REPRESENTATIONS OF BIOMEDICINE, MEDICAL RESEARCH AND BIOETHICS IN MEDICAL DRAMAS

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Submitted to

Central European University

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In partial fulfillment for the degree of Master of Arts in Gender Studies.

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Budapest, Hungary

2014

ABSTRACT

This thesis explains certain approaches that circulate in the scholarly and popular cultural discourses about the transformation of the human body. By focusing on those theories which claim that the transition and the new form of embodiment come into existence by the application and innovation of modern medical technologies, I describe the debates and controversies around the new stage called posthumanity.

The review part introduces several theories of posthuman embodiment, like the hybridity and robotization of the human body, boundary crossings between human, animal, and machines and presents that the process of posthumanization entails ambiguities, excitement, and anxieties within the scholarly fields, for instance because transplantation, prosthetization, assistive reproduction and genetic research change general ideas about human embodiment. These technologies raise bioethical concerns and have individual and social impacts, thus I argue that people have to be informed about the advances of medical technologies.

Beyond the traditional ways of scientific communication it is necessary to examine how the issues described above are presented in the field of popular culture. This thesis examines a genre called medical drama series and argues that these series have the potential to represent posthumanist issues and challenges. Medical dramas are useful sources in the debates about posthumanism and invite the audience to think about the presented issues, and provide platforms for further discussions.

The thesis builds on the content analysis of two popular American television series called *Grey's Anatomy* and *E.R.* The critical review of the content is supported by the episodes, as well as official and non-official recaps. By examining the medical dramas' media coverage I found important information about the agendas and motivations of the creators. By using media sources I elaborated on the audience's perception of the series' medical content,

infotainment potential, and real life effects. The review of Posthumanist thinkers, Scholars of Media, Culture, Gender and Science and Technology Studies establish the field for the content analysis and describe why it is important to elaborate on the ways how medical dramas represent the possibility of posthumanism, and it is the basis of the comparison between scholarly and popular cultural debates on posthumanism.

The way how posthumanist discussions are enacted in medical dramas is important in order to understand some specific issues about the transformation of the body and the feelings toward it. The public relies on popular culture's fictional genre in order to get information and to guide its perception and evaluation of certain medical practices. Medical dramas are more than infotainment sources in the question of posthumanity: as the result of my examination shows, these series not only explain medical issues that challenge human embodiment but also mediate these through the dramatic content. This activity builds on the audience's engagement with the characters, the presented life stories, and professional dilemmas. While the informatory role is important, I argue that the series contain the risk of misleading the audience, therefore, more perception studies and discussions about the genre's potentials and limits are needed.

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CHAPTER ONE

INTRODUCTION

This thesis examines different approaches and understandings of posthumanist embodiment that are connected to certain practices of contemporary medical human biotechnology, which raises important questions about the boundaries of human life and the capacity limits of the body. The medical field is a significant arena for introducing complex questions that challenge our ideas of ourselves as human beings and raise all sorts of challenging ethical and regulatory issues.

The process of biomedicalization implies complicated ethical issues, political stakes and introduce radical ideas like that people are becoming posthumans as the differences between human, machine and animal are blurred as the result of certain biotechnological improvements. For instance, medical transplants that graft animal tissue or otherwise use animal organs for humans challenge the boundary between animal and human bodies. Prosthetics which enhance human capacities are increasing the distinction between human and machine. Genetic research, cloning and other technological changes in the field of reproduction also suggest a posthuman future. If we think about the future in medical terms and practices we see that as the result of the above mentioned practices, the construction of the body changes and becomes more mechanized and medicalized; the boundaries between human, other human beings and species becomes less clear; and the reproduction of human beings will be less connected to those practices that are considered as natural today. Genetic research provides an inside view in the human body: thus its inner structure becomes effectively detectable; furthermore, this inside view helps to detect certain health related risks factors: in this sense we are getting closer to make preliminary discoveries about the medical future of the human body. By this information, people might become more conscious about

preventive health practices. Technology makes it possible to gain similar or better capacities that the human body has, moreover certain functions of it becomes replaceable with medical developments. Of course, these are only the premises of the innovations, but it is inevitable to be conscious about the potential harms and side-effects of such improvements. Moreover, these are some of the many ways and examples of how citizens in advanced societies are challenged to make sense of subtle bioethical questions as well as to rethink their very definition of what it means to be human. I elaborate on these stressing questions in more detail in Chapter Two by focusing on the concept of posthumanism that provides an effective theoretical frame for the explanation and critique of these medical developments.

