-2	-2
18	*The platform enables me to share my problems with the therapist and receive help.*	*3*	*-2*	*3*	*0*
19	With the platform I feel the therapist sympathises when I am having a hard time.	0	1	-2	1
20	**The platform makes me feel the therapist does not judge my problems.**	**3**	**4**	**-2**	**-3**
21	With the platform I feel free to share with the therapist when things are not going well.	-1	0	0	2
22	**The platform helps me share with the therapist in what way I am suffering.**	**-2**	**0**	**2**	**0**
23	**The platform helps me work with the therapist to alleviate my suffering.**	**-3**	**-3**	**1**	**0**
24	**The platform shows me that other people may also have similar problems.**	**-3**	**0**	**0**	**-4**

25	**The platform helps me and the therapist do what is necessary for me.**	**0**	**-1**	**0**	**0**
26	*The platform supports compassion in my relationship with the therapist.*	*3*	*-1*	*1*	*0*
27	The platform helps me indicate to the therapist when I am suffering.	-2	-3	-1	2
28	**With the platform I feel respected by the therapist**	**4**	**3**	**-3**	**-2**
29	**Using the platform, I feel supported in improving my situation.**	**1**	**0**	**4**	**-1**
30	**The platform makes me feel that the therapist understands my problems.**	**2**	**2**	**1**	**-1**
31	**With the platform, I don't feel like I have to downplay any difficult feelings to the therapist.**	**1**	**1**	**1**	**4**
32	The platform helps me let the therapist know when I'm not feeling well.	-2	0	2	1
33	The platform makes me feel respected by the therapist.	2	2	-3	-3
34	The platform helps to reflect with the therapist on what is going well.	-1	-1	1	-2
35	I find the platform to be a compassionate addition to my treatment.	-1	-1	-1	0

Note. Items in **bold** were selected for the final scale, and items in *italics* were selected for the short-form scale.

Research Question 2: Extracted Themes within the Associations of Participants

The participants were asked to think aloud throughout the sorting process and participated in a short semi-structured interview after completing the q-sort. These remarks spanned opinions on compassion, its measurement, DMHIs, and therapy in general. They were grouped into three main themes (see **Table 4**): "Benefits and Supportive Functions of Technology in Compassion", "Challenges and Critical Notes (on measurement) of Technology in Compassionate Care", and "Roles and Responsibilities in Compassionate Care", which will be described below using quotes from participants. The codes within this theme were also linked to one of the five compassion elements and compassion in general (**Table 2**) when possible.

Table 4

Themes and Codes for Participants' Associations with Items on Compassion and Technology

Theme Code	N of Quotations	% of participants	Dominant element(s) of compassion that code was linked to (frequency)
Benefits and Supportive Functions of Technology in Compassion	**113**	**87%**	**Recognising suffering (28), Empathy (24)**
Technology Expands Access to Care	5	20%	-
Technology aids & enables communication	61	80%	Recognising suffering (21)

Technology creates a safe space for expression	24	67%	Distress tolerance (16)
Technology supports progress and goals	25	53%	Alleviating suffering (15)
Challenges and Critical Notes (on Measurement) of Technology in Compassionate Care	**116**	**100%**	**Common Humanity (51)**
Overemphasis on Shared Suffering	32	67%	Common Humanity (32)
Potential for Obstructed Connection	20	47%	-
Misattribution & Falsification of Compassion & Human Connection	26	27%	Common humanity (13)
Necessities of Therapy but not Compassion	22	60%	Alleviating Suffering (11)
Need for Context-Sensitive and Personalised Technology Use	18	47%	-
Roles and Responsibilities in Compassionate Care	**100**	**100%**	**Common Humanity (29)**
Client as Active & Independent Participant	19	47%	Alleviating Suffering (9)
Therapist's Empathy and Respect as core Quality for Compassionate Care	22	40%	Common Humanity (11) Empathy (10)
Platform Design/Features impacts Compassion	23	47%	-
Therapist as Primary Responsible for Compassion	36	73%	Common Humanity (12)

Benefits and Supportive Functions of Technology in Compassion (113 quotes)

The most common code within this theme is “Technology aids & enables communication” (59 codes). Participants felt heard when they could contact the therapist outside of sessions in general and in crises. This code occurred most when discussing items about Recognising Suffering (28 occurrences) and Empathy (24 occurrences). Participants also explained that DMHIs can provide guidance and encouragement to clients on how to express themselves: "W*hile I’m in a session, I maybe can't find the right words, or there are problems that I haven't realised are problems and [DMHIs] can usually help me figure those things out” (T14)*.

Furthermore, DMHIs can help clients feel free to express themselves to the therapist, seen in the code “Technology creates a safe space for expression**”** (24 quotes), most commonly associated with items about Distress Tolerance (16 occurrences): *“The fact that you can more easily share difficult things [when using DMHIs] if you are embarrassed to say something or if you find it more easily to express yourself on messages rather than talking, it's like a really nice feature.”* (T12). Participants also found DMHIs beneficial for

"Supporting Therapeutic Progress & Goals" (25 quotes), such as working on goals, receiving reminders, and reflecting on progress, as well as recognising the potential for technology to "expand access to care" (5 occurrences) for individuals that do not have access to a therapist yet.

Challenges and Critical Notes (on Measurement) of Technology in Compassionate Care (116 Quotes)

Participants frequently discussed the challenges and critical notes (on measurement) of Technology in Compassionate Care (116 occurrences). The primary criticism expressed was the "Overemphasis on Shared Suffering", linked to items about Common Humanity (32 occurrences, 67% of participants). Participants explained that technology did not need to explicitly remind them of shared suffering as they were already aware and that its presence did not need to be measured. As several participants noted, explicit reminders could even undermine their experiences: *"I think people know that other people suffer. (…) Generally, you don't go to a therapist for no reason and then [hearing such things] sort of underplays their problem"* (T7).

Moreover, they added that some of the tasks that technology could fulfil are "*Necessities of Therapy but not Compassionate Technology*" (22 occurrences). According to them, some items referred to practical therapy procedures and were less relevant for measuring compassionate technology. Concerns about the technology impeding the connection with the therapist (20 occurrences) were also mentioned by half the participants, explaining that the platform should not "*obstruct*" (T9) or "*hinder*" (T1) compassion. Using the platform could create an emotional and physical barrier as opposed to in-person interactions, and participants recommended measuring it within the scale. In line with this, the participants call for a "Context-Sensitive Technology Use" in therapy, expressing that the utility of technology should align with the client's needs: *"[The technology's] not always completely needed for some of the things that I need for therapy*" (T5) and taking this into account in technology design would ensure feelings of compassion remained.

Lastly, participants were also wary about the "Misattribution & Falsification of Compassion & Human Connection" (26 occurrences), often in relation to the Awareness of the universality of suffering in human experience (13 occurrences). Some clients were sceptical about the technology's ability to replicate genuine compassion: "*You're expecting compassion from technology, which means you're expecting something that's inherently about a human-to-human connection from something that cannot, at least currently, actually experience or truly relate to human emotions by virtue of not being human enough*" (T12).

They cautioned against misattributing the compassionate actions of a therapist to the technology itself within measurement: "*I don't think it's because of the platform [that I feel compassion], but more because of how my therapist is acting"* (T11).

Roles and Responsibilities in Compassionate Care (100 Quotes)

The clients commented on the role division and responsibilities in compassionate care (100 occurrences). Generally, they considered the "Therapist as Primary Responsible for Compassion", citing compassion as *"not necessarily [the responsibility of] technology, but more of the therapist themselves*" (T3). This could be achieved, for example, by the "*little gestures*" and "*the attention*" (T7) clients received throughout the therapeutic process. In line with this, clients also considered "Therapist's Empathy and Respect as core Quality for Compassionate Care", which was linked to Common Humanity (11) and Empathy (10). Some participants explained that "*bad experiences with previous therapists*" (T5, T13, T15) led them to rate items about respectfulness highly, explaining that "*If the [therapist] is not respecting me, I don't feel that secure into sharing my problems or feelings*" (T13). According to them, receiving empathy and respect is a task that is necessary for compassionate care.

Furthermore, participants explain that the client should actively and independently engage in the compassion process (19 occurrences), especially in alleviating suffering. On a similar note, they underline that the manner in which technology elevates the presence of compassion depends on the design and elements of the platform being used (23 occurrences).

Research Question 3: Final Adapted Scale

The findings from research questions 1 and 2 and the participants were used to create a final scale. First, items representing each cluster per compassion item were selected (see Representative Items per Factor). Next, these items were refined based on the themes and associations expressed throughout the q-sort and the general feedback on items by participants regarding wording and clarity (see Appendix F – Analysis/Feedback of Participants on Wording).

Items were rephrased, and instructions were added to the scale to align the measurement with the role of DMHIs as a facilitator of compassion between the client and the therapist, as suggested by participants. Special attention was paid to items criticised for misattributing agency or falsifying compassion (see Challenges and Critical Notes (on Measurement) of Technology in Compassionate Care (116 Quotes)). All adaptations to items made, with the reasoning, can be found in **Table 5**.

Most items were standardised using the formulation “The platform…” to create cohesion and clarity within the scale if the item's meaning allowed. Furthermore, this phrasing allows the platform to be framed as enabling or assisting processes without assigning the responsibility of compassion to the platform itself. It also considers that sometimes the platform is used actively (i.e., through interaction) or passively (i.e., by receiving notifications).

Furthermore, items about the compassion element of understanding the universality of suffering in human experience, which explicitly referred to the commonality of suffering, were deprioritised, and items about the implicit awareness shown by the therapist through non-judgement and respect were prioritised based on participant feedback. A new item, “The platform makes me feel that I am alone in my suffering”, was included instead to assess whether the platform undermined the awareness of universal suffering.

This resulted in a final full scale with four items per compassion element, which can be found in **Table 6**. The short form of the scale is in **Table 7**. The scale uses a 5-point Likert scale (strongly disagree = 1, disagree = 2, neutral = 3, agree = 4, strongly agree = 5), with item 8 coded in reverse. **Appendix G** contains a randomised and ready-to-use version of CTS-C.

Table 5

Adaptations made to Selected Full-Scale Items with Reasoning.

