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The Perception and Needs of Psychologists Toward Blended Care

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Abstract

Background: Blended care, meaning that online (Internet) components are used in combination with face-to-face contact, in mental health is increasingly encouraged, but research about the needs of psychologists is scarce.

Methods: We assessed the perceptions, design, and barriers toward blended care among members of the Dutch Association of Psychologists through an e-mailed survey. Mean scores (SD) and answer percentages were calculated. Mann-Whitney tests were performed to investigate differences between users and nonusers and primary- and secondary care professionals.

Results: Generally, psychologists (63% response rate) had a positive perception toward blended care and they intended to use it in future ($M = 3.71$, $SD = 1.19$). Users of blended care and secondary care professionals were more positive toward blended care than nonusers and primary care professionals. Online psychoeducation, diary forms, and exercises for different therapeutic approaches and communication technology configurations were most welcomed. Still, quite some barriers were mentioned before professionals would use blended care.

Conclusions: Psychologists had a positive perception toward blended care, as long as attention is paid to the perceived barriers. Results of this survey could be used in the development of online components that correspond to the needs of professionals. Reviewing the needs of psychologists, e-health components of different therapeutic approaches, apart from cognitive behavioral therapy, are welcomed. Future research is necessary to gain insight in the (cost) effectiveness of blended care for different types of patients (e.g., transdiagnostic interventions) and of different therapeutic approaches.

Keywords: blended care, e-health, mental health, primary healthcare, secondary care, therapeutics, telemedicine

Introduction

There has been a steady increase in the use of online self-help programs for mental disorders in the past decade.¹⁻⁴ Usually, it concerns standardized psychological treatments using the Internet, with minimal support from a mental health professional.^{1,2} However, despite the fact that many online treatments have been shown to be effective and efficient,³⁻⁵ the transition from face-to-face contact to online interventions is progressing relatively slowly.⁶ In addition, it has been shown that, although the initial uptake and acceptability of the programs are usually good, dropout rates are high.^{1,7} To overcome these issues, adding face-to-face therapist support to online interventions is proposed.^{1,5,8} Stand-alone online treatment therefore often develops into so-called “blended care”, meaning that online components are used in combination with face-to-face contact.^{9,10}

Blended care can have advantages such as having more options for self-management, between-session communication between patient and therapist, a more independent patient-therapist relationship, and better preparation of face-to-face sessions.^{9,11} Dutch healthcare policy makers actively encourage this form of treatment and it is expected that blended care will play an increasingly important role in mental healthcare in the coming years.¹²

Despite these high expectations research regarding the perceptions and needs of healthcare professionals is scarce. A study of van der Vaart et al. (2016) showed that primary care professionals would probably use online interventions in the future and that they were moderately enthusiastic about this form of treatment.¹³ Especially nonusers experienced several barriers to use blended care in their practice. The usefulness, the expected effort, and the facilitation in their practice predicted whether they would use such interventions in future.¹³

A different study of van der Vaart et al. showed that secondary care professionals and their patients generally had a more positive perception toward blended care.⁹ Professionals opted for a flexible database instead of a fixed online protocol, to be able to adapt the treatment to the problems and needs of the patients.⁹ Especially practical online components (such as assignments, diaries, and psychoeducation) were considered useful, while face-to-face contact was deemed more appropriate for process-related components (introduction, evaluation, and discussing thoughts and feelings).⁹

The available studies on this topic suffered from a low response rate¹³ or had limited external validity due to the selected population (e.g., secondary care only).⁹ The present study therefore aimed for a large response rate among psychologists working in different settings, to study the perceptions and barriers toward blended care. In addition, the goal of the present study was to investigate specific wishes for the way blended care should be designed.

Methods

RECRUITMENT AND STUDY POPULATION

Members from the Dutch Association of Psychologists (Nederlands Instituut van Psychologen, [NIP]) were approached for this survey. The Dutch Association of Psychologists is the largest association of psychologists in the Netherlands, where psychologists from all levels in the psychological health sector are registered. Only practicing psychologists in the Dutch province of Limburg who had registered their e-mail address and telephone number were invited for participation. Excluded were occupational psychologists, psychologists working with persons who have an intellectual disability, working in a nursing home, and health professionals outside the Dutch province of Limburg or with missing contact information. Psychologists were first contacted through e-mail. After two weeks, nonresponders were contacted by telephone or again by e-mail to increase the response rate.

