Harmful Help?

A Critical Discourse Analysis of the mHealth App **VOS** to Join the Current Debate Regarding the Use and Regulations of Mental Health Apps

Master's thesis by
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Abstract

The digital neoliberal era of the 21st century is characterised by individualised users who may navigate through the free market and select their personalised online path. Every smartphone owner may download freely countless mobile applications that provide them with immediate access to desired services or information. As it is not challenging to "sell health", numerous medical apps are available on the market today, including mental mHealth applications. This study questions the current regulatory policy regarding these apps, highlighting that even developers with no psychological expertise may freely publish them. In turn, consumers with no previous mental health care experience may download them. This thesis focuses on a specific attempt to revise the current regulations proposed by Matthews et al. and elaborates on it with further improvements and suggestions, mainly directed at the safety of laypeople.

To investigate if there is space for such revision, the study conducts an appropriated version of critical discourse analysis (CDA) of the mental mHealth app VOS. Assuming that the guidelines are already reconsidered, the case study is explored through the textual and discursive layers. It focuses on the app's functionality, use of language, accessibility, accuracy, marketability, production, and consumption. The main findings argue that the revised guidelines require the app to be based on accepted mental health care theories and methods and designed in collaboration with mental health specialists. Moreover, the app must employ specific language that does not blur the line between mental well-being and medical help and provide an accessible and simple design that anyone may navigate through. The revised regulations enable instant use for laypeople who do not have a psychologist to guide them for financial or social reasons. Such regulations imply the consensus that mental health should not be considered a personal commodity but a human right.

Key Words: Mobile Health (mHealth), Mental Health, Mobile App Regulations, Neoliberalism, Critical Discourse Analysis, Laypeople, Consumer Safety, VOS Health.

Table of Contents

1. Introduction

The 21st century is often referred to as the digital age. In this era, technologies enable people to navigate the free market and thus, create individualised and empowered users. The nature of this age is remarkably captured by the well-known trademark phrase of the tech company Apple: "there is an app for that". Mobile apps may be easily downloaded to the user's smartphone and offer immediate access to various services. This also concerns the health industry, as the idea of "selling health" took over the market and transformed illnesses into personal commodities. That also applies to mental health, as countless mental mHealth apps offer users an online self-help kit. However, before downloading such an app, it is essential to investigate who is responsible for its development. Anyone can publish an app on the app providing platforms under rather general regulations and conditions in our current society.[1] This may lead to misdiagnosis and harmful advice provided to the lay consumer.[2] Due to the neo-liberal free market, these applications are hyper-accessible, and economic intentions may often drive their designers. The market was also supported by the start of the COVID-19 pandemic, during which the popularity of mental mHealth apps grew incredibly.[3]

One may track an extensive debate about these applications, considering their positive and negative implications. While some scholars lean more to the former (Dennis Beckers, Andrea Gaggioli and Giuseppe Riva, Rachel M. Brian, and Dror Ben-Zeev)[4] or the latter (John Torous and Laura Weiss Roberts, Nichola Robertson, Michael Polonsky and Lisa McQuilken)[5], others propose ways to retain the benefits while avoiding any possible harmful outcomes. One of them is Matthews et al., who offer four ethical guidelines for publishing mental health applications, three of which I find essential for the future of mental health applications. These guidelines are concerned with the necessity of using accepted theoretical models within

[1] Apple Inc., "App Store Review Guidelines," App Store Review Guidelines - Apple Developer, accessed December 16, 2021, https://developer.apple.com/app-store/review/guidelines/#health-and-health-research.

[2] John Torous, John Luo, and Steven R. Chan, "Mental Health Apps: What to Tell Patients," *Curr Psychiatry 17*, no. 3 (March 2018): 22.

[3] Xiaomei Wang, Carl Markert, and Farzan Sasangohar, "Investigating Popular Mental Health Mobile Application Downloads and Activity During the COVID-19 Pandemic," *Human Factors 1* (2021): 7.

[4] Dennis Becker, "Acceptance of Mobile Mental Health Treatment Applications," *Procedia Computer Science 98* (2016): 220-221.; Andrea Gaggioli, and Giuseppe Riva, "From Mobile Mental Health to Mobile Well-Being: Opportunities and Challenges." *Medicine Meets Virtual Reality 20* (2013): 142-143.; Rachel M. Brian, and Dror Ben-Zeev, "Mobile Health (mHealth) for Mental Health in Asia: Objectives, Strategies, and Limitations," *Asian Journal of Psychiatry 10* (2014): 97.

[5] John Torous, and Laura Weiss Roberts, "The Ethical Use of Mobile Health Technology in Clinical Psychiatry," *The Journal of Nervous and Mental Disease 205*, no. 1 (2017): 4-5.; Nichola Robertson, Michael Polonsky, and Lisa McQuilken, "Are My Symptoms Serious Dr Google? A Resource-Based Typology of Value Co-Destruction in Online Self-Diagnosis," *Australasian Marketing Journal (AMJ) 22*, no. 3 (2014): 247-249.

mental health care, design based on existing working methods, and collaboration with certified therapists. However, I want to zoom in on the fourth guideline, which suggests that the app should be available only to users under the guidance of a professional therapist.[6] I want to elaborate on the fourth guideline with further improvements and suggestions for reconsideration.

I believe that due to the previously mentioned hyper-accessibility of mobile apps, it is impossible to prevent laypeople from downloading them. Instead, it is essential to elaborate on how laypeople's needs and lack of previous knowledge can be incorporated within the guidelines developers need to obey. To put it differently, following the academic debate, I argue that while it is important to consider the elimination of possible harmful outcomes, it is essential to shift the focus on the benefits that such apps may provide for people who cannot access medical care. Therefore, the fourth guideline should be reconsidered, focusing on the possible ways to help laypeople use and navigate through mental health apps while avoiding dangerous advice.

It is essential to highlight that other scholars have already studied the notion of reconsidering guidelines. In her work, José Van Dijck points out the problems in current regulations of health platforms with specific attention to the transparency of data use. She questions who controls these user-generated data and who benefits from them.[7] Furthermore, she highlights that the main interest of Apple and Google is to develop better analytics and devices instead of finding cures for patients.[8] To a certain extent, my research resembles the work of van Dijck. However, she focuses on the ethical and moral issues (protecting patients' privacy and the transparency about the data use) of medical platforms and highlights the need for a regulatory framework encompassing "privacy, ownership, accessibility, availability, and democratic control over health data."[9] On the other hand, my research focuses less on the problematics concerning datafication and privacy and more on the discourse surrounding mental health applications and the regulations regarding accuracy, accessibility, functionality, marketability, and user safety. Moreover, I will highlight some of the scholars that have already

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[6] Mark Matthews, Gavin Doherty, David Coyle, and John Sharry, "Designing Mobile Applications to Support Mental Health Interventions," in *Handbook of Research on User Interface Design and Evaluation for Mobile Technology* (New York: IGI Global, 2008), 637-638.
[7] José van Dijck, "Healthcare and Health Research," in *The Platform Society*, ed. José van Dijck, Thomas Poell, and Martijn de Waal (New York: Oxford University Press, 2018), 102.
[8] van Dijck, "Healthcare," 112.
[9] van Dijck, "Healthcare," 116.

attempted to enhance the current regulations of health platforms and elaborate on those with further suggestions. Namely, I will elaborate on the previously mentioned proposal of Matthews et al.

Academically, I can add to the discussion regarding mental mHealth from a media scholar perspective, as most current literature comes from a medical point of view. Deborah Lupton indicates that mobile apps provide new ways of accessing medical information for laypeople who may download them freely. As the scope of Lupton's research did not include the engagement of laypeople with medical technologies, she suggests it as possible future research.[10] This specific area remained relatively unexplored. To fill this gap, the new guidelines I propose will be mainly directed at laypeople who may not be literate enough to understand the difference between health apps and actual medical services. In other words, the guidelines will consider the potential impact these apps have on the users who do not have any pre-knowledge or experience with treating mental health issues or a professional guiding them.

Some readers may question what distinguishes mental health apps from those focused on physical health. José van Dijck illustrates the extensive spectrum of health applications, including fitness, medical, monitoring, and experience exchange platforms. She emphasizes that the boundaries between these types are somewhat blurry. However, she provides a possible definition for medical apps, which are meant for "(self-)diagnosis, to monitor symptoms in order to prevent or treat diseases, and to help patients cope with their ailments."[11] Taking this definition into account, I believe that mental health apps may be considered a specific segment of medical apps, as physical and mental health are often closely intertwined.[12]

What makes mental mHealth important to study is its societal relevance. As the Canadian Mental Health Association points out, people with mental health illnesses face many obstacles in accessing health care due to the impact of poverty, the stigma associated with it, and the lack of preventive health checks. Furthermore, they highlight that mental illnesses are often overlooked as they are not "visible" compared to most physical diseases.[13] Similarly,

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[10] Deborah Lupton, "Apps As Artefacts: Towards a Critical Perspective on Mobile Health and Medical Apps," *Societies 4*, no. 4 (2014): 611-618.
[11] van Dijck, "Healthcare," 100.
[12] Canadian Mental Health Association, "The Relationship between Mental Health, Mental Illness and Chronic Physical Conditions," CMHA Ontario, accessed March 2, 2022.
[13] Canadian Mental Health Association, "The Relationship between Mental Health, Mental Illness and Chronic Physical Conditions," CMHA Ontario, accessed March 2, 2022.

report data from the 2018 National Alliance of Healthcare Purchaser Coalitions highlight that accessing mental health care is more complicated than physical health care due to a clinical shortage.[14] This is where technology steps in as a possible solution to overcome these boundaries. Although Apple's App store has a set of guidelines under the headings 'medical/treatment variable', it focuses primarily on physical health and does not consider the quality of the mental health treatment offered within the apps. Therefore, this thesis will emphasize the importance of security where the user can easily navigate the system, and the psychological professionals have reviewed the provided information and services.