Original Item Nº	Original Statements	Final Statements	Reason for adapting
2	Using the platform, I can share my experiences with the therapist.	Using [the DMHI], I can share my experiences with the therapist.	No comments
3	The platform makes me feel that the therapist is open to my problems.	[The DMHI] helps me see that the therapist is open to my problems.	Adapted based on participant's comment: The phrase "makes me feel" implies that the platform is creating/faking the respect shown by the therapist, which can be misleading (see Theme "Misattribution and Falsification of Compassion & Human Connection")
4	The platform helps me explain my situation to the therapist.	[The DMHI] helps me explain my situation to the therapist.	No comment
6	Using the platform, I can work on my goals together with the therapist.	Using [the DMHI], I can work on my goals together with the therapist.	No comment
8	The platform helps me indicate to the therapist how I am doing.	[The DMHI] helps me indicate to the therapist how I am doing.	No comment
9	The platform makes me feel that I can also share difficult emotions with the therapist.	[The DMHI] does not hinder me from sharing difficult emotions with the therapist.	Adapted based on the participants' dislike of "makes me feel" (similarly as item 3) and remarks that the scale should assess whether hinders the elements of compassion.
11	The platform encourages me to share my thoughts and feelings with the therapist.	[The DMHI] encourages me to share my thoughts and feelings with the therapist.	No comment
13	The platform gives me the space to share with the therapist when I am having a hard time.	[The DMHI] gives me the space to share with the therapist when I am having a hard time.	No Comment
14	The platform makes me feel that the therapist empathises with my difficult feelings.	Using [the DMHI], I feel that the therapist empathises with my difficult feelings.	Idem as 3
16	Using the platform, I can let the therapist know when I am having a hard time.	Using [the DMHI], I can let the therapist know when I am having a hard time	No comment
20	The platform makes me feel the therapist does not judge my problems.	[The DMHI] helps me see that the therapist does not judge my problems.	Idem as 3

22	The platform helps me share with the therapist in what way I am suffering.	[The DMHI] helps me share with the therapist in what way I am having a hard time.	Adapted on a comment on a related item: "I am suffering" is seen as too dramatic and extreme, making it feel inaccessible. "Having a hard time" was seen as more relatable way to describe distress.
23	The platform helps me work with the therapist to alleviate my suffering.	[The DMHI] helps me work with the therapist when I am having a hard time.	Idem as 22.
24	The platform shows me that other people may also have similar problems.	[The DMHI] helps understand that I am not alone when facing challenges like mine.	Adapted on the participant's dislike on explicit mentions of common suffering, and the suggestion to measure if the platform hinders the elements of compassion.
25	The platform helps me and the therapist do what is necessary for me.	[The DMHI] helps me and the therapist do what is necessary for me.	No comment
28	With the platform I feel respected by the therapist	[The DMHI] does not hinder me from feeling respected by the therapist.	Adapted based on the participants' dislike of "makes me feel" (similarly as item 3) and remarks that the scale should assess whether the DMHI hinders the elements of compassion.
29	Using the platform, I feel supported in improving my situation.	[The DMHI] helps me feel supported in improving my situation.	Idem as 3
30	The platform makes me feel that the therapist understands my problems.	[The DMHI] helps me see that the therapist understands my problems.	Idem as 3
31	With the platform, I don't feel like I have to downplay any difficult feelings to the therapist.	Using [the DMHI] helps me to express my feelings with my therapist without minimising their importance.	Adapted for easier wording: some participants didn't know what downplay meant.
7	The platform makes a compassionate relationship with the therapist possible.	[The DMHI] makes a compassionate relationship with the therapist possible	No Comment
18	The platform enables me to share my problems with the therapist and receive help.	[The DMHI] enables me to share my problems with the therapist. [The DMHI] enables me to receive help from the therapist	Proposed to split the item, as both aspect of enabling to share problems, and enabling receiving help is mentioned.
26	The platform supports compassion in my relationship with the therapist.	[The DMHI] supports compassion in my relationship with the therapist	No Comment

Note. DMHI = digital mental health intervention

Table 6

Final Full Version of Scale

The statements below measure the extent to which a digital mental health intervention supports various aspects of treatment. The wording 'helps me' refers to whether the intervention contributes to this, not to the intervention being necessary for this.

Item Nº	Item	Compassion Element
1	Using [the DMHI], I can work on my goals together with the therapist.	Alleviating Suffering
2	[The DMHI] helps me work with the therapist when I am having a hard time.	
3	[The DMHI] helps me and the therapist do what is necessary for me.	
4	[The DMHI] helps me feel supported in improving my situation.	
5	[The DMHI] helps me see that the therapist does not judge my problems.	Common Humanity
6	[The DMHI] helps understand that I am not alone when facing challenges like mine.	
7	[The DMHI] does not hinder me from feeling respected by the therapist.	
8	[The DMHI] makes me feel that I am alone in my suffering.*	
9	[The DMHI] helps me see that the therapist is open to my problems.	Distress Tolerance
10	[The DMHI] does not hinder me from sharing difficult emotions with the therapist.	
11	[The DMHI] gives me the space to share with the therapist when I am having a hard time.	

12	Using [the DMHI] helps me to express my feelings with my therapist without minimising their significance.	
13	Using [the DMHI], I can share my experiences with the therapist.	Empathy
14	[The DMHI] helps me explain my situation to the therapist.	
15	Using [the DMHI], I feel that the therapist empathises with my difficult feelings.	
16	[The DMHI] helps me see that the therapist understands my problems.	
17	[The DMHI] helps me indicate to the therapist how I am doing.	Recognising Suffering
18	[The DMHI] encourages me to share my thoughts and feelings with the therapist.	
19	Using [the DMHI], I can let the therapist know when I am having a hard time	
20	[The DMHI] helps me share with the therapist in what way I am having a hard time.	

Note. DMHI = digital mental health intervention

*Item 8 is intended to be a reversed item, meaning its measurement is inverted.

Table 7

Final Short-Form of Scale

The statements below measure the extent to which a digital mental health intervention supports various aspects of treatment. The wording 'enables me…' refers to whether the intervention contributes to this, not to the intervention being necessary for this. Compassion refers to the recognition and alleviation of suffering.

Item Nº	**[The DMHI]…**
1	Makes a compassionate relationship with the therapist possible
2	Enables me to share my problems with the therapist.
3	Enables me to receive help from the therapist
4	Supports compassion in my relationship with the therapist

Note. DMHI = digital mental health intervention.

Discussion

The main aim of this study was to establish a scale for clients within mental health care to evaluate how DMHIs affect the perception of the five elemental processes of compassion (Strauss et al., 2016) within a therapeutic process. Following q-methodology principles, we conducted interviews and card-sorting tasks with clients to gather opinions on items for such a scale.

Summary of Key Findings

The participants' priorities of items assessing the DMHI's impact on compassion in treatment revealed four opinion clusters: a) clients who valued the technology's ability to foster the therapeutic connection, b) those who prioritised emotional support or c) action-oriented interventions, and finally, d) those who appreciated the authentic expression enabled by technology. Additionally, the study revealed three key themes within clients' comments about compassionate technology: Benefits and Supportive Functions of Technology in Compassion, Challenges and Critical Notes (on measurement) of Technology in Compassionate Care and Roles and Responsibilities in Compassionate Care.

These clusters and associations allowed for improved knowledge about the client's stance regarding compassionate technology, which ensured that a broad range of client viewpoints is represented in the Compassionate Technology Scale for Clients (CTS-C). This is a 20-item scale in its complete form (CTS-C) with four items per compassion element. The short form (CTS-C-SF) contains four general items about DMHI in compassionate care.

Client Perspectives on Compassion and Technology

The study revealed differing perspectives about how DMHIs can impact compassionate care. Three clusters (Connection-Seeking, Feeling-Focused, and Authentic Expression-Oriented) focused on the DMHIs' impact on compassion through the therapeutic relationship, consistent with research emphasising the central role of the therapeutic alliance for compassion (Horvath & Luborsky, 1993). Differing views on providing compassionate care also emerged: the "feeling-focused" cluster highlighted the empathetic connection, reminiscent of the centrality of empathy in Roger's client-centred therapy (Yao & Kabir, 2024) , while the "action-oriented" cluster was more practical and goal-focused, reminiscent of cognitive behavioural therapy (Grey et al., 2018). The individuals within the identified clusters may have followed specific types of therapy that shaped their perception of how compassion should be provided and of therapist-client interaction. However, as information on the specific therapies participants received was not collected, it is not possible to draw clear conclusions about how these therapies might influence the participants' perspectives.

Future studies could explore how prior experiences and differing therapeutic approaches shape the perception of compassionate technology in mental health care.

Another recurring theme was that DMHI functions and design should respect the client's preferences and context. Some participants preferred in-person care and disliked integrating technology into their care without their choice. Others were okay with technological integration but mentioned preferences regarding the technology's functions, such as the frequency of notifications and alarms. Clients indicated that pushing for technology they do not want to use or implementing it in a way that does not suit the client's needs and context is detrimental to the perception of compassion in therapy. They highlighted that the platform could mitigate this effect by allowing for customisability and personalisation of technological features and design. These insights align with existing research that recommends involving clients in designing and implementing DMHIs to improve individual adoption (Zhao et al., 2023). Prioritising such a collaborative approach will ensure that technology enhances rather than hinders compassionate care.

Client & Therapist in Compassionate Technology

Our study highlights differences between the clients' and therapists' perceptions of compassionate technology. Clients predominantly viewed compassion as an inherent human emotion rooted in the therapeutic relationship, with technology as a facilitator rather than a direct provider of compassion. This perspective emphasises the therapist as the primary provider of compassion and cautions against over-attributing compassion to technology. Some participants even believed that technology alone could not offer compassion, emphasising the centrality of the human connection in therapy.

Mental health professionals, as explored in van Lotringen et al. (2024)'s study, seem to prioritise the functional aspects of technology in compassionate care. The most prevalent professional cluster in this study emphasised the role of technology in enabling a goal-oriented approach and reflecting a professional focus and framing of compassion as a process within therapy (van Lotringen et al., 2024). In contrast, only one participant was a part of the action-oriented cluster in the current study. Additionally, participants focused on the therapist as the primary provider of compassion. This difference may stem from clients' and therapists' distinct roles in therapy. Clients in our study are the "receivers" of compassion and therapy: they seek help, a connection, affirmation, validation, and a sense of safety from a therapist and engage with technology following this mindset. On the other hand, therapists, as the "providers" of compassion and givers of therapy, might engage with technology to enhance the therapeutic processes, adopting a more functional and goal-oriented perspective.

The client's perspective aligns partially with Morrow et al.'s (2022) idea of "human-AI intelligent caring", where AI and technology enhance but do not replace human compassion. Similarly, this notion corresponds to one of the roles of technology in DMHIs proposed by van Lotringen et al. (2023), namely that technology can facilitate compassion between two people. However, clients are sceptical and hesitant about fully integrating technology into care processes (as proposed by Morrow et al., 2022) , and they struggle with the idea that technology can directly provide compassion, which is another proposed role of DMHIs (van Lotringen et al., 2023).

The divergent perspectives between clients and therapists highlight the need to operationalise the elements of compassion carefully within compassionate technology research and to involve all stakeholders to ensure that differing viewpoints are represented. As the roles of clients and therapists in care continue to evolve, with a push towards shared decision-making and more active client participation in health care (Weijden et al., 2022), further research is needed to investigate how differing roles and perspectives of treatment impact the perception and reception of compassionate technology. Exploring this further will allow for a reliable and valid assessment of compassionate care and technology, which can be used to inform the design and integration of technology in compassionate care.

Technology's Role in Mental Health

Our research uncovered the benefits and limitations of the technology's role in compassionate care. Clients express that technology enhances their communication with the therapist and creates a safe space for expression, support, and progress – a perspective also highlighted by professionals in mental health care (van Lotringen et al., 2023). The focus on technology facilitating compassion between clients and professionals may be attributed to the conceptualisation and item phrasing in both studies, which was based on the facilitating role of compassionate technology. This emphasis also aligns with the current design of DMHIs. Most commonly used technologies in mental health care, such as telehealth platforms, currently are intended to allow or improve communication (Kemp et al., 2020). Therefore, participants highlighting communication benefits likely reflects both the study's framing and the existing technological landscape.