QUESTIONNAIRE

The questionnaire consisted of 27 open and closed questions, see the *Appendix*. To eliminate ambiguity regarding blended care, a definition was provided based on the study of Wentzel et al. (2016).¹⁰ The professionals' demographics were assessed first (e.g., age, gender, echelon, and being a blended care user or not). Second, the psychologists' perceptions were assessed. To investigate the perceptions of the professionals, the Diffusion of Innovation Theory of Rogers (2003) was used as a theoretical framework.¹⁴ According to this theory there are defined categories of perceived characteristics that are essential predictors for the adoption of an innovation, including its relative advantage (perceived efficiency of the innovation in comparison to alternatives), compatibility (degree to which an innovation is compatible with the beliefs and preferences of the healthcare professional), complexity (perceived difficulty to use the innovation), trialability (perceived ability to use the innovation on a trial basis), and observability (the perceived frequency one uses an innovation or knows people who use the innovation).

Carper et al. (2013) developed a questionnaire, based on this theory, to study clinician perceptions of computer-based

psychological treatments and added a component future use intentions (likelihood of using the innovation in future).¹⁵ Our questionnaire was based on the questionnaire of Carper et al.¹⁵

To reduce the burden to fill in the questionnaire, we selected questions of each category that were suitable for both users and nonusers. Third, based upon earlier research findings,^{16,17} we examined the likelihood of use of different types of online components (e.g., online psychoeducation and online diary forms), communication technology configurations (e.g., using e-mail, video calls, or mobile technology), and possible exercises specifically applied for different therapeutic approaches (e.g., exercises based on Cognitive Behavioral Therapy, positive psychology, or Acceptance and Commitment Therapy). In addition, we investigated the barriers that prevent the use of blended care, based upon other findings of earlier research.^{6,18,19} Finally, professionals could answer to open questions (i.e., whether they had further needs or comments).

DATA ANALYSIS

Mean scores, standard deviations, and answer percentages were calculated to analyze the perceptions and barriers of mental health professionals toward blended care. Since the assumption of normality and homogeneity of variances was violated on most subscales, Mann-Whitney tests were performed to investigate differences between users versus nonusers and primary- versus secondary care professionals. The answers to the open question were analyzed and arranged into themes, and a typical citation was selected per theme.

Results

The inclusion process is shown in *Figure 1*. A total of 109 mental health professionals were invited to participate, 69 responded (response rate = 63%). Three professionals were excluded after filling in the questionnaire, since it turned out they did not meet the inclusion criteria after all (e.g., one was working in a nursing home, one worked with persons with an intellectual disability, and one was not a practicing psychologist). The characteristics of the included professionals ($n=66$) are shown in *Table 1*. All possible psychological degrees were represented in the survey (i.e., psychologists, healthcare psychologists, psychotherapists, and clinical (neuro) psychologists). Professionals from different settings and working with different types of psychological disorders, such as depressive-, anxiety-, personality-, or developmental disorders responded. However, no psychologists worked in a general practice office. Our responders were mostly experienced professionals, who did not use blended care in their treatment (i.e., 62% did not use blended care).

Fig. 1. Flowchart of the included healthcare professionals.

PERCEPTION OF MENTAL HEALTH PROFESSIONALS TOWARD BLENDED CARE

In general, the professionals had quite a positive perception toward blended care (Table 2). They were rather positive about intended use, compatibility, observability, and complexity. Of note is that 41% did not try or know where to find a blended care platform (trialability). In total, 30% did not believe that blended care had a relative advantage (in terms of its effectiveness and expected time savings), compared to treatment as usual.

Additional analyzes showed that users differed significantly from nonusers on all subscales, where users were significantly more positive than nonusers (Table 3). Nevertheless, 44% of the nonusers believed that they would use blended care in the future. No significant differences were found between primary- and secondary care professionals, except for observability (Table 3). Generally, secondary care professionals scored more positive on the subscales than primary care professionals.

LIKELIHOOD OF USING SPECIFIC TYPES OF ONLINE COMPONENTS IN THE FUTURE

When looking at the likelihood of using specific online components, it showed that most professionals scored between “neutral and very likely” on all online components, except for the likelihood of using “serious games” in the future (e.g., 39% did not intend to use serious games in the future), Table 4. Generally, professionals were less likely to use communication technologies such as chat or video, except for using or stay using (secured) e-mail to communicate with patients or colleagues and using mobile technology. Exercises based on mindfulness, cognitive behavioral therapy (CBT),

Acceptance and Commitment Therapy (ACT), and positive psychology were most likely used in the future.

In total 14 persons (21%) used the option to report other online components beyond the ones mentioned in the questionnaire (results not shown in the Table). Most notable answers pertained to the need for psychoeducation in different languages than Dutch, modules, exercises, or apps to provide care after a short intensive treatment or when patients are on a waiting list, modules aimed for guiding the elderly, using (diag-

nostic) questionnaires and token economy systems (e.g., providing positive reinforcement to target behavior change), and using audiotaped relaxation exercises instead of relaxation exercises from screen.

