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Digitalization of the body: how new technologies of self-tracking change Czech students' perception of health and well-being

Master's thesis

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Declaration

1. I hereby declare that I have compiled this thesis using the listed literature and resources only.
2. I hereby declare that my thesis has not been used to gain any other academic title.
3. I fully agree to my work being used for study and scientific purposes.

In Prague on 4.01.2019 Yuliia Kudaieva

References

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Abstract

The topic of the work is an impact of digital self-tracking technologies such as wearable fitness trackers and smartphone self-tracking applications on an individual**.** I used the methodology of semi-structured interviews, conducted with students engaged in self-tracking and comparative discourse analysis, when data received from the interviews were compared with healthy lifestyle discourse, partly manifested in the Czech internet media portals. The research question of "How self-trackers perceive the impact of the technology of self-tracking on their physical activities and lifestyle, respectively differentiated among themselves in terms of impact and usage of self-tracking technology, and to what extent they perceive it similarly to the way self-tracking is presented in Czech internet media portals?" was answered in the following way: the participants were categorized as 'engaged' and 'sportspeople' users, and their relation to discourse was not complete, although they were using the conceptualization of a healthy lifestyle proposed by media. In addition, the work proposes a theoretical overview of the issue of self-tracking and discusses the possibilities for future research.

Abstrakt

Tématem práce je zkoumání vlivu digitálních technologií self-trackingu (sledování sebe sama), jako například fitness náramek a aplikace pro chytrý telefon, na individua. Používanou metodou výzkumu byly polostrukturované rozhovory a komparativní diskurzivní analýza, kde data získaná v průběhu rozhovorů byla porovnávaná s diskurzem zdravého životního stylu prezentovaného na českých internetových portálech. Zároveň byla zodpovězena výzkumná otázka „Jak sebe-sledovatelé vnímají vliv technologií self-trackingu na svou fyzickou aktivitu a životní styl, respektive jak se odlišují mezi sebou v důsledku rozdílů ve vlivu a používání technologie sledování sebe sama, a do jaké míry se jejich vnímání liší od toho, jak self-tracking je prezentován na českých internetových media portálech?" následujícím způsobem: participanty byli kategorizováni jako „angažování" a „sportovní" uživatelé, a jejích sebeidentifikace s diskurzem nebyla kompletní, nehledě na to že nabízena medií konceptualizace zdravého životního stylu byla využitá. Na závěr, práce nabízí teoretický přehled problému self-trackingu a diskutuje možné směry dalšího výzkumu.

Keywords

Self-tracking, digitalisation, health, healthy lifestyle

Klíčová slova

Self-tracking, sebesledování, digitalizace, zdraví, zdravý životní styl

Title

Digitalization of the body: how new technologies of self-tracking change Czech students' perception of health and well-being

Název práce

Digitalizace těla: jak nové technologii self-trackingu ovlivňují vnímaní zdraví a štěstí českých studentů

Acknowledgement

I would like to express the biggest gratitude to my supervisor Mgr. Ema Hrešanová, Ph.D. and all close people and relatives, whose respect and patience helped me during all of the term of my Master studies.

Institute of Sociological Studies

Master's degree thesis proposal

Digitalization of the body: how new technologies of self-tracking change Czech students' perception of health and well-being

Research topic and formulation of research question

Within the early years of the 21st century, we can observe incredible technological progress with the developments of small powerful computing devices. Information technologies influence all spheres of human life, including health care and medicine. There is a lot of medical information available online and with the development of digital technologies, it is not necessary visit a professional health care doctors every time. As a result, sometimes patients feel to be even more qualified than physicians in health matters. Digital technologies give a possibility to monitor main health signals with help of wearable health devices, which are lately being widely used not only for tracking health but also for fitness purposes. Among typical functions of wearables are calorie tracker, workout assistant, and step counter. They can measure many health signals (e.g. heart rate), even if they are still not as accurate as clinical monitoring devices.[1] (Wearable devices with a wide range of sensors are also contributing to the formation of the "quantified self" movement, where "Individuals log everything ranging from the number of steps they have done, to their heart rate, to their sleeping patterns".[2]

In this work we are going to observe, how digital technologies in forms of particular software, wearable tracking devices and possibly specialized social media, which are related to health and body (e.g., health tracking devices, applications of tracking and quantifying health matters from food consummation, running and walking tracking applications, and so on) shape people's understanding of concepts of health and

[1] On Reliability of Android Wearable Health Devices NaixingWang, Edgardo Barsallo Yi, Saurabh Bagchi (Submitted on 20 Jun 2017)
[2] 360◦ Quantified Self Hamed Haddadi, Ferda Ofli, Yelena Mejova, Ingmar Weber, Jaideep Srivastava Qatar Computing Research Institute Hamad bin Khalifa University 9.aug 2015

wellbeing, "i*ncluding the lived experience of being tracked by digital devices and how people interpret and act on the data that are generated by these devices*"(Lupton2016: 181).

Main research question**: how Czech students can perceive their health and well-being (why do they think it is important for their life) through self-tracking experience and received digital data?**

Research methods and structure of the work

The structure of work will be following. In the theoretical section I am going to introduce the concept of healthy lifestyle with different perspectives on it. Further will be presented theorisation of digitalization of a body and academic works, related to the usage of digital self-tracking technologies. A part of theoretical section will be dedicated to the conception of Quantified Self as it is presented in modern neoliberal discourse along with the concept of disciplination of Michael Foucault.

Research will be conducted based on in-depth interviews with participants, who have experience of engagement in health self-tracking activities. Participants will be mainly young Czechs, students of universities in Prague. Based on analysis of data, impact of digital technologies on Czech students' perception of health and well-being will be presented and discussed in a conclusion section.

Main literature

Carter, Green & Speed. (2018). Digital technologies and the biomedicalisation of everyday activities: The case ofwalking andcycling. Available from https://onlinelibrary.wiley.com/doi/epdf/10.1111/soc4.12572

Cockerham, W. C. (2005). Health Lifestyle Theory and the Convergence of Agency and Structure. Journal of Health and Social Behavior 46, pp 51–67.

Foucault, Michel (1975). Discipline and Punish: The Birth of The Prison, New York: Random House.

Giddens, A. (1991). Modernity and Self-Identity: Self and Society in the Late Modern Age. Cambridge: Polity Press, pp. 1-35.

Haddadi, Hamed et al. (2015): 360◦ Quantified Self, arXiv:1508.00375v2 [cs.HC] 9 Aug 2015. (PDF) Available at https://arxiv.org/pdf/1508.00375.pdf [accessed Dec 14 2018]

Harris A., Kelly S.E. & Wyatt S. (2014). Autobiologies on YouTube: narratives of direct-to-consumer genetic testing. *New Genet. Soc*. 33, 60–78.

Lupton, D. (2015). Health promotion in the digital era: a critical commentary. *HealthPromotion International*, Volume 30, Issue 1, 1 March 2015, Pages 174–183. Available from https://academic.oup.com/heapro/article/30/1/174/2805780

Ruckenstein, M. & Schüll, N.D. (2017). The Datafication of Health. Annual Review of Anthropology. 46, 261-278. Available at https://www.annualreviews.org/doi/full/10.1146/annurev-anthro-102116-041244 [accessed Jan 4 2019]

Tamminen, Sakari and Holmgren, Elisabet (2016). The Anthropology of Wearables: The Self, The Social, and the Autobiographical, EPIC2016, Papers 3 – Innovation, pp. 154-174.

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"Lady Bracknell: Do you smoke?

Jack: Well, yes, I must admit I smoke.

Lady Bracknell: I am glad to hear it.

A man should always have an occupation of some kind."

Oscar Wilde, The Importance of Being Earnest

Introduction

This work is dedicated to a phenomenon of digital self-tracking, which is framed in the concept of health and well-being in modern society. Scholars' attention to this field is relevantly new. Digital technologies of self-tracking started to spread and entered the popular culture no more than 5 years ago. During this time, a big amount of literature dedicated to this topic emerged. Theoreticians consider those technologies as radically re-organising medical relationship between doctor and patient and having a potential to reform the medicine completely – some of them proclaim digitization of health, connected with a rise of digital technologies (Bhavnani 2016: 38, Widmer 2015).

Apart from medical issues, health is a part of modern lifestyle of an individual. Here are visible sociological implications, which health and medicalization of life hold for modern society. In modern age health is conceptualized not only as a specific part of individuals' life, which matters in cause of illness, but re-conceptualized as a resource, which person should be constantly aware about how to organise activities according to the avoidance of risk(Higgs 1998: 176-177). Healthy lifestyle is a trend of modern times. Image of autonomous, responsible individual reflects the popular image of neoliberal citizen, who is learned to be self-disciplined by the popular discourse.

The paper studies different relationships of what we call digital health technologies that "mediate our relations between various embodied practices and the world, and beyond pure 'hi-tech' products"(Tamminen 2016: 154-155). As Donna Haraway manifested, the cyborgization of people is accelerating in modern countries. (Haraway 1991). Technologies are getting closer promising to make our lives better and healthier. „One of the running claims is that the effective traditions of the embodied self (Mauss 2006) –

culturally informed practices of the body from sitting to running, from worshipping to workshopping – are being reshaped by a set of technologies collectively dubbed as Wearables“ (Tamminen 2016: 154).

A big amount of new digital products poses questions about the role of material technologies in people’s lives and perceiving of their individual bodies. Within the biggest context of our globalized society this question is about how do these technolodies fit and affect „the nature of the embodied human being“ in everyday life (Tamminen 2016: 155).

The aim of this work is to understand what the “digitalized” body, constructed by digital technologies of self-tracking, represented in a Quantified Self movement means, and which role does it play in the modern society?

Human body with wearable self-trackers and self-tracking applications starts to be considered and treated differently. Quantification of body movement proposes a new formula of self-relation, and continuation of self in the setting of smartphone application fascinates people, who may consider tracked data as a primary, objectified reality, free of subjective experience. This understanding then fits well to consideration of life by neoliberal individual as a set of projects, in which he or she is engaged due to feel of moral obligations, either to self or a society.

Self-tracking devices tend to make individuals to be more involved in the management of their health and collect data, which could be very influential in making decisions concerned different lifestyle and healthcare aspects (Sharon 2016: 93). These technologies become increasingly supported by medical professionals, public health officials, popular media and among individual consumers (Sharon 2016: 93).

As technologies of a self-tracing continue to evolve, spreading their agenda on such regular body activities as physical exercises, walking, sleeping, eating and drinking, affecting well-being in total, sociologists’ response on this phenomenon must be broad, adequate and up-to-date. Digital technologies of self-tracking propose a challenge to medical sociology and sociology of modernity, Marxism and phenomenological approaches, Actor-Network Theory and so on. Recent development, actuality of the topic and undoubted impact on people’s identity are the reasons, why self-tracking deserves particular attention of scholars.

The structure of the paper will be following: the whole work is divided into three parts, where the first part is theoretical, the second is a methodological part and the last one – findings.

In the first part I would like to present the shift in health paradigm, caused by quantification of self and creating new concept of "digitized body" by technologies of self-tracking. Previously health was taken for granted, but lately it has changed a lot. In modern life it is viewed more as a commodity and an achievement. People work on themselves in order to avoid or decrease risk of chronic illnesses; to improve their quality of life (Cockerham 2005: 51). Health becomes an object of moral, a site of biomedical intervention. Individual bears a moral responsibility to be healthy or to successfully manage his own illnesses. Health is no more something given for granted – it is a goal, which requires to work over as ongoing project. As the self-regulation in so important, self-disciplination and disciplination of other never stops.

This factor is a part of bodies' disciplination mechanisms, which are now not only a matter of the hospital or doctor-patient relationships. Rather they embrace population as a whole through constitution of risk factors, offer self-surveillance techniques for the individual's daily life, management of risk and chronic conditions.

The observed problem is impact of new digital technologies of body performance tracking – reorganisation of physical activity, changes of individual's perception of a body, has its effects in other spheres of life apart from sport. Digital self-tracking changes users' self-perception and affects their well-being. Huge part in it plays "healthy lifestyle discourse", which alongside with technologies of the self, works on reconstitution of people's self-understanding, when self-tracking is merely a mediator and a manifestation of those changes.