Since biotechnological developments have significant political, social and economic impact on people's everyday life and future, the public understanding of these medical improvements is not just a morally important issue of democracy. For laypeople it is important to be well informed about medical development and therefore it is necessary to consider how people are informed today. While some people understand and navigate these challenges by reading medical journals, reports or sophisticated media forums, most people do not have the inclination or training to read specialist accounts of many of the significant developments in science, technology and medicine that they must make sense of as citizens. Beyond traditional scientific communication there are alternative ways to enhance public understanding of science. While representations of medicine in high art become more and more popular, it is important to notice, that the ideas and concepts that inspire such artifacts are circulating in the field of popular culture as well, and different genres of popular culture are important forms to look at these questions.

In this thesis I focus on medical drama television series that is a specific genre within popular culture and I argue that these series are more than mere entertainment, because the genre has significant infotainment potential and it informs people about biomedicine and

medical developments, and this activity is an alternative form of scientific communication. As for instance the case studies of the prestigious Kaiser's Foundation shows and Solange Davin's study presents, these dramas shape the public's understanding of medicine and raise awareness about contemporary medical issues and technologies. Chapter Three introduces more studies and articles that reinforce that these series are more than entertaining products of the cultural industries.

Many products of the genre have wide audience for whom these series provide a more understandable explanation of modern biomedicine than scientific journals and artifacts of high or contemporary art. These series invite the audience to consider and discuss pressing contemporary question about medicine and health care; and provide a forum for learning about and analyzing many contemporary bioethical debates and issues concerning the unstable border between the human, machine and animal. While scholars examined how medical dramas portray doctors, emergency situations and communication between doctors and patients, there has been little attention to how these dramas represent the challenging questions and issues of medical human biotechnology, contemporary medical research, and bioethics.

The selection of the series rest on a fact that practitioners of *Grey's Anatomy* recently made two important statements about the aims of their medical research: some of them want to change the meaning of human and the face of medicine by the application and improvement of modern medical technologies, which claims explicitly reflect on posthumanist concepts about embodiment and controllable future for instance. The show portrays emerging medical practices that have significant individual and social effects and many of the represented cases portrayal the last improvements of medical biotechnology. Since many of these issues were presented in *E.R.* the iconic and enormously popular medical series, I decided to compare the medical narratives of certain practices where it is possible.

1.1. Methods

By focusing on two prime-time television medical drama series' representation of posthuman embodiment, medical human biotechnology and bioethics, I completed the content analysis of *Grey's Anatomy* (2005-2014) and *E.R* (1994-2011) by reading the official episode recaps and watching the selected episodes. The thesis includes several types of secondary and theoretical materials, I looked for recaps that are more informative about the medical content of the series than the official ones since the above mentioned ones tend to focus on the private live story lines of the main characters. By the analysis of the media coverage of the series I discovered how journalists, bloggers and scientists -who are willing to write for laypeople-, discuss the represented medical issues; and this discourse analysis method was also helpful to discover the agendas and motivations of the creators.

By using the concept of posthumanism this thesis aims to be an interdisciplinary work that connects the pressing questions of posthumanism and medical human biotechnology with an iconic genre of popular culture called medical drama. For this, it is inevitable to establish a strong scholarly basement that brings together different fields of science such as scholarship on posthumanism, Gender Studies, Media Studies, and Science and Technology Studies. This review supports the analysis by providing a basement for comparison between scholarly and popular cultural debates and representations of posthumanism. The idea of the forthcoming age of posthumanism entails excitement and anxiety within scientific circles and in the wider society as well. The first chapters concern the meaning of posthumanism and argue that it is emerging because of the improvements of medical developments. Beyond posthumanist scholars like Katherine N. Hayles, Stephan Herbrechter, Cary Wolfe and Pramod K. Nayar the thesis includes scholars like the philosopher Francis Fukuyama who focuses on the

negative challenges of new technologies. Science and Technology Study approaches of Margaret Lock and Linda Hogle provide better understanding on genetic research, transplantation, prosthetics and other boundary crossing medical practices. Assisted reproductive technologies and the discussion about the practitioner's gender bring the Gender Studies perspective to the thesis topic.

Writings of media theorist Joseph Turow and Solange Davin are useful to examine medical drama as a genre and helps to understand how products of the media and cultural industries became important representational platforms of medical topics. Audience reception studies are also important sources: for instance, the Kaiser Foundation completed a research that discusses the audience's perception of medical content and the infotainment potentials of the series.