BARRIERS AND NECESSARY PREPARATION ACTIVITIES BEFORE USING A BLENDED CARE PLATFORM

As shown in Table 5, quite some preparation activities were found to be necessary before using a new blended care program; most scores were rated between “absolutely necessary to neutral”, except for the improvement of the computer skills (Table 5). The 3 highest percentage scores were as follows: receiving information regarding the online components (83% thought this was necessary), followed by knowing the perceptions of the patients (necessary in 79% of the cases), and the clarification of legal issues/liability (78% thought this was necessary).

FURTHER COMMENTS REGARDING BLENDED CARE

A total of 13 respondents answered the general open question at the end of the questionnaire (20%). The answers could roughly be categorized into four themes as follows: (1) emphasis on using blended care in addition to rather than instead of face-to-face contact, (2) involvement of healthcare insurers and fear of a focus on financial efficiency, (3) limited system flexibility, and (4) suitability for patients. Table 6 presents one illustrative citation per theme.

Discussion

SUMMARY OF THE MOST IMPORTANT RESULTS

The aim of the present study was to assess the perceptions and needs of professionals toward blended care. Generally, professionals were positive about blended care and they

Table 1. Characteristics of Mental Health Professionals (*n* = 66)

CHARACTERISTICS	<i>n</i> = 66 (%)
Gender	
Male	24 (36%)
Female	42 (64%)
Age (M, SD)	49 (SD = 13)
	Range: 27–83 years
Professional background	
General Psychologist, MSc	15 (22%)
Healthcare psychologist and/or psychotherapist	38 (58%)
Clinical psychologist/Clinical neuropsychologist	13 (20%)
Mean work experience (years SD)	20 (SD = 12)
	Range: 3–52 years
Working with	
Child and adolescents	8 (12%)
Adult care	57 (86%)
Elderly care	1 (2%)
Echelon	
Primary care psychologist (Generalistische Basis GGZ)	24 (37%)
Secondary care (Specialistische GGZ)	30 (45%)
Different (e.g., Medical rehabilitation)	12 (18%)
General severity of complaints of patient population	
No mental disorders (subclinical symptoms)	1 (1.5%)
Mild to moderate mental disorders	29 (44%)
Severe to complex mental disorders	30 (45%)
Guidance in psychiatric department of a general hospital (very complex care)	1 (1.5%)
Different	5 (8%)
Blended care user	
Nonuser	41 (62%)
User	25 (38%)

intended to use it in the future. Blended care users and secondary care professionals were more positive toward blended care than nonusers and primary care professionals. Different online components, such as online psychoeducation, diary forms, and exercises of different therapeutic approaches, were most likely used in the future. When looking at the preferred communication technology configurations, especially facili-

tation of (secured) e-mail between patients and colleagues and mobile technology, were welcomed. Still, quite some preparation activities were mentioned before professionals would use a new program, such as receiving information regarding the online components, knowing the perceptions of the patients, and the clarification of legal issues/liability. Professionals emphasized on using online components in addition to rather than instead of face-to-face contact. They had concerns about the role of healthcare insurance companies and feared the focus on financial efficiency instead of humanity and patient care.

RESULTS IN RELATION TO LITERATURE, IMPLICATIONS FOR PRACTICE, AND FUTURE RESEARCH

In line with earlier findings within primary care,¹³ a relatively high amount of professionals planned to use blended care in the future. This could be the result of the fact that healthcare professionals nowadays are highly encouraged by the government and healthcare insurance companies to use this form of treatment. In addition, in correspondence with earlier findings, nonblended care users were less positive toward blended care than blended care users.¹³ The present study not only assessed the perceptions of primary care professionals but also examined and compared the perceptions of professionals in different settings. Generally, no significant differences between primary- and secondary care professionals were found. This might be explained by the fact that the sample size was not large enough to reach statistical significance. Still, it was rather surprising that the secondary care professionals were more positive than primary care professionals, since earlier research showed that Internet-based treatment was more acceptable for patients with mild and moderate symptoms (as seen in primary care) than for patients with severe conditions (as seen in secondary care).¹⁸ Secondary care psychologists were more positive, for example, about the compatibility and observability. It could be that the online components would better fit to a secondary care setting, where often a more in-depth approach is used instead of a holistic/generalized one.