The clients' sentiment regarding technology being a safe space for expression aligns with previous research on the benefits of digital interventions for clients. Anonymity and physical distance provided by DMHIs were theorised to lower clients' inhibitions to express themselves towards their therapist (Borghouts et al., 2021; Kemp et al., 2020), something the current participants confirmed and linked to the compassion elements of distress tolerance

and empathy. The clients' statements reflect findings regarding the "(benign) online disinhibition effect" in other fields: within online learning, asynchronous communication and anonymity lead to students being more open to the teachers and make students feel more safe to reach out to the teachers (Rose, 2014).

More generally, some participants highlighted that technology could act as a bridge for human-centred care: technology could make therapy more accessible and provide compassion to people who do not have access to a therapist yet. These findings align with (Wiljer, 2020), who explored the opportunities of using technology for more accessible health care, especially for individuals who cannot access traditional in-person care. Technology can provide compassion within health care by enabling easier access and removing barriers for people not yet in medical care (Wiljer, 2020). Providing initial access to some individuals through digital therapeutic guidance while participants are on waiting lists can provide reassurance and compassion to clients in the limbo of getting help.

Operationalisation & Measurement of Compassion

The operationalisation of the compassion element, "awareness of the universality of suffering," was met with criticism from clients. Clients underscored that asking them to recognise that other peoples are similar to theirs and emphasising the common humanity in suffering (such as "DMHIs help me recognise that other people go through a hard time") felt like their feelings were being pushed aside and undermined their individual experiences, which felt un-compassionate. Furthermore, some clients expressed that they already knew about the universality of suffering and did not need explicit reminders.

Despite these criticisms, items from the same compassion element, which referred to the therapist showing understanding of the universality of suffering in human experience (such as respect and non-judgement) towards the client, were highly rated, and participants felt that the presence of these aspects was essential. This highlights that the issue might not be with the Awareness of the Universality of Suffering itself but how it is presented. While explicit mentions may have felt like generalisations, invalidating the client's personal experiences, that implicitly implied the awareness of the universality of suffering affirmed their unique struggles while affirming the common humanity. It is important to operationalise this compassion element within the treatment and during the assessment of compassion carefully to avoid diminishing the clients' struggles. This can be achieved by measuring acts that implicitly convey the understanding of suffering as a universal experience or by measuring the absence of gestures and actions linked to this element of compassion.

Furthermore, participants perceived compassion as a uniquely human emotion, making it difficult for them to conceptualise compassion within technological interventions. This may be linked to a common perception of technology as inherently "cold" compared to the "warmth" of human interactions within care (Pols & Moser, 2009). However, the "cold technology" perspective contrasts with research, which demonstrates a technology's ability to facilitate warm and affective interactions in care settings (Pols & Moser, 2009). This discrepancy between research and participant findings highlights the need for careful consideration of how compassion is operationalised and presented within DMHIs and the importance of educating users about the potential for technology to support compassionate care.

The Compassionate Technology Scale for Clients

We selected items prioritised by each cluster while ensuring all elements of compassion were represented to establish the Compassionate Technology Scale for Clients, a counterpart to the CTS-P aimed at mental health professionals (van Lotringen et al., 2024).

The participants' clusters and associations regarding technology's role in compassionate care informed which items were chosen and how they were revised, focusing on technology's role as a facilitator of compassion. All adaptations were made to improve the scale based on feedback while reflecting the definition of compassion proposed by Strauss et al. (2016).

Despite conceptualisation struggles, we opted to include the element of awareness of the universality of suffering still, opting for items that referred to implicit acts by the therapist and creating a single reverse item assessing the lack of universality of suffering in technology was implemented in the scale.

Study Strengths and Limitations

Methodology

The unique and human-centred approach towards technology is the primary strength of this study and the CTS-C. Current evaluation scales of DMHIs primarily focus on evaluating the technical aspects such as feasibility, usability, engagement, acceptability and effectiveness (Balcombe & De Leo, 2023). This study, in contrast, aimed to assess technology's impact on compassion, a human factor essential to therapy but largely understudied within evaluation studies. In line, the process of the scale creation, starting from the creation of the q-set up to the final changes made to wordings to the scale, was informed by a human-centred design perspective. Once an initial q-set was created through theoretical and professional input, the clients–the final users of this scale–and their perspectives guided the decision-making and creation of the scale. The steps of q-methodology and the mixed-

method analysis lead to stakeholders' high involvement (Ten Klooster et al., 2008; Watts & Stenner, 2012), making it a promising methodology for human-centred design and care.

On the other hand, the use of q-methodology was also a limitation due to the task difficulty, as shown by several participants struggling to start with the q-sort task due to the complex nature of the task and needing extensive explanations and guidance. Participants were prompted to assess: “How important are these items for evaluating whether technology supports compassion in treatment, according to you?” which required participants to consider four aspects simultaneously: 1) the importance of items, 2) for evaluating technology, 3) and how it supports compassion, 4) in mental health care treatment. While most participants reported understanding the task after an initial learning curve, some may have sorted the items based on partial criteria. Additionally, the final q-sorts did not clearly distinguish between wording (dis)likes and the (non-)importance of the statements, which can complicate interpretation. Future studies could address such complexity by piloting the q-sort task and prompts and asking distinguishing questions on wording and content preferences more directly.

Finally, the incomplete inter-rater reliability process represents another methodological limitation. Although a second coder did use the coding scheme on **13%** of the data, a complete inter-coder reliability process was not feasible within the constraints of the project. Typically, this process includes discussions between coders to resolve coding conflicts, which may lead to revising the coding scheme and re-examining previously coded data (as seen in van Lotringen et al., 2024). While the initial agreement percentage of 72% provides some insight into the coding scheme’s consistency, it does not fully reflect the potential accuracy without further discussion. This highlights an area for future research, where a more comprehensive inter-rater reliability process, including resolution of disagreements and re-coding of data, can further enhance the credibility of thematic analysis.

Sample

Another limitation is the relatively small and homogeneous sample size of 16 participants, all under 30 years old and educated, predominantly from the University of Twente, an institution emphasising critical thinking towards technology and its societal implications. As q-methodology prioritises exploring differences in opinions (Ten Klooster et al., 2008), including more diverse participants regarding age and educational background may provide deeper insights into the factor structure. This is especially important as the participant’s familiarity with technology made them highly critical of integrating technology into mental health care. The generalisability of the findings further decreases when

considering that this research was conducted in the Netherlands, leading to a potential euro-centric perspective on technological implementation.

Conceptual Challenges

The last limitation is related to the final proposed scale and what it aims to measure. The current research defined compassion as 5-elements (Strauss et al., 2016) within a process which, when all present, lead to compassion. Throughout the study, it became apparent that most client participants viewed compassion as a uniquely human emotion and disagreed with the operationalisation and conceptualisation of compassion, especially the operationalisation of the element "Awareness of Universality of Suffering" chosen. This might be linked to the critical nature of the current sample towards technology and the fact that participants may perceive technology as "cold", as mentioned earlier (Pols & Moser, 2009).

This discrepancy raises the question of how to validly measure compassion in technology following the process perspective when presenting the scale to individuals who might not have this perspective available or actively oppose this perspective. An attempt was made to rectify these discrepancies in the proposed final scale by adding explanations, changing the wording of items, and adding items regarding the hindrance of compassion. The final scale, therefore, leans more strongly towards the facilitating role of technology in compassion to find the middle ground between the process perspective established within compassionate technology research and the current notion of clients. Future research needs to investigate the discrepancies and opinions within compassionate technology's perceived roles and perspectives and might want to establish a scale focusing on the first potential role of technology, providing compassion, by shifting away the focus from the therapeutic relationship, such as "The use of the DMHI helps to understand how I am struggling".

Future Research

Further research should evaluate the CTS-C with a more diverse sample of mental health care clients for cross-validation. Additionally, future research should focus on the psychometric validation of the factor structure, the reliability of the scale, and its validity.

Furthermore, the established scale will allow future research to progress our understanding of compassionate technology. It can be used to evaluate which elements of compassion technologies facilitate and provide insights into how technology complements or inhibits the human aspect of therapy. If a broad range of DMHIs are assessed using this scale, the scores of the CTS-C can be used to compare them. Moreover, CTS-C-SF can be used during the design of DMHIs and as a screening tool during pilot testing, guiding the design

for more effective and compassionate DMHIs. The tool allows testing of complete platforms and specific functionalities on their impact on compassion.

There is also a potential to expand the assessment of compassion within technology beyond mental health care. Whitelaw et al., 2021 explain that most current digital health care is designed and meant for mental health care. Nonetheless, current research (such as Wiljer, 2020) highlights the potential of expansion towards digital health care to improve its accessibility, something two clients also shortly touched upon within their interviews. A future avenue for research is to create a general version of the CTS-C and CTS-P, which assesses the impact of technology on compassion. This, among other things, could encompass creating new items that describe the five compassion elements based on the conceptualisation of compassionate care and actions in general health care, such as “The technology connects me with care providers to address my health concerns” to measure the acting to alleviate suffering.

Conclusion

To conclude, this study established the Compassionate Technology Scale for Clients and short form to measure DMHIs’ influence on the five elements of compassion within the therapeutic process. Participants prioritised the potential of technology to improve the therapeutic relationship by building the connection, creating a safe space for expression, or enabling the therapist to validate their feelings while being hesitant to attribute compassion to technology directly. This raised new questions regarding the role of technology in compassionate care and the therapeutic relationship and exposed discrepancies between how clients might conceptualise compassion compared to current research.

The CTS-C(-SF) is a tool for evaluating and guiding the design of DMHIs while keeping human values central. Further research should focus on validating the scale’s factor structure and reliability through psychometric research and addressing conceptual challenges uncovered in this study. Further research avenues are the development of a scale to assess digital health technologies' impact on compassion in general health care, as well as more exploration of client’s perspectives of the client towards compassionate technology. Ultimately, this research contributes to a human-centred approach to mental health care, ensuring that digital innovations enhance rather than inhibit compassionate care.