Because the notion of online mental health is expansive, I decided to focus solely on apps and eliminate spaces like websites or chatrooms due to the apps' mobility and instant accessibility. As Deborah Lupton argues, mobile apps provide a different experience for the user compared to previous sources of medical information. Since these apps may be easily downloaded and carried around, users have immediate access to their private information and medical advice.[15] However, the offer of such apps is so extensive that I also needed to decide the type of mental health apps to focus on. To do that, I follow the characteristics of the "digitally engaged patient", as explained by Lupton. Although she focuses on medical apps in general, the elements fit well with those focusing primarily on mental health apps.[16] Thus, due to the extent of this thesis, I will focus solely on mobile apps that: (1) offer the user to take control over their mental health and well-being through self-monitoring and self-help, (2) provide the user with medical information regarding the diagnosis and possible treatments or exercises.

My research will not focus on specialized apps directed at more complex psychiatric illnesses like schizophrenia or BPD. Instead, I will investigate mobile apps which provide the above-listed services for people with psychological conditions. To explain the difference, I will focus on mental health conditions that may be treated by conversation and behavioural therapy but not by prescribing medication which is a common feature of psychiatrist treatments.[17] I investigated more than 30 apps, being the most satisfied with the mental health

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[14] "Achieving Value in Mental Health Support: A Deep Dive Powered by eValue8" (Washington DC: National Alliance of Healthcare Purchaser Coalitions, 2018), 6.

[15] Deborah Lupton, "Apps As Artefacts: Towards a Critical Perspective on Mobile Health and Medical Apps," *Societies 4*, no. 4 (2014): 611.

[16] Lupton, "Apps," 608.

[17] "The Differences between Psychology and Psychiatry," Psychology.org | Psychology's Comprehensive Online Resource, January 19, 2022, https://www.psychology.org/resources/differences-between-psychology-and-psychiatry/.

app VOS, which was developed by Czech developers Jiří Diblík and Ondřej Kopecký in 2020. This app offers various interactive tools and services regarding self-help and self-monitoring. I believe that this app is the best example of how mental health apps could look when implementing the new guidelines.

Analysis of this app will enable me to investigate if there is space for the proposed reconsidered policy. The research will suppose that the fourth guideline by Matthews et al. has already been reconsidered. Subsequently, I can explore how the hypothetical app functions, how can users access it and respond to it, and how can the language and tools employed by the developers imply specific practices. In other words, the mobile app VOS may be considered a first attempt to demonstrate how mental health apps would need to be understood and what they should include when following the reconsidered guidelines. I may only uncover such components through discourse. Hence, I will perform a critical discourse analysis, as explained by Norman Fairclough, which will allow me to highlight which factors are essential, if not necessary, to implement in other applications.

This thesis aims to answer the following question: How does the current discourse surrounding mental health apps imply the need to rethink the notions of mobile app accessibility, functionality, marketability, and regulatory policy? To answer this question, I will investigate the three following sub-questions: What are the commonly highlighted strengths and weaknesses mentioned in the academic debate surrounding the use of mental health apps? What kind of regulations for publishing a mental health app should be added to the general requirements of mobile app stores? And what does the mental health app VOS uncover about the marketing strategies, terminology, and functionality used by the developers to attract the users?

In this thesis, I will first outline the academic debate regarding the use of mental health apps in our neoliberal society, their accessibility, strengths, and weaknesses. Second, I will describe the methodology selected for conducting the case study analysis. Namely, I will describe the features of Critical Discourse Analysis (CDA), as Norman Fairclough explained, and how I will appropriate it for my research. Third, I will conduct an appropriated CDA of the mental mHealth app VOS, focusing on the textual and discursive layer. Finally, I will discuss my findings and conclusions.

2. Theoretical Framework

According to the World Health Organization (WHO), throughout the last decade, mental health started to be acknowledged as an important worldwide concern since the number of patients increased by 13%. Alarmingly, around 20% of children and young adults around the world currently live with a mental health condition. Among young people, suicide is the second most common cause of death. Despite this, there is still an enormous gap between the number of people who need medical care and those who can genuinely access it. Although people now talk more about mental health issues, it is still stigmatised by the public.[18] As Xiaomei Wang, Carl Markert and Farzan Sasangohar argue, this gap grew even bigger during the COVID-19 pandemic as the strict rules, restrictions, and self-isolation impacted many people's mental health. Moreover, they highlight the extreme stress of this time for people with mental illness due to the lack of face-to-face therapy sessions or, on the other hand, a fear of getting infected while going to a session.[19] As a result, they provide evidence that the popularity of mental mHealth apps grew incredibly during the pandemic as they allowed the users to access certain mental care, very often self-care.[20]

While digital access to medical health was not new, its usage grew as people needed to adapt to the digital, one-and-a-half-meter society and become digitally informed users, navigating themselves through the countless possibilities of the free market. Exploring the notion and essence of software, Wendy Chun tackles the connection between neoliberalism and computers in the 20th century. She emphasizes the transition from liberal governmentality to a neoliberal one and explains that computers became powerful neoliberal media as they enable the users to navigate individually through their selected online path. Thus, the technology puts forward the notions of individualization and personalization of an empowered and informed user who can gain a particular benefit and control over the system.[21]

Luigi Esposito and Fernando M. Perez explore the influence of our neoliberal technological society on the mental health industry. Their research outlines the notion of the medicalization of society, portraying how mental illnesses became viewed as a problem of an

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[18] "Mental Health," World Health Organization (World Health Organization), accessed December 16, 2021, https://www.who.int/health-topics/mental-health#tab=tab_1.

[19] Xiaomei Wang, Carl Markert, and Farzan Sasangohar, "Investigating Popular Mental Health Mobile Application Downloads and Activity During the COVID-19 Pandemic," *Human Factors 1* (2021): 1.

[20] Wang, Markert, and Sasangohar, "Investigating," 7.

[21] Wendy Hui Kyong Chun, "Software: A Supersensible Sensible Thing," in *Programmed Visions: Software and Memory* (Massachusetts: The MIT Press, 2011), 6-9.

individual.[22] Neoliberalism is not only described by the notions of a free market, privatization, and liberalization. It also evaluates social, economic, and cultural aspects according to their value and acceptability by the autonomous and self-regulated market.[23] The free market enables humans to utilize all social and financial resources and encourages personal liberty and responsibility.[24] Mental health disorders started to be perceived as separate from the notions of society, economy, and politics, suggesting that specific services and products are a necessity. In other words, mental health conditions (and their treatments) turned into commodities that may be bought by those who want to be part of society. In short, mental health became a product rather than a patient's right.[25]

Similar arguments are made by John Torous and Laura Weiss Roberts, who explicitly focus on mental health mobile apps. They highlight that it is not challenging for the provider to blur the line between the side of mere self-enhancement and wellness and the side of actual medical help and advice through marketing tools.[26] Moreover, there is a lack of general guidelines or advice regarding the usage of these apps. Because of that, Torous and Roberts propose that users should be able to understand the difference between medical help and the consumer-driven mobile industry.[27] They highlight that while a doctor can evaluate the patient and carefully select the treatment, this does not apply to mobile apps, which are based on the communication between the patient and the technology.[28] Moreover, they emphasize that the app may provide false information to the user, leading to harmful outcomes. This issue is mainly based on the marketing tradition of empowering an individual to be the independent consumer of health care.

Many other scholars emphasize the possible negative consequences of mental health apps, often connected to the self-management of the user. For instance, Nichola Robertson, Michael Polonsky and Lisa McQuilken discuss the alarming possibility of online users misdiagnosing themselves, accepting a specific treatment suggested by the algorithm and consequently, wasting money or not seeking an actual doctor in time. This may cause serious

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[22] Luigi Esposito, and Fernando M. Perez, "Neoliberalism and the Commodification of Mental Health," *Humanity & Society* 38, no. 4 (2014): 417.
[23] Esposito, and Perez, "Neoliberalism," 417.
[24] Esposito, and Perez, "Neoliberalism," 418.
[25] Esposito, and Perez, "Neoliberalism," 415-419.
[26] John Torous, and Laura Weiss Roberts, "The Ethical Use of Mobile Health Technology in Clinical Psychiatry," *The Journal of Nervous and Mental Disease 205*, no. 1 (2017): 4.
[27] Torous, and Roberts, "The Ethical," 4-5.
[28] Torous, and Roberts, "The Ethical," 5.

harm to the patient. In their opinion, if the online platforms are not used as they should, their value is co-destructed. They argue that mental health apps may only live up to their potential if the resources of both the consumers and the platforms are used correctly.[29]

On the other hand, various scholars point out the positive elements and benefits of mental health apps. Dennis Beckers emphasizes the increasing difficulty and problematics of mental health disorders and the growing demand for medical help. He highlights that such apps could be a possible solution due to the time efficiency and anonymity, which would be, according to him, often preferable.[30] Similarly, Andrea Gaggioli and Giuseppe Riva explore the notion of "applification" of mental health, referring to the potential of mental health applications to offer new ways of cyber-therapy. The insights gained from the technology may serve as a tool to empower the users to engage with their health and, thus, interact less with the professionals.[31] Moreover, Rachel M. Brian and Dror Ben-Zeev emphasize that mHealth may improve mental health literacy and provide a simple way to overcome the barriers created by the culturally developed stigma around mental illnesses, especially in Asian countries.[32] Thus, mental mHealth apps may benefit the current clinical shortage in the mental health industry.