Results showed that the psychologists were rather positive and had the intention to use different (practical) e-health components in addition to face-to-face contact in future. These results fit within the recommendations of van der Vaart et al.,⁹ who found that the complexity of the problems of patients often hinders following a strict protocol, and therefore, a flexible database with practical online components to tailor treatment to patients was suggested.⁹ In the past several years, most developers and researchers focused on online CBT, since CBT is easily structured and, therefore, lends itself to an

Table 2. The Perception Of Mental Health Professionals Toward Blended Care (N= 66)

SUBSCALE	MEAN (SD)	DISAGREE ^a	NEUTRAL ^b	AGREE ^c
Relative advantage (<i>Effectiveness and time-saving</i>)	3.17 (0.77)	30%	21%	49%
Compatibility (<i>Positive perception and fits well with way of delivering therapy</i>)	3.52 (0.94)	24%	12%	64%
Complexity (<i>Easy to use- and knowing enough about computers to use blended care</i>)	3.44 (0.71)	9%	30%	61%
Observability (<i>Knowing people/colleagues using blended care</i>)	3.46 (1.18)	26%	11%	64%
Trialability (<i>Tried blended care or know where to find a program</i>)	2.96 (1.21)	41%	24%	35%
Future intentions use (<i>Plan to use blended care in future</i>)	3.71 (1.19)	18%	20%	62%
Total	3.38 (0.76)	15%	38%	47%

Measured on a scale from 1 to 5 (1 = totally disagree to 5 = totally agree).

^aRepresents a score of ≤ 2.5 .

^bScore >2.5 or <3.5 .

^cScore of ≥ 3.5 .

online format.^{16,17,20} Reviewing the needs of the psychologists developing online components based on different therapeutic approaches apart from CBT, such as exercises based on mindfulness, ACT and positive psychology would be welcomed as well.

During the development of new online components a Center for eHealth Research and Disease Management (CeHRes) roadmap could be used as a holistic framework to improve uptake and impact of the e-health intervention.²¹ The roadmap could be used as a practical approach to plan, coordinate, and execute the development of the e-health intervention using five steps, where stakeholder participation is essential.²¹ The first step (contextual inquiry) includes gathering information from intended users and the environment in which the technology is implemented.²¹ Results of the current study could be used during this step; however, we examined the needs of psychologists only and following this roadmap, information of all important stakeholders should be taken into account. In the design of the components developers could make use of persuasive technologies.^{22,23} For example, a study of Mohr et al. improved adherence rates of a multimodal eMental Health intervention using, among others, a persuasive technology framework in the design of the intervention.

For example, using simple and brief e-health components that involve monitoring and feedback, developing components that can be inserted into daily routine, by making tools that simplify tasks, providing tailored feedback to the patients, using media such as video to promote vicarious learning, and developing specific features that can affect human relationships to improve acceptability of the intervention.^{23,24} Still, in the development and research of blended care there are a lot of

interesting and important challenges in the future.^{16,17} Obviously, the (cost) effectiveness of blended care needs to be studied and is the focus of a set of future studies.²⁵⁻²⁷ It would be interesting to investigate which types or which parts of blended care are responsible for the effects.^{16,17} In addition, it would be interesting to gain insight in the effectiveness of blended care treatment for different therapeutic approaches apart from CBT and for other disorders besides anxiety- and mood disorders (e.g., treatment of a combination of disorders/transdiagnostic interventions).^{16,17}

Finally, attention should be paid to the barriers of the psychologists that were observed during this study, with the highest scores found for receiving information regarding the online components, knowing the perceptions of the patients, and the clarification of legal issues/liability. In the past years several studies focused on the ethical and legal issues regarding telepsychology.^{20,28,29-31} To meet the psychologists in the need for more clarification about these issues, existing guidelines were developed.^{30,31} These guidelines provide psychologists information about informed consent procedures, standard operating procedures, and emergency issues, necessary to guide and facilitate clinicians in the online provision of mental health services.³⁰ To provide guidance for therapists in when and for whom blended treatment could be suitable, therapists could use a Fit For Blended Care instrument that is developed by Wentzel et al.¹⁰ This instrument assists in a guided dialogue between therapists and patients, discussing possible (practical) prerequisites, barriers (e.g., patients risk of crisis), and facilitators and it provides an advice overview to increase the treatment success.¹⁰ This information could be provided by the e-health providers, when professionals consider blended

Table 3. The Perception Toward Blended Care Among Users Versus Nonusers and Primary- Versus Secondary Care Professionals (*n* = 66)