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Appendix A – Provisional Questionnaire

Item Nº	Original Dutch (CvL)	English Translation (AZ)	English Translation (P&HT dep.)	Professional English Translation	Reconciliation	Backtranslation 1 (Professional)	Backtranslation 2 (PH&T dep.)	Provided Q-Set Version	Type of Compassion
1	Het helpt me om doelen te stellen met de therapeut.	The platform helps me to establish goals with the therapist.	This platform helps me to set goals together with the therapist.	The platform helps me set goals with the therapist.	The platform helps me set goals with the therapist.	Het platform helpt me om doelen te stellen met de therapeut.	Het platform helpt mij om doelen te stellen met de therapeut.	The platform helps me set goals with the therapist.	Alleviating Suffering
2	Met het platform kan ik mijn ervaring delen met de therapeut.	Using the platform, I can share my experience with the therapist.	Using this platform helps me to share my experience(s) with the therapist	The platform allows me to share my experiences with the therapist.	Using the platform, I can share my experiences with the therapist.	Via het platform kan ik mijn ervaringen delen met de therapeut.	Met gebruik van het platform kan ik mijn ervaring delen met de therapeut.	Using the platform, I can share my experiences with the therapist.	Empathy
3	Het platform geeft me het gevoel dat de therapeut open staat voor mijn problemen.	The platform gives me the impression that the therapist is open to my problems.	The platform makes me feel that the therapist is open to my problems.	The platform makes me feel that the therapist is open to my problems.	The platform makes me feel that the therapist is open to my problems.	Het platform geeft me het gevoel dat de therapeut openstaat voor mijn problemen.	Het platform laat me voelen dat de therapeut open staat voor mijn problemen.	The platform makes me feel that the therapist is open to my problems.	Distress Tolerance
4	Het platform helpt me om de therapeut mijn situatie te laten begrijpen.	The platform helps me make the therapist understand my situation.	The platform helps me to get the therapist to understand my situation.	The platform helps me convey my situation to the therapist effectively.	The platform helps me explain my situation to the therapist.	Het platform helpt me om mijn situatie uit te leggen aan de therapeut.	Het platform helpt me om mijn situatie uit te legen aan de therapeut.	The platform helps me explain my situation to the therapist.	Empathy
5	Het platform helpt me om te beseffen dat lijden door iedereen kan worden ervaren.	The platform helps me realise that everyone can experience suffering.	The platform helps me to realise that everyone sometimes suffers.	The platform helps me understand that suffering is a universal experience.	The platform helps me understand that everyone can experience suffering.	Het platform helpt me om te begrijpen dat iedereen lijden kan ervaren.	Het platform helpt me om te begrijpen dat iedereen leed kan ervaren.	The platform helps me understand that everyone can experience suffering.	Common Humanity

6	Met het platform kan ik samen met de therapeut aan mijn doelen werken.	Using the platform, I can work on my problems with my therapist together.	With this platform I can work on my goals together with my therapist.	The platform allows me to collaborate with the therapist on achieving my goals.	Using the platform, I can work on my goals together with the therapist.	Via het platform kan ik samen met de therapeut aan mijn doelen werken.	Door gebruik van het platform kan ik mijn doelen uitwerken samen met de therapeut.	Using the platform, I can work on my goals together with the therapist.	Alleviating Suffering
7	Het platform maakt een compassievolle relatie met de therapeut mogelijk.	The platform facilitates a compassionate relationship with the therapist.	The platform enables a compassionate relationship with my therapist.	The platform fosters a compassionate relationship between me and the therapist.	The platform makes a compassionate relationship with the therapist possible.	Het platform maakt een meelevende relatie met de therapeut mogelijk.	Het platform geeft de mogelijkheid voor een empathische relatie met de therapeut.	The platform makes a compassionate relationship with the therapist possible.	General
8	Het platform helpt me om aan de therapeut aan te geven hoe het met me gaat.	The platform allows me to indicate how I am doing to my therapist.	The platform enables me to indicate how I am doing to my therapist.	The platform helps me indicate to the therapist how I'm doing.	The platform helps me indicate to the therapist how I am doing.	Het platform helpt me om bij de therapeut aan te geven hoe het met me gaat.	Het platform helpt me te laten weten aan de therapeut hoe het gaat met mij.	The platform helps me indicate to the therapist how I am doing.	Recognising Suffering
9	Het platform geeft me het gevoel dat ik ook mijn moeilijke emoties kan delen met de therapeut.	The platform gives me the feeling that I can also share my difficult emotions with the therapist.	The platform makes me feel that I can also share difficult emotions with my therapist.	The platform makes me feel comfortable sharing my difficult emotions with the therapist.	The platform makes me feel that I can also share difficult emotions with the therapist.	Het platform geeft me het gevoel dat ik ook moeilijke gevoelens met de therapeut kan delen.	Het platform laat me voelen dat ik zware emoties kan delen met de therapeut.	The platform makes me feel that I can also share difficult emotions with the therapist.	Distress Tolerance
10	Het platform motiveert me om met de therapeut aan mijn problemen te werken.	The platform motivates me to work on my problems with my therapist.	The platform motivates me to work on my problems together with my therapist.	The platform encourages me to actively address my problems with the therapist.	The platform motivates me to work on my problems with the therapist.	Het platform motiveert me om samen met de therapeut aan mijn problemen te werken.	Het platform motiveert mij om aan mijn problemen te werken met de therapeut.	The platform motivates me to work on my problems with the therapist.	Alleviating Suffering

11	Het platform stimuleert me om mijn gedachten en gevoelens te delen met de therapeut.	The platform encourages me to share my thoughts and feelings with the therapist.	The platform stimulates me to share my thoughts and feelings with my therapist.	The platform encourages me to share my thoughts and feelings with the therapist.	The platform encourages me to share my thoughts and feelings with the therapist.	Het platform stimuleert me om mijn gedachten en gevoelens met de therapeut te delen.	Het platform moedigt mij aan om mijn gedachten te delen met de therapeut.	The platform encourages me to share my thoughts and feelings with the therapist.	Recognising Suffering
12	Met het platform zie ik in dat moeilijke gevoelens onderdeel zijn van het leven als mens.	Using the platform, I recognise that difficult feelings are part of life as a human being.	The platform makes me realise that difficult emotions are part of the human experience/life	The platform helps me recognise that difficult emotions are a natural part of human life.	With the platform I realise that difficult feelings are a natural part of human life.	Dankzij het platform realiseer ik me dat moeilijke gevoelens een natuurlijk onderdeel zijn van het menselijk leven.	Met het platform, realiseer ik me dat moeilijke/heftige gevoelens een natuurlijk onderdeel zijn van het menselijk leven.	The platform helps me recognise that difficult feelings are a part of human life.	Common Humanity
13	Het platform geeft me de ruimte om met de therapeut te delen wanneer ik het moeilijk heb.	The platform gives me the space to share with the therapist when I am struggling.	The platform gives me space to share with my therapist moments when I'm having a hard time.	The platform gives me the space to discuss my struggles with the therapist.	The platform gives me the space to share with the therapist when I am having a hard time.	Het platform geeft me de ruimte om het met de therapeut te delen als ik het moeilijk heb.	Het platform geeft mij de ruimte om met de therapeut te delen wanneer ik een lastige tijd heb.	The platform gives me the space to share with the therapist when I am having a hard time.	Distress Tolerance
14	Het platform geeft me het gevoel dat de therapeut empathie heeft voor mijn moeilijke gevoelens.	The platform makes me feel that the therapist has empathy for my difficult feelings.	The platform makes me feel that the therapist empathises with my difficult feelings/emotions.	The platform makes me feel that the therapist understands and empathises with my challenging emotions.	The platform makes me feel that the therapist empathises with my difficult feelings.	Het platform geeft me het gevoel dat de therapeut meeleeft met mijn moeilijke gevoelens.	Het platform laat me voelen dat de therapeut empathie heeft voor mijn moeilijke gevoelens.	The platform makes me feel that the therapist empathises with my difficult feelings.	Empathy

15	Met het platform realiseer ik me dat het hebben van problemen menselijk is.	Using the platform, I can realise that having problems is human.	With this platform I realise that having problems is human.	The platform helps me understand that experiencing problems is a fundamental part of being human.	The platform helps me realise that having problems is part of being human.	Het platform helpt me te realiseren dat problemen bij het menselijke leven horen.	Het platform helpt me te realiseren dat het hebben van problemen onderdeel is van het mens zijn.	The platform helps me realise that having problems is part of being human.	Common Humanity
16	Met het platform kan ik de therapeut laten merken wanneer ik het moeilijk heb.	Using the platform, I can make the therapist recognise when I am struggling.	With this platform I can let the therapist know when I'm having a hard time.	The platform allows me to inform the therapist when I'm having a tough time.	Using the platform, I can let the therapist know when I am having a hard time.	Via het platform kan ik de therapeut laten weten wanneer ik het moeilijk heb.	Door gebruik van het platform, kan ik aan de therapeut laten weten wanneer ik een lastige/heftige tijd heb.	Using the platform, I can let the therapist know when I am having a hard time.	Recognising Suffering
17	Met het platform kan ik mijn perspectief delen met de therapeut.	Using the platform, I can share my perspective with the therapist.	With this platform I can share my perspective with the therapist.	The platform enables me to share my perspective with the therapist.	With the platform I can share my point-of-view with the therapist.	Via het platform kan ik mijn standpunt met de therapeut delen.	Met het platform kan ik mijn perspectief delen met de therapeut.	With the platform I can share my point-of-view with the therapist.	Empathy
18	Het platform stelt mij in staat om mijn problemen te delen met de therapeut en hierbij geholpen te worden.	The platform allows me to share my problems with the therapist and be helped by doing so.	The platform enables me to share my problems with the therapist and to get help.	The platform enables me to share my problems with the therapist and be helped in the process.	The platform enables me to share my problems with the therapist and receive help.	Het platform stelt me in staat om mijn problemen met de therapeut te delen en hulp te krijgen.	Het platform geeft mij de mogelijkheid om mijn problemen met de therapeut te delen en hulp te krijgen.	The platform enables me to share my problems with the therapist and receive help.	General
19	Met het platform heb ik het gevoel dat de therapeut meeleeft	Using the platform, I feel that the therapist sympathises when I am struggling.	With the platform I feel the therapist sympathises when I am having a hard time.	The platform makes me feel that the therapist empathises with me when	With the platform I feel the therapist sympathises when I am having a hard time.	Dankzij het platform heb ik het gevoel dat de therapeut met me meeleeft als ik	Met het platform, voel ik dat de therapeut meeleeft wanneer ik een lastige/heftige tijd heb.	With the platform I feel the therapist sympathises when I am having a hard time.	Empathy

	wanneer ik het moeilijk heb.			I'm struggling.		het moeilijk heb.			
20	Het platform geeft me het gevoel dat de therapeut mijn problemen niet veroordeeld.	The platform makes me feel that my therapist does not judge my problems.	The platform makes me feel the therapist does not judge my problems.	The platform helps me feel that the therapist is understanding and non-judgmental about my problems.	The platform makes me feel the therapist does not judge my problems.	Het platform geeft me het gevoel dat de therapeut mijn problemen niet beoordeelt.	Het platform laat me voelen dat therapeut veroordeelt mijn problemen niet.	The platform makes me feel the therapist does not judge my problems.	Common Humanity
21	Met het platform voel ik me vrij om met de therapeut te delen wanneer het niet goed gaat.	Using the platform, I feel free to share with my therapist when things are not going well.	With the platform I feel free to share with my therapist when I am not doing well.	The platform gives me the freedom to share with the therapist when things aren't going well.	With the platform I feel free to share with the therapist when things are not going well.	Met het platform voel ik me vrij om met de therapeut te delen wanneer dingen niet goed gaan.	Met het platform voel ik me vrij om te delen met de therapeut wanneer dingen niet goed gaan.	With the platform I feel free to share with the therapist when things are not going well.	Distress Tolerance
22	Het platform helpt me om met de therapeut te delen op welke manier ik lijd.	The platform helps me share with my therapist in what way I am suffering.	The platform helps me to share with the therapist in what way I am suffering.	The platform helps me share with the therapist the manner in which I am suffering.	The platform helps me share with the therapist in what way I am suffering.	Het platform helpt me om met de therapeut te delen op welke manier ik lijd.	Het platform helpt me te delen met de therapeut op welke manier ik lijd.	The platform helps me share with the therapist in what way I am suffering.	Recognising Suffering
23	Het platform helpt me om samen met de therapeut mijn lijden te verlichten.	The platform allows me to work with my therapist to alleviate my suffering.	The platform helps me to ease my suffering together with my therapist.	The platform helps me work with the therapist to alleviate my suffering.	The platform helps me work with the therapist to alleviate my suffering.	Het platform helpt me om samen met de therapeut mijn lijden te verlichten.	Het platform helpt me te werken met de therapeut om mijn leed te verlichten.	The platform helps me work with the therapist to alleviate my suffering.	Alleviating Suffering