1.2. Structure

Chapter Two maps the emerging medical technologies and issues of posthumanism, posthuman embodiment in connection with medical innovations. By the establishment of critical reviews on the existing scholarly literature of posthuman embodiment that rising because of the modern medical technologies I explain what kind of content can be regarded as posthumanist within the selected dramas. Thus, the thesis starts with the explanation of different posthumanist theories and continues with approaches that specifically reflect of the medical practices that support posthuman embodiment.

Chapter Three examines the general infotainment potential and effects of medical dramas shows. These series have a potential to make the audience think about medical technologies and practitioners, moreover the series enhance the viewers' expectations towards

medicine and physicians. This part describes why it is useful to look at medical dramas as an effective representational platform of the medical related issues of posthumanism.

Chapter Four focuses on significant medical approaches of posthumanist embodiment and analyses how these are represented in *Grey's Anatomy* and *E.R.* The series provided important examples of mixed embodiment that comes to existence by the boundary crossings medical innovations, thus the selected cases include emerging areas of contemporary biomedicine such as genetic research, transplantation, and prosthetization. Biomedical innovations, the emerging synergy between humans and machines, and posthumanist ideas entail ambiguous reflections, anxieties and sometimes even fears, thus I examine the mediating potentials of medical dramas. How do these series portrayal posthumanist ideas: in a conservative, futuristic, pacifying way, or in a way that enhance uncertainties and anxieties? By the examination of this question it will be possible to decide whether these series encouraging or discouraging people to be optimistic about the forthcoming age of medically influenced posthumanism or not.

1.3. Significance

The circumstances of the medical institutions that are represented in these series might not be relevant outside of the United States, but despite the fact that both dramas set in American context, the series circulate widely outside of the USA. The academic literature connects the series with context outside of the borders of the United States; furthermore, the examined questions are relevant and important outside of the USA.

As a result of my thesis project, I identified a twofold gap within the scholarly literature on posthumanism: once, those thinkers who are engaged with posthumanism have not examined the representations of posthumanism in medical dramas; second, scholars of

Media and Cultural studies have not examined medical dramas' potentials to interpret posthumanist concepts and the possible effects of it. Thus, I argue that medical dramas are useful sources to present and examine posthumanist concepts, just as the transformation of human to posthuman; robotized embodiment; boundary crossing medical technologies that effectively alter the human body and challenge the boundaries between human beings, human and other species, and human and machines. Forthcoming perception studies should argue how the audience perceives the medical content of the genre that reflects on posthuman concepts, and discuss whether the genre has a potential to mediate feelings toward posthumanism or not. This thesis project brings these questions together in order to fill the gap in the existing scholarly literature, and I also aim to raise questions for further research on the representations of posthumanism in medical dramas.

CHAPTER TWO

THEORIZING POSTHUMAN EMBODIMENT

The aim of this review chapter is to establish what I mean under the term posthumanist content within medical drama series, and what should be seen as emerging medical technology that construct posthuman embodiment. It is also worth to discuss and map the various emotions – like fears, anxieties and excitement- that these boundary crossing practices and the process of biomedicalization entail. In this part I briefly explain some of the issues that circulate in scholarly discourses about the transformation of the human that comes to existence by the usage of modern medical technologies.

2.1. Theorizing posthumanity

This historical moment is the time of radical ideas about human condition: we live in a world that poses serious posthumanist challenges. The field of biomedicine is a significant arena for complex questions that challenge core ideas about humans, thus many debates that discuss the meaning of human are connected to emerging medical human biotechnologies. This part introduces ideas about the changes in human conditions, such as that people are becoming posthumans and claims that developments of medical biotechnology suggest a posthuman future. The scholarly and popular discourses offers posthumanism as a label for a period in which the human is under question, and there are strong suggestions that technological and medical developments have created a threshold marking a "post" to what we have considered to be "the human" previously. New technological discoveries and developments, advances in biotechnology, informatics and medicine have serious effect on people's lives, moreover these technologies have considerable capacity to reconfigure the

concept of the human, human embodiment, and the existing understandings of the so called human nature. I argue that posthumanism is raising because of the emerging biotechnological developments and in this way many of the theoretical concepts and issues of posthumanism are directly connected to human biotechnology and medicine.

As the scholarly debates indicate, posthumanism raises considerable, ethically and socially important questions and concerns about the possible consequences of emerging medical innovations. Such debates emphasize that the developments of modern medical biotechnology and its existing or possibly forthcoming effects are connected to politics and society. Scholars of politics like Roberto Esposito (2004) and philosophy such as Francis Fukuyama (2002) claim that developments like cloning, gene research or assisted reproduction raise contradictory ethical issues that are more than mere scientific or technological concerns, thus posthumanism is more than an academic concept- this is why it is important to examine how people are informed today about these technologies.