In order to analyse the presented problem, I will analyse the set of interviews with users of self-tracking applications in the last part of the paper, which will be helpful in understanding how particular social group perceives an impact of these technologies. In this diploma thesis, I will present the lifestyle and consumption patterns of one status group, living in the same conditions and sharing similar understanding of health and well-being. I am not going to generalize findings to all society or its parts, as our sample is very small and consists of a narrow medical students' community and rather represents a

microclimate in this group. Research question for this diploma thesis is following: **How self-trackers perceive the impact of the technology of self-tracking on their physical activities and lifestyle, respectively differentiated among themselves in terms of impact and usage of self-tracking technology, and to what extent they perceive it similarly to the way self-tracking is presented in Czech internet media portals?**

The concept of biocapital, used in interpretation the data and may also be proved useful for a research in the field of digital technologies of self-tracking. It is no more enough to be simply healthy in the neoliberal society. Viewing health as a resource, as a "capital", opens a possibility to discover a new potential, producing some value doing sports. Such principles as self-responsibility, self-control, moral responsibility, supported by media, authorities and pressure of the society, enforces using health as a capital, be engaged in sport activities. Feeling of being healthier, stronger and more efficient in sports enables to accumulate these abilities and transfer them into other parts of life, other self-identities.

1. Theoretical framework of health discourse in the contemporary society

Medical definition connects being healthy with avoidance of the risk of getting a disease (Korp 2010: 800-810). This meaning in popular discourse was being gradually replaced by a holistic definition of health – when health refers not to avoiding some activities, but instead performing them to ensure well-being and quality of life (Downie 1996, Tones & Tilford 2001, Korp 2008: 18-26). Giddens (1991) noted that lifestyle construction is a matter of increasing importance in post-industrial age. 'Healthy lifestyle' in sociology was conceptualised by approaches of methodological collectivism (social structures, which are promoting this lifestyle influence the individual) or methodological individualism (emphasizes the role of individuals on the construction of social reality) (Frohlich et al. 2004: 776–97; Cockerham 2005: 51-67).

Healthy lifestyles are described as patterns of health-related behaviour, based on choices and options, available for people (Cockerham 2000: 159). This definition points out on a relationship between life choices and life chances, proposed by Weber in his lifestyle concept (1978: 531-539). Due to this concept, lifestyle choices are free and deliberate, but lifestyle chances are determined by class position. Weber associated lifestyles with status groups, not individuals. Certain lifestyles are appropriate to a particular status group with its specific consumption patterns that create number of values in this group. Health lifestyles consumption patterns are supported by various kinds of goods and services, including modern technological devices (Cockerham 2005: 54-55). Besides, health lifestyles are connected to risk: positive lifestyles (for example, good nutrition, sports) represent avoidance of risk behaviour (Gochman 1988: 391-392).

Past decades can be characterised as consolidated emergence of "mutated forms of what" was referred to as "healthism" (Crawford 1980: 365). Healthism represents construction of a particular view on health problems, which is connected with broader historical developments, including neoliberal globalization (Michel 2012). Australian researcher Julianne Cheek notes that "many contemporary health and health care discourses are shaped by liberal capitalism, given that this has been an era that has seen the assumptions of liberal capitalism become less an idea than an orthodoxy" (Cheek 2008: 974).It is also influenced by new social movements and trends and shaped by liberal capitalism (Sontag

1995: 820). Modern healthism takes various forms of understanding of old problems.[3] However, it is no longer enough to only prevent disease, it should be actively working on "potential perfection" (Fitzgerald 1994: 196). Health, thus, is now a central focus of all parts of our lives, gained a sacred status. Being healthy means "embracing a range of lifestyle choices and technologies that once would have been considered at the periphery of health, if indeed part of it at all"(Cheek 2008: 975).Health became a dominant discourse of modern society, which creates our identity (Parusniková 2000: 131).

Health is the concept that relates to social and moral values as it is the ultimate goal for humans, which can be viewed in health-moral obligation context. It is a moral obligation of every modern individual to keep his body healthy. We can also speak of a cult of health, as it is everyone's obligation and a collective goal (Foucault 1980: 170).A person with bad habits cannot be free from the feeling of being guilty, because society with its rules of normality will judge and disagree to accept something abnormal (unhealthy) (Parusniková 2000: 132).

Health discourse is constituted by a moral obligation of individual and collective values in society. These two factors contribute to the development of disciplinary power in Foucauldian (1979) spirit. Contemporary disciplinary power tends to "shape" human body until it is "normal" and obedient. Obedience is necessary for manipulation to certain social roles (for example, healthy, clever, etc.) (Foucault 1979: 192-193).

[3]for example avoiding death, responding to risk (Julianne Cheek, 2008, p.974)

1.1. Paradigm shift in the health concept

Definition of what is healthy changed during different historical periods (Frank and Mustard 1994: 1-19). However, there are many changes that occurred in the last few decades. First of all, negative lifestyle caused majority of chronic diseases, which cannot be cured by medicine. The responsibility for one's health ultimately falls on every person himself. This responsibility becomes an option – to adopt a healthy living or suffer from a number of consequences of "bad habits" (Cockerham 2005: 52).

The second change is shifting to a "new modernity" (Giddens 1992). The collapse of socialism in Eastern Bloc, growing of multiculturalism, politic, cultural and sexual movements in Europe, modifying of family institution, changing social stratification patterns and viewing knowledge as a commodity are the factors, leading to the emerge of a new society order. *"While notions of an absolute break with the past modernity originating with the industrial age are unconvincing, it is nevertheless clear that society is in the transition to a new social form"* (Cockerham 2005: 52; see also Pescosolido and Rubin 2000). In health context medical sphere becomes a marketplace in which mutuality of patient-physicians mutual relationships accelerating with the development of digital medicine. Medical knowledge becomes publicly spread through the Internet technologies (Cockerham 2005: 52). Health as itself becomes an object of individuals' own moral responsibility through knowledge, self-tracking, risk assessment and responsible consumption. In its 'expansive' agenda, definition of what is healthy spreading on sociocultural sphere of life through mass culture (Lupton 1994; Bauer 1998), health becomes a matter of a social movements (Brown et al., 2001).

Health knowledge is therefore dependent on information channels and sources and who is responsible for grasping and applying this knowledge. Sources of healthy lifestyle knowledge were multiplied and diversified, and the main role here plays the Internet where the user can access not only governmental websites in search for the medical information, but websites of private medical companies, discussion boards, forums and social media. It is can be seen both as democratisation of knowledge and confused readers. Sometimes it is not easy to find truthful information on the websites that does not contain a lot of ads. However, this new division of knowledge may be seen as disrupting expert versus lay knowledge dichotomy. Also it is characterised by access,

distribution and responsibility for grasping such information. Before information of health was almost exclusively in hands of medical authorities, while modern times witness a boom of popularised lay knowledge about medicine. Today individuals have resources and possibilities to influence research studies and even found a new science track by themselves. But in the conditions of democratising of knowledge, corporate interest majorly predominate. There are also not actors, but cultural discourses around stratification, those regarding sex, race, gender (Belkin 1996, Adams 2002).

Through this new ideology people now look and perceive their bodies and their lives. Body, in Foucauldian spirit, is seen not as a stable and solid entity but as flexible and capable to be disciplined and changed. Health lifestyle discourse proposes a scope of normalities, which can be applied on different social groups. [4]The problematization of normal turned everyone in a state of 'becoming ill' and constitutes no state where the risk would be absent completely. Individuals are judged for being under risk and are expected to treat such state as a state of illness (Press, et al. 2000, Fosket 2002). Risk technologies are normalising, in a way of creating a criteria using which others would be judged (Ewald 1990). *"Health is thus paradoxically both more biomedicalized through such processes as surveillance, screening, and routine measurements of health indicators done in the home, and seemingly less medicalized as the key site of responsibility shifts from the professional physician/provider to include collaboration with or reliance upon the individual patient/user/consumer"* (Clarke et al. 2003:173).

There is also a third change symbolizing a movement to lifestyle consumer habits became possible with general improvement of living standards. Lifestyle habits are always determined by social class positon and occupation. Nevertheless, with rise of economic productivity in advanced societies, lifestyle consumer habits became more influenced by social identification (Giddens 1991). The lifestyle concept starts to be more significant in

[4]Marketing ofmedicamentsembodiedcustomisationofbiomedicaments, whichisalso in trend of a 'lifestyleimprovement', like Viagra becameoneofthe 'lifestyledrugs' withtreatingthesignsofaging (Mamo &Fishman, 2001). Customisationapplies not only to body improvements, but alsoknowledgeabout status ofhuman body and trackingit in orderofprevention, using body scans. Customizationconstituted, thatthereis no single normality but multipleonesofrace/ethnicity, sex/gender, habitus, ageetc., whichalsoadaptstheresearchtechniqueforthosedifferences.
Emergedgenresoftechnoscientificidentitiesalsocorrespondswithhealthylifestyles. Thosenewidentitiesallow to access and process body withtechnicsaccording to thoseidentities and ensurethem: identitiesofmotherorfather (whichcanbecomepossible via technologicalintervention), healthysubject, membersof a risk groupor non-consumersof gluten, lactoseetc.

creating self-identity and class formation (Giddens 1991: 1-35). Health and well-being become a normal state for individual and collective health-related identities. Transformations of bodies to include new properties and the production of new individual and collective technoscientific identities. Extension of models in medical research and practice provided new ways to 'attaining control over bodies' through medicalization techniques like enlarged scope of possible diagnosis to enable the transformation of bodies to include desired properties and identities (Clarke 1995: 161).

Connection of science and medicine is one of the most notable trends in modern medicine. Innovations tend to be hybrid ones – both in technology and new social forms – like spread of computer technology, which leaded to a drastic change in organisations' structure.

Medical technologies development is being transformed and shaped through digitalisation, miniaturisation and hybridisation with other technologies. Wearable tracker devices are a good example of this process as itself, since they not only propose digital data about the health condition and body performance, but also contain such technologies as alarm clock, access to the internet and various applications on the mobile phone, with which it is interconnected and is able to interact with the user in real time during the physical exercises.

1.2. Wearable health devices and their influence on the constructing of Quantified Self

Measuring the quality of human health and well-being is one of the most developing area in a contemporary society. Devices, which provide measurements, could be placed on the human body (wearables) or can be installed as a software in smartphones. The first option presupposes a small-weighted, thin, flexible, sometimes even stretchable body of devices (Brand et al. 2015: 116-120). Wearable health devices can be described as a new technology, enabling permanent monitoring of human vital signs during the whole day and night (during work, sport activities, at home, during sleep) (Marco et al. 2005: 7167-79). The concept of wearable health devices was introduced in the late 1990s to give the ability for the individual to manage his own health and raise interest to the health status. These devices connect different science domains (Lumberis 2006: 6789-92) such as *"biomedical technologies, micro and nanotechnologies, materials engineering, electronic engineering and information and communication technologies*" (Dias 2018: 2414).

New digital technologies are very useful in wellness, sport activities and fitness, as they monitor performance and response of a body to these activities. There is an evidence of use of different kinds of digital technologies measuring health, such as smartphones, mobile applications *("apps"),* social media, and wearable devices (Anderson and Jiang 2018; Swist et al. 2015; Wartella et al. 2016) especially by young people, who are more interested in using digital technologies for their health. Digital technologies have the power to shape and influence health-related behavior (Goodyear et al. 2018: 1-15).

For many young people, smartphones, apps, and social media are habitual parts of their daily lives (Turkle 2017). Thus, social media, apps, and portable digital devices can be viewed as *"connected spaces for young people"* (Goodyear 2018: 2), where they communicate, learn and self-express (Maclssac 2018: 816-35).

Recently emerging sensor devices led to the introduction of the Quantified Self concept as a general movement to information, collected daily via digital devices (Rawassizadeh 2015: 316). The term Quantified Self originated in 2007 within the context of personal

data collection. There are few possible use cases[5], supported by collecting and analyzing data (Leibenger 2016: 315-34):

- reports – workout loggings, which can be used to control behavior and live healthier
- competition – comparing of workout data with others and possible improvement of sports performance as a result
- correlation – by analyzing of dependencies it is possible to see the impact of healthy lifestyle one the person's mood; constituting new findings about oneself
- research – constitution of big data amount for health research (for example, analyzing the correlation of sports, weight, mood) (Leibenger 2016: 316).