24	Het platform laat zien dat anderen mijn problemen ook zouden kunnen doormaken.	The platform shows me that other people could also go through my problems.	This platform shows me that other people could also have the same problems.	The platform illustrates that others may also experience similar problems.	The platform shows me that other people may also have similar problems.	Het platform laat me zien dat andere mensen ook soortgelijke problemen kunnen hebben.	Het platform laat mij zien dat andere mensen vergelijkbare problemen hebben.	The platform shows me that other people may also have similar problems.	Common Humanity
25	Het platform helpt me om samen met de therapeut te doen wat nodig is voor mij.	The platform helps me and the therapist to do together what is necessary for me.	The platform helps me to do what's needed from me, together with my therapist.	The platform supports me in collaborating with the therapist to do what's best for me.	The platform helps me, and the therapist do what is necessary for me.	Het platform helpt mij en de therapeut om te doen wat nodig is voor mij.	Het platform helpt mij en de therapeut om te doen wat nodig is voor mij.	The platform helps me, and the therapist do what is necessary for me.	Alleviating Suffering
26	Het platform ondersteunt compassie in mijn relatie met de therapeut.	The platform supports compassion within the relationship with the therapist.	The platform enables compassion in my relationship with the therapist.	The platform fosters compassion in my relationship with the therapist.	The platform supports compassion in my relationship with the therapist.	Het platform ondersteunt de meelevendheid in de relatie tussen mij en de therapeut.	Het platform ondersteunt compassie in mijn relatie met de therapeut.	The platform supports compassion in my relationship with the therapist.	General
27	Het platform helpt me om aan de therapeut aan te geven wanneer ik lijd.	The platform helps me indicate to the therapist when I am suffering.	The platform helps me to indicate to my therapist when I am suffering.	The platform helps me indicate to the therapist when I'm suffering.	The platform helps me indicate to the therapist when I am suffering.	Het platform helpt me om bij de therapeut aan te geven wanneer ik lijd.	Het platform helpt me om een indicatie te geven aan de therapeut wanneer ik aan het lijden ben.	The platform helps me indicate to the therapist when I am suffering.	Recognising Suffering
28	Met het platform voel ik mij in mijn waarde gelaten door de therapeut.	Using the platform, I feel respected by the therapist.	With this platform I feel respected by my therapist.	The platform makes me feel respected by the therapist.	With the platform I feel respected by the therapist	Dankzij het platform voel ik me gerespecteerd door de therapeut.	Met gebruik van het platform voel ik me gerespecteerd door de therapeut.	With the platform I feel respected by the therapist	Common Humanity

29	Met het platform voel ik me ondersteund in het verbeteren van mijn situatie.	Using the platform, I feel supported to improve my situation.	With this platform I feel supported in improving my situation.	The platform helps me feel supported in improving my situation.	With the platform, I feel supported in improving my situation.	Dankzij het platform voel ik me gesteund om mijn situatie te verbeteren.	Met gebruik van het platform voel ik me ondersteunt om mijn situatie te verbeteren.	Using the platform, I feel supported in improving my situation.	Alleviating Suffering
30	Het platform geeft me het gevoel dat mijn problemen begrepen worden door de therapeut.	The platform gives me the feeling that the therapist can understand my problems.	The platform makes me feel like the therapist understands my feelings.	The platform makes me feel that the therapist understands my problems.	The platform makes me feel that the therapist understands my problems.	Het platform geeft me het gevoel dat de therapeut mijn problemen begrijpt.	Het platform laat me voelen dat de therapeut mijn problemen begrijpt.	The platform makes me feel that the therapist understands my problems.	Empathy
31	Met het platform hoef ik mijn moeilijke gevoelens niet af te zwakken voor de therapeut.	Using the platform, I do not have to play down my feelings in front of the therapist.	With this platform I don't have to understate my difficult feelings for my therapist	With the platform, I don't feel like I have to downplay any difficult feelings to the therapist.	With the platform, I don't feel like I have to downplay any difficult feelings to the therapist.	Dankzij het platform heb ik niet het gevoel dat ik moeilijke gevoelens moet bagatelliseren tegenover de therapeut.	Met gebruik van het platform, voel ik niet dat ik mijn moeilijke gevoelens aan de therapeut moet verkleinen.	With the platform, I don't feel like I have to downplay any difficult feelings to the therapist.	Distress Tolerance
32	Het platform helpt me om de therapeut te laten weten wanneer ik me niet goed voel.	The platform supports me to inform the therapist when I am not feeling well.	The platform helps me to let the therapist know when I am not feeling well.	The platform helps me let the therapist know when I'm not feeling well.	The platform helps me let the therapist know when I'm not feeling well.	Het platform helpt me om de therapeut te laten weten wanneer ik me niet goed voel.	Het platform helpt me aan de therapeut te laten weten wanneer ik me niet goed voel.	The platform helps me let the therapist know when I'm not feeling well.	Recognising Suffering
33	Met het platform voel ik mij gerespecteerd door de therapeut.	Using the platform, I feel respected by the therapist.	The platform makes me feel respected by the therapist.	The platform makes me feel valued and respected by the therapist.	The platform makes me feel respected by the therapist.	Het platform zorgt ervoor dat ik me gerespecteerd voel door de therapeut.	Het platform laat me voelen dat ik gerespecteerd word door de therapeut.	The platform makes me feel respected by the therapist.	Common Humanity

34	Het platform helpt om met de therapeut stil te staan bij wat wel goed gaat.	The platform helps to reflect with the therapist on what is going well.	The platform helps me and my therapist to focus on what is going well.	The platform facilitates reflection with the therapist on what is going well.	The platform helps to reflect with the therapist on what is going well.	Het platform helpt om met de therapeut stil te staan bij wat goed gaat.	Het platform helpt me om te reflecteren met de therapeut over wat goed gaat.	The platform helps to reflect with the therapist on what is going well.	General
35	Ik ervaar het platform als een compassievolle toevoeging in mijn behandeling.	I feel that the platform is a compassionate addition to my treatment.	I feel this platform is a compassionate addition to my therapy.	I find the platform to be a compassionate addition to my treatment.	I find the platform to be a compassionate addition to my treatment.	Ik vind het platform een compassievolle aanvulling op mijn behandeling.	Ik vind het platform een compassievolle aanvulling aan mijn behandeling.	I find the platform to be a compassionate addition to my treatment.	General

Appendix B

Factsheet & Informed Consent Form for "Compassion in DMHI" Research

Purpose of the investigation

This research is led by Alec Zirnheld, a master's student in Health Psychology and Technology of the University of Twente, under the guidance of the first supervisor PhD candidate Charlotte van Lotringen. The aim of this study is to work with (past) mental health patients to create a scale to evaluate the value of compassion within health technology during mental health care. The collected research data can be used for scientific articles and publications.

How do we proceed?

You are participating in an investigation in which we collect information by:

- A card sorting game. A sound & video recording is made of this. This recording is transcribed and anonymized.
- Asking for some of your data: age, gender, and function/diagnosis and education level on an anonymous basis.

Risks and inconveniences

Your participation in this study does not entail any risks. You are not obliged to answer questions that you do not want to answer. Your participation is voluntary, and you can stop at any time.

Compensation

If you are a student and eligible for SONA credit points, you can receive SONA credit points for your participation. You will not be reimbursed in other ways for your participation in this study.

Confidentiality of data

Before the research data is published, your data is made anonymous. This will not allow you to be recognized. All materials created or collected for the research are safely stored at the University of Twente and the researchers' secure (encrypted) equipment. The research data is kept for 10 years. After this period, the data will be deleted or anonymized so that it can no longer be traced back to a person.

This research has been reviewed and approved by the ethics committee of the Faculty of BMS. If you want to stop the study or if you have any questions and/or complaints, please contact the study supervisor: Charlotte van Lotringen (c.m.vanlotringen@utwente.nl). Finally, you have the right to submit a request for access, modification, deletion, or modification of your data to the research leader.

For objections regarding the design or execution of the research, you can also contact the Secretary of the Ethics Committee of the Faculty of Behavioural, Management and Social Sciences of the University of Twente via ethicscommittee-bms@utwente.nl. If you have specific questions about the handling of personal data, you can also address them to the Data Protection Officer of the UT by sending an e-mail to dpo@utwente.nl.

By signing this consent form, I Acknowledge the following:		
1.I have read and understood the information sheet and have had the opportunity to ask questions about it. These questions have been adequately answered.	***Yes***	***No***
I volunteer to participate in this investigation. It is clear to me that I can stop at any time, without having to give a reason. I don't have to answer a question if I don't want to.	***Yes***	***No***
I give permission to make a sound and video recording during the research and to type out my answers.	***Yes***	***No***
I give permission to use my answers for anonymous quotes in the research publications.	***Yes***	***No***
I give permission to store the research data collected from me and to use it for future research and for educational purposes	***Yes***	***No***

Appendix C: Q-Sort Instructions & Materials

1. Explanation of Study
    a. standardised tool/questionnaire to assess how DMHIs influence the perception of compassion in treatment from a client's perspective.
    b. Will be done by doing a card-sorting task.
    c. 1st sort: does not have to be equal
        i. Platform
        ii. You can change your answers even after
    d. 2nd sort has restrictions
    e. Explanation of **Think Aloud procedure**
    f. Definition of Compassion

Frameworks into five elements: 1) Recognizing suffering; 2) Understanding the universality of suffering in human experience; 3) Feeling empathy for the person suffering and connecting with the distress (emotional resonance); 4) Tolerating uncomfortable feelings aroused in response to the suffering person (e.g. distress, anger, fear) so remaining open to and accepting of the person suffering; and 5) Motivation to act/acting to alleviate suffering." (Strauss et al., 2016, p. 19)

    g. Check for Questions, then guide to platform.
    h. **Start of recording**.
    i. Qualitative Interview

- How did you feel about doing this task?
- What did you think of the statements you sorted?
- How did you approach the sorting?
- You sorted [statement] as the most important. Can you say something about that?
- You sorted [statement] as the least important. Can you say something about that?
- Were there any statements that you found difficult to understand?
- Were there any statements that you found superfluous?
- Are there any statements that you would like to add yourself to measure compassion in the treatment with technology?
- [Name striking choices, moments of doubt or other observations during the sorting task]. How did that go?