Therefore, the scholarly opinions regarding the impact and consequences of mental health apps differ significantly. However, certain scholars take it one step further, understanding both the benefits and possible harms and highlighting specific aspects that need improvement. Deborah Lupton investigates the broader social, cultural, and political roles of health apps within the health industry. As mentioned above, she addresses the notion of "digitally engaged patient" produced by medical technologies.[33] She argues that while there are various benefits, one should also pay attention to the possible dangers, such as the quality and validity of medical advice.[34] Notably, Lupton criticizes that any developer with a not-specified background may decide to publish a medical app when following the regulations and conditions provided by the app providing platforms. According to her research, many mobile

[29] Nichola Robertson, Michael Polonsky, and Lisa McQuilken, "Are My Symptoms Serious Dr Google? A Resource-Based Typology of Value Co-Destruction in Online Self-Diagnosis," *Australasian Marketing Journal (AMJ) 22*, no. 3 (2014): 247-249.
[30] Dennis Becker, "Acceptance of Mobile Mental Health Treatment Applications," *Procedia Computer Science 98* (2016): 220-221.
[31] Andrea Gaggioli, and Giuseppe Riva, "From Mobile Mental Health to Mobile Well-Being: Opportunities and Challenges," *Medicine Meets Virtual Reality 20* (2013): 142-143.
[32] Rachel M. Brian, and Dror Ben-Zeev, "Mobile Health (mHealth) for Mental Health in Asia: Objectives, Strategies, and Limitations," *Asian Journal of Psychiatry 10* (2014): 97.
[33] Lupton, "Apps," 607.
[34] Lupton, "Apps," 608.

health apps are not developed or peer-reviewed by medical professionals and gain their credibility only by using medical terms, such as "doctor". Because of that, medical apps often differ in their accuracy or ability to give help on a professional level.

In her later article, Lupton expands on the promotional strategies used within medical apps, investigating the human-app health relationship through the feminist new materialist perspectives, mainly through vital materialism as explained by Jane Bennett.[35] She explores the used terminology, promissory narratives, and claims about the app's usefulness.[36] These strategies may be mostly found on the app store and website of the app. They include exciting statements about what the app may do for the user. For instance, many apps promise the user the chance to have an insight into their (inner) body, develop specific higher knowledge about the self and thus, have agency and control over their lives.[37] Furthermore, the app's appearance is essential, looking at the layout, images and words used within the platform. The name and the logo should, according to Lupton, already foreshadow to the user what is the app's purpose.[38] It is also beneficial to promote various comments and ratings given by the users.[39] The promotional material often indicates that using this app may be a way to become a responsible self-conscious citizen in the neoliberal economy. Moreover, Lupton highlights the use of medical terminology and icons within the app, which may connotate a specific authority, professionalism, and confidence in the developers. Furthermore, playful elements are often incorporated and emphasized, aiming to turn the routine everyday lives into more "fun" and engaging experience.[40]

Lupton concludes that medical professionals should design and peer-review every medical app for high quality and users' safety.[41] Similarly, Matthews et al. perceive mental health apps as a way to achieve greater engagement with the patient. Mobile phones, being the most personal communication devices, may decline the social stigma often connected to therapies.[42] However, they argue that this may only be accomplished through carefully designed apps and strict ethical requirements, proposing four crucial factors. The app needs

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[35] Deborah Lupton, "The Thing-Power of the Human-App Health Assemblage: Thinking with Vital Materialism," *Social Theory & Health 17*, no. 2 (2019): 125.
[36] Lupton, "The Thing-Power," 129-130.
[37] Lupton, "The Thing-Power," 131.
[38] Ibid.
[39] Lupton, "The Thing-Power," 130-131.
[40] Lupton, "The Thing-Power," 131.
[41] Lupton, "Apps," 610.
[42] Matthews, Doherty, Coyle, and Sharry, "Designing," 637-638.

to be "(1) based on accepted theoretical models of MHC, (2) designed in full collaboration with therapists, (3) designed to integrate with existing working methods, and (4) used by clients under the guidance of a professional therapist."[43] As mentioned earlier, I elaborate on these guidelines as follows. I agree that every mental health app should be based on previously accepted models and integrated with existing practices. Moreover, I argue that every mental mHealth app must be developed and/or peer-reviewed by medical professionals specializing in mental health care.

For instance, John Torous, John Luo, and Steven R. Chan propose a five-step model for evaluating apps for psychiatrists who can have a hard time navigating through the large number of commercially available apps. They highlight that most of them are not based on medical evidence, and some may be even dangerous due to harmful advice. Their researchers investigated more than 700 mindfulness apps on the Apple and Google Play stores, concluding that only 4% provide beneficial advice to the user. According to them, most of the apps on the market are unsuitable for medical care, which is why a general evaluation model is necessary.[44] First, the doctor needs to consider the app's context, exploring the developer's credibility, the source of funds, costs, and technology requirements. Second, it is essential to investigate the privacy and security offered by the app, so the patient's sensitive data are protected instead of being sold for profit. Third, one must familiarize themselves with the clinical evidence of how effective the app is to protect the patient from harmful advice and therapies. In other words, the doctor needs to make sure that the application lives up to the claims it promises. Fourth, it is crucial to consider the ease of use and engagement. Last, the application's data should be available to both the patient and the treatment team involved in the medical care.[45] While this model was developed for psychiatrists to help their patients, it may also be viewed as a potential model to review mental health apps before publishing.

Nevertheless, I believe that the fourth guideline proposed by Matthews et al. does not necessarily work due to the hyper-accessibility of mobile apps in the neoliberal free market. I argue that it is impossible to prevent people who, for various reasons such as finance or fear of social stigma, do not have a professional to guide them from downloading a mental health app. Moreover, laypeople may also highly benefit from these apps if they understand how to

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[43] Matthews, Doherty, Coyle, and Sharry, "Designing," 644.
[44] John Torous, John Luo, and Steven R. Chan, "Mental Health Apps: What to Tell Patients," *Curr Psychiatry 17*, no. 3 (March 2018): 21-22.
[45] Torous, Luo, and Chan, "Mental Health," 23-24.

use them and for what purposes. Therefore, I believe that the fourth guideline of Matthews et al. needs to be reconsidered, focusing on incorporating the needs and understanding of laypeople who were left out of the initial guidelines. Nasser F. BinDhim and Lyndal Trevena offer a possible solution to this missing component.

BinDhim and Trevena highlight that app stores play an essential role in the regulatory process. However, current regulations are still inadequate when considering the extensive daily growth of medical apps.[46] Although the Apple store has a set of guidelines under the headings 'medical/treatment variable', it does not consider the quality of the treatment offered within the various apps. Similarly, my research regarding current Apple store guidelines highlights that they focus primarily on physical health but pay little attention to the category of mental health and well-being. In other words, current regulations lack a proper focus on implications that may occur when an app provides false or harmful mental health advice.[47] According to BinDhim and Trevena, each mobile app should contain some warning regarding the possible consequences of the treatment and a suggestion to consult an actual doctor.[48] Medical authorities and professionals should also consider creating established guidelines for the user to understand the content of the self-helping apps. These guidelines may also be incorporated into the app store policy.[49] Consequently, users may prevent themselves from using harmful apps, as most health-related apps are of a shallow quality.[50] Moreover, it is also important to be interested in the privacy and safety of the users' data as they can be potentially exposed to exploitation.

Overall, BinDhim and Trevena argue that additional requirements and guidelines on app stores are necessary, especially in terms of content quality, user literacy, safety, and privacy.[51] While the five-step model presented by Torous, Luo and Chan provides specific guidelines on how to investigate and review mental health apps by professionals, the study of BinDhim and Trevena adds to the conversation by highlighting the possible ways to develop guidelines for laypeople, which is missing in the Matthews et al. ethical factors. As suggested earlier, while José van Dijck calls for the enhancement of regulatory policy of health platforms,

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[46] Nasser F. BinDhim, and Lyndal Trevena, "Health-Related Smartphone Apps: Regulations, Safety, Privacy and Quality," *BMJ Innov 1*, no. 2 (2015): 43.

[47] Apple Inc., "App Store Review Guidelines," App Store Review Guidelines - Apple Developer, accessed March 28, 2022, https://developer.apple.com/app-store/review/guidelines/.

