Bachelor Thesis

Exploring the applicability of the 'Levels of Adoption of eMental Health' Model to clinical psychology Master students

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Abstract

Although the majority of today's population has access to the internet, the possibilities this offers for mental health care services in the form of eMental Health are not extensively used. To explore possible reasons for this, former research focused on investigating clinical psychologists attitude towards eMental Health. An example is the "Levels of Adoption of eMental Health Model" developed by Feijt et al., which displays drivers and barriers perceived by clinical psychologists towards eMental Health. Since former research focused on psychologists, this study aims to explore the drivers and barriers clinical psychology Master students perceive towards the use of online counseling. Moreover, it is investigated how the LAMH model by Feijt et al. can be applied to clinical psychology Master students. Eight clinical psychology Master students from the University of Twente participated in the study and semi-structured interviews were conducted. The interviews were transcribed and afterward coded, using a deductive approach by using the results of Feijt et al. as a starting point and an inductive approach by developing new codes found in the transcripts. Thereby, a coding scheme was developed. The results revealed that students and psychologists perceive similar drivers. Moreover, psychology students perceive more barriers towards the implementation of eMental Health because they perceive the work environment in the institution as a barrier, which is influenced by culture. Scoring the students according to the five levels of adoption of the LAMH model demonstrated that the students display a lower acceptance of eMental Health. Consequently, students demonstrate a more critical attitude towards eMental Health than psychologists. Overall, it can be concluded that the LAMH model is partly applicable to students. On the basis of the results, the "Adoption of eMental Health in clinical psychology Master students" (AMPHS) model is suggested. Future research could focus on exploring the model and completing it.

Keywords: eMental Health, LAMH model, clinical psychology Master students, AMPHS model

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Introduction

The majority of the western population has access to internet, which can be used to improve health care services (Barak & Grohol, 2011). A part of these online health care services is focused on mental and behavioral health (Barak & Grohol, 2011), which is summed up under the term Electronic Mental Health (eMental Health). The term eMental Health includes "the use of digital technologies and new media for the delivery of screening, health promotion, prevention, early intervention, treatment, or relapse prevention, as well as for the improvement of health care delivery […]" (Riper et al., 2010, Introduction section, para. 1). Current research demonstrates that eMental Health can achieve the same effect as face-to-face therapies for several mental disorders (Carlbring et al., 2005). However, current psychologists utilize eMental Health less than traditional therapy methods. While current research is mainly focused on the opinion of psychologists concerning eMental Health, this study aims to investigate the attitude of upcoming psychologists towards eMental Health. This topic is of importance since the use of eMental Health could offer prospects to health services, such as shorter treatments due to a more intensive contact between the client and the therapist (Chester & Glass, 2006). In order to explore the differences in the adoption of eMental Health between clinical psychologists and clinical psychology students, the applicability of the 'Levels of Adoption of eMental Health' Model by Feijt et al. (2018) to psychology students is investigated.

Advantages and Disadvantages of eMental Health

Compared to the conventional face-to-face therapy approach, eMental Health creates challenges and advantages to consider. A first issue is whether the confidentiality and privacy of a therapy session can be assured online (Perle et al., 2012), how reimbursement of health insurances can be guaranteed (Alleman, 2002) or whether there is a dehumanization of the relationship between therapist and patient via online mediums (Lovejoy, Demireva, Grayson, & McNamara, 2009). Moreover, the lack of face-to-face interaction might lead to misunderstandings if cues such as body language are absent (Kraus, Stricker, & Speyer, 2010).

However, current research and improvements in technology could deal with most of these challenges. An example is the research of Cook and Doyle (2002), which demonstrates that working alliances could be established between patient and therapist via online therapy. Moreover, their results indicate that patients with a positive attitude towards online therapy

were able to build empathic relationships via online mediums, which are comparable to relationships established during face-to-face therapy sessions.

A further benefit of eMental Health is that many people can be reached since the large majority of the western population has access to the internet (Changrani et al., 2008), which also reduces barriers in form of geographical distance (Barak, Klein, & Proudfoot, 2009). Moreover, eMental Health offers a more private and anonymous treatment (Changrani et al., 2008), which can lead to a lower emotional inhibition threshold of patients (Chester & Glass, 2006). This benefit is demonstrated in asynchronous therapy methods, which encompass the indirect communication of thoughts between patient and therapist (Kraus, Stricker, & Speyer, 2010). This therapy method increases the patient's self-awareness and also enables the therapist space for a deeper reflection on the situation.

Despite the aforementioned findings, the acceptance of eMental Health in daily mental health care is lower than the acceptance of traditional therapy (Apolinário-Hagen, Kemper & Stürmer, 2017). This lower acceptance is, on the one hand, due to a poor commitment of patients to engage in eMental Health (Deen, Fortney & Schroeder, 2013) and on the other hand to the tardy incorporation of eMental Health into health care services and thus daily psychologist's practice (Musiat, Goldstone & Tarrier, 2014). In order to understand this slow adoption of psychologists to eMental Health, it is important to consider which aspects influence individuals to adopt new technologies.

The Technology Acceptance Model and the Influence of Age and Professional Experience

A model often used to explain which factors influence an individual's intention to adopt new technology is the Theory Acceptance Model (Davis, 1989). According to the model, two determinants for the acceptance of new technology are the perceived usefulness and the perceived ease of use of the new technology. Perceived usefulness is the subjective evaluation of an individual whether the technology offers personal benefits. Perceived ease of use includes the individual evaluation of the difficulty to use the technology (Venkatesh, Speier, & Morris, 2002). Thus, people might believe that technology is useful, but if they perceive the adoption of technology as too difficult, they are prone to reject its implementation (Davis, 1989).

An aspect influencing the perceived usefulness and the perceived ease of use of new technology is age. Research in medical care demonstrated that younger participants perceive new technology as more comfortable and easier to use and appreciated the new enabled possibilities, whereas older participants displayed more difficulties in its use and thus reduced

possibilities of using it (Duroseau et al., 2016). Another characteristic influencing the acceptance of new technology is the professional experience. The study of Conti, Di Nuovo, Buono, and Di Nuovo (2016) demonstrates that professionals, in this case teachers, experienced new technology as less useful than students of psychology and educational disciplines. Thus, their acceptance and intentions to use the new technology in the future were lower than for the students. This might be explained by the fact that the professionals have a greater knowledge about new technologies and thus evaluated the new technology more critically. This skepticism was not demonstrated by students, who in contrast to the teachers, perceived the new technology as positive and useful. Moreover, they evaluated the new technology less critical due to missing the prior experience and had stronger intentions to integrate the technology in their future work.

To conclude it can be summed up that there are differences in technology acceptance related to age and to professional experiences. Relating these findings to the current research underlines the importance to examine differences in the acceptance of eMental Health between psychologists and psychology students. In order to do so, the first step is to investigate the attitude of clinical psychologists towards the use of eMental Health.