Appendix D: Factor Analysis Results

Figure 3

Scree plot of unrotated PCA components

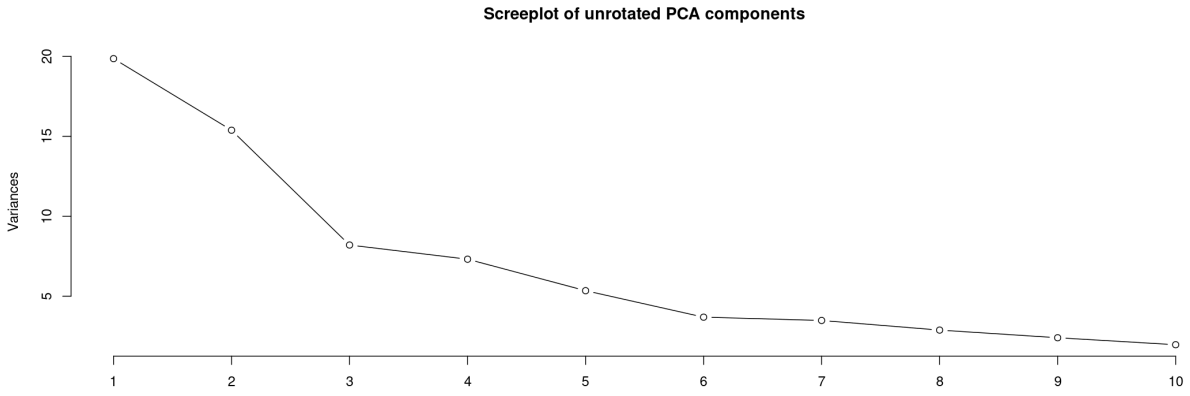

Figure 4

Composite QSort for Factor 1

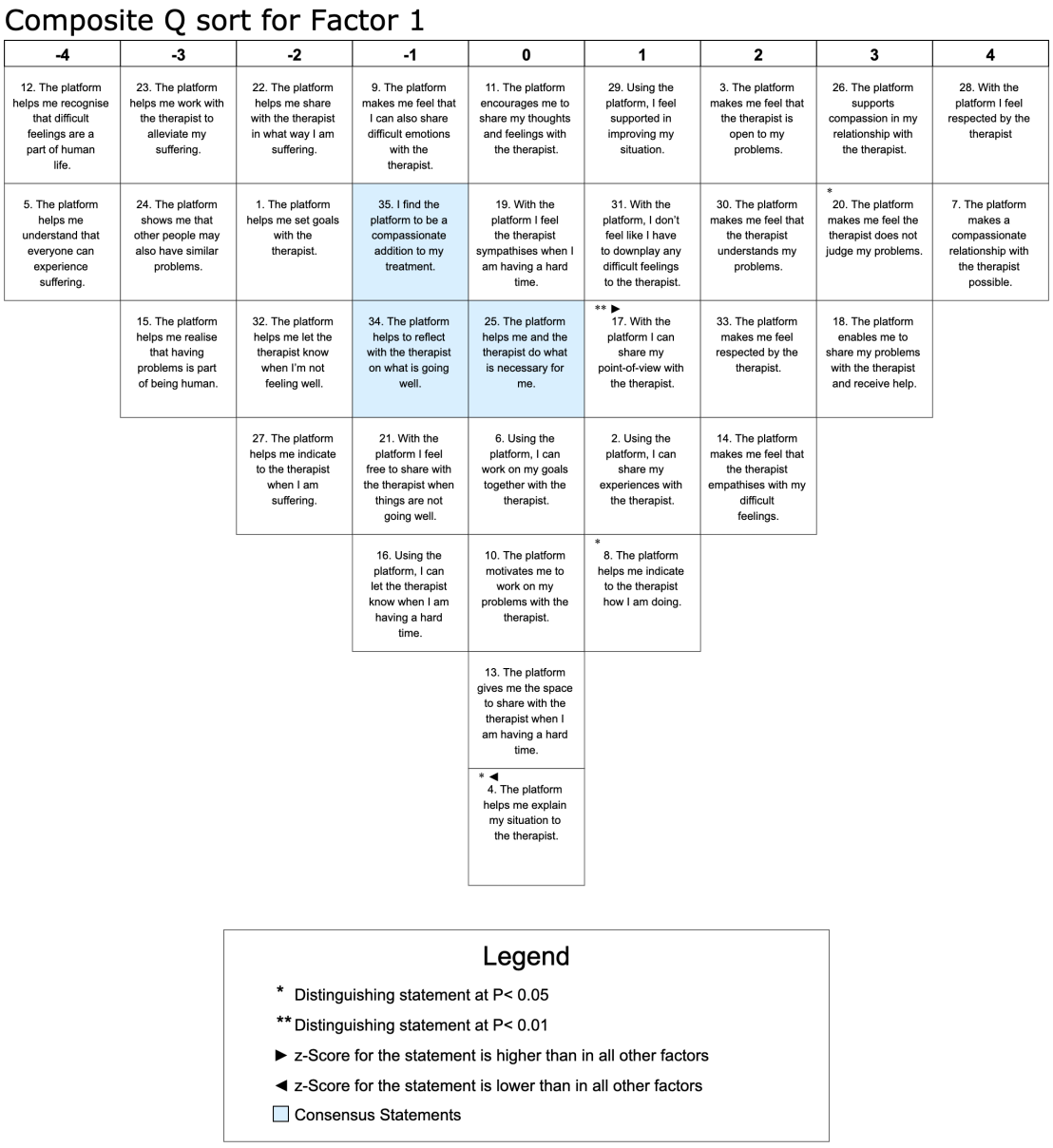

Figure 5

Composite QSort for Factor 2A

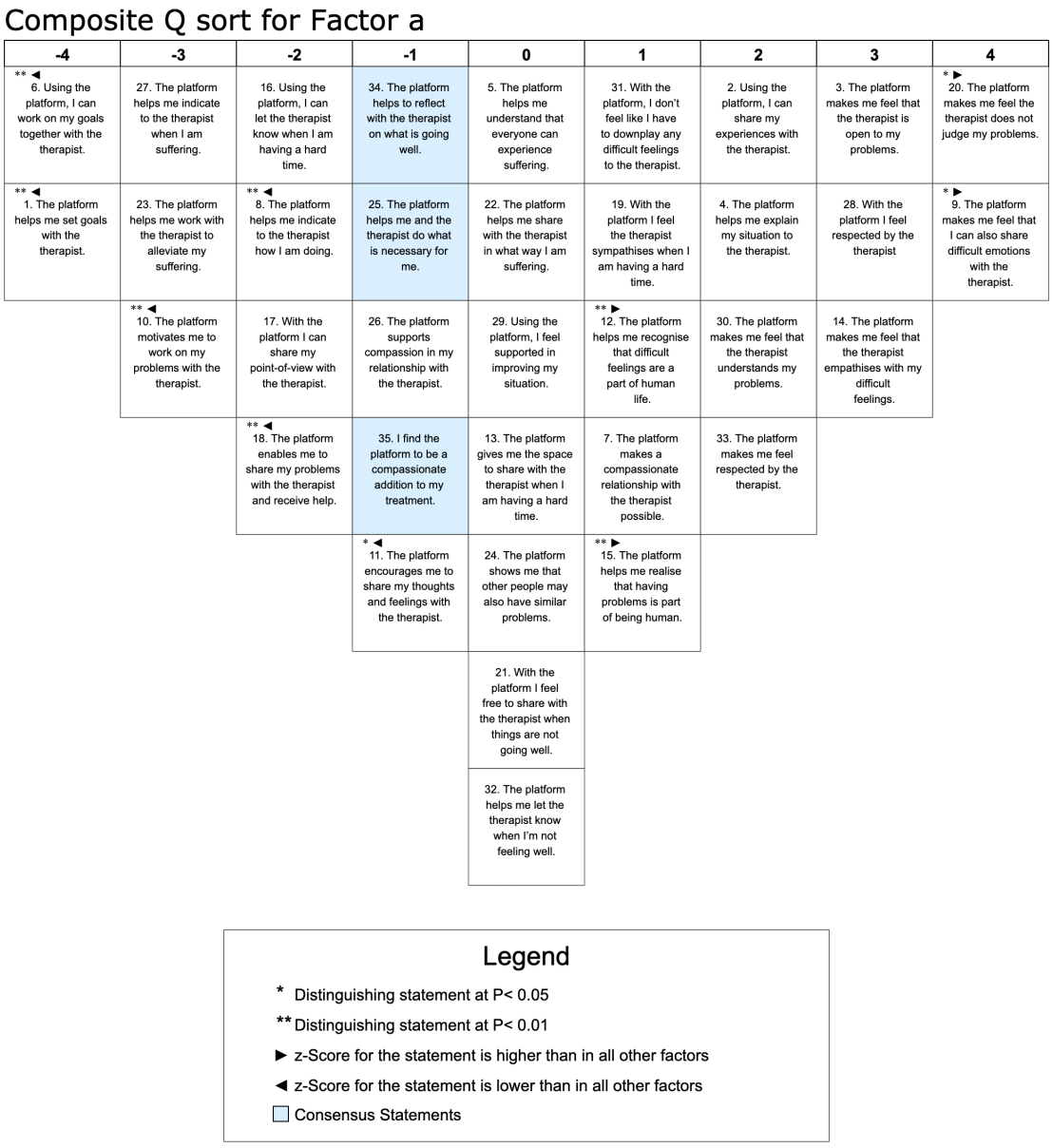

Figure 6

Composite QSort for Factor 2B

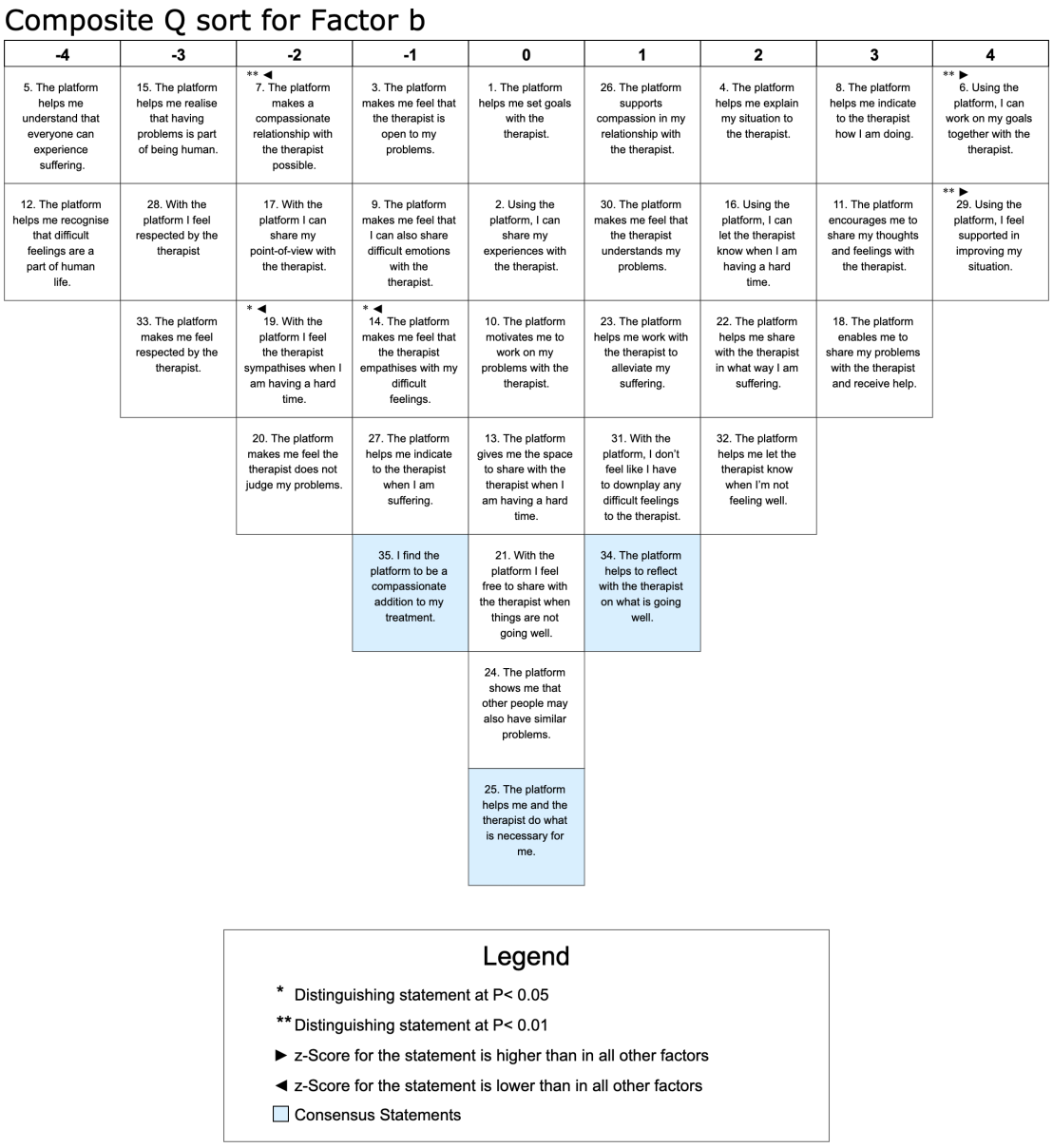

Figure 7

Composite QSort for Factor 3

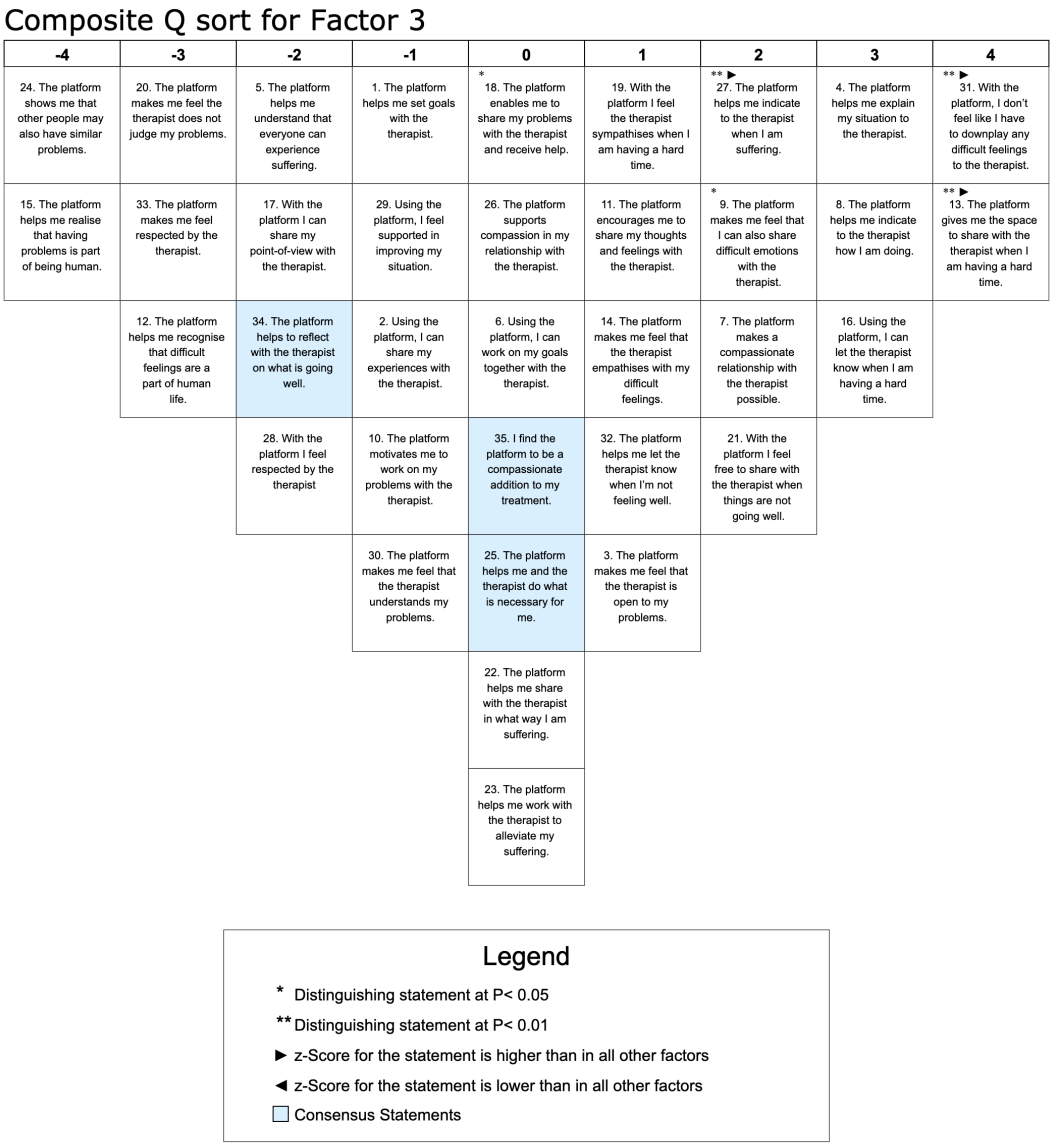

Table A

Unrotated Factor Matrix

Nº	Participant	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
1	T1	0,2709	0,5425	-0,545	-0,406	0,1119	-0,2474	0,034	0,0432
2	T2	-0,3869	0,2193	0,0177	0,6091	0,4634	-0,1606	-0,1287	0,0468
3	T3	0,4704	0,3417	0,5332	-0,0886	-0,0903	0,007	-0,517	0,1515
4	T4	0,4794	-0,4208	0,4256	-0,3173	0,0227	-0,0555	0,3253	0,2753
5	T5	0,641	0,3099	0,0189	-0,0338	0,5516	-0,0592	0,2324	-0,2188
6	T6	0,5395	0,3492	0,2353	0,4618	-0,023	0,4072	-0,0524	-0,2657
7	T7	0,8163	0,1131	-0,2638	0,1415	0,2466	-0,0393	-0,0817	0,1862
8	T8	0,7494	0,0628	-0,5094	0,0074	-0,0827	0,0448	-0,0138	0,0357
9	T9	0,7282	0,2977	0,0348	-0,1269	-0,223	-0,3277	-0,2333	-0,2318
10	T10	0,4508	-0,4763	0,4412	0,2285	0,0298	-0,2778	0,2432	-0,2544
11	T11	0,1923	0,6398	0,4774	-0,0354	0,1965	0,059	0,1096	0,3784
12	T12	-0,1523	0,7228	0,3338	-0,3662	-0,1604	-0,0244	0,1769	-0,2233
13	T13	0,6081	-0,4961	0,0211	0,1177	-0,3868	-0,0641	-0,0253	0,0649
14	T14	-0,038	0,7709	-0,1368	0,0632	-0,3246	0,2751	0,25	0,012
15	T15	0,6369	-0,4657	-0,1534	-0,1241	0,1396	0,4541	0,0336	0,0056
16	T16	0,2132	0,305	-0,131	0,6623	-0,3717	-0,2157	0,2539	0,198
	Eigenvalues	4,220041	3,268643	1,742777	1,554411	1,135997	0,784199	0,74006	0,61224
	% Explained Variance	26	20	11	10	7	5	5	4