[48] Ibid.

[49] BinDhim and Trevena, "Health-Related," 44.

[50] BinDhim and Trevena, "Health-Related," 45.

[51] BinDhim and Trevena, "Health-Related," 44-45.

this debate highlights that some scholars have already attempted to offer such reconsiderations. With regards to BinDhim and Trevena, one may also view their argument as a kind of re-evaluation of the fourth guideline proposed by Matthews et al. My analysis adds to these possible solutions, which are already present in the academic environment by focusing on a specific case study and researching the discourse surrounding mental health applications. I will explore how such apps would need to function, how users could navigate them, and what kind of language and tools should be employed by the developers, supposing that laypeople have full access to download them.

3. Methodology: CDA

To explore the discursive practices regarding mental health apps, I will use critical discourse analysis (CDA), as explained by Norman Fairclough. Discourse is a way of looking at and understanding the world around us. As discussed by Jørgensen and Phillips, Norman Fairclough's model emphasises that discourse reproduces and alternates our knowledge, social realities, and power relations. However, discourse is also constantly shaped by the societal practices we employ.[52] Language is perceived as a tool to exercise power and create change. Taking an interdisciplinary perspective, Fairclough argues that a multidisciplinary approach combining the textual and social aspects is necessary.[53] Therefore, he proposes a complex three-dimensional model which explores the connection between language, discursive practice, and societal practice.[54]

Ordinarily, researchers explore three connected layers. First, the textual layer allows them to examine the object's text, looking at the type of language and words included and how they are being used. Fairclough highlights that when investigating the language, the researcher does not focus only on written text but also on conversations or visual images.[55] Moreover, many researchers nowadays choose to include, if relevant, the affordances provided by the object. The term "affordances" was coined by J.J. Gibson, who describes them as the

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[52] Marianne Jørgensen, and Louise Phillips, "Critical Discourse Analysis," in *Discourse Analysis as Theory and Method* (London: SAGE Publications, 2002), 65.
[53] Jørgensen, and Phillips, "Critical," 66.
[54] Jørgensen, and Phillips, "Critical," 68.
[55] Norman Fairclough, "Critical Discourse Analysis," in *The Routledge Handbook of Discourse Analysis*, ed. James Gee and Michael Handford (London: Routledge, 2013), 12.

functionality and utility of an object offered to a person.[56] Gerlinde Mautner explains that affordances are an important part of CDA as one has to consider the social significance of their use for a particular social practice.[57] Second, the researchers move to the discursive layer in which they read into the gathered material, interpreting the rhetoric, meaning and metaphors behind the language.[58] Last, they explore the larger societal debate within the social layer in which the critical part of the analysis comes to play.[59] To give a concrete example, Rotimi Taiwo conducts a CDA of Nigerian newspaper headlines in his study to identify the ideologies conveyed to the reader through language. First, he gathers material from three hundred Nigerian headlines and identifies the reoccurring words used.[60] Second, he interprets his findings, explaining that the language used is primarily political, provocative, and sensational, pointing out the hidden ideological meanings behind the terminology.[61] Last, he explores the social layer, outlining the current political state of Nigeria: the process of democratization and how that influences the nation and the newspapers.[62]

Researching the mental health app VOS, I will appropriate the CDA by focusing only on the first two layers as this suits the corpus that I can collect and incorporate due to the limited extent of this thesis. Thus, the social layer will be left for further research. One may notice that such CDA appropriation resembles Mel Stanfill's discursive interface analysis (DIA), which focuses primarily on websites' affordances and embedded assumptions. He highlights three types of affordances within virtual interfaces (functional, sensory, and cognitive), which allow the researcher to investigate what the website does for the user, how users can understand it, and what they can sense through visuals and design.[63] However, I choose to appropriate the CDA because it focuses on the power relations behind language, which differentiates it from Stanfill's method. To explain, the textual layer will enable me to describe the language and affordances employed by the developers. Afterwards, the discursive layer will allow me to uncover what might the intentions and possible meanings behind the phrasing, statements

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[56] James J. Gibson, "The Theory of Affordances," *Hilldale USA 1*, no. 2 (1977): 67.
[57] Gerlinde Mautner, "Time to Get Wired: Using Web-Based Corpora in Critical Discourse Analysis," *Discourse & Society 16*, no. 6 (2005): 820.
[58] Fairclough, "Critical," 14.
[59] Fairclough, "Critical," 15.
[60] Rotimi Taiwo, "Language, Ideology and Power Relations in Nigerian Newspaper Headlines," *Nebula 4*, no. 1 (2007), 220-233.
[61] Taiwo, "Language," 234-235.
[62] Taiwo, "Language," 234-243.
[63] Mel Stanfill, "The Interface as Discourse: The Production of Norms through Web Design," *New Media & Society 17*, no. 7 (2015): 1062-1063.

and functionality be. Analysing these components will enable me to demonstrate how the mobile app could function within the enhanced guidelines of Matthews et al.

These components will enable me to study the previously introduced mobile app VOS, a well-being application that can be downloaded for free on Apple and Google Play stores. The developers offer various services that afford the user self-help or self-monitoring. Most of these tools are available for free. However, to access all of them, the user must pay for a "VOS Premium", choosing between a yearly or monthly plan. The paid features are the "VOS Advisors Chat" and "VOS well-being plan". For this research, I am using the VOS Premium version. Within the analysis, I will investigate the language employed by the developers and the following affordances: breathing, mood tracker, well-being tests, crisis helplines, and chat with advisors. Besides that, the user may also write their own journal, read articles on the VOS blog, join the VOS community on Facebook or read inspirational quotes and affirmations. Nevertheless, I will not focus on these services as they do not connect to the definition of mental health apps I employ in this thesis. In other words, these affordances do not offer the user a possible diagnosis and/or treatment. I will investigate the listed components through two intertwined steps: textual and discursive layers.

First, through the textual layer, I can uncover what terminology the developers decided to use and what kind of services are being offered. I will focus on the app, describing visuals, notes, services, and reoccurring words provided to the user to utilize and read. Moreover, I will investigate how is the app promoted on the Apple Store and the process of making a personal account. Since the application affords various services to the user, I will focus only on those corresponding with my definition of mental health apps. As this step is rather descriptive, the main goal is to gather data and highlight how the app communicates with the user and what services it offers. Since this analysis requires a lot of direct references to the app's language and functionality, all the quotes and images I will use in the study refer to the mobile app VOS unless stated otherwise.[64]

The second step will enable me to interpret the gathered materials and focus on the rhetoric and metaphors behind the terminology, visuals, and services. Addressing the language and affordances employed in the app will enable me to highlight the power relations between the developers and users. In other words, I can explore how the app functions and what

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[64] VOS.health, "VOS: Well-Being & Mood Journal," Apple App Store, Vers. 2.6.2 (2022). https://apps.apple.com/us/app/vos-self-reflect-journal/id1535250944 (accessed on 28 March 2022).

meaning and practices it implies, what the language connotates about the positioning of the developers and promotion of the app, and how can users access it and respond to it. Interpreting these data will allow me to uncover if the mobile app VOS would comply with the revised regulatory policies, thus if there is a space for reconsidering the fourth guideline of Matthews et al.

Moreover, within the second layer, I will look at the origins, the team behind the app and users' responses. Doing so will enable me to understand the designers' reasoning to develop such an app, what kind of team members are behind the digital lenses, and how the consumers receive and respond to the app's functionality. I will investigate the developer's website and the reviews provided on the Apple Store to gather data. I will not include the Google Play platform due to the extent of this research and the quantity of the Apple Store data. Exploring users' comments will remain somewhat speculative as I do not have the tools to differentiate between users who have a professional to guide them and users who do not. I will highlight comments that are regularly repeated and, thus, spread across the population, including laypeople. Therefore, these two steps will allow me to uncover the meaning, connotations, and power relations behind the mobile app VOS and reflect on the possibility to revise the fourth guideline proposed by Matthews et al.