Moreover, the concept of posthumanity is surrounded by a range of the debates and approaches, since it is an open question and a controversial term that implicates issues and problems, which create strong excitement and anxiety both within the scientific field and the civic society. There are scholars who explicitly express persuasions towards the contradictive issues, thus we can differentiate between positivist thinkers like Katherine N. Hayles and pessimists like Francis Fukuyama.

Hayles (1999) discusses the pro and contra arguments of posthumanism by using the terror versus excitement terminological dichotomy. She states that some concepts regard posthumanity as a state of mankind: the next station of humanity. Fears are usually comes from the concept of terror, which states that the days of the human are numbered. Evolutionary understandings state that humans will die out just as dinosaurs did and support ideas that predict apocalyptic changes. The question is who or what comes after the human?

There are different options including: the next stage might be the age of intelligent machines; the human's co-existence and symbiosis with posthumans; or transformation to posthumanity. Hayles introduces the reverse understandings of the term, which emphasize that posthumanism is not necessarily the end of humanity, rather it is a new way of thinking, which enables people to get out of the old boxes and binaries, and the posthumanist transgression leads to new forms of configurations.

Posthumanity is an inevitable evolutionary stage that humans are facing with, according to Stefan Herbrechter (2013) He discusses the contemporary meaning of human existence and the question, what comes after the human. His book (*Posthumanism- A Critical Review)* provides an interdisciplinary framework to examine posthumanism: for instance, he considers theoretical, philosophical assumptions and the social and political implications of these. Herbrechter implies a biotechnological perspective and states that technological developments eroded humanist reflexes and created societies that depend on technology.

The idea to conceptualize posthumanism in comparison with humanism often appears in posthumanist scholarship, and these approaches usually start with the critique of the human and humanism from different perspectives like politics or philosophy. The traditional notions of human serve a reference point for Pramod K. Nayar's (2009) analyses, who claims that humanism rests on an ideological basis that should be criticize because it privileges the human over other life forms and some kinds of humanity, like maleness, whiteness, and heterosexuality. This way, the human is often described as a distinctive, exclusionary and dominant life form. The current world order contains human and nonhuman actors, and in most of the cases the former controls the latter, but the forthcoming system might challenges the privileged position of the human above the environment and other species. Nayar argues that currently human has rights and capacities to dominate other species, because the humanist logic provides natural supremacy; but this dominancy is missing from the

posthumanist world order. Humanism builds on dualisms and divisions just as the self and the other; the mind and the body; society and nature; human and animal; organic and technological; material and non-material. These polar points and the boundaries called into question by the posthumanist logic, just as the order and the connectedness of species.

Halberstam and Livingstone (1999) also emphasize that humans domesticate other species and humans according to race, class and gender. This activity and hierarchy makes the differences between the human and the nonhuman absolute. (Halberstam and Livingstone: 10) They state that posthumans have different motivations, and they are not driven by the desire for domination or the creation of coherency or unitary. (Halberstam and Livingstone: 14)

According to Chan and Harris (2012), the possibly forthcoming advent of the posthumanist age should be engaging for thorough re-consideration of our moral values and attitudes that are connected to the boundaries of the biological species. The authors highlight the value leaded face of the critiques against posthumanism that states people lose their humanity and posthumanism is against common humanity. They say it is value leaded position to see the age of posthumanism as a loss and a legitimized reason for grief and regret; and states that humanity is overvalued:

> *"According to these sorts of arguments, then, a strong reason for avoiding becoming posthuman is the very fact that it will make us something other than humans; in other worlds, species transformation is itself something to be avoided."* (Chan and Harris, 2012 pp. 76-77)

Contrary, Italian scholar Robert Esposito (2004) focuses on biopolitics intends to find the essence and the positive sides of posthumanism. He asks how it could be the "politics of life" instead of the politics of mastery.

The contradictory theoretical understandings and emerging medical technologies reinforce that it is worth to examine the concept of posthumanism beyond the level of scientific discussions. These ambiguous theories are supported by existing and forthcoming medical technologies that require public awareness and critical engagement, which have to be enhanced by products like medical drama series. Posthumanism is not only a moral discussion, because there is a high possibility to turn its theories and preliminary predictions into reality. After the introduction of the contradictory comprehensions of posthumanism that entail excitement and anxieties, the next section focuses on posthuman embodiment that rising through emerging medical developments and the medical processes of transformation.