SUBSCALE	M (SD)	DISAGREE ^a	NEUTRAL ^b	AGREE ^c	<i>p</i> -VALUE ^d	MDN	<i>r</i>
Relative advantage (Effectiveness and time-saving)							
Users	3.52 (0.59)	12%	24%	64%	0.003	3.5	−0.36
Nonusers	2.96 (0.79)	41%	20%	39%		3.0	
Primary care	3.08 (0.83)	33%	25%	42%	0.461	3.0	−0.10
Secondary care	3.22 (0.77)	27%	20%	53%		3.5	
Compatibility (Positive perception and fits well with way of delivering therapy)							
Users	4.00 (0.69)	4%	16%	80%	0.001	4.0	−0.41
Nonusers	3.22 (0.95)	37%	10%	53%		3.5	
Primary care	3.25 (0.99)	38%	8%	54%	0.259	3.5	−0.16
Secondary care	3.60 (0.90)	17%	17%	66%		4.0	
Complexity (Easy to use and knowing enough about computers to use blended care)							
Users	3.80 (0.54)	0%	20%	80%	0.001	4.0	−0.41
Nonusers	3.22 (0.72)	15%	37%	48%		3.0	
Primary care	3.38 (0.85)	17%	13%	70%	0.635	3.5	−0.07
Secondary care	3.38 (0.65)	7%	47%	46%		3.0	
Observability (Knowing people/colleagues using blended care)							
Users	4.14 (0.78)	4%	8%	88%	0.000	4.0	−0.46
Nonusers	3.04 (1.19)	39%	12%	49%		3.0	
Primary care	3.21 (1.20)	29%	8%	63%	0.046	3.5	−0.27
Secondary care	3.77 (1.23)	20%	7%	73%		4.0	
Trialability (Tried blended care or know where to find a program)							
Users	4.02 (0.82)	4%	24%	72%	0.000	4.0	−0.69
Nonusers	2.32 (0.91)	63%	25%	12%		2.0	
Primary care	2.81 (1.03)	42%	29%	29%	0.099	3.0	−0.23
Secondary care	3.37 (1.29)	30%	20%	50%		3.25	
Future intention use (Plan to use blended care in future)							
Users	4.52 (0.77)	4%	4%	92%	0.000	5.0	−0.56
Nonusers	3.22 (1.13)	27%	29%	44%		3.0	
Primary care	3.54 (1.29)	25%	13%	62%	0.404	4.0	−0.11
Secondary care	3.80 (1.27)	20%	20%	60%		4.0	
Total							
Users	4.00 (0.43)	0%	16%	84%	0.000	4.08	−0.67
Nonusers	3.00 (0.66)	25%	51%	24%		2.92	
Primary care	3.21 (0.80)	21%	33%	46%	0.161	3.38	−0.19
Secondary care	3.52 (0.81)	17%	30%	53%		3.67	

Rated on a scale from 1 to 5 (1 = totally disagree to 5 totally agree).

^aRepresents a score of ≤2.5.

^bScore >2.5 or <3.5.

^cScore of ≥3.5.

^dMann–Whitney test to investigate differences between users versus nonusers and primary versus secondary care professionals.

Table 4. Intention to Use Online Components in Future (*n* = 66)

	MEAN (SD)	UNLIKELY ^a	NEUTRAL ^b	LIKELY ^c
Types of online components				
Online psychoeducation (using text or video)	4.09 (1.00)	11%	4%	85%
Online diary form (e.g., registration thoughts or tracking daily activities)	4.11 (0.98)	11%	6%	83%
Online exercises (e.g., exercises for cognitive behavioral therapy or mindfulness)	3.92 (0.97)	9%	18%	73%
Online modules (e.g., module depression or anxiety: modules often consist of psychoeducation and several exercises)	3.41 (1.30)	30%	8%	62%
Serious games (computer games containing a treatment element)	2.95 (1.22)	39%	26%	35%
Total ^d	3.70 (0.86)	9%	30%	61%
Communication technology configurations				
Communicate with patient or colleagues through (secured) e-mail	3.98 (0.98)	9%	8%	83%
Mobile technology using sms or app (e.g., by measuring mood/behavior in the natural environment and moment itself)	3.33 (1.22)	27%	20%	53%
Communicate with patient or colleagues through video calls	3.00 (1.10)	41%	18%	41%
Communicate with patient or colleagues through chat	2.86 (1.14)	44%	21%	35%
Total ^d	3.30 (0.83)	18%	38%	44%
Possible exercises applied specifically for different therapeutic approaches				
Mindfulness exercises	3.89 (0.99)	14%	9%	77%
Exercises based on cognitive behavioral therapy (CBT)	3.92 (1.04)	9%	17%	74%
Exercises from the Acceptance and Commitment Therapy (ACT)	3.71 (1.13)	17%	18%	65%
Exercises based on positive psychology	3.59 (1.20)	23%	14%	63%
Exercises based on schema therapy	3.26 (1.03)	27%	26%	47%
Exercises based on interpersonal therapy	3.05 (1.09)	30%	29%	41%
Exercises from psychodynamic psychotherapy	2.65 (1.13)	47%	26%	27%
Total ^d	3.44 (0.70)	8%	42%	50%

Measured on a scale from 1 to 5 (1 = very unlikely to 5 = very likely).