The Levels of Adoption of eMental Health Model

In order to gain insights into the motives for use or non-use of eMental Health, Feijt et al. (2018) conducted interviews with clinical psychologists and developed the "Levels of Adoption of eMental Health Model" (Figure 1) displaying their perceived drivers, perceived barriers, the general characteristics and requirements for change. The model also distinguishes between five different levels of adoption of eMental Health, which are derived from the "Diffusions of Innovation Theory" proposed by Rogers (1995).

Rogers' theory describes the expansion of innovation within a social system. This expansion, or also called diffusion, "is the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 1995, "The Mechanisms of Diffusion", para. 1). Moreover, the theory assumes that every individual in a social system decides on his or her own in how far he or she is engaged in current innovations. According to the degree of innovation-implementation, individuals are be classified among these five dimensions.

These stages were incorporated into the Adoption of eMental Health model and each clinical psychologist was assigned to one level according to his or her use of eMental Health, resulting in two psychologists in every category except the category "Active Use" with four psychologists. The sample of the study consisted of twelve Dutch psychologists who work in

different mental health care settings and positions. The majority of the sample was between thirty-one and sixty years old.

Clinical psychologists of the first level "No Use" of eMental Health are generally characterized by a lack of use of eMental Health technology. Overall, they do not perceive the advantages of utilizing eMental Health and have a more doubtful opinion of its usefulness. Second, psychologists classified in the level of "Minimal Use" are aware of possible advantages eMental Health offers. However, they tend to lack knowledge about how to implement eMental Health into their daily working routine. Third, the category "Passive Use" encompasses psychologists using eMental Health in their daily practice. However, although they are generally motivated to use eMental Health, they are not likely to search for innovative forms of its use but stick to well-known tools. Next, psychologists of the level "Active Use" display a high level of interest in and knowledge of eMental Health and its development. They make use of various eMental Health tools and are interested in new innovations and are regarded as experts by their colleagues. Lastly, the level of "Innovative Use" describes psychologists who have comparable interest in and knowledge of eMental Health tools as psychologists of level 4, but additionally, they are active in the launching of projects to support new developments in this area.

Figure 1. The Levels of Adoption of eMental Health Model (Feijt et al., 2018, p. 7)

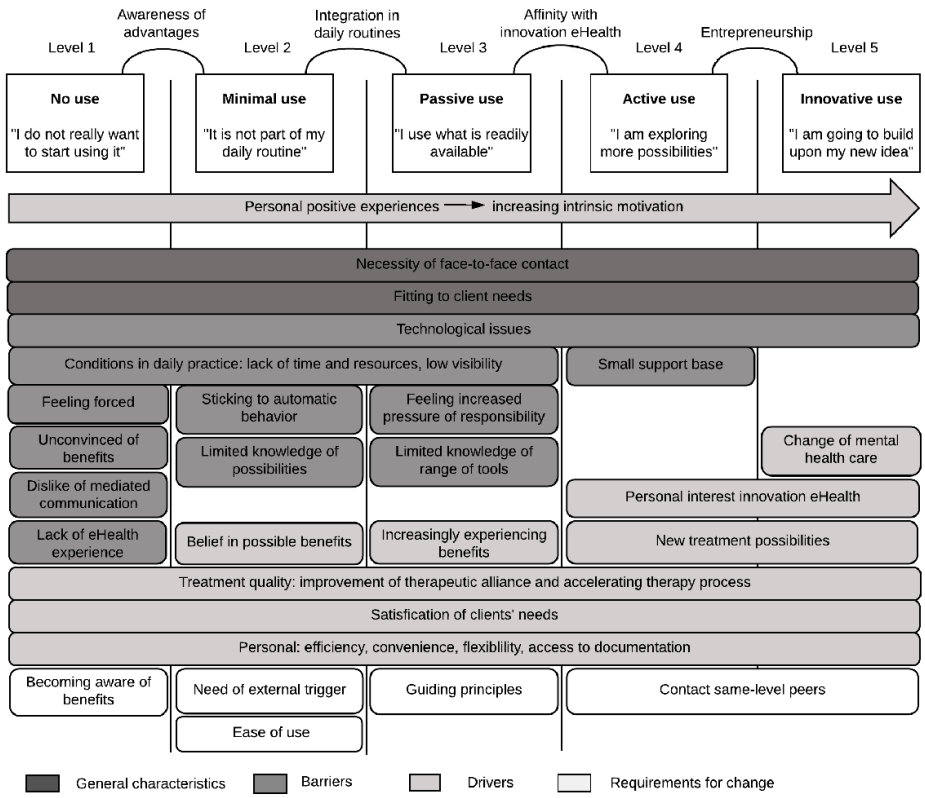

Figure 1. On top of the model, the five different levels of adoption are portrayed with the most important difference between the levels written above them. From left to right, personal positive experiences with eMental Health and thus the intrinsic motivation rise. Underneath, the general characteristics (dark grey), as well as the associated barriers (grey) and drivers (light grey) are presented. It is important to notice here that there are one barrier and three drivers which are perceived at every level. Underneath the model (white) are mentioned the perceived requirements to change the current implementation level.

The intention of this investigation

The intention of this investigation is to explore the applicability of the "Levels of Adoption of eMental Health" model and thus compare the perceived advantages and disadvantages and the acceptance between clinical psychologists and clinical psychology students. More in detail, it was tried to include students currently doing their internship due to the expected increased experience of students who work in clinical health institutions. This research is of importance since former literature indicated differences between ages and professional experience with regards to the adoption of new technology. More in detail, older individuals with more professional experience tend to display a critical attitude towards new technology and lower intentions to integrate it into their daily working routine than younger individuals with less professional experience. Additionally, former research indicated that professionals show a lower acceptance of new technology than future professionals. This aspect is explored in this study by classifying students according to the five levels of adoption of the LAMH model and comparing this classification to psychologists. Thus, the following research question with sub-questions is investigated.

How can the 'Levels of Adoption of eMental Health Model' for clinical psychologists be applied to clinical psychology Master students?

1. Do clinical psychology Master students perceive similar barriers towards eMental Health as the barriers stated in the LAMH model?
2. Do clinical psychology Master students perceive similar drivers towards eMental Health as the drivers stated in the LAMH model?
3. How can clinical psychology Master students be classified among the five levels of adoption of the LAMH model in comparison to clinical Dutch psychologists?

Methods

Participants

Before the interview phase was started, ethical approval from the Ethics Committee of the University of Twente was obtained. For conducting the study, a purposive homogenous sampling strategy was applied. Therefore, fifty-five Master students of the psychology department "Positive Psychology and Technology" from the University of Twente were invited via email to participate in the study. The distribution of Age, Gender, Nationality, and Internships is displayed in Table 1.