4. Critical Discourse Analysis of the Well-Being App VOS

4.1. Textual Layer

4.1.1. The Apple Store VOS Page and Creation of an Account

The journey of using a particular app always starts with accessing an app providing platform from which it is possible to download it. The user may read the app's description and investigate the reviews written by fellow users. Focusing on the Apple Store VOS page, the developers highlight that this app is a "[...] holistic platform designed by psychologists that will help you build a positive self-image and mental strength thanks to a personal well-being plan."[65] The well-being plan contains a personalised set of activities, self-help tips, and online

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[65] Vos, "VOS: Well-Being & Mood Journal," *App Store*, October 28, 2020, https://apps.apple.com/us/app/vos-self-reflect-journal/id1535250944.

therapy through intelligent AI. These services may help users "grow" and "make progress" to their better inner selves. Furthermore, the developers point out that the app "actually makes a difference in people's mental health, as 500 000+ happy VOS users would agree", and it would be "recommended by the best mental health professionals."[66]

After downloading the app and opening it, users are confronted with the introductory slides, suggesting that they "start building good mental health habits today, document them, and make progress."[67] It is also highlighted that the app is "made by experts", and the user may talk to mental health professionals. The slides are accompanied by visuals of animated characters that portray the written words. For example, when highlighting the experts, an avatar of a man who holds files and has graphs behind him is illustrated. [Figure 1]
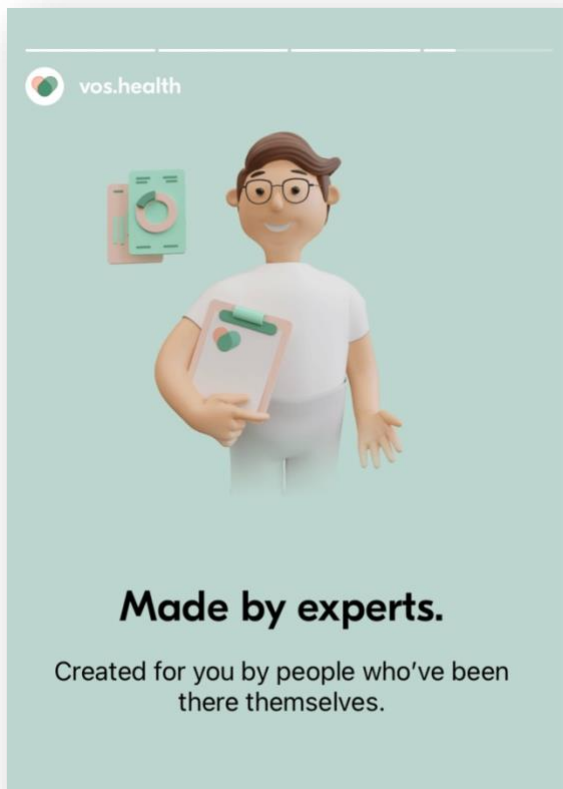

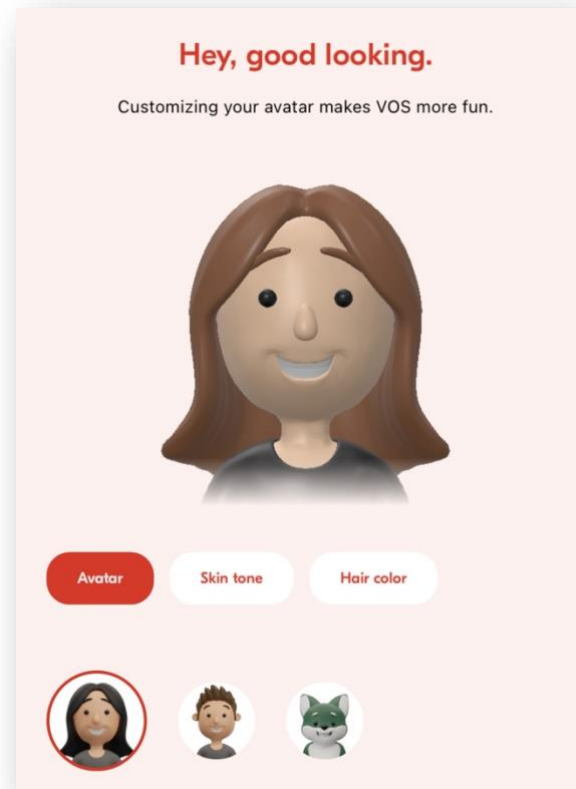**Figure 1**: "Made by experts" introductory slide.

Figure 2: Avatar customization.

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[66] Vos, "VOS: Well-Being & Mood Journal," *App Store*, October 28, 2020, https://apps.apple.com/us/app/vos-self-reflect-journal/id1535250944.

Following that, the user needs to create a personal account, starting with stating their name and marking what they want to improve in their life (e.g., sleep, anxiety, stress, or others). Subsequently, the user is asked how they identify. According to the answer, an avatar is suggested by the platform. However, the user may change it and choose between an avatar of a man, woman, or fox. Furthermore, it is possible to select the skin tone and hair colour. [Figure 2] The developers explain that customizing such an avatar makes the application more fun for the users. In the end, users receive a note that creating an account is already a "huge milestone towards a better self."

4.1.2. Terminology & Affordances within the VOS Environment

When accessing the application's environment, the user is greeted by the AI and offered various services and well-being tools. Every service includes an explanation of what it is and how to use it. Within this research, I will consider all the tools provided within the app as affordances as these services afford the user (self)help tips and exercises. Therefore, their usage has a particular social significance. The tools are divided into four main categories:

- Record & Reflect (Mood Tracker, Guided Journal, Open Journal),
- Calming Techniques (Breathing),
- Long-term Growth (Well-being Tests, Affirmations, Inspiring Quotes, Articles), and
- Speak to Someone (Chat with Advisors, Crisis Helplines).

I will address one or more tools from each category in this research. First, I focused on the affordance of mood tracking. This affordance offers the user daily check-in of their mood, which is collected, and when having enough data, users may "see the bigger picture" of their mental health. First, they are asked how they feel, which can be recorded on a scale from "awful" to "amazing". [Figure 3] Second, the AI asks why the user feels that way, providing various buttons for possible reasons such as social media, education, finance, or family. The user may select one or multiple reasons and a custom response if any of the listed choices do not fit them. Third, the app asks about the user's exact feelings, allowing them to choose from various emotions (e.g., alert, relaxed, upset, nervous). Last, it is possible to add a written note to explain the reasoning behind the feelings more in-depth. It is important to note that

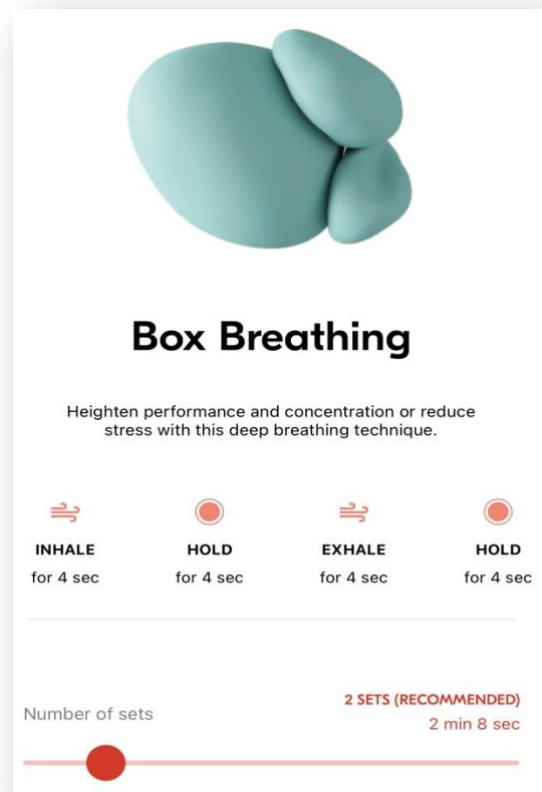**Figure 3:** The affordance of mood tracking.

Figure 4: An example of a specific breathing exercise.

the user may choose to skip any of the described steps. As suggested above, the meaning behind this mood tracking is to understand the bigger picture behind one's mental health - understanding the patterns and repeating reasons for bad/good mood. The result could be considered a type of suggestion for treatment. For instance, the user may see that reading and walking make them feel repeatably happy and thus, it could be a way to improve their anxiety or simply lousy mood.

Second, I investigated the affordance of breathing which offer six different breathing exercises for relaxing, stress relief, concentration, or anxiety (Clear mind, Awake, Pain Relief, Deep Calm, Box Breathing, SOS). The developers describe these techniques as "powerful breathing exercises" and provide real-time data of how many fellow users are using them at the very moment. When selecting a specific breathing exercise, the user is equipped with a further explanation of its benefits and the recommended sets of repetitions. [Figure 4]

Notably, the client is reminded that this technique might not be ideal for everyone. If the person feels uncomfortable, it is crucial to communicate with "a mental health professional and find a more suitable tool."