^aRepresents a score of ≤2.

^bScore = 3.

^cScore of ≥4.

^dScore of ≤2.5 is unlikely, a score >2.5 or <3.5 is neutral, and a score of ≥3.5 is likely.

care or the information could be made available during trainings to the professionals.

STRENGTHS AND LIMITATIONS

Studies among healthcare professionals often suffer from very low response rates. The response rate in this study was high (63%) increasing the chance of having a representative research population. However, practice nurses (PNs) specialized in mental healthcare and working in a general practice office were underrepresented. Van der Vaart et al.,¹³ investi-

gated the perceptions of PNs and showed that they were more positive than primary care psychologists. Therefore, we expect that our observed general positive perception toward blended care would also apply if we had included more PNs. Second, up until now, there is limited amount of research available that focus on the perceptions of mental health professionals toward blended care.^{9,13} To our knowledge, all available studies were conducted in the Netherlands.

Therefore, one may wonder whether the general positive perception of professionals toward blended care could be

Table 5. Necessary Preparation Activities Before Using a New Blended Care Platform (n = 65)

BARRIERS	MEAN (SD)	NOT NECESSARY ^a	NEUTRAL ^b	NECESSARY ^c
Obtaining information on online components	1.95 (0.89)	8%	9%	83%
Determine perceptions patients	1.95 (0.96)	6%	15%	79%
Clarify legal issues/liability	2.11 (0.85)	8%	14%	78%
Obtaining information effectiveness platform	2.12 (0.98)	13%	12%	75%
Determine impact time investment	2.17 (0.91)	8%	18%	74%
Determine associated incomes and costs	2.29 (1.04)	12%	17%	71%
Providing more secure network	2.18 (0.90)	8%	23%	69%
Gather information on existing ethical/clinical guidelines	2.25 (0.83)	5%	26%	69%
Follow training use platform	2.43 (1.02)	15%	26%	59%
Ascertain whether care organization agrees to use platform	2.77 (1.41)	28%	23%	49%
Arranging better IT support	2.88 (1.26)	35%	22%	43%
Improve computer skills	3.32 (1.16)	46%	31%	23%
Total ^d	2.37 (0.65)	5%	32%	63%

Measured on a scale from 1 to 5 (1 = absolutely necessary 5 = absolutely not necessary), the total number is lower than 66 due to the missing values of one person.

^aRepresents a score ≥ 4 .

^bScore = 3.

^cScore ≤ 2 .

^dA score ≥ 3.5 is not necessary, a score > 2.5 or < 3.5 is neutral, and a score ≤ 2.5 is necessary.

generalized across countries. Literature shows that many factors influence the professionals' acceptance of e-health applications.^{32,33} Technical conditions, legal contexts, and health policy issues differ per country and seem to play an important role in the use of e-health services.³³ In addition, with an increased focus on self-management and a more independent therapist-patient relationship, blended care will have an influence on the fit within the patient-therapist

interaction, which is considered as one of the essential factors for successful embedded e-health initiatives into routine care.³⁴ In the Netherlands, the technical conditions are good; the Internet is frequently used; and e-health technology is highly accessible within the practices.¹³ Blended care would also fit within the patient-professional interactions and it is highly stimulated by government and healthcare insurance companies.

Table 6. Most Notable Comments Regarding Blended Care

CATEGORY	NUMBER OF PROFESSIONALS	ILLUSTRATIVE CITATION
Emphasis using blended care in addition to- rather than instead of face-to-face contact	4	"...Very satisfied using e-health especially for support/in addition to face-to-face treatment. It cannot completely replace face-to-face treatment in my opinion. It can be useful to provide exercises, planning, work out schedules, readings etc. at home."
Involvement healthcare insurers and fear of focus on financial efficiency	3	"...The healthcare insurers and government have a bad reputation nowadays when it comes to patient care and humanity versus management and (financial) efficiency."
Limited system flexibility	1	"...In my quest for blended care providers I encounter limited amount of flexible modules, where I have to connect to an (expensive) software system, where not all important modules are integrated (for me)."
Suitability patient	1	"...I also notice that not every patient (especially depending on the nature of psychological problems) is open minded to this form of treatment."