Each service, presented above, provides a user with reports, based on his individual data. All services allow to compare data with other users in order to encourage competition between them. With the correlation, it is possible to get some recommendations based on reports from other users. And finally, all users are confirmed to share their results for research purposes. It is possible to get and share a huge amount of data, based on users' results.

As it was already said, both smartphones and wearables can be used for information collection. Nevertheless, wearables (fitness trackers, smartwatches) are connected to the skin and their location is fixed on a wrist. These two advantages make wearable devices more attractive over smartphones and the information collected is more precise.

Despite their wide range of functions, these monitoring devices do not fully detect individual's health and wellbeing due to their disability to monitor stress levels, diet quality or social relations factor. Majority of these devices belong to health, lifestyle and fitness categories, the most widespread functions of which are step counter, calories calculation, heart and pulse monitoring and measurement of sleep quality (Haddadi 2015: 1-6).

[5] Use case is a term used in software and systems engineering which refers to a list of actions which define the interaction between an actor and a systém (Alexander, Ian 2004). In this context it means a number of possible scenarios in data collection processes.

1.3. Digitalization of a body

The digital era had a huge impact on mentioned features of health concept. Digital medicine is seen by researchers as a continuation of healthy lifestyle trends, changing ways of health promotion (Lupton 2015) and making medicine far more individualised. Democratising the medicine using smartphones as a hub turns individuals to be more concerned about their health. Through new digital devices, medicine start to obtain possibilities to be engaged in individual's life directly, not only in setting of healthcare facilities. Digital medicine is seen, therefore, as a new form of healthcare and a future of medicine (Steinhubl&Topol 2018).

Researchers describe possible consequences of *"datafication of health"* in detail when once qualitative aspects of life turn into quantitative data (Ruckenstein&Schüll 2017:1-18). The so-called *"lifestyle diseases"* treatment such as obesity, diabetes, cardiovascular disease are shifted from the hospitals and doctors to the hands of a patient (Goetz 2010; Topol 2012) with using digital tracking technologies as a mediator. Some researchers frame surveillance technologies and misbalance in access to a 'big data' using Deleuze's concept of *"control society"* (Cheney-Lippold 2011; Andrejevic & Burdon 2015). Other use Foucault's notion of neoliberal governmentality, when person overtakes the responsibility for his own well-being on oneself. Lupton states that in this case empowerment *"becomes a set of obligations"*(Lupton2014a: 12).Scharoncriticizes this trend of considering individuals engaged in a healthy citizenship discourse as objects of normalisation and disciplination (Scharon2015: 295).

Members of Quantified Self research project states that the created data enable individuals to bring meaning to their life experiences, relate them to their body and selves. Genetic testing sites for example may be used to construct *"autobiologies"* (Harris et al. 2014) and influence identities with a new "ways of knowing" (Fishman & McGowan 2014: 39). Self-tracking technologies, according to researchers, does not produce an objective truth but rather *"situated objectifications"* (Pantzar et al. 2017), where matters experience, reflection and understanding.

Self-tracking can change patient-relationship, when both may be seen as experts (Neff 2013; Nafus & Neff 2016: 140). Though alongside with empowerment, many self-trackers have an ambivalence to used technology, when they want to be both in charge of

themselves and delegate that task, they feel good since they passed the burden of self-control on the mediator (Schüll 2017). People also emotionally response to their data, they love them, are proud of them, feeling frustrated because of them or hate them. When device shows undesirable outcome despite the amount of efforts, people can feel guilty as they didn't fulfil their moral obligations. Some may be addicted to technology or forced to de certain actions which they would not do normally (Dudhwala 2017: 121–122). Fritz et al. (2014) describes how strongly participants (who use self-tracking apps more than 3 months) in his study are attached to the self-tracking device. Numerical data in lives of individuals become more important than represented activity, and participants often didn't see sense in performing activities for which they are not given credit.

Non-human actors' role in self-tracking is an important matter of research to many scholars of the field. Tracking programs and devices actively influence actions of tracked individual, they have an agency (Latour 2005), *"liveliness"* (Lupton 2016), or *"performativity"* (Mackenzie 2005). Trackers shape experience and people's agency. Williamson states that "*health-tracking data act as a kind of active, algorithmic skin that not only sheathes but animates and orders the body*" (Williamson 2015: 147). By presenting the body as quantified data, normativity and health start to be perceived in terms of numbers and fulfilled daily goals. Trackers influence certain behaviour and discourage other, as they often do not merely monitor but actively regulate users (Schüll 2016). In Donna Haraway's tone, researchers start to consider self-tracking people as *"hybrids"*. Walking thus becomes a hybrid activity with quantification and following making sense from experience are mediated by the smartphone. However, to consider self-trackers as hybrids analytic should pose the question to what extend those new digital technologies are *"tamed"* or *"domesticated*" – they are not given as itself and then used fully, but presuppose symbolic, cognitive and practical work from users. Also not everybody uses tracking applications as they were designed and intended to use by developers, and some may never be adopted (Carter et al. 2018).

As the object of this paper are technologies of tracking of physical activity, such as walking and running, theorisation of this particular area of self-tracking technologies should be observed. As Laurier, Brown, & McGregor (2016) state, there has never been an unmediated way of movement, such as walking or running. Paper maps existed for a long time, and first pedometer is dated to the XVIII century. Despite that fact, digital

technologies of walking and running evolved drastically in the last decade and deserve a particular attention.

Counting steps is the most popular way of self-tracking, which strongly influenced everyday mobility (Ruckenstein & Schüll 2017). Steps must be standardised an equalled to all other steps. Most common parameter of daily goal is 10 000 steps, popularity of which does not lies in the medical research, but rather in an easy remembering of a count and attractiveness of having a large number of accumulated steps (Tudor-Locke & Lutes 2009). More of that, many apps are designed to communicate with a user in efforts to affect his behaviour: so-called "persuasive technologies (Fritz et al.2014). Efficiency of this regulation though is sometimes doubted by the researchers (Fanning et al. 2012; Ho et al. 2013; Lewis et al. 2015, Gorm & Shklovski 2016).

Critical literature on digital technologies of tracking observes them as a manifestation or solution of social, political, moral and ethical problems in the modern world (Lupton 2014). Particular aspects include "*body projects of perfectibility"; healthism and responsibilisation of individuals as healthy consumers, in the ways inwhich technologies both assume and encourage citizens to be orientated to self-surveillance; visualisation and competitiveness; and metrification, in the ways in which numerical representations of bodies encourage a move from the'haptic to the optic' as numbers become more meaningful than bodily sensations"* (Carter et al. 2017:3). Hybrids may change the understanding of what human body is and what should do – through a prism of governmentality or healthism Nansen (2008) suggests that physical exercises via digital technologies become unbounded from space of a fitness gym and particular time of the day. Trackers' body is performing constantly, as ongoing activity, without division on work and leisure. Applications involve themselves in a daily rhythm of temporality, where user must be physically active during his other activities.

2. Research design

2.1. Formulation of the research question

In order to analyse the presented problem, the research will be conducted in two steps. The first part includes a set of interviews, conducted with Prague students-users of self-tracking applications. It is an important step to understand, how a particular social group perceives and presents the impact and reasons, why they use this technology. The participants then will be categorised according to their viewpoint and usage of the technology. The second part will be a discourse analysis of the internet media articles, which promote self-tracking. In this part of the analysis, the observations of participants will be compared to how digital tracking technology is presented and promoted in media to the readers, and whether they perceive it similarly or differently.

To our sample, we chose Czech students as they are open, friendly and outspoken. A dormitory is the place, where these students are the most reachable, therefore most of the interviews will be held in the reading room of the Švehlova dormitory.

2.2. Research sample

The sample for the research is represented by students, who live in the Švehlova student dormitory, which is a part of Charles University in Prague, the Czech Republic. The participants were recruited by proposing to take part in the interview for those who use digital tracking applications and devices, the offer to participate in the research was posted on the Facebook group – the official page of the dormitory. 12 people responded in total, expressing a wish to participate. Later the participants were filtered according to the amount of time during which they were using the application – not less than a month, and then were selected only those who use (or used) the application regularly. As a result, 9 participants were selected in the sample, all the residentss of the Švehlova dormitory, active self-trackers, all students of Bachelor, Master of Doctoral program in Prague universities.

The Švehlova dormitory is an old building, built at the beginning of the 20th century, and located in one of the central districts of Prague. It is considered as a dormitory mainly for medical students, and they indeed form the biggest group of students here, although there are a lot of representatives of other faculties and even universities. In the sample, there are students of various faculties, such as law, pedagogy or even industrial design. Despite the old age of the building and its rather unpleasant appearance inside, it attracts students because of its low price with regard to the location. The atmosphere maintained by the students is very pleasant and friendly, emerged problems or issues are always publicly discussed on the official dormitory page on Facebook. The popularity of the group was the reason why the offer to participate in the research was posted there, and the particular, rather homogenous group of youngsters, who receive high education in prestigious universities, people who are open to new technologies, serves well to the needs of the research and therefore was selected as a sample.

In the following table, I will present all the participants from whom the data were collected:

Sex, Age & education	Used tracker & duration of self-tracking	Employment status	Participant category with justification of inclusion
Female, 26, student of pharmacology	Wearable tracker **Pulse**; application **Pulse**; used for a month	Works in an international pharmaceutical corporation	**Engaged** category; not doing sports apart from the walking daily goals in the app in order to be healthier
Female, 21, student of economics	Wearable tracker **MiBand**; application **MiFit**; used for almost 2 years	Works part-time job in an office	**Engaged** category; not doing sports apart from walking daily goals in the app in order to be healthier
Male, 30, doctoral student of pedagogy	Wearable tracker **Apple**; two applications – **RunKeeper** used since the year 2011 and **Apple Activity**, latter is the most used now	Works as a teacher of pedagogy and research	**Engaged** category; doing sports actively – running and exercises in gym but mainly in the app setting, does sports to be fitter
Female, 25, student of law & economics	Application **Endomondo**; used for two years; does not use wearable tracker	Works part-time job in an attorney agency	**Engaged** category; uses application to motivate herself to run in order to be healthier
Female, 20, student of industrial design	Wearable tracker **MiBand**; simultaneously use **MiFit** and **mapy.cz**; used for half a year	Part-time job in a bakery	**Sportspeople** category; runs on long distances and aspires to run a half-marathon

Male, 22, student of medicine	Wearable tracker **MiBand**; application **MiFit**; used for half a year	Works as tennis coach	**Sportspeople** category; is a professional tennis player, takes part in city tournaments.
Female, 22, student of clinical psychology	Application **Sports Tracker** for 3 months; in the past used **Pomáhej Pohybem** for year and half and **Endomondo** also for 1,5 years; does not use wearable tracker	Part-time job in a hospital	**Sportspeople** category; professional runner, ran 4 marathons in the past and has awards for at least some of them.
Male, 22, student of technics	Application **Fitocracy** used for almost a year, but now does not use any application nor wearable tracker	Does not work	**Sportspeople** category; although non-professional sportsman, has done various sports daily since he was 12 years old and considers sports as part of life.
Female, 23, student of medicine	Wearable tracker **MiBand**; application **MiFit**, used for year and a quarter	Works in a sports camp for kids/teenagers and also as a coach of athletics	**Sportspeople** category; professional sportswoman for 6 years. Wanted to study in the faculty of sports but did not get there due to suffered trauma during preparation for exam.

The students-participants were ranged in two categories according to their engagement in the usage of the application. The 'Engaged' users performed sport activities mainly in the context of the application and did not perceive themselves as doing sports, rather keeping fit and healthy. They were, according to the name of the sub-group, far more engaged and motivated in the context of application to collect virtual points and fulfil goals. Keeping fitness and healthy condition was perceived by them in terms of self-responsibility. 'The Sportspeople' sub-group are engaged in sport and would do it with or without the application. Sometimes the 'sportspeople' were actually professional Sportspeople – the case of the tennis player and the athletic coach. They often were not as concentrated on the tracking as itself as the 'engaged' participants, were either not taking application so seriously or were less successful (or motivated) to fulfil a daily walking goal. Most of them associated themselves with sports as a lifestyle and did not need some additional motivation to be physically active. Although they found possibilities proposed by self-tracking 'interesting'. The division in these two groups of participants proved itself also in the analysis of keywords in speech.