	cumulative % explained variance	26	46	57	67	74	79	84	88

Table B

Correlations between Q Sorts

Correlations between Q sorts

Participant	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16
T1	–															
T2	-16	–														
T3	4	-13	–													
T4	-15	-38	23	–												
T5	39	3	26	22	–											
T6	-4	5	43	-2	41	–										
T7	41	-9	29	20	58	43	–									
T8	43	-34	15	11	43	30	71	–								
T9	41	-28	53	18	45	38	51	51	–							
T10	-38	-19	11	48	25	23	22	9	21	–						
T11	18	7	49	8	36	33	21	-5	19	-4	–					
T12	28	-3	26	-7	14	13	-26	-23	23	-31	46	–				
T13	-18	-33	14	47	3	16	39	38	38	49	-24	-41	–			
T14	35	5	9	-36	9	29	2	11	11	-42	39	55	-22	–		
T15	-4	-38	4	49	33	24	45	48	22	24	-20	-44	51	-31	–	
T16	6	19	4	-13	6	36	21	26	23	5	13	-2	13	33	-14	–

Table C

Loadings with Defining Sorts Flagged

Nº	Q-sort	Factor Group	Factor 1	F1	Factor 2a	F2a	Factor 2b	F2b	Factor 3	F3
8	T8	F1-1	0,869	Flagged	0,2543		-0,2543		-0,0724	
7	T7	F1-2	0,7825	Flagged	0,3333		-0,3333		0,159	
1	T1	F1-3	0,7107	Flagged	-0,399		0,399		0,0196	
9	T9	F1-4	0,598	Flagged	0,2359		-0,2359		0,4548	
5	T5	F1-5	0,5497	Flagged	0,1691		-0,1691		0,4202	
16	T16	F1-6	0,3351		-0,1337		0,1337		0,1596	
10	T10	F2-1	-0,1099		0,758	Flagged	-0,758		0,1951	
13	T13	F2-2	0,2541		0,7398	Flagged	-0,7398		-0,0673	
4	T4	F2-3	-0,0612		0,7301	Flagged	-0,7301		0,2266	
15	T15	F2-4	0,3922		0,6816	Flagged	-0,6816		-0,1661	
14	T14	F2-5	0,3161		-0,6294		0,6294	Flagged	0,3442	
2	T2	F2-6	-0,2132		-0,3906		0,3906		0,0083	
11	T11	F3-1	0,0585		-0,2053		0,2053		0,7929	Flagged
3	T3	F3-2	0,1223		0,1993		-0,1993		0,7535	Flagged
12	T12	F3-3	-0,0711		-0,5198		0,5198		0,618	Flagged
6	T6	F3-4	0,3574		0,1447		-0,1447		0,5654	Flagged