It is questionable, however, whether the professionals in different countries (e.g., more traditional countries or countries with less Internet access) would be open minded to this form of treatment. Third, despite our large response rate the number of participants was quite small. This was especially a problem for the comparison between different groups, such as echelon differences or differences between different types of patients, and therefore, the latter was not assessed in this study. We expect that with more participants, significant differences between primary- and secondary care users would be found. Finally, it should be noticed that we mostly examined intended behavior, which could differ from actual behavior. It could be that professionals had difficulty in imagining how blended care and the proposed elements would look like or what the possibilities are.⁹ This could also explain the less positive perceptions toward blended care of nonblended care users in comparison to blended care users.

Conclusions

This study showed that professionals from different health-care settings had a positive perception toward blended care, as long as the online components were used in addition to rather than instead of face-to-face treatment and attention is paid to the barriers that prevent the use of blended care. The results of this survey could be particularly useful in the development of online programs that would correspond to the needs of psychologists. For example, while in the past years online CBT programs were mainly developed and evaluated, psychologists also opt for development of online components of different therapeutic approaches, apart from CBT. To help professionals in using blended care, more information about the online components, perceptions of the patients, and legal issues/liability must be provided by e-health providers. Further research is necessary to gain insight in the effectiveness of blended care for different types of patients and different therapeutic approaches.

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Ethical Approval

According to the Dutch law, Medical Research Involving Human Subjects Act (WMO), formal ethical review is not required when participants are not subject to procedures or re-

quired to follow rules of behavior.³⁵ Therefore, no ethical approval was acquired for this online survey.

Disclosure Statement

I.D. has a part-time position as a Research and Development Manager at TelePsy and a part-time position as an external PhD student at Maastricht University.

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Appendix

QUESTIONNAIRE NEEDS OF HEALTHCARE PROFESSIONALS REGARDING BLENDED CARE

This questionnaire was originally administered in Dutch and translated in English for the publication of the article. It is not formally translated according to standard procedures.

1. Are you currently guiding or treating patients with psychological problems?
 - Yes
 - No
2. What is your professional background?
 - Psychologist in training
 - General Psychologist, MSc
 - Psychotherapist
 - Healthcare psychologist
 - Clinical psychologist/Clinical neuropsychologist
 - Different, please provide further explanation
3. What is your sex?
 - Male
 - Female

4. What is your age?
5. In what kind of echelon are you *mainly* working (if you work in different echelons please select the echelon where you are mainly active).
 - General practice with practice nurse specialized in mental healthcare
 - Primary mental healthcare [in Dutch: Generalistische basis GGZ]
 - Specialized mental healthcare [in Dutch: Specialistische GGZ]
 - Different (please provide further explanation)
6. How much working experience do you have within mental healthcare?
7. With what kind of patients do you mainly work (if you are working with different patients please select the main patient population)
 - Child and adolescents
 - Adult care
 - Elderly care
 - Different, please provide further explanation
8. The patients within your practice/institution *mainly* have:
 - No psychological disorders (subclinical symptoms)
 - Mild to moderate psychological disorders
 - Severe to complex psychological disorders
 - Crisis/residential care (very complex care)
 - Different, please provide further explanation
9. What kind of psychological disorders do your patients *mainly* have?

In this study blended care refers to a combination of face-to-face consultations and online components, where the online components and face-to-face consultations both are not stand-alone treatment pathways but are interconnected to each other. The online components are carefully selected and adjusted to treatment. The online components can be used flexibly and in a dynamic way. The patient and therapist decide together how the online components could be used optimally.

Imagine, for example, a database where you can flexibly select psychoeducation, diary forms, modules, or online exercises (e.g., from cognitive behavioral therapy, Acceptance and Commitment Therapy or meditation exercises) in addition to treatment.

10. Do you use blended care for the treatment/guidance of your patients?
 - Yes
 - No (little or not at all)
11. Please answer the questions below based on your beliefs about blended care. If you have not heard of blended care before now, base your answers on what you expect to be true.
 - Using blended care would save me more time than other treatments
Totally disagree, disagree, neutral, agree, totally agree
 - I think that blended care would be effective for a lot of my patients
Totally disagree, disagree, neutral, agree, totally agree
 - I have a positive perception about blended care
Totally disagree, disagree, neutral, agree, totally agree
 - I believe that blended care would fit with the way I would like to deliver treatment
Totally disagree, disagree, neutral, agree, totally agree
 - I think it is easy to use blended care for my patients
Totally disagree, disagree, neutral, agree, totally agree
 - I know enough about computers to use blended care
Totally disagree, disagree, neutral, agree, totally agree