The data from the participants were gathered by me during series of semi-structural interviews with rather loose order of questions. The length of the conversation varied between 12 and 30 minutes, according to how long an interviewee was willing to talk. They were conducted mostly in Švehlova dormitory's study room, however, 2 of the participants were contacted online using an audio call on Facebook, since they were not in Prague in the summer but, nevertheless, were willing to take part in the research. All the interviews were recorded, the participants had been informed about that and agreed with the anonymous recording.

In the analysis, part of the participants will be quoted according to this pattern: age-sex (M stands for male, F for female)-model of wearable tracking device/name of the most used application (sub-group of participants, where S stands for 'sportspeople', E – for 'engaged), e.g. 30-m-Apple Watch 3/Apple Activity (E). The Interviewer's speech will be marked as IR in the quotes.

2.3. Methodology

The structure of the semi-structured interviews was the following. At the beginning of the interview they were usually asked three questions:

1. What do you use for sports tracking and how long?
2. How did you learn about this program/device?
3. What were your reasons to start using it?

After answering those, an interviewee usually started to describe their experience with the application and engagement in a self-tracking practice. I, as an interviewer, was trying, in any case, ensure the smoothness of the interview, asking clarifying questions and changing the topic asking a new question only with certainty that participant told all the necessary facts regarding the current question. Thus, the interviews were constructed to encourage self-trackers to share their experience and express their thoughts freely and comfortably. As it was important not to confuse the participants with the strictness of the interview, the following questions were asked not in a strict order but so to continue and develop thoughts of a participant expressed previously:

1. How did the usage of a tracking device/program change your physical exercise?
2. How can it help you? (resp. How can you benefit from self-tracking?)
3. What people may those devices/programs be helpful for, and who they might not be for?
4. Do you read any article papers, journals, or participate in a community dedicated to a healthy lifestyle?
5. Does self-discipline play a role in your life?
6. Does competition with yourself play a role in your life?

During the interview a lot of clarifying questions were usually asked, which helped understand the position of the participant or it was just the intention to obtain interesting data. All 9 interviews were coded using software Atlas.ti, an analytical tool-program for qualitative data analysis. During the data analysis I created codes for their interpretation as in the Grounded Theory approach (Glasser & Strauss, 1967) – theoretical part to the work and theorisation of digital technologies was examined methodically and added to

this work only after the data analysis – although conducted analysis confirmed many of ideas, expressed in existing literature. It allowed to build assumptions more independently from the current existing literature on the topic. However, some knowledge of self-tracking was used in the construction of indicative questions for an interview as well as a sociological term as self-discipline.

The final list of created codes is the following:

- application as an actor (code used for the cases when the application enforces a person to do some activity and constructed in speech as an actor)
- application data as a reality (code used when participant express confidence or doubted the correctness of application data)
- better person (code highlighting representations of better persona as participants are now or going to be)
- biocapital (code marked manifestations which can be conceptualised as biocapital, a form of symbolic capital)
- challenge (code marked all the cases of challenge, either with oneself or with the others)
- fulfilling a goal (code refers to fulfilling inner goals of application, such as 10 000 steps per day)
- healthy lifestyle (code for cases of participant's association with a healthy lifestyle)
- health knowledge (code used when the participant described some known medical facts)
- moral pressure (code associated with all moral problems either connected with usage of the application or lifestyle issues).

During the analysis, only code "creating new knowledge" did not prove itself as analytically fruitful, since it was the most frequent description of participants of the process of self-tracking and did not need to be analysed as it was explicit enough and widely presented in speech.

The second part of findings was the media analysis. The analysis of a segment of health, more specifically of health lifestyle representations which are connected to fitness trackers in applications was included in the work in order to describe the character of the relationships between the media and participants' manifestations, and to check whether the participants from the social group of students perceive using wearable fitness devices and sports tracking applications similarly to how they are presented in the media or not. The chosen method was a comparative keyword analysis, which should help to describe underlying knowledge-power relationships, to check whether some representations are excluded from the media field or participants' statements and reveal technologies of a self, implied both by participants and by media articles. In this part of the analysis, therefore, the patterns of discipline power will be searched, alongside with an analysis how the discourse of health lifestyle shapes and affects the self-perception of participants, manifested in the speech.

The dataset of the analysis contains 10 articles from various media sources, connected with the promotion of fitness trackers – wearable devices and applications, and also the archive of participants' interviews. There were two steps in selecting the media articles. During the first step, there were collected articles which respond to the topic, implied by the way of searching by search requests as e.g.: *fitness tracker* and *fitness application*. On the second step there were excluded articles, which contained promotion of specific products, since they were considered as commercial articles. Also, data promoting particular fitness trackers or applications were excluded from the selected articles for analysis, as they appeared from time to time. The dataset, therefore, can be described as a collection of articles, which present fitness tracking technology in general, propose applications of usage and encouraging the readers to use them. The articles were mostly placed in "health and lifestyle" sections of web pages, referring to "fitness" and sometimes were aimed especially at women readers. In this way, I tried to approach the general description of sports tracking phenomena, as it could be meaningfully similar to the presentation of the same phenomena by the participants. As such, marketing articles and a promotion of concrete brand of fitness trackers were excluded from the dataset, since participants also did not do any promotion or were not intended to persuade a reader to buy a particular brand of fitness trackers. The reasearch participants did not even

express the opinion that their tracker is somehow better than others since they do not have possibilities to compare with the different ones.

The texts were gathered by Google search engine, and since it did not propose many results with describing fitness tracking technology (on contrary to the product advertising, number of which was unsurprisingly big), I conducted an additional search through the biggest news media portals of the Czech Republic according to Wikipedia (ČT24.cz, iDNES.cz, Lidovky.cz, iHNed.cz, Aktuálně.cz, iRozhlas.cz, ČTK.cz, Novinky.cz, E15.cz, Echo24.cz, Parlamentní listy.cz, TN.cz, EuroZprávy.cz, Forum24.cz, Blesk.cz, Seznam.cz). Particular websites proposed by the search engine were used, and some of the media articles have been excluded from analysis, since the webpages proposed those articles only as subscribers' content (the case of iDNES.cz and E15.cz).

The reason of using Google as well as the most popular Czech internet media portals is the algorithm of search engine proposed by Google, when the order of the search results is constructed due to the relevancy of articles to keywords: page content, the popularity of the page, number of links to page from other websites. Also, relevancy of media servers is clear, because they present most popular news websites in the Czech Republic and therefore, have the highest chances to represent the discourse analysed in this work.

From the results of the analysis, however, the keywords in speeches tended to be more dispersed, at the same time, the internet media sources used more of common words, therefore presented more solid manifestation of discourse.

In the process of studying the data, the same codes were applied on media articles as on the semi-structured interviews with participants. The codes enabled to demonstrate discipline techniques and "moral management", performed by media in regard to their readers, which proved itself analytically productive.

3. Findings

3.1. The role of digital sport tracking technologies in the participants' life

3.1.1. Quantification of self as a disciplinary practice

As described in the Methodology part, the sample consisted of the students of Švehlova dormitory, who are using sport tracking applications or devices, therefore engage themselves in physical activity and healthy lifestyle. The most popular device used by students was MiBand, a wearable fitness tracker produced by Xiaomi. Different types of fitness trackers and numerous mobile applications were also used, created for analysing and processing the data, received from a wearable fitness tracker and other types of mobile applications, designed to create data themselves. Using MiBand and similar wearable trackers is relatively not demanding – data to the applications are transferred automatically via Bluetooth; at the same time, the participants who used programs, designed for the input data by a user were complaining about the struggles with constantly upgrading data by themselves – which in case of a 22-year-old male law student was the reason to stop using the Fitocracy application after 1 year. One female participant, however, preferred using a smartphone instead of MiBand for sports tracking because of "unaesthetic appearance" of those wearable devices on their hand.

Among the reasons to use sport tracking technologies were named the following: curiosity (due to engaging in long time walking activity because of work as a waiter or practice in the hospital), receiving feedback from physical exercise (including not only the data about exercise but a current pulse frequency during exercising), effortless and comfortable usage, making the physical exercise more interesting than before, attractiveness of the application design and idea.

Receiving feedback from physical exercise, therefore creating new knowledge about their body performance, measured in kilometres, steps or even the abstract "points" stands as the strongest feature of the new tracking devices:

> 21-w-MiBand/MiFit (E): It actually monitors sleep, and even pulse. You can set a goal there, now I have a goal of 10 000 steps [per day], so when I fulfil it, it will vibrate and I will know that I've made it.

All participants agreed on the point that sport tracking devices and applications provide them important quantitative data about their body performance. As we divided participants in two separate groups according to the results of the coding, it showed quite a separate approach to the application and treating the outcome data.

The 'engaged' group of students saw data, which applications offer as a first-hand received knowledge, which are the golden standard and basis for good health, which the 'engaged' participants try to achieve constantly:

> 26-f-Pulse/Pulse (E): ...It is okay, well, 10 000 steps [per day] is like, let's say, 10 000 steps is a basis to a person; …even if they´re not doing sports, it will retain them stable in a healthy physical condition.

Later, at the interview, the same participant was not sure about the origin of the data, she did not state that it is science approved knowledge but rather held to the opinion that it is an abstract meaning of an overall people´s performance. The supporters of training for health claimed it proved itself to be an important motivation to a sport, and in some cases, to become better. Those users, who praised the design and functionality of the applications, were often eager to show me what the application looks like and its possibilities. While an attractive setting of the application provided a good overview of the results and appealed on a user to "fill" it with data of his or her physical activities, some used it to show better and better results – goal implemented in Apple Activity:

> 30-m-Apple Watch 3/Apple Activity (E): I usually have a feeling that those goals, which the application shows to me, depend on what I did the previous month. So, if I walked 360 kilometres last month, to motivate me it will set the goal up to 400.

Or fulfilling daily the same goal for each day:

> IR: So you have a goal and you try to achieve it. Why is it important?
>
> 21-f-MiBand/MiFit (E): Just because... here every day it has a yellow thing. Because I accomplish those 10 000 [steps per day], which I set for myself.

The virtual point system of Fitocracy evoked curiosity, how many points the user will receive for new exercise. Apple Activity provided user with "badges" for fulfilling months and ad-hoc goals, the occurrence of various coloured received awards was pleasant for a user, when, at the same time, "missing" a goal provoked dissatisfaction with oneself:

> 30-m-Apple Watch 3/Apple Activity (E): For example, last month it wanted me to move somehow more, and last month I didn´t accomplish it. And I don't know, it wanted some 3200 or 3700 minutes to collect in that month in scope of moving activities, and I did not make it.
>
> IR. But it is okay, isn´t it?
>
> 30-m-Apple Watch 3/Apple Activity (E): No! No, it is not okay, because I have got the rest of those! (enthusiastically) Wait, since when… I don't know, since the second month I have got second, third, fourth, fifth, sixth, look here… (shows the results in the application).

In this extract it is seen how an attractive design and goal system fascinate the users to the point of being hypnotised by the new media (Mcluhan, 1964) such as a mobile application. The students are provided with awards and rankings, and as they become involved in this play, they have the urge to achieve more and more "badges".

The 'sportspeople' group of students were less likely to consider the application as the main reference of their physical activity. Still, they express their opinion about those applications as 'interesting feedback', but not the kind of they should build their sport around. The 'sportspeople' group revealed themselves as using the applications as a tool, not as a goal or system of goals. Although some of them were also engaged in fulfilling daily goals, their results were not as solid as in the 'engaged' group:

> IR: Yeah. And are you successful at this? Like getting better using this?
>
> 20-f-MiBand/MiFit, mapy.cz (S): I am getting rather worse, I think.
>
> IR: And are you frustrated because of that?
>
> 20-f-MiBand/MiFit, mapy.cz (S): I don't think so. I don't really care. I run to get a nice feeling, that I am doing something. It is not like I am dependent on this perfectioning in a way.

A 20-year-old cited above female student (who runs long distances weekly and is aspiring to run a half-marathon), said the only reason she keeps using the application to this device is the above-mentioned possibility of pulse measurement. She stated that the received data should help her to be better at sports, but she is not drawing too much attention to that, and as a result, gains worse results in her own words.