Table 1. Demographic characteristics of the sample.

Variable	**Category**	
Age	Mean	Range
	21	22 - 29
Gender	Male	Female
	0	8
Nationality	Dutch	German
	2	8
Internship	Yes	No
	6	2
Mental Healthcare setting	Public	Private
	5	1

Materials

Questionnaire. The applied semi-structured questionnaire was developed by Feijt et al (Figure 2). It consisted of twenty-nine questions encompassing open-ended and closed questions, which were organized into seven different categories according to their content. These categories are the background information of the students, the general characteristics and own experience with online counseling, the attitude, barriers and drivers, knowledge and training, the influence of the conditions of the work environment, the tools and technology and the expectations of the student. The questionnaire aimed to explore participant's expertise and experience with eMental Health tools, as well as their attitude towards the use of online counseling. These different categories of topics were based on previous research in the field. Since the original questionnaire was in Dutch, the items were translated to English. In order to

ensure reliability, the coding scheme developed by Feijt et al. (2018) was inspected by an independent scholar and enhanced by peer debriefing. Moreover, the interrater reliability was established to be sufficient with a Cohen's Kappa of 0,78.

Figure 2. The applied questionnaire developed by Feijt et al. (2018).

Questionnaire

Background information

- What is your current position?
- How long have you been working as a clinical psychology intern?
- What psychological disorders do you treat the most?
- What kind of treatment do you mainly offer?

General characteristics and own experience with online counseling

- How would you define online treatment or eHealth?
- What is your experience with online treatment or eHealth?
- What kind of online treatment do you use/did you use? (goal of the treatment, technology, frequency, duration)
- What was your target group of patients?

Attitude, barriers, and drivers

- What is your opinion about online treatment?
- What do you think is online treatment good for and what not?
- What were the most important reasons you did/did not use online treatment?
- What do you think are the advantages of offering online treatment?
- And what disadvantages do you see?
- What is needed to make (more) use of online treatment?
- What has to change in order for you to make use of online treatment?
- In what situations would you make use of online treatment?
- Do you have an example of a recent situation in which you encountered obstacles of online treatment?
- Did you try to solve these obstacles or get around them?

Knowledge and training

- Did you follow training or education about online treatment, or did you receive information about it otherwise?
- What sort of knowledge or training with regard to online treatment do you need the most? In what way would you live to receive it?

Influence of conditions working environment

- What is the general opinion about online treatment within your organization or practice?
- What is your opinion about colleagues that are offering online treatment?
- What do you think would be the opinion about you if you would offer online treatment?
- How does the management or organization think about online treatment?
- Are you sometimes under pressure whether or not to offer online treatment?

Tools/technologies

- What does the perfect online treatment tool look like for you?

Expectations

- What possibilities do you see for online treatment?
- How do these possibilities have to be implemented in the current practice in your opinion?
- How do you expect online treatment to develop in the next years?

Technology. For six of the eight interviews, the communication software Skype (Skype & Microsoft, 2019) was utilized to conduct the interview via video call. Moreover, with participants' consent, all interviews were audio recorded with a smartphone and the preinstalled apple application for audio recordings. All audio files were saved in a secure place and thus accessible only to the researcher.

Procedure

The interviews started by informing the participants about the purpose and the content of the study, and about their right to abandon the interview at any time. The participants were also informed that the collected data is anonymized afterwards. Next, participants were asked to verbally give their consent to participate (Appendix 1) and then the interview was executed. The first questions of the interview were about the demographic characteristics of the participant and about the internship, subsequently, the questionnaire was used to conduct the interviews. If a question was difficult to understand for participants, it's meaning was explained by the researcher. During the interview, the researcher kept an open-minded attitude and pre-developed probes were used when answers to questions were very short. The average duration of an interview was twenty-three minutes. The interviews were conducted via Skype and during face-to-face meetings in a quiet atmosphere at the University of Twente or in a private setting.

Data Analysis

In order to prepare the data from the interviews for analysis, the interviews were transcribed using the software AmberScript (AmberScript B.V., 2019). The program worked by automatically transcribing an audio tape and producing a written script. After the automatic transcription, the researcher listened again to the audio tape. While playing the audio tape, the software indicated the location in the script which enabled the researcher to correct possible errors. AmberScript also differentiated between speakers, which was susceptible to errors, especially when different people of the same gender were speaking. The quality of the transcription was very dependent on the quality of the audio tape. For audiotapes made during, for example, Skype interviews, the transcription was more prone to errors with an error rate of approximately 40%. For spoken words taped directly, the software only made minor mistakes when people were speaking too fast or indistinct with an approximated error rate of 25%. The errors made by AmberScrip were subsequently corrected by the researcher.

Next, for the coding of the transcribed interviews, the program Atlas.ti (ATLAS.ti Scientific Software Development GmbH, 2019) was utilized. In order to code the interviews a

combination of inductive and deductive approach was used. Since the aim of this study was to compare the current study with the study of Feijt et al., the aspects of the coding scheme of their study relevant for the research question were used as a starting point for coding the interview scripts. However, the coding process was also inductive in the way that constant comparison was done (Boeije, 2010). Thereby, the new data was continuously compared with the preset codes which enabled the development of new codes. Doing so, the first two interviews were read carefully and fragments which were of relevance for the research question were marked (Boeije, 2010). One fragment may consisted of one or two words or whole sentences. Next, codes for the first two interviews were built by comparing fragments, organizing them into groups and labeling them. In order to decrease subjectivity, another psychology Bachelor student was asked to code the same interviews independently. Afterward, differences were discussed until consensus was reached. Moreover, by using the software NVivo (QSR International, 2019) for the coding of these two interviews, the inter-rater reliability with a Cohens Kappa of 0,71 was computed, which can be regarded as substantial (McHugh, 2012).

In the second phase, the axial coding (Boeije, 2010), the other interviews were coded. During this process, the codes were reviewed which involved the deletion of redundant codes for this research, the renaming of codes to specify their meaning and the merging of similar codes into one code. Moreover, it was checked whether the fragments were assigned to the right code or if they should be assigned to a different one. Also important was the organization of codes to sub-codes and thus building the coding scheme. The codes with a lower frequency were thematically assigned to the codes with the highest frequency. Coding was an iterative process between the data and the codes whereby the theory and the research questions were always taken into account. The final coding scheme is displayed in Table 2.

Table 2. The developed coding scheme consisting of themes, codes, and sub-codes.