Third, I want to address the affordance to conduct a well-being test. The developers offer four different tests, namely for Satisfaction with life scale, Generalised Anxiety (GAD-7), Depression (CES-D-10), and Behavioural Activation (BADS). They explain that these tests may be perceived as a tool to "understand your inner self, track your progress, and learn when to seek help to prevent mental health problems." It is explained that the tests are based on "standardised scientific questionnaires that mental health professionals commonly use." Notably, the developers highlight that "VOS is not a medical service". Suppose one feels mentally unwell or has a high score on the test, especially those regarding depression or anxiety. In that case, it is advisable to "seek professional help". The user is also reminded that it is possible to find a list of crisis helpline numbers in case of an emergency. Each test contains an in-depth explanation of its design and what it focuses on. Moreover, each claim made about the specific test is supported by academic references and the names of the founders of these tests are provided. [Figure 5]
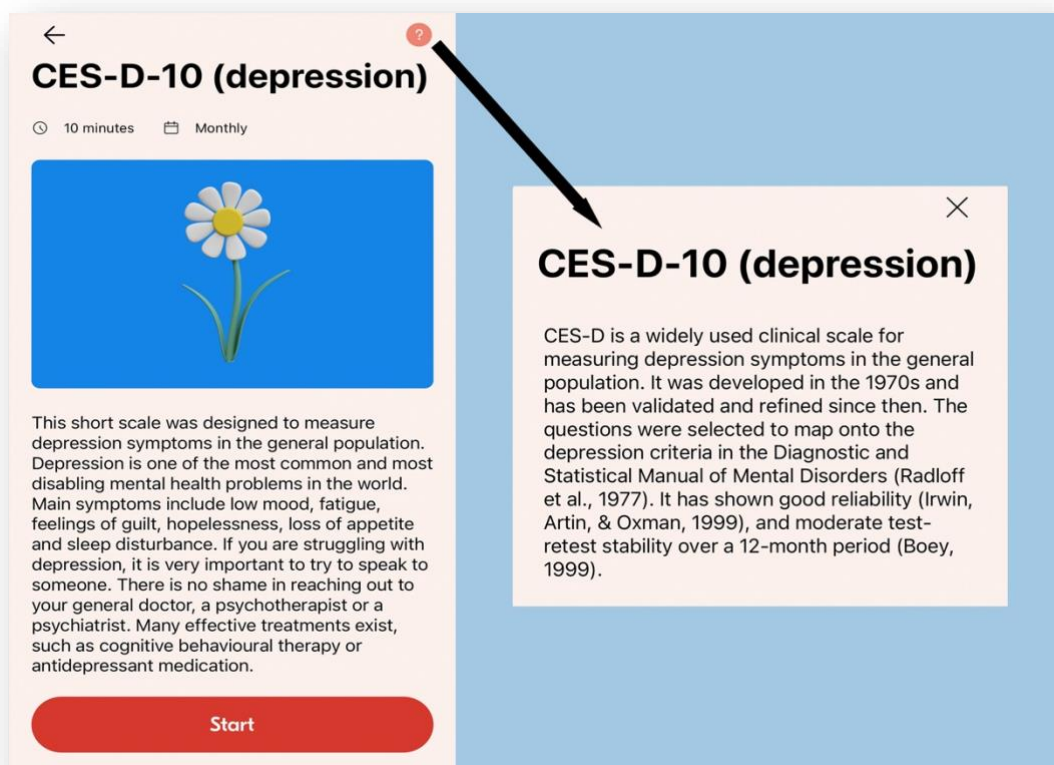

Figure 5: An example of specific well-being test explanation.

Fourth, the user can reach out to a personal well-being consultant referred to as "advisors" and "mental health experts". The developers explain that the experts are certified "psychologists or psychology students", and their work is based on short-term counselling. Meaning they may exchange a limited number of messages with the user and help them understand their situation and what could be the next step. The mental health experts thus cannot provide any long-term repeatable sessions. Moreover, instructions about reaching out to the VOS advisor are provided. It is possible to write a message to them any time of the day. However, they subsequently have twenty-four hours to answer. Because of that, the user is reminded that they should call the crisis helpline in case of an emergency. This leads me to the final affordance I want to describe in this research.

Finally, the mobile app VOS provides a list of crisis helplines, suggesting that users call one of the following numbers or the local emergency number whenever they feel "especially overwhelmed and distressed." This affordance is also accompanied by a short video of a woman, presented as a psychologist Dr. Jeniffer Bakes, who explains the importance of these helplines and when to use them. The user can select the country in which they are currently located (all the countries are available), and the app provides them with a list of local helplines. For example, national emergency and suicide prevention service numbers are provided when selecting the Netherlands. [Figure 6] It is highlighted that these lines can be reached any time of the day and should be answered by someone immediately. Thus, it provides the user with a particular help instantly.
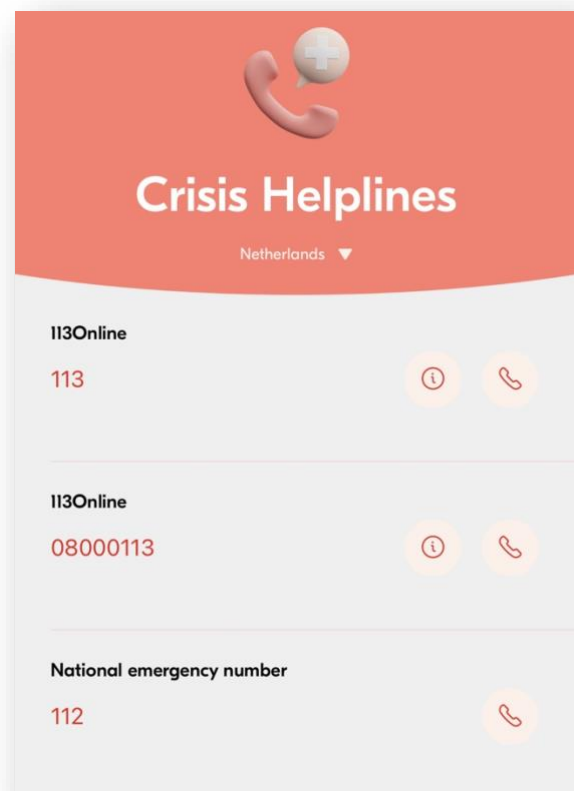

Figure 6: List of crisis helplines in the Netherlands.

4.2. Discursive Layer

4.2.1. Investigating VOS Terminology from a Discursive Point of View

Analysing the above-listed data, one may notice that certain words within the app and the Apple App Store page occur regularly. First, terms such as "expert", "professional", or "powerful" are highlighted by the developers often. As suggested by Lupton, such terminology may connotate a certain authority, confidence, and power to the user.[68] The terms expert and professional connote a highly qualified person in a specific field. Therefore, someone who has power over others who lack such expertise. By employing these terms repeatedly within the app's environment and promotional spaces, the developers imply they are qualified in psychology and mental health care. Discursively, this implication of higher knowledge suggests that the developers have power over the user who may not be qualified. Therefore, their mental well-being is taken care of by someone with higher expertise who may decide what is best for them. Similarly, describing the tools provided as powerful connotes that these services have power over the users' mental health.

However, it is essential to note that the app primarily refers to "well-being" and avoids using terms such as "doctor" or "medical". Moreover, "mental health experts" are simultaneously referred to as "advisors" or "consultants". Therefore, while the developers try to gain a certain authority, they also make it transparent that the mobile app should be considered a tool through which one may receive advice but not an actual diagnosis. Similarly, the word "help" appears on the screen regularly, initiating that the platform may provide a certain type of assistance. Nevertheless, this word is often combined with the verb "seek", suggesting that it is crucial to reach a general doctor or medical professional instead of relying solely on the AI. In fact, this advice is communicated to the user several times while using the app directly.

Second, the developers regularly refer to "growth" and "progress" and connect them to the direct address regarding "you" and your "inner self". This is also the case in an introductory video of VOS, which starts with a big "inner self" statement across the whole screen. As suggested by Lupton, promising the client to offer an insight into their inner body is a promissory narrative marketing strategy used to highlight the app's usefulness. Furthermore,

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[68] Lupton, "The Thing-Power," 131.

she emphasises that the app's name should already suggest its purpose.[69] And indeed, the name of the brand, VOS, means "you" in Latin. Employing such terms may connote to the user the possibility of gaining an insightful higher knowledge about their inner selves and, therefore, gaining control over their mental health.

Overall, the employed language is predominantly motivational, educational, and inviting to take control over one's mental health. Indeed, the developers use specific terms which connote professionalism and power over the user. Nevertheless, the user is constantly reminded that it is essential to consult an actual doctor when feeling unwell and not rely only on the platform. Furthermore, the language is highly accessible for laypeople who do not have previous medical knowledge. The app does not employ medical terms but rather chooses simple explanations of each service and tool, ensuring that everyone can comprehend it.

4.2.2. Investigating VOS Affordances from a Discursive Point of View

The mobile app VOS offers various affordances, which results in a complex environment inviting the user to take multiple potential actions. Affordances are mostly referred to when they are perceptible. Thus, when they visibly offer the user specific activity, such as using a controller. However, according to William W. Gaver, it is also essential to recognise the hidden affordances. He coins them "sequential affordances", referring to the moment when "acting upon a perceptible affordance leads to information indicating new affordance."[70] For instance, various buttons may be visible on display, inviting the user to press them. Subsequently, the button may lead the user to another group of possible affordances.[71] Consequently, the role of a technological interface is to pay attention to well-designed sequential affordances to facilitate an easy exploration process for the user.[72]

The mobile app VOS employs straightforward design and engaging visuals to help the user navigate the environment. All the services are categorised into focus groups and

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[69] Lupton, "The Thing-Power," 131.
[70] William W. Gaver, "Technology Affordances," in *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (1991), 82.
[71] Gaver, "Technology," 81.
[72] Gaver, "Technology," 82.

accompanied by an explanatory image (e.g., the affordance of breathing is depicted by an illustration of lungs). [Figure 7] When clicking on a selected service, the user is led to a new set of affordances. For instance, one may choose which type of breathing exercise to do or see how many people are performing breathing exercises at the exact time. Each of the affordances provides a question mark button in the top-right corner. [Figure 5] When clicking on it, the user receives an explanation of how the service works and additional information. The question mark button is highly noticeable due to its placement and self-explanatory due to the visualisation of the question mark.

Figure 7: Depiction of the breathing exercises.