This group of students, which I have categorised as the aspiring sportspeople group, has an overall tendency to use only a limited number of functions, such as trace tracking. A similar point was expressed by a 22-year-old professional tennis player, who would calmly sacrifice his running results in the application to be better at tennis:

> IR: So if you haven't run up to your plan, but won the tournament, wouldn't it bother you?
>
> 22-m-MiBand 2/MiFit (S): Not at all. I would have to take a break, to save some energy.

Another half-professional sporting participant after admiring the application such as expressed doubts about the implication of the outcome:

> 21-f-none/Sports Tracker (S): I admire that someone can put it all together and that somebody has this idea, the author manages to wedge it with such an effort, that it can measure spread in hours, maximum and minimum, and a route, there are tables there, so for me it is good. And for whom may it be prosperous? Well, maybe for people who later put it in their story on the Instagram. (laughs)
>
> IR: So for bragging?
>
> 21-f-none/Sports Tracker (S): And it is like helpful for people. Then a person has a sort of progress. But it's a question, however, how professional sportspeople use those applications or devices.

A different opinion was expressed by a 23-year-old female participant, who is a long-term sportsperson engaged in professional athletics, also as a coach. She stated that she uses almost all functions during her walks in the sporting camp for young children, as she can successfully track how long the children will exactly manage to go. A smart example of usage of data was counting a route through the suburbs of Prague, to plan the exact and fastest way between the university buildings during the exam period. In the position of a child coach, she also pointed on a parents' discipline tactics to use wearable trackers for their children. A child should complete the goal which is set for a day before they can access a computer. As she stated, children are not happy about that, but they are pleased they are free to do what they want afterwards.

From the presented extracts, the difference between the two groups of participants is visible. It can be concluded that for those who aspire to engage in a sport, the goal is ‚outside' the sport tracking as itself, but rather to run a half marathon or just enjoying

doing sports, which they would do with or without an application. The ‚Engaged' group was far more enthusiastic to do the activities proposed by the application, as they saw them as a key to be fit and healthy. One of the reasons may be the difference in sources of knowledge about physical exercise between the two groups. Most of ‚sportspeople' in the interviews showed broader perspective on a sports field, had other authorities to receive the knowledge from – such as a tennis coach in case of the professional tennis player, or thematic literature alongside with channels on Youtube platform (21-year old student doing various sports). The ‚Engaged' participants consider an application a primary source of knowledge about what their body needs and were not interested in receiving this knowledge from other sources.

3.1.2. Attitude to challenge

Sport tracking applications propose the possibility to compare your results with others', due to the fact that physical exercises transferred to quantitative data as a measurable entity. The participants perceived the notion of challenge differently and with various importance. Though every participant expresses the opinion that the challenge with himself or herself – in the past, either through a data saved in the application or merely a memory of person's physical performance – is one of the ways they are thinking about their physical exercise. Challenging with others wasn't motivating enough to some participants because they performed far better or far worse than those of their friends. Sport tracking applications, however, offer certain possibilities to compare your results with a 'generalised other' – overall statistics of application users. In the next quotation, one of the 'engaged' participants explains why she enjoys this kind of challenge opportunities:

> IR: Well why is it important, this comparison to the others?
>
> 21-f-MiBand/MiFit (E): (smiling) I feel good about it! Now, when I click on this, I see here that I outdid 95% of the users, who have this application. (...) I have 12 300 steps and I overran 95% of the people. I am interested then how much like those others will go.

By showing that user actually performed well, the application is encouraging the users and evoke an opinion that they are better than the others. The same participant explained that there are millions of people, who use this application and by doing a step, she leaves

thousands behind. Her ambiguity in explaining the data was curious. When, according to the participant, in the morning she only starts her walk, the application shows that she performed better than 90% of users, which theparticipant explains as not the kind of a bias in data (for example that most of that 90% just did not refresh the data this day or do not use the tracker anymore), but as a sign of her betterness (21-f-MiBand/MiFit: it is obvious that people just don't walk a lot, isn't it?). On contrary, the same interviewee expressed doubts about the case of monthly challenges:

> IR: How important is this challenge for you? The global one?
>
> 21-f-MiBand/MiFit (E): This challenge is important for me, because it is visible in there, in which place I am. It's differentiated by one step, if I do for example 3 steps, I will overrun 20 000 of people, because there are millions involved in this. But what seems to be funny for me, and in my opinion not very realistic, is that during 6 days someone may complete those 200 000 steps.(...)Look – finished by 128 people, and today is 4th! (laughs) Do you know what 200 000 divided by four looks like? It's 50 000 steps [per day].

In case of unrealistic results which are better than those of participants', they are perceived as some kind of cheating and those results evoke distrust. But when there is an unrealistic meaning of overall statistics, it is not the reason to doubt it but in this case, it is rather a kind of supporting their own moral well-being. The app statistics management has possibilities to influence self-evaluation of the users, support their belief that they are better or worse than the others and therefore motivate or discourage to use the application.

Another case of challenge was engaging one of the participants in a Global Pulse Challenge, which is organised for workers of big corporations, where employees are organised in teams according to the firm structure and are comparing results in-between those teams. The manifested goal is enforcing a team spirit and support 'goal-achieving atmosphere' in the corporation as well as promoting healthy lifestyle among them. This challenge as itself did not have a serious impact on a participant – since, as she confessed, she is in the last team in the competition – as a result, she perceived this goal-achievement standpoint as her personal challenge, to have every day 10 000 steps for her own good health.

3.1.3. Fulfilling a goal and moral pressure of failure

This leads us to a goal-setting and goal-fulfilling strategy, which most of sport tracking applications in the research propose to users. Re-framing physical activities in terms of goals is one of the main features of those applications alongside with statistical feedback. The system of every-day or every-month goals as itself supposes a 'good user', who cares about their health and is capable to behave according to a plan, to become healthier, fitter – and a 'bad user', who deviates from regular physical exercise and seemingly does not care about himself/herself. It implicitly poses a question of health in moral terms, when results in the application can evoke the feeling of satisfaction with oneself, or frustration. To avoid negative emotions, users usually set their goal as not as high:

> IR: Have you tried to set your daily goal higher?
>
> 21-f-MiBand/MiFit (E): No. I'm fine with 10 000 because I've recognised that I can't do more. That 10 000 is a borderline for a usual day, not when I go for a walk or a trip. 10 000 is an optimal point. And when I had 11 000, I did not complete it every day.

The Apple Activity application was described by its user as constantly setting the challenge higher, in order to improve a physicall condition of a person who uses it. The 30-year-old doctoral student deals with it by setting a goal on a relatively low level and has the setting to higher the goal only when it is overdone on 400%. Nevertheless, sometimes he cannot manage to complete the challenge, which makes him disappointed with himself because he realises that his limit is not so high. But another specific of this perfectioning aim of Apple Activity is changing the character and feeling of the process of physical exercise:

> IR: Do you experience your physical activity differently after you started to use it [Apple Activity]?
>
> 30-m-Apple Watch 3/Apple Activity (E): Of course, of course, I experience it differently, I tend to improve my results, to run longer, run faster, and so on. And it is, of course, counterproductive, because afterwards, I am angry when I'm not achieving it. Or the bad thing is when you don't do it for several days, or not a week you don't put yourself together, and then I am angry that it's a lot lower. But as always… the higher and higher it becomes, then, I always have this feeling that it's not just the same fun anymore, that at once… You want more.

IR: So does it take away the enjoyment from exercising a little bit?

30-m-Apple Watch 3/Apple Activity (E): Well, I think so.

It is visible from this quote how exactly a challenge and personal growth are re-framed by the application, evoking in a user some sort of addiction to this pleasant moral reflection as a better person. Avoiding a perception of himself or herself as lazy was the reason expressed by many participants why they started to use sport tracking, especially among the 'engaged' group. Actually, this dissatisfying feeling was admitted before using the application, so sport tracking applications are considered as a tool to improve self-perception and well-being, although sometimes it backfires. Modern people, as it is presented in the data, have an urge of 'doing something' in contrast to 'doing nothing', which means, nothing in some field important to them:

> 20-f-MiBand/MiFit, mapy.cz (S): ...For example, two years ago I didn't do anything approximately for a year and a half in a row, so I felt that I was losing my breath... That's why I wanted to do something.

The 'feeling that I did something' is what most of the users of the application seek. Although in the sportspeople group, the development via the application might not be taken seriously or even doubted, as the participants from that group do not take the application as the main beacon of their physical activities. The 21-year old female student, who ran four marathons before, stated that Sports Tracker application helps her to know her performance and how to improve her speed due to quantified feedback. However, she does not always even take the mobile with herself and takes a daily running more as relaxation and necessity, to the point that resists to the urge to be constantly better in everything as it creates a harmful pressure on an individual:

> IR: Do you look at your results and try to improve them? What tables are there exactly?
>
> 21-f-none/Sports Tracker (S): Well, anyway, I don't think that life is about a constant endless perfectioning, and I´m not entirely convinced that the more you run, the better you will be. It is maybe interesting to look at how the performance grows and fades when someone gets away from it [sports] for some time - that is interesting for me. And after a break, I will appreciate that it is recorded in this table, after what period I am back at my point. But it is not about oudoing yourself.

Often only achieving this mental state of doing something, a person is morally allowed to allow himself or herself a reward, like a good rest or eating according to burnt calories, which are also counted in MiFit and Apple Activity.

3.1.4. App as dominant actor & app as a reality

The interesting thing that in manifestations of some participants the application were presented not as just something, which arranges the data about physical activities and provides feedback - but as an actor, something which does things. The main agenda of the application was to motivate users to do sport – therefore, even dominate over some of the participants. Unsurprisingly, it was mostly presented as such in a speech of 'engaged' participants:

> 21-f-MiBand/MiFit (E): I think when you have it, the application or tracker, you just try to do some more. It compels you... Or not compels, but you'll just think: „Well, 300 steps and I'm done for today". So according to me it does motivate you.
>
> ...
>
> IR: And does this application oblige you to do that or not?
>
> 30-m-Apple Watch 3/Apple Activity (E): Probably, it does! If it did not beep to me, that I should finish, or I don't see that it's enough, I wouldn't do that.

The importance of an application as an actor is supported by perception of application feedback a primary reality to the person's own feelings. This importance of quantified data appeared in some of manifestations of the 'Sportspeople' group:

> IR: All your goals, which you have set for yourself are completed, and you become better at tennis... What would you feel, would you be satisfied?
>
> 22-m-MiBand 2/MiFit (S): Definitely. At least, when I take those devices, when I really see it, like yes, I did it, I can control that I really did it, that I'm not daydreaming.

With transferring of the body performance to quantitative data, subjective insights come through a process of objectification, so may be referred to and be treated as an objective reality. It is another projection of a user to the setting of the application, which is part of the user's dependence on the visibility of the results. Own experience appears uncertain, at the same time user can rely on the application data as solid objectified knowledge.

3.2. Biocapital

According to Bourdieu (1984), there are different types of capital: economical, cultural, social and symbolic, when all of types of capital are interchangeable and intertransferable. In a not huge scope of works, using the term biocapital exist, however a big plurality of definitions of what biocapital is and on which fields of (generally macro-) social it may be applied. Biocapital is applied on genetic research field and new identities produced by technologies of genetic mapping, genetic diagnosis, genetic counselling, genetic therapy, and genetic profiling (Rose, 2007). The Marxist-feminist approach presented by Sarah Franklin, Margaret Lock, and Charis Thompson is concentrated over issues of reproduction in terms of sex/gender and race; more Weberian approach of Kaushik Sunder Rajan, Eugene Thacker, and Michael Fortun discusses reproduction alongside with ethical subjectivity (Helmreich, 2008: 463-478).