Theme	Code	Sub-code		N
1 Implementation Barriers for the student	1.1 Lack of experience student			12
	1.2 Technological issues	1.2.1	Internet requirement	3
		1.2.2	Software issue	4
	1.3 Implementation concerns	1.3.1	Patient vulnerability	4
		1.3.2	Protection of data privacy	4

			1.3.3	Decreased relationship	3
		1.4 Lack of knowledge and experience patient	1.4.1	Technological knowledge	2
			1.4.2	General knowledge	2
2	Contextual barriers	2.1 Visibility and awareness			12
		2.2 Generational issue			9
		2.3 Institutional barriers	2.3.1	Lack of flexibility	3
			2.3.2	Lack of knowledge	12
			2.3.3	Lack of technology	6
			2.3.4	Lack of freedom for implementation	2
		2.4 Skepticism of colleagues			5
3	Cultural factors	3.1 Netherlands	3.1.1	Integration of eMental Health	5
			3.1.2	Lack of knowledge	2
		3.2 Germany	3.2.1	Lack of technology	3
			3.2.2	Lack of knowledge	6
			3.2.3	No awareness	6
4	Drivers	4.1 Acceleration of the treatment process	4.1.1	Facilitation of the working process	3
			4.1.2	Facilitated organization	8
			4.1.3	Personal responsibility patient	12
			4.1.4	Facilitated contact	16
		4.2 Increased satisfaction of patient's needs	4.2.1	Reduction of geographical distance	4
			4.2.2	Anonymity of patient	3
		4.3 Personal benefits therapist	4.3.1	Saving time	6
		4.4 New treatment possibilities	4.4.1	More Individual treatment	3

Results

In order to answer the research question "How can the 'Levels of Adoption of eMental Health Model' for clinical psychologists be applied to clinical psychology Master students?", the sub-questions need to be answered. Thus, the results of the analysis are structured according to the three sub-questions of the current research. Moreover, the sub-questions are answered by comparing the result of the in-depth interviews conducted by Feijt et al. to the interviews conducted in this study. The results are further structured according to their similarities and differences.

Barriers

Similarities of barriers. The first barrier which psychologists and students have in common is the perceived lack of experience and knowledge. The main concerns of the psychologists were that they did not know how to integrate online tools into their treatment, that they found it difficult to gain an overview over all possible online tools and that they felt the need to be competent before integrating online tools into their treatment. While psychologists indicated that experience, as well as knowledge is missing, for psychology students the focus was not so much on knowledge but more on a lack of experience. The only aspect concerning the knowledge which was indicated by two participants is that they would like to increase their knowledge about how to behave correctly via online counseling.

> I would like to extend my knowledge about how to behave in some situations when using online treatment. In our studies, we dealt with extreme cases such as when a patient is considering suicide. But I would like to enlarge my knowledge how to react in general via online counseling because at the moment I do not know, for example, what is beneficial to write. (Participant 3)

However, most psychology students did not mention their knowledge as not being sufficient. More important for the psychology students was that they would like to gain more practical experience with online counseling because at the University they trained its use with fellow students, which is according to them not comparable to a situation with a real patient. Thus, all students would like to gain experience using eMental Health with patients. "In our studies, we tried online tools with fellow students, who were benevolent and collaborated very well. But this is not the reality. […] We did not experience the obstacles which would

arise with real patients" (Participant 2). "It's very different from when a real patient would do the task" (Participant 4).

Next, psychologists and four psychology students experienced the barrier of technical issues concerning online treatment. In this example, technical issues encompass all forms of difficulties experienced with online tools. A first aspect mentioned several times by psychologists as well as by students is that a good internet connection is a requirement for online counseling which is not always given. Another technical issue mentioned by both groups is that there can be difficulties with the use of an online counseling tool due to malfunctioning of the software itself. As reported by students, this malfunctioning decreases their motivation to use such a tool. "My experience with online counseling tools is good, except the fact that we had a lot of technical issues because something was not working and that really annoyed me. You are less motivated then" (Participant 7).

Differences in barriers. Next to the similarities, psychology students mentioned two barriers which are not perceived by the psychologists.

First, four students had ethical concerns about the implementation of eMental Health. A first aspect to mention is the protection of data privacy of the patients. Four students regarded the storage of confidential data as being very difficult nowadays because there is the possibility of being hacked. According to students, this issue first needs to be regulated in a reliable way before making use of online treatment.

Another concern is the vulnerability of the patient. Four participants thought that patients are more vulnerable and thus did not want to use tools which are not completely reliable. Also relating to the vulnerability of the patient is the lack of non-verbal cues during online counseling. Since the patients are regarded as more vulnerable, students perceived it as very difficult to miss non-verbal cues and thus important information about the patient's condition.

> And also ethical like you can't see the nonverbal signals of other people you're giving therapy to a patient but when the patient becomes, for example, suicidal, how are you going to react? So there are protocols but I think it's a big risk. (Participant 8)

Related to this aspect is that three students fear that the relationship between the therapist and the patient is decreased due to a lack of direct contact and thus of non-

verbal cues. For students, face-to-face meetings are necessary for the establishment of a good and close therapist-patient relationship and thus online treatment can only be utilized as an addition. This aspect is of importance for students because they fear that a worse relationship also leads to a worse quality of the treatment and thus to a worse therapy outcome.

> To me, the main disadvantage is that the relationship cannot be established as good as during a personal conversation in a face-to-face meeting and that the quality of the treatment may suffer from it because it's more superficial. (Participant 2)

> And I also think that the relationship between patient and psychologists is really important and then you would miss that one if you use like eMental Health and something like that. (Participant 6)

It is important to mention here that in contrast to the students, psychologists perceived the relationship between the patient and the therapist as increased. The psychologists stated that for them, a driver of eMental Health is the enhanced intimacy between the patient and the therapist because the relationship is closer due to more contact between the patient and the therapist between the face-to-face meetings.

Second, besides their own lack of experience with online counseling tools, two students also considered the lack of experience and knowledge of the patient as a barrier for conducting online treatment. A first aspect to consider is the technical comprehension of the patient. Students indicated that not only the psychologist but also the patient need to have skills and knowledge about how to use the specific online tool but also the technical device of use in general to experience advantages from such a treatment. Moreover, students stated that the technical knowledge of a patient is possibly influenced by age. Thus, students regard technical knowledge as a requirement for using online treatment with a patient.

Furthermore, two students also regarded the patient's lack of general knowledge about eMental Health as a barrier. General knowledge about eMental Health is understood as knowledge about its way of functioning, its advantages, and its disadvantages. According to the students, this is of importance because possible prejudices or even fears of using it could be eliminated by educating patients.

> It's needed that more knowledge about eMental Health is distributed, that its more in the discussion. Dispel fear from the patient. Explain what possible disadvantages are and also how they can be eliminated. And making the whole process more transparent. I think the main aspect is that there is a lack of knowledge, that's most important. (Participant 2)

Besides the barriers students perceived concerning the theoretical implementation of eMental Health in their own work process, students also described a work environment which is hindering the implementation of online tools. The work environment was also considered in the analysis of Feijt et al. under "Contextual Factors". However, students reported that for them, the work environment does not only display an influencing factor for the use of eMental Health tools but they perceived it as being determining for the use. Thus, it is reasonable to consider the contextual barriers for students here as well.