12. Please answer the questions below based on your beliefs about blended care. If you have not heard of blended care before now, base your answers on what you expect to be true.
 - I know colleagues who have considered to use blended care
Totally disagree, disagree, neutral, agree, totally agree
 - I know people who use blended care
Totally disagree, disagree, neutral, agree, totally agree
 - I plan to use/stay using blended care in future for my patients
Totally disagree, disagree, neutral, agree, totally agree
 - I have tried blended care
Totally disagree, disagree, neutral, agree, totally agree
 - I know where to find online components to try blended care
Totally disagree, disagree, neutral, agree, totally agree
13. Imagine that you are going to work with a new blended care platform, where you can work with the following e-health configurations. How likely would you use the following configurations in addition to face-to-face treatment?
 - Online psychoeducation (using text or video)
Very unlikely, unlikely, neutral, likely, very likely
 - Online dairy forms (e.g., for tracking thoughts or daily activities)
Very unlikely, unlikely, neutral, likely, very likely
 - Online exercises (e.g., exercises based on cognitive behavioral therapy or mindfulness)
Very unlikely, unlikely, neutral, likely, very likely
 - Online module (e.g., module depression or anxiety: modules often consist of psychoeducation and different assignments)
Very unlikely, unlikely, neutral, likely, very likely
 - Serious games (computer games with a treatment element)
Very unlikely, unlikely, neutral, likely, very likely
14. Are there, apart from the abovementioned components, other components that you as a healthcare professional would need?
 - No
 - Yes, please provide further explanation
15. Imagine that you are going to work with a new blended care platform, where you can work with the following communication technology configurations. How likely would you use the following technologies in addition to regular face-to-face treatment?
 - Communicate with patient or colleagues through chat
Very unlikely, unlikely, neutral, likely, very likely
 - Communicate with patient or colleagues through (secured) e-mail.
Very unlikely, unlikely, neutral, likely, very likely
 - Communicate with patient or colleagues through video calls
Very unlikely, unlikely, neutral, likely, very likely
 - Mobile technology using sms or app (e.g., by measuring the mood/behavior in the natural environment or at the moment itself).
Very unlikely, unlikely, neutral, likely, very likely
16. Imagine that you are going to work with a new blended care platform for which exercises from different therapeutic approaches are available online. How likely would you use the following online exercises?
 - Exercises based on cognitive behavioral therapy
Very unlikely, unlikely, neutral, likely, very likely
 - Exercises based on positive psychology
Very unlikely, unlikely, neutral, likely, very likely

- Exercises based on Acceptance and Commitment Therapy (ACT)

Very unlikely, unlikely, neutral, likely, very likely

- Mindfulness exercises

Very unlikely, unlikely, neutral, likely, very likely

- Exercises based on schema focused therapy

Very unlikely, unlikely, neutral, likely, very likely

- Exercises from psychodynamic psychotherapy

Very unlikely, unlikely, neutral, likely, very likely

- Exercises based on interpersonal therapy.

Very unlikely, unlikely, neutral, likely, very likely

17. Imagine that you are going to work with a new blended care platform. Which preparatory activities would then be necessary?

- Obtain more information about the available online components

Totally unnecessary, unnecessary, neutral, necessary, totally necessary

- Obtain more clarity regarding legal issues/liability

Totally unnecessary, unnecessary, neutral, necessary, totally necessary

- Obtain more information about the effectiveness of the blended care program

Totally unnecessary, unnecessary, neutral, necessary, totally necessary

- Follow a training to use the blended care program

Totally unnecessary, unnecessary, neutral, necessary, totally necessary

- Providing a more secure network

Totally unnecessary, unnecessary, neutral, necessary, totally necessary

- Gather information about existing ethical/clinical guidelines regarding blended care

Totally unnecessary, unnecessary, neutral, necessary, totally necessary

- Improve my computer skills

Totally unnecessary, unnecessary, neutral, necessary, totally necessary

- Arranging better IT support

Totally unnecessary, unnecessary, neutral, necessary, totally necessary

- Ascertain whether my care organization agrees to use the blended care platform

Totally unnecessary, unnecessary, neutral, necessary, totally necessary

- Determine the associated incomes and costs of the blended care platform

Totally unnecessary, unnecessary, neutral, necessary, totally necessary

- Determine the impact on my time investment (preparation and implementation of the program).

Totally unnecessary, unnecessary, neutral, necessary, totally necessary

- Determine the perceptions of my patients toward a blended care program

Totally unnecessary, unnecessary, neutral, necessary, totally necessary

This was the end of the online survey. Thank you very much for participation. Do you have any further comments?

- Yes

- No