In the field of digital self-tracking technologies, Bourdieu's theory and concepts of capital have not been systematically applied. For the purpose of this work, in a spirit of Helmreich's (2008) elaboration of definition of capital drawing from Marx, I will define biocapital as following. According to Marx, circulation of money produces capital, which follows the formula M–C–M', where M stands for money, C for commodity, M' for the surplus value gained in a profitable exchange of a commodity for money, and M' for the total capital produced by that exchange (Marx, 1867: 251). For biocapital will stand formula B – C – B', where B stands for body 'assets' of human being, C – for product of a body, or performed practice tracked by the digital wearable tracker of other self-tracking digital technology, B' is a biocapital produced by this practice, with possible implications on those spheres of life, where there is possible exchange of biocapital on other forms of capital. Application of the term will become clear in analysis part, however it is already evident that it is different from other definitions used by researchers. Returning to Bourdieu, biocapital may be considered as one of the forms of symbolic capital, as it is dependent on lifestyle and presents "symbolic universe of practices", where practices function as a sign or distinction and according to specific rules of symbolic systems. Body practice in symbolic system of digital tracking app receives a value, which is also a measure of a degree or adherence to a particular lifestyle (Bourdieu & Wacquant, 2013) – and since the popularisation of self-tracking technology, which quantifies body practice - this degree of a lifestyle has never been so clear before.

Particular manifestations of participants referred to their physical exercise in connection to the application itself as a way to achieve something in the other fields of community lifel. With constant engaging themselves in a physical activity, using the digital technology to track and register their activity, some of the participants were able to use it as a resource which is prosperous not only in terms of health. To frame the implications of a person's physical performance on other spheres of life properly, I propose to use the notion of biocapital, described in the theoretical part.

The app "*Pomáhej pohybem*" (or "*Help with your movement*" in English) works in a way that a tracked activity can be donated to one of the non-profit projects, proposed by an application as a money transfer. In the following extract one of the ex-users of this app describes how it works and her engagement in it:

> 21-f-none/Sports Tracker (S): It works in a way that person obtains kind of virtual score, the application will generate for you how much you ran, and you can donate it in different categories, you help someone there with the condition that that money won't go anywhere but on a good deed... I would run regardlessly to anything anyway. So I donated to sick people suffering from oncology diseases, but there was plenty of those [categories], even for some chairs for the disabled, lots of them.

This is an interesting example of how biocapital may be generated in the application and with the help of sponsors of the application can be transferred to economic capital. However, only using framing and limited ways prescribed in the setting of application. Also particular to it is the moral dimension of donations, presented as a "good deed" for a society. The next participant proposes more broad and individualised example of what biocapital may be – unbounded from the tracking as itself:

> 22-m-none/Fitocracy (S): Yes. It [self-discipline] is a part of sports. As long as you discipline yourself through doing sport, it may be applied in your life in general: at work, during studies, or simply in other things, where discipline and attitude are important. And I think that you learn how to be disciplined mainly through sports, at least I have it like that. After sport, you can get better in any field.

Through practice, a person may change their habitus and attitude to any sort of labour when sports change the aim to achieve better results and goals regardlessly of wasted body resource. More sophistical interpretation of speech of the participant may be that through sports practice a person receives self-confidence – including the symbolical level

of identity as a sportsperson or a person, who does not fear challenges; as long as sport is considered as one of the individual's life priorities and essential part of a lifestyle. This kind of treatment of a self, obtaining power over their own body (when „obedient body" then can be applied anywhere) may be considered as an example of biocapital which is not dependent on quantification, provided by self-tracking technology.

3.3. Media presentation of healthy lifestyle discourse

3.3.1. Communication features of media in the issue of healthy lifestyle

In order to conduct comparative analysis of keywords, all the articles were placed in one Microsoft Word document. Participants' speeches were joined together in another separate one, with withdrawing the speech of interviewer. Also, I divided the speeches according to two groups or participants – 'engaged' and 'sportspeople', to conduct separate analyses. For the analysis, the webpage http://countwordsfree.com/ was used since there was present a stoplist for Czech words. Still, the data were processed through manual heuristic control, where unnecessary words were erased and the words of the same linguistic origin were joined in one word. As the keywords describing how this kind of texts speak to the reader I've chosen the following:

wearable tracker (62), movement (37), to can (35), application (34), activity (26), to track (23), steps (22), frequency (19), you will (18), pulse (15), walking (13), better (11), sleep (11), sport (10), regime (10), health (9), motivation (8), performance (8), information (7), , to start (7), body (7), overview (6), to feel (5), goal (5), to monitor (4). Fitness was one of most popular words (55), not used by participants at all.

For participants' speech I've chosen following main keywords:, steps (47), application (42), to see (31), to run (27), to walk (21), pulse (18) to strive (16), (so) I would (15), good (15), 10 000 (19), wearable tracker (12) motivation (11), feeling (10), results (10), calories (8), really (8), activity (7), to want (7), sport (7), to can (14), overview (5), (to) sleep (5), health (5). (see appendix 1)

In this list, I consciously tried to exclude words, which often appeared in the speech of the only one participant. Participants' speech – 9 543 words, from which 4 797 were speeches of 'engaged' participants and 4 746 – speeches of 'sportspeople' group; Articles – 5 321 words, which is comparable to two separate groups respectively.

Because of the differences in the genre of two datasets such as appeal to the reader like you, yours, in media dataset and using connecting conversation words like just, maybe, keywords in journal articles tended to be exact or more abstract, objective, with a broader use of the terms.

In the table (see appendix 1), the media articles and participants' speeches are compared by keywords which should bring the insight in the data of two separate kinds. Additionally, the participants´ group of keywords is divided according to our categorisation of sport tracking users on 'engaged' and 'sportspeople'. The differences between those two groups are marked with orange (lower count) and green (higher count of appearance in the speeches) – to constant the difference, I have accepted the rule of thumb of difference in at least 5 counts. The keywords were ordered according to the number of occurrence and gathered in the small groups of thematically connected. The "X" symbol stands for a number of occurrence of a keyword.

Due to the different character of two types of utterance: a subjective character of speech and appealing to the reader, more abstract character of media, keywords were matched to correspond with themselves. This stands for the match between for example "performance" – abstract word used by the media, which in speech discourse transformed to the "results"; or words "to track", "information", "to monitor" appeared to be objectified character of what the application user can "see" – which is shown in the table. However, the differences between the speech and the text language are substantive, they are not the objects of this study.

As the important differences between those two types of language are taken into account, we can see that online journals successfully manage to appeal on both categories of participants by using keywords speaking to both kinds of users. With the abstraction "movement" the texts speak to application users both to engaged, who used keywords "to walk" more often and to sportspeople, who preferred the keyword "to run" instead. The sportspeople group show themselves as aspiring professionals, who like to use quantified categories in relation to sport as "overview", "pulse" and "frequency". The articles at the same time tend to be promising about the advantages of the sports tracking – which speaks to 'engaged' group in words "to can" and "you will", stating "goals" to the engaged group, which they perceived concretely as "10 000" steps.

The occurred difference between the preferred words in two groups of participants confirms the analytical usefulness of division of them in two categories. The 'Engaged' participants associate themselves more with walking than running activity, describe what they "want" to achieve and what they will be, using the sports tracking. Also, they tended

to be oriented on goals proposed by an application far more. The 'sportspeople' group tend to use an application more for running than walking, they care less about the inner application goals and more convicted to use quantifying words regarding their own physical activity, such as 'overview' and 'pulse'. Terms 'sport', 'health', 'motivation' and 'sleep' were equally important for both categories of users of the application according to the analysis results.

As the keywords which did not correspond to the speech of the participants (see appendix 2), the keyword "fitness" was mentioned a big count of times due to its belonging to the section of fitness on websites, however, the participants did not perceive themselves as doing a fitness activity, rather doing sports and/or fulfilling daily goals. Also, the application users almost did not refer to their bodies, when preferred to describe changes to their bodies by referring simply to 'me'. The 'Regime' is the more peculiar case, which will be described in the next part of the findings. 'To start' refers to an 'articles' proposition to a reader to engage themselves in sports tracking activities.

2.1.1. Mispresentation of health and a lifestyle by media

For an analysed healthy lifestyle, the connection of health with a lifestyle was quite natural for the media articles. The most crucial elements of health discourse appeared: discipline, considering health as a resource and strategy of setting goals. Here is an example:

> During the successful achieving goals in health, fitness and weight reduction, it is good to stick to a constant regime and make a record of activities. The more often and more detailed record you make, the more success you will achieve during those activities. Fitness trackers will handle this for you. They track and record every necessary detail – measured data, values and afterwards synchronise them with mobile devices or cloud services so that you would always have an overview about your health. (*Smart hodinky a fitness náramky - proč je začít používat - electroworld.cz*)

The article from electroworld.cz presents health as a struggle for success, which is not granted but deserved by holding at the regime and performing some special activities. Tracking and quantifying receives particular importance in healthy lifestyle, presented by the article, as it enables to frame health as not only a field which should be a matter of

control, but also a field of setting and achieving particular goals – health discourse encourages to do that, and offers concrete ways to experience health 'success':

- 5 times per week 30 minutes dedicate to your health

> That's why mentioned devices would be motivation for your movement, investments made are definitely insignificant in comparison to what amount of money we leave during the casual shopping in a pharmacy, when we have a health problem.
>
> Let's then prevent health maladies and at the same time, develop an addiction to the movement, which is the right way to the health… or endorphins for free. (*Zdravý životní styl za pomocí mobilních aplikací - viviente.cz)*

In this extract the strategies of involvement of a reader are interesting (using "we" as a way to create a friendly relationship between the author and the reader and state that they both have the same purposes and wishes). Still, health is treated as a matter of money investments, therefore persuading the reader to buy a fitness tracker is performed in terms of market and again, as a resource that might exhaust. Mentioning of 'addiction' on a movement resonates with one of participants' statement, presented above when he confessed that as soon as he gets better with his results, he wants more. But he didn't connect it strictly with good feelings or emotions, on contrary to the strategies of articles, where 'feelings' are mentioned.

The discipline of own body also was an important part, presented in health lifestyle discourse. Tracking devices and applications were perceived as a tool to observe and effectively compel the body to performed activities, prosperous for health. After the struggle with laziness, the articles propose satisfaction and pleasant subjective feelings. Here are some examples, how discipline is manifested in the media:

> Do you have a feeling, that you should start to move, but you don't want in any way? We know how to compel yourself. (*Nesnášíte pohyb? Víme, jak to překonat - zena.aktualne.cz*)

‚Compelling yourself 'is a literal embodiment of technology of self in the media. This short statement presents two imaginable persons: a lazy person, who nevertheless feels a moral pressure that he/she should be better, who with help of fitness trackers transforms into a person, who wants to better herself/himself and therefore engages in a self-discipline. Then the article convinces to engage in the activities with appealing to the

authority (head fitness coach of Herbalife) who as an actor proposes concrete activities to be a ‚fitter, happier person', to start slowly in order not to be discouraged and finally promises some good feelings at the end in form of ‚endorphins'.

Apart from the discipline as itself, concrete proposed technique of discipline was mainly fulfilling of goals in a constant strive for success:

> Other people also use fitness trackers, and they as well want to brag with their achievements. Thanks to the fact that you can compare yourself with them, a fitness tracker can motivate you to better results. Similarly, it can evoke in you competing with your own self. When you see that you can fulfil a goal you've set and you can track with how many efforts, you can possibly set for yourself a further goal, more challenging. *(Pro a proti fitness náramků - nejfit.cz)*

In the participants' statements, a good feeling was evoked interestingly not by engaging in a process of physical activity, but concretely by completing goals (as participants described, „doing something", as itself):

> 21-f-MiBand/MiFit (E): Well... Because I'm working right now till evening and I don't have time to go to a gym, so it gives me the feeling that I've done something, that just, even though I don't do exercises, that I behave in a way of a healthy lifestyle, at least like this.