Similarities of contextual barriers. The first similarity between psychologists and students is that both claimed low visibility and awareness of online counseling in their work environment. The psychologists stated that for them it is difficult to be reminded of the possibility of online treatment because they encounter it very seldom during their working routine. This is also described by the students who reported that the use of online tools is no topic discussed within their institution. All participants doing their internship indicated that their colleagues are not aware of the possibility to integrate eMental Health tools in their daily working routine. "There is no awareness of the possibility of online treatment. I think many colleagues do not even have the knowledge about it to build their own opinion" (Participant 3). "It is absolutely no option. As if online treatment would not exist" (Participant 1).

Next, psychologists and two psychology students mentioned a lack of time to actually implement eMental Health. Both indicated that this is due to a lack of support executed by the management of their institution because this way, psychologists are not supported to try out new treatment possibilities during their working hours. Moreover, students regarded especially large institutions as not flexible enough to adapt to new changes quickly, such as to the availability of new treatment tools. "In such large institutions the problem with the implementation is that the therapists cannot just change something, this has to come from the management. I also don't have the possibility" (Participant 1).

Differences in contextual barriers. In contrast to psychologists, all students perceived great differences in age concerning the possibility of using online treatment. One aspect is that they perceived differences in the ability and knowledge to use new technologies. According to the students, older colleagues have more difficulties to use applications and thus considered the use of more complex online tools as problematic. These difficulties are caused by lower technical knowledge. This aspect is not directly perceived as hindering for their own implementation of eMental Health, but for the consideration of factors that generally hinder the use of online counseling in their institution.

> There are many colleagues who are older than 55 years and who have problems using WhatsApp on their smartphone. So I think the implementation of eHealth is really difficult because there is no knowledge about it, especially technical knowledge. (Participant 2)

Another aspect of this generational issue according to the participants is that older psychologists already have a working routine which they gathered during many years of working. Using online treatment tools would require a change of this proven routine, which participants considered more difficult for older colleagues.

> I can imagine that it is easier for us than it would be for psychologists who are already working for like twenty or thirty years in the way they do and now they suddenly have to change to eMental Health. Perhaps for their generation that is much harder than for our generation. (Participant 6)

Next to the generational issue, all students doing their internship stated that they perceive their colleagues as being skeptical towards new innovations such as online treatment. Moreover, they expected their colleagues to evaluate online treatment critically if they would present it to them. According to the students, a possible reason for this might be the insecurity of the colleagues due to a lack of knowledge about online treatment. “I can imagine that my colleagues would evaluate online treatment very critically if I would tell them about it” (Participant 4).

Moreover, all participants mentioned a form of a barrier which is kept by the institution they were working for. The first barrier mentioned by all participants doing their internship is a lack of knowledge by the institution about innovative treatment options. Students regarded

knowledge as the basis for development towards the adoption and use of new technologies. Moreover, all students doing their internship stated that not only the knowledge about new technologies is missing but also the technical devices to conduct eMental Health tools. All students described the technical devices in their institution as not suitable for online treatment due to their age and hence a limited functioning. “First the technology in the institution has to be changed. The computers in my clinic are so old and slow, I don’t know with which technologies it could be implemented” (Participant 4).

Next to the aforementioned barriers concerning the implementation of eMental Health in student’s own working process and in their work environment, the analysis revealed another relating theme namely culture. The sample of this study consisted of Dutch and German participants and differences between these cultures in the implementation of eMental Health were explored.

Use of eMental Health tools in Germany and in the Netherlands. Comparing the attitude of the students towards the implementation of eMental Health in Germany and in the Netherlands, several differences can be found. All participants who are doing their internship in Germany reported that nobody in their institution makes use of online treatment methods. They explained this by a lack of knowledge, as mentioned above, and hence also a lack of acceptance. Moreover, all German participants regarded German institutions as being undersupplied with communication technology in general. As a reason for this lack of innovation in the mental health care sector, students indicated that the health care system in Germany generally adapts to changes very slowly. For the future, students expected an increased adoption of eMental Health. However, they expected this process to be very slowly and also slower than in other countries.

In comparison to this, seven participants, German students as well as Dutch students, thought that the use of eMental Health is more widespread in the Netherlands than in Germany. Moreover, five students stated that online treatment is more accepted in the Netherlands and also expected its dissemination in the next years. One student mentioned an example of a form of online treatment of an organization where she did an internship before the Master. “I know that they are working with an application or some sort of web site so that teenagers can contact them every day about how it is going” (Participant 6).

However, although students mentioned that they can see a higher acceptance in the Netherlands than in Germany, they also stated that its acceptance could also be

increased by promoting online tools and informing therapists and patients more about its use.

Drivers

Similarities of drivers. There are many similarities between the drivers students and psychologists perceived. First, all students, as well as psychologists, perceived the acceleration of the treatment process as a driver to use online treatment. Both mentioned that online treatment enhances the contact between the therapist and the patient by facilitating the exchange of information. Participants stated that this is especially helpful in situations when the patient needs help or advice urgently. Also accelerating the treatment process is the fact that patients can take more responsibility of their therapy progress because they can do, for example exercises independent from the therapy session and hence have more control over their own treatment.

Concerning the acceleration of the treatment, students also mention two new aspects. First, for all of them, it was also beneficial that the organization of therapy sessions is facilitated. One aspect that facilitates the organization of the therapy is that via online treatment, a long waiting list for seeing a psychologist can be avoided. Moreover, staying in contact with the patient online also eases the provision of useful information for the patient.

> Maybe that's only for the area I'm working in but in addiction treatment there are is a lot to organize: Transfer to other therapies, rehabilitation arrangements. There are way more and I think it would be easier to give this information in a clustered form to the patient online. (Participant 2)

Additionally, this facilitated organization also enhances the working process for the psychologist or the institution in general. Three participants reported that there are many working steps which are done by hand-writing, which demands more time than using online tools.

Second, psychologists as well as four students perceived the driver of increasing the satisfaction of patient's needs. By increasing the reachability of a therapist via an online medium, geographical borders can be overcome easily and thus even patients living far away have the possibility to receive treatment. Next to geographical borders, also borders in the form of fear, for example to leave the house, can be overcome because this way, patients can stay at home in their safe environment. Moreover, some forms of online treatment offer patients the possibility to stay anonymous, which can also be helpful for patients. "I can

imagine that if you are ashamed or anything like that and you don't want to see your normal psychologist that you can perhaps join an online group or something like that" (Participant 6).