Table D

Factor Score Ranks and z Scores

Nº	Statement	Compassion Element	Factor 1		Factor 2a		Factor 2b		Factor 3	
			Z	Rank	Z	Rank	Z	Rank	Z	Rank
1	The platform helps me set goals with the therapist.	Alleviating Suffering	-0,67	28	-2,23	35	0	15	-0,34	22
2	Using the platform, I can share my experiences with the therapist.	Empathy	0,28	13	0,8	6	0	16	-0,42	25
3	The platform makes me feel that the therapist is open to my problems.	Distress Tolerance	1,08	6	1,68	3	-0,46	22	0,28	14
4	The platform helps me explain my situation to the therapist.	Empathy	-0,1	21	0,74	7	0,92	6	1,43	3
5	The platform helps me understand that everyone can experience suffering.	Common Humanity	-2,06	35	0,12	15	-1,84	34	-0,52	27
6	Using the platform, I can work on my goals together with the therapist.	Alleviating Suffering	-0,03	18	-2,16	34	1,84	1	-0,11	17
7	The platform makes a compassionate relationship with the therapist possible.	General	1,53	2	0,4	13	-0,92	27	0,97	8
8	The platform helps me indicate to the therapist how I am doing.	Recognising Suffering	0,22	14	-0,68	28	1,38	3	1,25	5
9	The platform makes me feel that I can also share difficult emotions with the therapist.	Distress Tolerance	-0,11	22	1,88	2	-0,46	23	1	7
10	The platform motivates me to work on my problems with the therapist.	Alleviating Suffering	-0,04	19	-1,46	33	0	17	-0,42	24
11	The platform encourages me to share my thoughts and feelings with the therapist.	Recognising Suffering	0,15	15	-0,59	26	1,38	4	0,63	11
12	The platform helps me recognise that difficult feelings are a part of human life.	Common Humanity	-2,03	34	0,45	12	-1,84	35	-1,62	33
13	The platform gives me the space to share with the therapist when I am having a hard time.	Distress Tolerance	-0,05	20	0,04	18	0	18	1,49	2
14	The platform makes me feel that the therapist empathises with my difficult feelings.	Empathy	0,74	9	1,27	5	-0,46	24	0,6	12
15	The platform helps me realise that having problems is part of being human.	Common Humanity	-2,01	33	0,26	14	-1,38	31	-1,96	35
16	Using the platform, I can let the therapist know when I am having a hard time.	Recognising Suffering	-0,46	26	-0,61	27	0,92	7	1,25	4

17	With the platform I can share my point-of-view with the therapist.	Empathy	0,5	12	-0,77	29	-0,92	28	-0,69	28
18	The platform enables me to share my problems with the therapist and receive help.	General	1,14	5	-0,77	30	1,38	5	0,14	15
19	With the platform I feel the therapist sympathises when I am having a hard time.	Empathy	0,09	16	0,52	11	-0,92	29	0,76	10
20	The platform makes me feel the therapist does not judge my problems.	Common Humanity	1,19	4	1,98	1	-0,92	30	-1,35	31
21	With the platform I feel free to share with the therapist when things are not going well.	Distress Tolerance	-0,4	25	-0,31	20	0	19	0,85	9
22	The platform helps me share with the therapist in what way I am suffering.	Recognising Suffering	-0,55	27	0,1	16	0,92	8	-0,19	20
23	The platform helps me work with the therapist to alleviate my suffering.	Alleviating Suffering	-0,95	31	-1,04	32	0,46	10	-0,22	21
24	The platform shows me that other people may also have similar problems.	Common Humanity	-1,87	32	-0,06	19	0	20	-1,78	34
25	The platform helps me, and the therapist do what is necessary for me.	Alleviating Suffering	0,05	17	-0,38	23	0	21	-0,18	19
26	The platform supports compassion in my relationship with the therapist.	General	1,43	3	-0,41	24	0,46	11	0,03	16
27	The platform helps me indicate to the therapist when I am suffering.	Recognising Suffering	-0,84	30	-0,97	31	-0,46	25	1,11	6
28	With the platform I feel respected by the therapist	Common Humanity	1,81	1	1,3	4	-1,38	32	-1,06	30
29	Using the platform, I feel supported in improving my situation.	Alleviating Suffering	0,54	10	0,09	17	1,84	2	-0,39	23
30	The platform makes me feel that the therapist understands my problems.	Empathy	0,97	7	0,73	8	0,46	12	-0,51	26
31	With the platform, I don't feel like I have to downplay any difficult feelings to the therapist.	Distress Tolerance	0,53	11	0,64	10	0,46	13	1,92	1
32	The platform helps me let the therapist know when I'm not feeling well.	Recognising Suffering	-0,68	29	-0,34	21	0,92	9	0,56	13
33	The platform makes me feel respected by the therapist.	Common Humanity	0,92	8	0,7	9	-1,38	33	-1,49	32
34	The platform helps to reflect with the therapist on what is going well.	General	-0,18	24	-0,36	22	0,46	14	-0,84	29
35	I find the platform to be a compassionate addition to my treatment.	General	-0,11	23	-0,55	25	-0,46	26	-0,18	18

Table E

Correlations of Extracted Factor Scores after Varimax Rotation & Splitting

	Factor 1	Factor 2a	Factor 2b
Factor 1	–		
Factor 2a	0,3003	–	
Factor 2b	0,1579	-0,4292	–
Factor 3	0,2249	-0,0472	0,4128

Note. Values represent Pearson correlations.

Appendix F – Analysis/Feedback of Participants on Wording

We found 82 quotes from all participants in which participants gave feedback on the wording of items, improvements or additional items, and preferences for how the items were presented. Important to note is that the amount of feedback given depended on the participant, with the minimum number of quotes per participant being one and the maximum being 35. We, therefore, emphasised how many participants expressed a preference over the number of times a preference was expressed to ensure that less vocal participants were represented accurately.

Preferences for Presentation (21 occasions, 10 participants)

First, there was a mix of preferences for how the items were presented on the scale. Two participants expressed a preference (explicitly) for consistent wording (Such as always starting the sentences with), while two others preferred varied wording. Similarly, one participant preferred a scale made from broad statements, referring to compassion generally in their sort, claiming that the broad statements "already encompass the specific statements". In contrast, three participants explicitly preferred specific statements. Furthermore, four participants claimed that there was a "hierarchy" in statements, with some items that could be considered sub-questions of the broader question. This is in line with the items we presented, as some items were about general compassion and intended to be broader and more encompassing than other items that measured specific elements of compassion.

Questions, Criticism and Suggestions for Item and Scale Improvements

Vague Items (7 participants). The most common criticism and suggestion for item improvements regarded items that the participants found some items vague, and clarification was needed on the concept they were measuring (20 occurrences). The first group of vague items was about general compassion, where participants expressed that the concepts they were measuring (such as a "compassionate addition") were unclear. The participants suggested that a definition of compassion might need to be provided before they can answer these general items. The general compassion item 18 "The platform enables me to share my problems with the therapist and receive help." was deemed vague not due to conceptual unclarity but because it measured 2 concepts at the same time, making it difficult to respond to. "*this is like two components that seem like they're kind of two parts. (…) I would maybe split [this item] into two questions, but both parts of the question are important."* (T12). Another group of items criticised for their vagueness was items with the formulation "the platform helps" as it was unclear what exactly helping referred to in these cases.

Linguistic Unclarities (5 participants). Some participants had questions or comments about the specific linguistic meaning of items. Two participants inquired about the difference between empathy and sympathy (Item 14 & 19), two participants were unsure about the meaning of alleviate (Item 23), and one participant did not know what downplay meant (Item 31). Two participants criticised the use of the word "Suffering," which felt not accessible as it was too extreme and would therefore not encompass a broad range of negative emotions. One participant explains: "*I would not use [suffering] on myself because it feels a bit extreme. So, I would instead say something like I'm not feeling well or having a hard time*" (T16).

Measuring Hinderance (4 participants). Four participants suggested that items which investigate elements linked to the therapist's actions (such as non-judgement, and respect) should not have the wording "the platform makes me feel" but should instead measure if the technology hinders these actions: *"The therapist is supposed to make me feel like they are compassionate or they understand my problems, or at least trying to understand my problems. The platform should not have hindered that, and you should evaluate if it is(not) hindering that instead"*(T9).

Merged or New Item Suggestions (5 participants). One participant largely suggested different ways to merge items to create a new one based on their preferences of specific wording, such as preferring the formulation "With the platform" over "The platform makes me feel" (T12) and therefore suggesting that we make use of "With the platform" for items overall. Furthermore, another participant gave several suggestions on rephrasing items about the awareness of universal suffering, as they felt diminishing. They suggested that the items should instead focus more on the togetherness aspect of the universality. Lastly, two participants proposed new measurement items that fell outside the scope of the study. Both suggestions were about an item to measure which type of functionalities the technology possessed.

Appendix G: Final Randomised Questionnaire

The statements below measure the extent to which a digital mental health intervention supports various aspects of treatment. The wording 'helps me' refers to whether the intervention contributes to this, not to the intervention being necessary for this.

	Completely disagree	Disagree	Neutral	Agree	Completely agree
The [DMHI] helps me see that the therapist does not judge my problems.	O	O	O	O	O
The [DMHI] helps me see that the therapist understands my problems.	O	O	O	O	O
Using the [DMHI], I can let the therapist know when I am having a hard time	O	O	O	O	O
The [DMHI] helps me and the therapist do what is necessary for me.	O	O	O	O	O
The [DMHI] helps me indicate to the therapist how I am doing.	O	O	O	O	O
Using the [DMHI], I can share my experiences with the therapist.	O	O	O	O	O
The [DMHI] makes me feel that I am alone in my suffering	O	O	O	O	O
Using the [DMHI], I feel that the therapist empathises with my difficult feelings.	O	O	O	O	O
The [DMHI] helps me share with the therapist in what way I am having a hard time.	O	O	O	O	O
Using the [DMHI], I can work on my goals together with the therapist.	O	O	O	O	O
The [DMHI] gives me the space to share with the therapist when I am having a hard time.	O	O	O	O	O
The [DMHI] helps me feel supported in improving my situation.	O	O	O	O	O
The [DMHI] helps me explain my situation to the therapist.	O	O	O	O	O
The [DMHI] helps understand that I am not alone when facing challenges like mine.	O	O	O	O	O
The [DMHI] helps me see that the therapist is open to my problems.	O	O	O	O	O
Using the [DMHI] helps me to express my feelings with my therapist without minimising their significance	O	O	O	O	O
The [DMHI] encourages me to share my thoughts and feelings with the therapist.	O	O	O	O	O
The [DMHI] helps me work with the therapist when I am having a hard time.	O	O	O	O	O
The [DMHI] does not hinder me from feeling respected by the therapist.	O	O	O	O	O
The [DMHI] does not hinder me from sharing difficult emotions with the therapist.	O	O	O	O	O

Appendix H : AI Statement

During the preparation of this work the author used no artificial intelligence tools.