„Doing something" or „doing something for myself", were frequently used expressions by participants describing why they continue to use a fitness tracker. It gives to a user a goal, she has some work to do because nothing is given just like that, and then after completing, it gives a feeling of satisfaction from making some labour, dedicated to oneself – as an investment of time and efforts in health. The good feeling for them was connected not with endorphins or good state of the body (several times participants rejected the point that they actually have a feeling, that their health improved), but satisfaction of fulfilling a goal. An urge to "do something" is therefore connotated with a moral pressure to oneself, not to be lazy and not to "sit on their bottom" as in the expression of the same participant quoted above. Lazy persons are objects of moral blame, in which an analysed healthy lifestyle discourse takes its part. The moral dichotomy of a lazy and self-disciplined person is therefore accepted by most of 'engaged' participants as natural and serves as the negative stimulus. They should "do something" to avoid moral pressure, and fitness trackers propose them the necessary objectification of their activity

and results, possibility to control and a relatively easy track to make sense in their everyday activity, some sort of continuous way to better health. It should be noted that the described case does not appeal to most of "sportspeople", who can let themselves be lazy sometimes, avoiding moral pressure and deviating from goals, proposed by the application since their goals are not in a field of a healthy lifestyle but sport. This is expressed in the words of one of the 'sportspeople' participant, consciously opposing herself to a discourse of a healthy lifestyle:

> 21-f-none/Sports Tracker (S): As I observe at some of the hospital patients, how they sometimes have a feeling that if they digress from a healthy lifestyle, then everything will be ruined. And it this way they evolve some serious feelings of guilt, this psychic insecurity, and maybe that's the reason why I don't follow those things at all. Because I see about this lifestyle, that it can be a good servant, but it can also make a person worried.

The appearance of keyword 'better' in the articles serves as a reminder to better oneself, to strive for an increase of results and functionality of the body. "Better" reminds of the incompleteness of a person's health project and shows a track, which a reader might take:

It is proven that there is a causal link between the held overview of what we are doing and our health. Since we are tracking our own activities, [fitness trackers] can help us constantly retain more healthy feeding, increase quality of sleep and least but not last more exercising. Conscious of our weaknesses, we can improve them thanks to a fitness tracker in real time. (*Smart hodinky a fitness náramky - proč je začít používat - electroworld.cz*)

In the given quote it is visible, how discourse categorises the healthy lifestyle in terms of the rush, striving for something better and reduce weaknesses by using a quantifying device. While the word "better" in this context represents future possibilities, in the speech of participants it was represented as more self-sufficient "good":

> 26-f-Pulse/Pulse (E): Even though you like to sit all day in the office, and then you would go for a run and do 11 000 steps, it is an adequate physical activity, which just retains you in a good healthy condition.

Most participants of both groups resigned on a constant struggle for 'better', preferred a merely "good" condition or feeling. In this case, participants' speech rather opposes a

race for improvement to which the articles refer, with the exception of the case of users' addiction to the application, which one of the 'engaged' participants confirmed.

The articles also often refer to the correct "regime", including the feeding and drinking regime. It is a notion that helps, in fact, reframing the daily life of an individual to a set of observable activities, organised and differentiated in time. It is another embodiment of rationalisation and discipline in a healthy lifestyle discourse. The "regime" did not appear in a speech of participants with one exception in the 'sportspeople' group. They mostly stated that usage of the application had no effect on their daily life, except the cases when they felt the need to finish the daily goal.

Conclusion

As the main conclusion of the diploma thesis may be considered that the impact of self-tracking technologies is different on different individuals, which depends on how people are making sense of digital technologies in practice. At least in a sample of inhabitants of the students´ dormitory, two main patterns were discovered, two standpoints of how people may relate and in which way they may be engaged in self-tracking. A particular group saw fitness applications as a way to increase their health as a part of a healthy lifestyle, and this group was highly engaged in the fulfilling application goals, perceive the application as a dominant discipline actor over themselves, were 'hypnotised' by extension of their selves in the new media. The Engaged users, as McLuhan wrote, are "fascinated by an extension of themselves in any material other than themselves" (Mcluhan, 1964: 41). This extension of physical exercise can involve students even to the point that they consider physical exercise uninteresting without it, - which resonated with Fritz et al. (2014) insides that persons engaged in the application may perceive performing other physical activities as unnecessary, since they cannot be tracked and take a part in their "digital reality".

Considering 'engaged' group of participants, they were not as focused on a health condition of their body as it presupposes healthy lifestyle discourse, presented by the analysed media articles. As the most attractive feature of quantification, provided by self-tracking, was not the abstract "improving myself" (since participants in most of the cases preferred just to feel "good", see keyword analysis) but the possibilities to constant fulfilling goals using simple, transparent way to do this, which proposes to use a self-tracking application. Assuming this, the healthy lifestyle may be seen only as part of neoliberal moral demands of the modern age. People are engaged in various "lifestyle projects" which may be presented as constant improving oneself. Digital technologies, though, propose for a user a set of small goals, and an engaged user becomes satisfied in ordering their activity, which actually enables to feel "some sort of progress", feel oneself morally adequate to the age of governmentality and feel responsible for themselves. As one of the strongest examples of this may be an expressed urge by various participants "to do *something*": this something may be manifested in healthy discourse, or ecological discourse and any project-type discourse. In "doing something", as well as in constant

"betterness" there is no global finishing goal – this is substituted for constant, ongoing goals posed by society with numerous responsibility discourses, which in fact never end. Along with the negative consequences of a reality, when discourse put people into struggle for betterness implying moral obligation to do so, engaging in any sort of activities provides people with meaning of life, the sense of well-being when goals are fulfilled and simply putting a sense of competitiveness in people's lives, and these small victories are important to them.

'Sportspeople' sub-group of participants was also engaged in fulfilling goals, however, were lying elsewhere – in a field of (half-) professional sports. Therefore, they approached self-tracking differently – as an interesting device with feedback from their exercises. They didn't let an application to take control over them as much, though still some of them perceived quantified data as a legit reality (more legit than their subjective experiences). Sportspeople could use the application functions fully, but they were not oriented on goals or competition, proposed by the application, but used quantified feedback to solve their life problems and tasks. This approach to self-tracking constructs application and device as a peculiar "toy", which is not the key to a healthy lifestyle or a sport, but rather a helping hand or a particular approach to their sporting agenda with more or less important feedback.

The media definitely shaped the perception of participants of themselves as well as self-tracking technology, but not fully. While the media connected motivation of the 'engaged' participants in fulfilling goals with promises of 'sportspeople' outcome as fitness and pleasure from exercising, the statements of the 'engaged' group about the latter were rather ambivalent. The participants were in a way deviating from too hard discipline pressure on themselves, proposed by the discourse, denying their adherence to the daily regime and struggle for improvement. The media impact may be evaluated as promising attractive goals and drawing an image of an "ideal user", which, of course, in reality does not appear in this way. Pleasure from exercises seems to be maximal when a person is unbounded from the imposing of healthy lifestyle – and starts to enjoy the process as itself, not chasing the result and getting to the risk of frustration with not performing according to the expectations.

Passages above were dedicated to answering the research question, while this passage opens a field of discussion. The considering limitations of the research sample, other types of approaches to the application may be discovered in other social groups. In the data one female participant was engaged in a Pulse competition, when teams of work colleagues inside of a pharmaceutical corporation where she works were competing between themselves in order to walk the highest number of steps. An ordinance of a fitness tracker as well as a particular corporative spirit of "survival of the fittest" may result in a new, different approach to self-tracking, when the corporative discourse may shape it in a different way than the healthy lifestyle discourse (although those two may be interconnected). Unfortunately, I didn't manage to gather participants for a social group, but it may be a promising track to future research. Other possible development of the topic may be widening of usage of proposed framing of what a person may get from self-tracking as biocapital and application of Bourdieu's habitus and a symbolic capital theory to study of digital technologies of self-tracking.

List of references

Adams, V. (2002). "Randomized Controlled Crime: Indirect Criminalization of Alternative Medicine in the United States." *Social Studies of Science* 32, 659-690.

Andrejevic M, Burdon M. (2015). Defining the sensor society. *Telev. New Media* 16, 19–36.

Barnet, R. (2003). Ivan Illich and the Nemesis of Medicine. Medicine, Health Care and Philosophy 6: 273–286.

Belkin, L. (1996). "Charity Begins at ...The Marketing Meeting, The Gala Event, The Product Tie-In." *New York Times Magazine*, December 22, pp. 40-58.

Bishoping, K. & Gazso, A. (2016). Analyzing Talk in the Social Sciences: Narrative, Conversation and Discourse Strategies. London: Sage Publications Ltd.

Blech, J. (2006). Inventing Diseases and Pushing Pills: Pharmaceutical Companies and the Medicalisation of Normal Life. London: Routledge.

Boesel, W.E. (2012). Empowerment Through Numbers? Biomedicalization 2.0 and the Quantified Self. *Cyborgology*. Available at https://thesocietypages.org/cyborgology/2012/09/06/empowerment-through-numbers-biomedicalization-2-0-and-the-quantified-self/ (last visited 30.07.2018).

Bourdieu, P. (1984). Distinction: A social critique of the judgement of taste, Cambridge, MA: Harvard University Press.

Bourdieu, P. & Wacquant, L. (2013). Symbolic capital and social classes. *Journal of Classical Sociology*, 13(2), pp 292-302.

Carter, S., Green J. & Speed, E. (2018). Digital technologies and the biomedicalisation of everyday activities: The case of walking and cycling. *Sociology Compass*, **12**:e12572. Available from https://onlinelibrary.wiley.com/doi/epdf/10.1111/soc4.12572 (last visited 30.07.2018).

Cheney-Lippold, J. (2011). A new algorithmic identity: soft biopolitics and the modulation of control. *Theory Cult. Soc*. 28, pp 164–181.

Clarke, A. E. (1995). "Modernity, Postmodernity, and Reproductive Processes ca. 1890-1990 or, 'Mommy, Where Do Cyborgs Come From Anyway?'" Pp. 139-55 in The Cyborg

Handbook, edited by C.H. Gray, H.J. Figueroa-Sarriera, and S. Mentor. New York: Routledge

Clarke, A., Fishman, J., Fosket, J.R., Mamo, L. and Shim, J. (2003) Biomedicalization: Technoscientific transformations of health, illness, and US biomedicine. *American Sociological Review*, 68(2), pp 161–194.

Cockerham, W. C. (2005). Health Lifestyle Theory and the Convergence of Agency and Structure. Journal of Health and Social Behavior 46, pp 51–67.

Conrad, P. and Leiter, V. (2004) Medicalization, markets and consumers. *Journal of Health and Social Behavior*, 45, pp 158–76.

Conrad, P. (2005) The shifting engines of medicalization. *Journal of Health and Social Behavior*, 46, pp 3–14.

Conrad, P. (2007). The Medicalisation of Society. Baltimore: Johns Hopkins University Press.

Downie, R. S., Tannahill, C. & Tannahill, A. (1996). Health Promotion: Models and Values. Oxford: Oxford University Press.

Dudhwala F. (2017). Doing the self: an ethnographic analysis of the 'Quantified Self.' PhD Thesis, Manag. Stud., Said Bus. Sch., Univ. Oxford

EFPIA, (2005), European Federation of Pharmaceutical Industries and Associations, FAQ.

Ewald, Frangois. 1990. "Norms, Discipline, and the Law." *Representations* 30, 138-161.

Fanning, J., Mullen, S. P., & McAuley, E. (2012). Increasing physical activity with mobile devices: A meta-analysis. *Journal of Medical Internet Research*, *14*, e161.

Fishman J.R & McGowan M.L. (2014). Will personalized medicine transform our selves? In *Genetics as Social Practice: Transdisciplinary Views on Science and Culture*, ed. G. Werner-Felmayer, S. Schicktanz, B. Prainsack, 29–42. Farnham, UK: Ashgate Press

Fitzpatrick, M. (2004). "From 'nanny state' to 'therapeutic state'". *The British Journal of General Practice*. 54(505): 645.

Fosket, J. R. (2002). "Breast Cancer Risk and the Politics of Prevention: Analysis of a Clinical Trial." Ph.D. dissertation, Department of Social and Behavioral Sciences, University of California, San Francisco, CA.

Freidson, E. (1962).The Sociology of Medicine. *Current Sociology*, 10(11), 123-140. Available at http://journals.sagepub.com/doi/pdf/10.1177/001139216201100301 (last visited 29.07.2018).

Frohlich, K. L., Corin, E. & Potvin, L. (2004). A Theoretical Proposal for the Relationship Between Context and Disease. Sociology of Health and Illness, 23: 776–97.

Fritz, T., Huang, E.M., Murphy, G.C. & Zimmerman, T. (2014) Persuasive technology in the real world: A study of long-term use of activity sensing devices for fitness. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. ACM, 487–496.

Gabe, J., Bury, M. & Elston, M. A. (2004). Key Concepts in Medical Sociology. London: Sage Publications Ltd. 280 p.

Giddens, A. (1991). Modernity and Self-Identity: Self and Society in the Late Modern Age. Cambridge: Polity Press, pp. 1-35.