Therefore, the developers provide the user with well-designed sequential affordances that make it simple to navigate the environment and understand the purpose of each service. In other words, both the design of the platform and the language used within it create a highly accessible environment for the user who does not need any previous knowledge or experience regarding mental health. Moreover, the investigated services provide various self-help techniques (e.g., breathing exercises) and self-monitoring tools (e.g., well-being tests or mood tracking) to the user, which support the connotation of having an in-depth insight into the inner self and gaining control over one's mental health.

4.2.3. Production & Consumption of VOS

The mobile application VOS was founded in 2020 during the coronavirus pandemic by Jiří Diblík and Ondřej Kopecký, based in the Czech Republic. According to the developers, the number of people who deal with poor well-being or mental health disorders is constantly rising, heightened evermore by the pandemic in which people need to isolate and conform to a socially distant society. Moreover, they also point out that new technologies are becoming highly popular among people. Because of that, they believe that a combination of digital technologies with experts in mental health care and psychology could be a possible solution
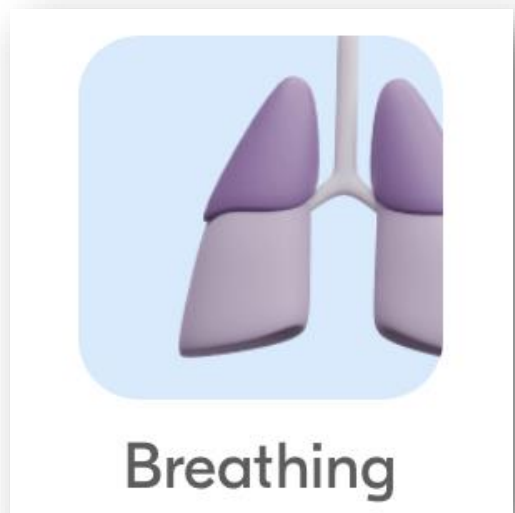
for many people to find help.[73] According to the VOS website, this idea led to the birth of VOS: a mobile application that may serve as a tool for people to control their mental health and well-being. As mentioned above, the app's name translates to "you". This is also connected to the logo, which combines the shape of a heart and visualises V. One may argue that the name underlines the neoliberal context within which is this research embedded. In other words, the term emphasises the neoliberal era described by the individualised user who may navigate through a selected online path and gain control over the system.[74] The app's name suggests that the user may navigate the app's environment and gain control over their inner self.

The developers gathered a small team of mental health professionals (from Oxford and the Palacký University Olomouc) and tech experts who aim to develop and constantly innovate a digital space for their clients in which they may feel safe and comfortable. It is possible to find photographs of the prominent team members on the website, their names, and their function. However, these team members are only the founders, people who focus on the technological side of the app or marketing. The VOS mental health experts are omitted. Nevertheless, the website contains 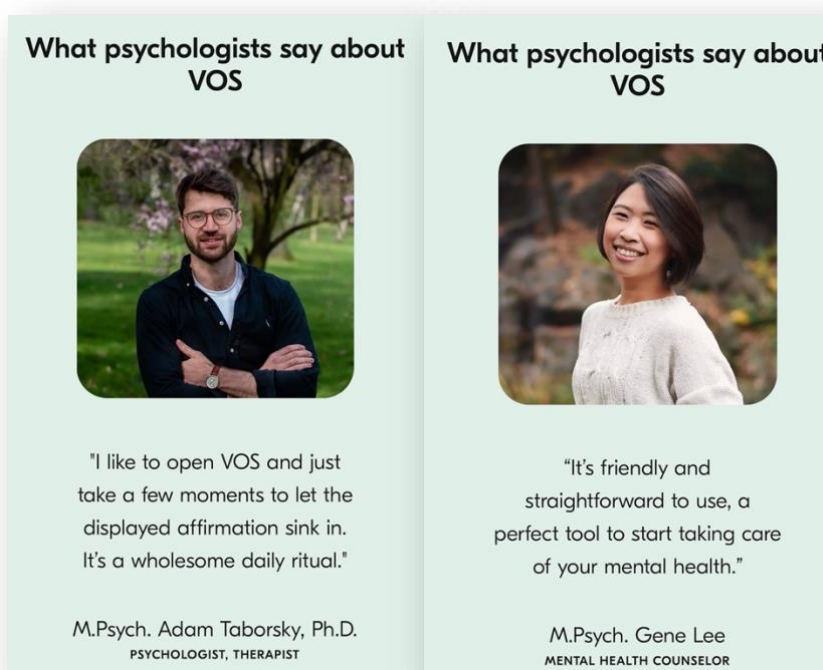certified psychologists' and mental health counsellors' written reviews. [Figure 8] The client may see their images and names. Besides that, the website also states that more than 400 000 people currently made an account via the app, and 85% of them indicate positive results after a week. However, no data or proof is provided.

Figure 8: Psychologists' reviews are portrayed on the website.

[73] Nela Vítová, "Dvacet Milionů Na Lepší Psychiku. Českou Aplikaci Vos.health Podpořil Reflex Capital Miliardáře Fryce," *Forbes*, June 30, 2021, https://forbes.cz/dalsich-dvacet-milionu-do-dusevniho-zdravi-ceskou-aplikaci-vos-health-podporil-reflex-capital-miliardare-fryce/.
[74] Chun, "Software," 6-9.

Nevertheless, in the Apple Store review section, one may discover similar data. Looking at the comments and reviews of VOS users is essential for critical discourse analysis as it uncovers how people receive and respond to the mobile app's functionality. The app received 4.7 stars out of 5, with 615 users contributing to the review. On the platform is 24 written reviews uploaded between 2020 and 2021. Most of the adverse comments highlight specific technical issues or dislike gendered avatars. The developers always answer these comments, providing an explanation or thanking the user for pointing out a mistake on their side. However, in terms of the functionality and service offering of the app, the comments are highly positive. Some users point out that the app makes them "calmer" and that it is "easy to use and helps them to keep a clear mind." Another user notes: "This app is amazing! I haven't gotten time to talk to my therapist in forever, and this really helps!". Other reoccurring comments emphasize that the app helps them to "reflect on their life", "overcome overwhelming times", and "try new things."[75]

The exploration of the VOS production suggests that the platform is designed and peer-reviewed by both tech and mental health professionals. Thus, they discursively assure the validity and quality of professional help and the safety of the users. While they provide certain information about the tech experts of the team, the mental health professionals are omitted. The website contains multiple marketing strategies based on exciting statements and promissory claims about the app's usefulness. These claims are supported by highlighting the reviews of certified psychologists and stating that 85% of VOS users indicate positive results. The latter statement is supported by the users' reviews and comments accessible on the Apple App Store platform. Not only the app receives a high average rating, but the written comments also indicate satisfaction with the app. The highlighted comments reveal how the app's functionality prompts users to declare that it helped them overcome difficult times and have an instant self-help tool in case they cannot currently reach a professional doctor. Therefore, the exploration of VOS consumption uncovers how mental health apps could be used by (lay)people in practice.

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[75] Vos, "VOS: Well-Being & Mood Journal," *App Store*, October 28, 2020, https://apps.apple.com/us/app/vos-self-reflect-journal/id1535250944.

4.3. Research Findings

As explained above, due to the extent of this thesis, the research leaves out the third step of CDA, which focuses on the societal consequences of the investigated notion. It is left open for further study. However, the first two layers were sufficient to explore the marketing strategies, the terminology used, and the functionality of the mobile app VOS. The research uncovered that the developers employ certain terms within the app, such as "experts" or "powerful", to arouse authority over the user. On the other hand, they avoid terms such as "doctor" or "medical" to indicate that while the app may offer help, it does not provide actual medical care. The app's name and regularly repeated terms "you" and "inner self" highlight the neoliberal context of individualised users who may gain higher knowledge about themselves and control their mental health. This is also supported by the app's tools which afford taking control over one's inner self through self-help and self-monitoring techniques. Overall, the language used is predominantly motivational, educational, and highly accessible for any user. The digital interface of the app is well-designed and explanatory through the visuals, providing the user with an accessible environment to navigate through. The Apple Store VOS page, the website, and the app contain various promissory narratives regarding its usefulness. Most of these claims are supported by gathered data, academic references, or comments of certified mental health professionals. Moreover, the average review and comments provided by the users indicate satisfaction and appreciation of the app's functionality. The developers repeatedly indicated that the app is designed by both tech and mental health experts. This answers Deborah Lupton's concern about the quality and validity of professional advice and the user's safety due to the frequent lack of reviews and collaboration on the design from the side of medical professionals.[76]

The academic debate presented in this research was concerned with the current discourse surrounding mental health applications and their use. It highlighted various adverse consequences, such as the possibility of misdiagnosis, harmful advice or blurring the line between wellness and real medical help through marketing strategies.[77] On the other hand, the discussion also pointed to various benefits of such apps as they may be a possible solution to the lack of mental health personnel and overcome the barriers constructed by the culturally

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[76] Lupton, "Apps," 608.
[77] Torous, and Roberts, "The Ethical," 4-5.; Robertson, Polonsky, and McQuilken, "Are," 247-249.

developed stigma. Moreover, these apps may be highly time-efficient and support mental health literacy among people.[78] The debate also highlighted that some scholars search for a way to elevate the benefits while thinking of solutions to avoid the possible negative consequences, one of them being Matthews et al. This highlights that certain scholars have already attempted to improve the current regulations regarding health platforms, as demanded by José van Dijck. My research elaborates on the first attempts with further improvements.