Third, the personal benefits of the psychologist were mentioned by six participants. As a personal advantage of online counseling saving time was the benefit most prominent. Time can be saved, for example, by providing the patient online with important information concerning the therapy instead of discussing such organizational issues in person. This also leads to more time during the actual therapy session for important issues.

> I think the greatest advantage is saving time because the conversations are very limited by time and thereby you can outsource some tasks the patient can do on his own which then take less time during a meeting. Then there remains more time for the important issues. (Participant 1)

Lastly, psychologists and three students thought that eMental Health provides the opportunity of using new treatment possibilities. An aspect of new ways of treatment is that online tools can be individualized. Often mentioned in this context is the application Minddistrict, which students used during their course at the university. Students reported that treatment over this application can be tailored to the patient's needs, so for example according to the age of the patient. Students perceived more individual treatment as beneficial for the therapy outcome. Moreover, the use of new applications also enables new treatment methods for the patient. As mentioned above, online tools enable the patient to act more self-reliant and independent from the therapist. Hence, student regarded the possibility of self-treatment as an advantage. Moreover, it was stated that online tools can be used to educate patients about their treatment process or to report the progress of the patient, for example with mood and eating protocols. "I think for self-treatment it is also a possibility. For example Minddistrict. Doing this the patients are quite independent" (Participant 3).

Classification of students among the levels of adoption

In order to answer the last research question, students need to be classified among the five categories of the LAMH model by Feijt et al. In the LAMH model, assigning the psychologists to a level encompasses the consideration of their attitude towards the use of eMental Health tools as well as the actual implementation of it. Since this study was conducted with psychology students mostly doing their internships, the aspect of implementation needs to be regarded from a different perspective. It is important to mention here that during the interviews, all participants indicated that they do not have the feeling of

being in the position to change their work environment. As mentioned above, all participants reported a work environment which is not utilizing eMental Health tools and which is overall more skeptical towards new innovations. Hence, when classifying students among the five levels of adoption, the actual implementation of eMental Health cannot be considered. However, students displayed varying attitudes towards the use of eMental Health which are indications for a certain level of adoption.

Two students could be classified as being in the second level of "Minimal use". As mentioned above, this level describes psychologists who became aware of the possible advantages of the use of eMental Health. However, they generally lacked knowledge on how to implement online counseling tools and were also not intrinsically motivated to expand their knowledge about it. Next to knowledge, they also stated to perceive a lack of experience with the implementation of eMental Health. "I have a more skeptical attitude towards eMental Health. I see the advantages but it really has to be a system that works well" (Participant 2). "It is difficult to build my opinion towards eMental Health because I did not use it intensively enough. But I think it can be reasonable" (Participant 4).

The third level of "Passive use" encompassed five participants of this sample. Psychologists in this level are motivated to use eMental Health but are not tended to gather more information about new online tools and do not have a good overview of current innovations. The students were classified among this level because they generally would like to make use of online treatment. However, they had the feeling to lack sufficient experience to use eMental Health but until now, were not intrinsically motivated to gather more experience. "I would generally like to use it but for actually implementing it, I need more experience" (Participant 3).

Lastly, one student was classified as belonging to the fourth category "Active use", which encompasses a high personal interest in the use of eMental Health. Moreover, psychologists of this stage are intrinsically motivated to try out new options. One student of the sample was very curious towards applying online counseling tools in her future work environment. Moreover, the student stated that although she would like to increase her experience with eMental Health, she already had positive experiences with its use during class. "I think eMental Health is good and I would like to use it in the future. I like to try out new technologies" (Participant 1).

Comparing this classification to the classification of clinical psychologists, it is demonstrated that the psychologists generally demonstrate a higher level of adoption because, from the sample of twelve psychologists, four psychologists were in the level "Active use"

and two in the level “innovative use”. Thus, half of the sample had the classification of “Active Use” or higher, whereas in this study, only one participant achieved this level.

Discussion and Conclusion

The purpose of this study was to explore how the "Levels of Adoption of eMental Health Model" by Feijt et al (2018) for clinical psychologists can be applied to clinical psychology Master students. To answer the research question, the results are reviewed and discussed in the light of former research. Moreover, considerations for a model for the adoption and implementation of eMental Health for students are suggested.

Concerning the first research question "Do clinical psychology Master students perceive similar barriers towards eMental Health as the barriers stated in the LAMH model?", it can be concluded that psychology students perceive more barriers than psychologists because for them, their own work process as well as their current work environment display barriers towards the implementation of eMental Health. Moreover, culture was identified as a possible influencing factor for the implementation of eMental Health. Since the sample consisted of German and Dutch psychology students, cultural differences could be explored. Participants indicated that the work environment in Germany is hindering the implementation of eMental Health. In contrast, the Netherlands are perceived as being more supportive of new technology in the health care sector.

Second, the question "Do clinical psychology Master students perceive similar drivers towards eMental Health as the drivers stated in the LAMH model?" can be affirmed. The analysis revealed that psychology students and psychologists perceive similar drivers. However, for the aspect of the acceleration of the treatment process, students added the facilitation of the organization of therapy sessions and enhanced working processes.

Last, the question "How can clinical psychology Master students be classified among the five levels of the LAMH model in comparison to clinical Dutch psychologists?" was explored. The classification of students according to the five levels of adoption demonstrated that overall, students displayed a lower acceptance of eMental Health than psychologists.

Discussing these similarities and differences between psychologists and psychology students in the light of former research, support for the findings as well as contradictions can be found. First, taking the results of the three sub-questions into consideration it can be stated that students perceive fewer barriers and similar drivers in comparison to psychologists. Moreover, students display a lower acceptance of eMental Health. Thus, it can be stated that psychology students have a more critical attitude towards the implementation of eMental Health than psychologists. These results are in contrast to former research. An example is the research of Conti, Di Nuovo, Buono, and Di Nuovo (2016), who investigated the attitude of

teachers and students towards the integration of robotics in the area of education and care of people. Their results revealed that professionals perceived new technology as less pleasant to use and less useful than students and subsequently displayed lower acceptance and intentions to make use of it in the future. As a reason, Conti, Di Nuovo, Buono, and Di Nuovo (2016) stated that professionals have more experience with robotics and greater knowledge about new technologies than students. Consequently, they have a more critical attitude towards its use. In contrast, in this study students displayed a more critical attitude towards the use of eMental Health and thus a lower acceptance than the professionals. As stated above, knowledge and experience seem to be the key aspect with respect to the acceptance of new technology. Since the students received intensive training about eMental Health at the University, they seem to have increased knowledge about the subject, which might explain their more critical evaluation of eMental Health.