Glasser, B., Strauss, A. (1967). The discovery of Grounded Theory. Chicago: Aldine.

Goetz, T. (2010). The Decision Tree: Taking Control of Your Health in the New Era of Personalized Medicine. New York: Rodale.

Goodyear, Victoria A. and Armour, Kathleen M. (2018): Young People's Perspectives on and Experiences of Health-Related Social Media, Apps, and Wearable Health Devices, Social Sciences, MDPI, 13 August 2018, pp.1-15.

Gorm, N. & Shklovski, I. (2016) Steps, choices and moral accounting: Observations from a step-counting campaign in the workplace. In *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work and Social Computing*. ACM, 148-159.

Haddadi, Hamed et al. (2015): 360◦ Quantified Self, arXiv:1508.00375v2 [cs.HC] 9 Aug 2015. (PDF) Available at https://arxiv.org/pdf/1508.00375.pdf [accessed Dec 14 2018]

Harris A., Kelly S.E. & Wyatt S. (2014). Autobiologies on YouTube: narratives of direct-to-consumer genetic testing. *New Genet. Soc*. 33, 60–78.

Healy, D. (2006) The latest mania: selling biopolar disorder. *Public Library of Science – Medicine*, 4(3), e. 185.

Helmreich, S. (2008) Species of Biocapital. *Science as Culture*, 17(4), 463-478.

Ho, V., Simmons, R. K., Ridgway, C. L., van Sluijs, E. M. F., Bamber, D. J., Goodyer, I. M., … Corder, K. (2013). Is wearing a pedometer associated with higher physical activity among adolescents? *Preventive Medicine*, *56*, 273–277.

Illich, I. (1975) Medical Nemesis. London: Marion Boyars.

Illich, I. (1976). Medical nemesis: the expropriation of health. New York: Pantheon Books.

IMS Health MIDAS MAT (2008). Pharmerging markets = China, India, Russia, Brazil, Mexico, Turkey and South Korea.

Kittrie, N. (1971). The right to be different: deviance and enforced therapy. Johns Hopkins Press.

Korp, P. (2008). The Symbolic Power of Healthy Lifestyle. Health Sociology Review 17: 18–26.

Korp, P. (2010). Problems of the Healthy Lifestyle Discourse. Sociology Compass 4/9 (2010): 800–810.

Latour, B. (2005). Reassembling the Social: An Introduction to Actor-Network-Theory. Oxford, UK: Oxford Univ. Press.

Laurier, E., Brown, B., & McGregor, M. (2016). Mediated pedestrian mobility: Walking and the map app. *Mobilities*, 11, 117–134.

Dominik Leibenger et al. (2016): Privacy Challenges in the Quantified Self Movement – An EU Perspective, Proceedings on Privacy Enhancing Technologies ; (4):315–334.

Lewis, Z. H., Lyons, E. J., Jarvis, J. M., & Baillargeon, J. (2015). Using an electronic activity monitor system as an intervention modality: A systematic review. *BMC Public Health*, *15*(1), 1.

Lexchin, J. (2006) Bigger and better: how Pfizer redefined erectile dysfunction, *Public Library of Science – Medicine*, 3, 4, e. 132.

Lupton D. (2013). The digitally engaged patient: self-monitoring and self-care in the digital health era. *Soc. Theory Health* 11, 256–270.

. (2014a). Self-Tracking Modes: Reflexive Self-Monitoring and Data Practices. Pp.1-19

Lupton, D. (2014b). Critical perspectives on digital health technologies. *Sociology Compass*, *8*, 1344–1359.

Lupton D. (2015). Quantified sex: a critical analysis of sexual and reproductive self-tracking using apps. *Cult. Health Sex.* 17, 440–453.

Lupton, D. (2016). Health promotion in the digital era: a critical commentary. *Health Promotion International*, 30(1), 174–183.

Mackenzie, A. (2005). The performativity of code: software and cultures of circulation. *Theory Cult. Soc*. 22, 71–92

Mamo, L. & Fishman, J. (2001). Potency in All the Right Places: Viagra as a Technology of the Gendered Body. *Body and Society* 7, 13-35.

Maclssac, Sarah, J. Kelly, and S. Gray. (2018). 'She has like 4000 followers!': The celebrification of self within school social networks. Journal of Youth Studies 21: 816–35. (PDF) Young People's Perspectives on and Experiences of Health-Related Social Media, Apps, and Wearable Health Devices. Available from: https://www.researchgate.net/publication/327004285_Young_People's_Perspectives_on_and_Experiences_of_Health-Related_Social_Media_Apps_and_Wearable_Health_Devices [accessed Dec 14 2018].

Marx, K. (1867). Capital Vol. 1. London: Penguin.

Mcluhan, M. (1964). Understanding Media: The Extensions of Man. The Gadget Lover, Narcissus as Narcosis, Chapter 4p.41, MIT Press ed.

Mechanic, D. (1966). The Sociology of Medicine: Viewpoints and Perspectives. Journal of Health and Human Behavior, 7(4) (Winter, 1966), 237-248. Available at https://www.jstor.org/stable/pdf/2948770.pdf?refreqid=excelsior:3817cbc9e65ac9275597e08ad5bdef26 [accessed Jul 29 2018]

Moynihan, R., Health, I. and Henry, D. (2002). Selling sickness: the pharmaceutical industry and disease mongering, *British Medical Journal*, 324, 886–91.

Moynihan, R. (2002). Disease-mongering: how doctors, drug companies, and insurers are making you feel sick. *British Medical Journal*, 324, 923.

Moynihan, R. and Henry, D. (2006). The fight against disease mongering: generating knowledge for action, *Public Library of Science – Medicine*, 3, 4, e. 191.

Nafus, D. & Neff, G. (2016). Self-Tracking. Cambridge, MA: MIT Press.

Nansen, B. (2008). Step-counting: The anatomo-and chrono-politics of pedometrics. *Continuum: Journal of Media & Cultural Studies*, *22*, 793–803.

Neff, G. (2013). Why big data won't cure us. *Big Data* 1, 117–123

Pantzar, M., Ruckenstein, M. & Mustonen, V. (2017). Social rhythms of the heart. *Health Sociol. Rev*. 26, 22–37

Parsons, T. (1958). Definition of health and illness in the light of American values and social structure. In *Jaco, G.E. (ed.), Patients, Psysicians and Illness*. New York, NY: Free Press.

Phillips, C.B. (2006) Medicine goes to school: teachers as sickness brokers for ADHD, *Public Library of Science – Medicine*, 4 (3) e. 182.

Press, N., Fishman, J.R., & Koenig, B.A. (2000). "Collective Fear, Individualized Risk: The Social and Cultural Context of Genetic Testing for Breast Cancer." *Nursing Ethics* 7, 237-24.

Rawassizadeh, Reza et al (2015): Lesson Learned from Collecting Quantified Self Information via

Mobile and Wearable Devices, Journal of Sensor and Actuator Networks, 4, 315-335.

Ruckenstein, M. & Schüll, N.D. (2017). The Datafication of Health. Annual Review of Anthropology. 46, 261-278. Available at https://www.annualreviews.org/doi/full/10.1146/annurev-anthro-102116-041244 (last visited 30.07.2018).

Schiller, Dan. 1999. Digital Capitalism: Networking the Global Market System. Cambridge, MA: MIT Press.

Sharon T. 2015. Healthy citizenship beyond autonomy and discipline: tactical engagements with genetic testing. *BioSocieties* 10, 295–316.

Schull, N.D. (2016). Data for life: wearable technology and the design of self-care. *BioSocieties* 11, 317–333.

Schull, N.D. (2017). Our metrics, ourselves. *Public Books*. Available from http://www.publicbooks.org/our-metrics-ourselves/ (last visited 30.07.2018).

Singh, A. & Singh, Sh. (2005). Medicine as a corporate enterprise, patient welfare-centered profession, or patient welfare-centered professional enterprise? *Mens Sana Monographs*, 2(3), 19-51.

Šulek, M. Boček, J. (2015). Léky v datech: Na čem jsme závislí, kolik utrácíme? Available at https://www.irozhlas.cz/zpravy-domov/leky-v-datech-na-cem-jsme-zavisli-kolik-utracime-_201503111504_msulek (last visited 29.07.2018).

Steinhubl & Topol, (2018). Digital medicine, on its way to being just plain medicine. *NPJ Digital Medicine* 1. Available from https://www.nature.com/articles/s41746-017-0005-1 (last visited 30.07.2018).

Szasz, T. (1977), The Theology of Medicine. Harper & Row, p. 109

Tamminen, Sakari and Holmgren, Elisabet (2016). The Anthropology of Wearables: The Self, The Social, and the Autobiographical, EPIC2016, Papers 3 – Innovation, pp. 154-174.

Tiefer, L. (2006) Female sexual dysfunction: a case study of disease mongering and activist resistance. *Public Library of Science – Medicine*, 4 (3), e. 178.

Tones, K. & Tilford, S. (2001). Health Promotion: Effectiveness, Efficiency and Equity. Cheltenham: Nelson Thornes.

Topol, E.J. (2012). The Creative Destruction of Medicine: How the Digital Revolution Will Create Better Health Care. New York: Basic Books

Tudor-Locke, C., & Lutes, L. (2009). Why do pedometers work? *Sports Medicine*, *39*, 981–993.

Williams, S., Gabe, J. & Davis, P. (2008). The sociology of pharmaceuticals: progress and prospects. *Sociology of Health & Illness.* 30(6)No. 6, 813–824.

Williamson, B. (2015). Algorithmic skin: health-tracking technologies, personal analytics and the biopedagogies of digitized health and physical education. *Sport Educ. Soc.* 20, 133–151.

Appendix 1.

Comparative table of media keywords and speech keywords

Media	x	Participants	x	'Engaged'	'Sports people'
Wearable tracker	62	*Application*	42	16	26
Application	34	*Wearable tracker*	12	6	6
Movement	37	*To run*	36	10	26
Walking	13	*To walk*	21	17	4
To can	35	*To strive*	20	9	11
		To can	14	5	9
		To want	8	8	0
You will	18	*(so) I would*	25	15	10
Activity	26	*Activity*	7	4	3
To track	23	*To see*	31	18	13
Information	7				
To monitor	4				
Overview	6	*Overview*	5	0	5

Frequency	19	*Pulse*	18	1	17
Pulse	15	*Frequency*	4	0	4
Sport	26	*Sport*	12	5	7
Health(y)	24	*Health(y)*	16	10	6
Better	19	*Good*	19	10	9
Goal	15	*10 000*	17	15	2
Sleep	11	*(To) sleep*	16	9	7
Health(y)	24	*Health(y)*	16	10	6
Calories	10	*Calories*	7	5	2
Performance	8	*Results*	10	5	5

Motivation	8	*Motivation*	14	5	9
To feel	5	*Feeling*	10	6	4

Appendix 2.

Keywords which do not correspond between media and speech:

Media	**x**
Fitness	55
Regime	10
To start	7
Body	7

Master's Thesis Summary

In this paper, a question of influence of a self-tracking technology was observed and discussed using recent theoretical literature on the topic in context of health lifestyle discourse. According to the research question – "**"How self-trackers perceive the impact of the technology of self-tracking on their physical activities and lifestyle, respectively differentiated among themselves in terms of impact and usage of self-tracking technology, and to what extent they perceive it similarly to the way self-tracking is presented in Czech internet media portals?"** users of self-tracing technology in the sample, containing students-inhabitants of Švehlova student dormitory in Prague, were categorised into two sub-groups by the difference in the attitude to self-tracking. 'Engaged' users performed sport activities mainly in the context of the application and did not perceive themselves as doing sports, rather keeping healthy condition. They were far more engaged and motivated in the context of application to collect virtual points and fulfil goals. Keeping in a fitness condition by them was perceived in terms of a self-responsibility. 'Sportspeople' sub-group are engaged in the sport and would do it with or without the application, they may be professional sportspeople. They often were not concentrated on the tracking as itself as 'engaged' participants, most of them associated themselves with sports as a lifestyle. Analysis of media have proven that participants perceive self-tracking technology indeed in terms of analysed media articles, however denied being engaged too intensively in healthy lifestyle discourse, as Czech media suppose.