To remind the reader, according to Matthews et al., the mental health application needs to be "(1) based on accepted theoretical models of MHC, (2) designed in full collaboration with therapists, (3) designed to integrate with existing working methods, and (4) used by clients under the guidance of a professional therapist."[79] To explain, the fourth guideline proposes that users may benefit from the technological affordances only if they have a medical supervisor who may prevent possible harmful advice and misdiagnosis. Although she does not elaborate on this notion further due to the extent of her research, Lupton highlights that mobile apps provide laypeople with instant and free access to medical information.[80] Likewise, I argue that it is impossible to prohibit laypeople from downloading such apps in our neoliberal society described by the free market and popularity of digital technologies. On the contrary, they could benefit from cognitive self-help as it is often hard to access mental health care due to clinical shortages or financial reasons. Because of that, the last guideline offered by Matthews et al. needs revision, considering the hyper-accessibility of mobile applications and considering the literacy and needs of laypeople.

Combined with the remaining three guidelines by Matthews et al., the mobile app developer would then need to provide accepted mental health care theories and existing methods, collaborate on the design with mental health professionals to avoid harmful advice, and consider the functionality of the mobile app which may be accessible to laypeople too. Meaning, the developers need to pay attention to the use of specific terminology and marketing strategies to avoid exaggerated promissory narratives, explain provided services, and prevent blurring the lines between self-enhancement and actual mental health care. These

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[78] Becker, "Acceptance," 220-221.; Gaggioli, and Riva, "From," 142-143.; Brian, and Ben-Zeev, "Mobile," 97.
[79] Matthews, Doherty, Coyle, and Sharry, "Designing," 644.
[80] Lupton, "Apps," 611-618.

guidelines may be the first step in transforming mental health from a commodity back to a human right.

The case study, the mental mHealth app VOS, was investigated through the lens of the appropriated guidelines. The analysis, with a specific attention to the app's functionality, accessibility, marketability, and users' responses, uncovered that there is undoubtedly a space for the revised policy, which considers that laypeople may be among the consumers who download the app. First, the research uncovered that a group of mental health experts contributed to the app's development, and others, according to the website, peer-reviewed it. Therefore, the quality and validity of mental health help and users' safety are discursively assured. Second, the developers provide various self-help and self-monitoring tools, each containing an in-depth explanation, including academic references and attachments. The mobile app is thus based on widely accepted psychological theories and methods.

Third, while the developers employ specific marketing strategies and promissory narratives, they do not blur the line between mental well-being and real medical help since the user is being repeatedly reminded that if they feel inadequate, depressive, or even suicidal, it is essential to reach out to a general doctor or crisis helpline. Moreover, the terminology is used carefully, selecting terms that may imply authority but avoiding misunderstanding the app with real medical help. Therefore, the revised guidelines require a particular use of language which does not imply false and exaggerated promises. Instead, it is transparent about the kind of help it may and may not provide. Fourth, the app's design is highly accessible, provides an explanation of each tool and is easy to navigate through. Thus, everyone will be able to use the app and access personal self-help: people who have previous experience with mental health care, people that simultaneously visit a psychologist but also laypeople for whom it may be, for various reasons, the only way to obtain any mental health help.

5. Conclusion

To conclude, this thesis explored the discourse surrounding mental mHealth applications in terms of their regulatory policy, accessibility, marketability, and functionality. These concepts proved to be inseparably intertwined when investigating the consensus regarding mental health applications. The academic debate uncovered that the mobile apps' high accessibility

and individuality might be viewed as a solution to the barriers developed by the cultural stigma and clinical shortage, especially during the COVID-19 pandemic. However, it also pointed out the necessity to rethink the current regulatory policy regarding publishing these apps to avoid possible adverse outcomes such as harmful functions or false marketing promises. Within this thesis, I focused on one of the attempts to revise the current regulations proposed by Matthews et al. and elaborated on it with further improvements as follows. While I concur with the first three proposed guidelines, suggesting that the mobile app's content must align with the accepted mental health theories and methods and that mental health professionals should contribute to its design, I disagree with the fourth guideline.

The last guideline proposes that only users who have a mental health professional to guide them should be capable of using mental health applications. On the contrary, I argue that it is impossible to prohibit certain users from downloading a specific application without guidance. Instead, it could be highly beneficial for them, referring mainly to overcoming culturally developed barriers, financial reasons, and shortages of clinical personnel, as mentioned above. As indicated by Lupton, mobile apps (which may be downloaded for free) provide laypeople with immediate access to medical information.[81] However, she did not include this notion within her research due to the extent of her work. This thesis fills this gap, arguing that the fourth guideline of Matthews et al. should be reconsidered, focusing on adjusting to the literacy and needs of laypeople. Assuming that the fourth guideline is already revised, the mental health application VOS was investigated in-depth, uncovering how such a hypothetical app should function, what language and services should be employed by the developers, and how can users access it and respond to it. To investigate these components, I conducted an appropriated version of critical discourse analysis (CDA), as explained by Norman Fairclough. This version focused solely on the first two layers of CDA (the textual and discursive layer), enabling me to explore the power relations behind the language and tools employed by the developers and highlight the discursive contexts behind the app's production and consumption.

The analysis of VOS uncovered that there is a space for the revised guidelines that consider the users who might be laypeople. First, the application is co-designed by tech experts and mental health professionals. In this way, the developers imply validity and quality of the

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81 Lupton, "Apps," 611-618.

mental health advice and the users' safety. Second, the self-help and self-monitoring tools contain a thorough explanation of their usage and founders. Moreover, they are accompanied by academic references. The tools are thus established on accepted theories and methods. Third, the research uncovered that the reconsidered guidelines require specific use of language which is accessible and transparent to the user but does not include exaggerated promissory narratives. Within the app, the terminology implies a certain kind of authority and professionalism, using terms such as "expert" or "powerful". Nevertheless, the developers repeatedly remind the user that it does not stand for actual mental health care. Although they may provide a certain kind of help, they emphasise that it is essential to consult a general doctor or certified professional. Therefore, the employed language does not blur the line between mental well-being and medical help. Moreover, the terms "growth" and "you" suggest the personalisation of an individual user who may navigate the app's environment and gain control over their mental health.

Last, the analysis revealed that a particular design is essential for the revised guidelines. The app is based on a simple design that provides an explanation of each tool and is easy to navigate through. Therefore, the app is highly accessible for any user, whether a person with previous experience with mental health or a lay consumer who needs immediate help. Besides that, the exploration of the app's consumption implied that mental health apps could be used by laypeople too. The reviews and comments uncovered how the app's functionality prompts people to positively highlight the instant self-help and assistance to overcome challenging moments. These findings allow me to reply to the proposal of Matthews et al., underlining that if mental mHealth apps employ a particular functionality, design, terminology, and marketability, they may also be used by users who, for financial or social reasons, do not have a mental health professional to guide them.

In current times, digital technologies have become an unquestionable part of our lives. Every smartphone user has access to countless mobile applications through which one may interact with others, shop, exercise, or search for a bus schedule. Indeed, there is an app for everything these days. And that applies to mental health care too. This thesis highlighted the importance of acknowledging how the numbers of production but also consumption of mental health applications increased, especially during the COVID-19 pandemic. For many, creating an account on these applications could be the only way to access help due to various reasons. Because of that, it is essential to investigate who is responsible for designing such platforms as

anyone may publish a mental health application nowadays, even designers with no expertise in psychology and health care. Their intentions may often be economically driven as it is not too challenging to "sell health". That is why stricter regulatory policy regarding publishing such apps is necessary, implying consensus that mental health is not a personal commodity but a human right.

In reflection, this study investigated if there is space for reconsideration of regulatory guidelines proposed by Matthews et al. regarding publishing mental health applications. A specific case study, the mobile app VOS, was investigated, uncovering that under the condition that the app employs specific functions, language, design, and marketing strategies, the fourth guideline may be reconsidered, and laypeople may download mental health apps as well. However, the reader needs to keep in mind that this thesis worked with a specific mental health app definition and eliminated apps directed at more complex psychiatric illnesses. Future research may investigate how would the findings differ or align when adopting different categorizations and definitions of mental health apps.

The CDA allowed me to reveal the power relations behind the app's language and services and conduct a critical reading of the app's production and consumption. Looking at the reviews and comments of VOS users was highly relevant for my study to investigate how they respond to the app's functionality. Notably, one may not expect that all comments were written solely by users who do not have a professional to guide them. Nevertheless, the highlighted comments returned regularly. They were shared across the population, which includes laypeople too. Therefore, this part of the research remained somewhat speculative, looking at the consensus among users regarding the app. Moreover, due to the extent of this study, the research did not include the social layer of CDA. Future research may investigate laypeople's responses solely by conducting a questionnaire or interviews. This could provide a more qualitative and quantitative grounding to the part of my research in which I had to be more speculative due to the methodological considerations. Furthermore, a future study may use my findings and focus solely on the societal consequences and larger societal framework surrounding the mental health app VOS, thus conducting the third layer of CDA, which this study omitted.

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