Second, it is important to discuss why students, in contrast to psychologists, perceive their work environment as posing barriers for their implementation of eMental Health. The results revealed that students do not have the feeling as having the power to actively implement eMental Health tools in their institution. On the one hand, this is due to the fact that the institutions lack knowledge and technology and thus display great barriers for the implementation of eMental Health as an intern. On the other hand, former research indicates the importance of gender and individual knowledge for the adoption of new technology. An example is the research of Nami and Vaezi (2018), who investigated the acceptance of new technology demonstrated by university students. Their results indicated that male participants have a stronger tendency to perceive self-efficacy in relation to technology than female participants (Nami & Vaezi, 2018). Moreover, the research of Czaja et al. (2006) indicated that women perceive less ease adjusting to new technology and feel less comfortable with the use of new technology. Since the sample of this study only consisted of female participants, in contrast to the sample of Feijt et al., decreased perceived self-efficacy and difficulties in adjusting to eMental Health might be another explanation for the lack of implementation. However, it has to be noted that there is also research that did not find these differences in gender (Van Volkom, Stapley, & Amaturo, 2014).

Next to gender, the results of Nami and Vaezi (2018) indicated that increased technology knowledge enhances student's technology acceptance and thus its use. Hence, another influencing factor for the perceived barriers by the students might be a lack of knowledge of the eMental Health tools. Taking the aforementioned results into consideration, it can be stated that students overall perceive their knowledge as sufficient. More important

for students is the perceived lack of experience with the application of eMental Health. Thus, the training offered by the University seem to provide students with sufficient theoretical knowledge about eMental Health but could be expanded with regards to applied training.

Next, supported by literature is the finding that there are differences in the adoption of new technology between Germany and the Netherlands. Since the sample of the current study mainly consisted of German participants and the LAMH model was developed for Dutch psychologists, it is of importance to investigate this aspect more closely. An example is a study conducted by the 'European Comparative Effectiveness research on online Depression', which explored differences in knowledge and acceptance concerning online treatment for patients with depression within Europe (Topooco et al., 2017). In their study, they identified the Netherlands as one of the "frontrunner" countries concerning the level of eMental Health care implementation and the existence of appropriate infrastructure. In comparison, Germany is classified as being a "follower" country, because the health technology there is still developing.

These cultural differences with regards to the adoption of new technology might be explained by the research of Straub, Keil, and Brenner (1997). Their research investigated the impact of culture on the acceptance of new technology. For defining the culture, they used the cultural dimensions developed by Hofstede (Hofstede, 1984) of which two are of importance considering differences for technology acceptance. First, the avoidance of uncertainty is higher in Germany than in the Netherlands (Hofstede, n.d.). More in detail, this means that people of this culture feel uncomfortable in case of ambiguous situations and thus avoid them. With regards to the acceptance of new technology, this means that members of this society are likely to use new technology fewer and instead prefer face-to-face meetings (Straub, Keil, & Brenner, 1997). Second, Germany scores much higher in Masculinity than the Netherlands (Hofstede, n.d.), which indicates that Germany is a competitive and achievement striving culture. Research demonstrated that this dimension is highly related to interpersonal presence when communicating (Straub, Keil, & Brenner, 1997). Thus, the use of media not forwarding the presence of the communicator such as via email or text messaging are not as preferred in Germany as in the Netherlands. Thus, cultural aspects are important to consider and have implications towards an adapted model for students, which is discussed in the following sections.

Strengths and Limitations of the study

This thesis has provided new insights into the attitudes of clinical psychology Master students towards the use of eMental Health. Understanding the drivers and especially the

barriers towards eMental Health is of importance to understand its current decreased use among psychologists and also among future psychologists. Thus, by dealing with the explored barriers and finding solutions for them, the use of eMental Health might be increased in the future. Additionally, former research mainly concentrated on exploring the barriers and drivers perceived by psychologists and therapists but did not focus on students. Hence, this research offers new insights in this respect, also by enabling the examination of generational differences between psychologists and psychology Master students in their attitude towards eMental Health. Moreover, the study emphasized the importance of culture as an influencing factor for the adaption of eMental Health. Another asset of the study is that by conducting semi-structured interviews with closed and open questions, the data collected is diverse and rich in character. Thereby, new factors influencing the attitude of psychology students could be explored.

A limitation of the study is the sample. Since only women and mostly Germans participated, the responses were not as diverse as expected. The recruitment of participants was difficult because participants were writing their Master thesis and executing their internships which lead to little time for participating in the study. Another limitation of the study concerns the cultural differences between Germany and the Netherlands. Since only one student actually did an internship in the Netherlands, the comparison between the German and the Dutch health care system with regards to eMental Health was less detailed. Though, it has to be added here that although the other students did not complete an internship in the Netherlands, they studied in the Netherlands and also reported experiences of fellow students.

Suggestions for a new model of the 'Adoption of eMental Health for clinical psychology Master students

This study demonstrated that the LAMH model by Feijt et al. is only partly applicable to psychology students. The results implicate that several aspects need to be adapted to make the model applicable to students. First, the classification of students among the five levels of adoption can only be executed according to the attitude of the students but not according to their implementation of eMental Health. Moreover, as in the study of Feijt et al, the results of this study demonstrated that there is a relation between the perceived degree of experience with eMental Health and the attitude towards its use. More in detail, participants with more perceived experience had a more positive view on the implementation of eMental Health, whereas lower perceived experience was described by individuals with a more critical attitude. Consequently, the impact of experience also needs to be included in a future model.

Next, the barriers demonstrated by the work environment are of great importance for students and are perceived as determining for their use or non-use of eMental Health. Moreover, the results indicated that the barriers in the work environment are influenced by culture. Based on the aforementioned findings, the new model "Adoption of eMental Health in clinical psychology Master students" (AMHPS) was developed (Figure 3).

Based on the results, the suggested model demonstrates which factors influence the decision of students to adopt eMental Health. As indicated above, the two main components in influencing students implementation of eMental Health seem to be their attitude towards its use and the barriers demonstrated by the work environment. Concerning the attitude, the structure of the LAMH model is adopted. The five levels of adoption are renamed so that they only take into account the attitude of the student. Moreover, the barriers and drivers most prevalent for the students of the level are displayed. Since there was no classification of "No advantages" and "High advantages, knowledge, and innovation", no barriers and drivers could be explored for these levels. The structure of the model suggests that the attitude of a student is the first and most important determiner in the decision whether to implement eMental Health or not. The second component of importance for students implementation of eMental Health is the work environment. Since students indicated the perceived determining character of the barriers in the work environment, they demonstrate the second element in the model. It has to be noted here that the influence of these barriers seem to be dependent on the way an individual copes with such obstacles. Moreover, the barriers demonstrated by the work environment are affected by culture. Influenced by the perceived advantages and disadvantages and the way of coping with the barriers in the work environment, a student decides for or against the implementation of eMental Health.

Figure 3. The 'Adoption of eMental Health in clinical psychology Master students' model

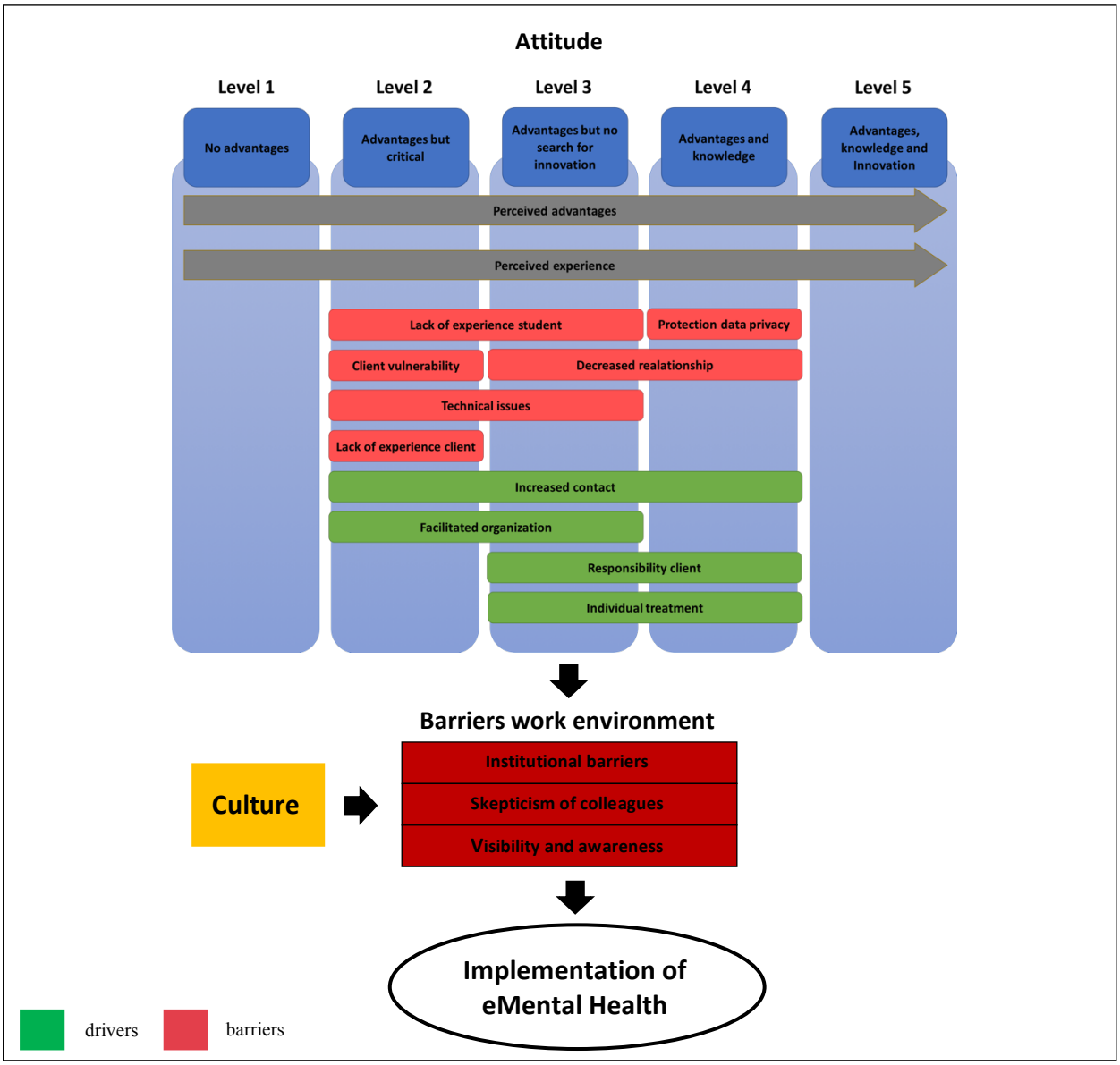

Figure 3. The model displays how the implementation of eMental Health is influenced by the attitude of the student and the barriers of the work environment. The attitude graph displays five levels of attitude. From left to right, personal experience and perceived advantages rise. Underneath, the red bars demonstrate the barriers and the green bars the drivers related to the levels. The attitude of students is supposed to be most important in determining future use, thus it is the largest graph. Second, the implementation of eMental Health is also influenced by how the student deals with the barriers demonstrated by the work environment. It is also demonstrated that the barriers of the work environment are influenced by culture.

Implications for future research

Future research could focus on testing the suggested AMPHS model and on exploring the drivers and barriers of students of the levels "No advantages" and "High interest, knowledge, and innovations" because these levels could not be explored in the current research. Moreover, future research could explore the predictive value of the model and thus investigate the relations between the suggested components in the model. More in detail, possible moderating or mediating effects of the variables could be investigated, for example if there is a relation between culture and attitude or if there is a direct influence of attitude on the implementation of eMental Health. Additionally, since it was found that students are not yet implementing eMental Health tools although they were part of their Master program, it is of importance to clarify how the current education can be adapted. More in detail, it can be investigated how the education has to be expanded with regards to the practical implementation of eMental Health in order for students to feel more prepared to actually use eMental Health on their own.

Conclusion

Taking everything into consideration, it can be stated that this research is of additional value because it offers new insights into the drivers and barriers perceived by clinical psychology Master students towards the use of eMental Health. Investigating the attitude of future psychologists is a further step to understand and prevent the decreased use of eMental Health. By conducting semi-structured interviews, it was examined that the LAMH model could party be applied to psychology students. It was demonstrated that clinical psychologists and clinical psychology Master students perceive similar drivers but different barriers. It was displayed that the reported differences in the work environment are influenced by culture. Moreover, it was indicated that psychology students display a lower acceptance of eMental Health than psychologists. Overall, it can be concluded that students display a more critical attitude towards eMental Health than psychologists, which might be explained by their increased knowledge about eMental Health. Based on these findings, a model for the Adoption of eMental Health in clinical psychology Master students was suggested. Future research could focus on testing the model and completing it.

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Appendices

Appendix 1. The verbal introduction to the study and verbal informed consent.

Verbal informed consent

I am conducting research about the drivers and barriers clinical Master psychology students perceive towards eMental Health. EMental Health can be defined as "the use of digital technologies and new media for the delivery of, for example, screening, health promotion, prevention, as well as for improvement of health care delivery." The aim of my study is to find possible differences in the attitude towards the use of eMental Health between psychologists and psychology Master students.

Your participation will involve this interview that will last between twenty to thirty minutes. This research has no known risks. However, if you feel uncomfortable with any question, you do not have to answer it. You also have the opportunity to stop the interview at any time. Additionally, your personal information will be kept confidential. The data will be stored in a secure place. In order to ease the analysis, I would like to record the interview with my smartphone. Do you agree with that?