2.2. The Posthuman Embodiment

Posthuman Bodies edited by Judith Halberstam and Ira Livingstone is a collection of essays that represent various challenges to the coherent figure of the human body. In the Preface, they discuss several questions of posthuman bodies and embodiment and aim to give an open and engaging invitation to connect discursive and body related configurations that displace the human, humanism, and humanities. (Halberstam and Livingstone: vii) They state that posthuman bodies are more complex and entirely different than human bodies, and the new forms of embodiment brings together controversial terms:

> *"Posthuman bodies are the causes and effects of postmodern relations of power and pleasure, virtuality and reality, sex and its consequences. The posthuman body is a*

technology, a screen, a projected image; it is a body under the sign of AIDS, a contaminated body, a deadly body, a techno-body; it is, as we shall see, a queer body. The human body itself is no longer part of >>the family of man<< but of a zoo of posthumanities." (Halberstam and Livingstone 1995, pp. 3.)

Cary Wolfe examines the importance of materiality in posthumanism and claims that it is a stage where the transcendence of materiality takes place. Nayar also elaborate on posthumanism as a material condition and a radical reassessment of the human. At the age of futuristic biotechnological and biomedical developments the contradictory philosophical and theoretical concept of posthumanism affects people's everyday life:

"This connected, genetically hybridized, modified (surgically/chemically/electronically) human with a distributed consciousness and mediated perception is the posthuman: the new "subject" of the Humanities. This is the subject that will have to be studied within the modified, connected, hybridized discipline of the Posthumanities." (Nayar 2009, pp. 5)

After setting up the focus, general characteristics and research questions of a new study field called Posthumanity, Nayar states that biotechnologies question the basis of Humanities itself: the human (Nayar 2009, pp. 2) and emphasize the importance of symbiosis, assimilation, difference, and dependence. According to him the contemporary notions of humanity are already influenced by different technologies such as the biomedicalization and human biotechnology; and he states that traditional notions of the human has to be negotiated in a context that consider the importance of the technological interfacing of humans, machines and animals that all together erodes the concept of human. (Nayar 2009, pp. 3)

Biotechnological notions of posthumanism, and the prospective promises and perils of emerging enhancement technologies are core points in Chan and Harris essay that wonders whether the new technologies turn people to be posthumans, and examine the ways how posthuman entities come into being. They claim that new technologies might extend the human lifespan behinds its current limits and the capacities of the human body. As they state, today the combination of natural evolution and human enhancement takes place simultaneously. They discuss the probable consequences of the contemporary trends in human enhancement and states that humans are already the products of that evolution which includes enhancement and shaped by nature and technology. (Chan and Harris 2012, pp. 78)

The transformation between human and posthuman is also an often discussed question between scholars: the next section introduces the idea of transhumanism that extensively elaborates on the transcendence between the stages of human development and the technological body transformation.

2.3. Transhumanism

In this part, I introduce the concept and critiques of transhumanism, which is often regarded as a necessary step to a posthumanist future. Despite of the several misunderstandings post and transhumanism are not synonyms. Transhumanism is an ideology and a movement, and it is can be defined as an optimistic response to human biotechnological and medical improvements. Many of its believers see transhumanism as an intermediate stage of human development, as a necessary step to achieve a posthuman future.

"Transhumanism is a loosely defined movement that has developed gradually over the past two decades. It promotes an interdisciplinary approach to understanding and

evaluating the opportunities for enhancing the human condition and the human organism opened up by advancement technology." (Bostrom 2003, pp. 493)

Human biotechnology supports transhumanism, which focuses on the futuristic potentials of general longevity, human perfectibility and the developments that eliminate aging, and enhance the intellectual, physical and psychological capacities of humans. According to Bostrom's categorization, transhumanism has a double focus regarding to medical biotechnologies: first, the already existing technologies like genetic engineering; second, the anticipated future ones just as molecular nanotechnology and artificial intelligence. Transhumanism contains radical ideas about the technological transformation of the body and it is often defined as an evolutional stage, in which people are able to transcend their physical and psychical limits, and it sees the forthcoming generation as biologically engineered entities.

Scholars reflect on transhumanism in contradictory ways: Wolfe (2011) sees it as the intensification of humanism. Fukuyama (2002) is one of those scholars who extensively address the potential dangers and harms of posthumanism too, states that transhumanism is one of the most threatening phenomena of the age. According to him, transhumanism as a stage between the two ends, namely humanism and posthumanism, that entails serious risks. As one of the biggest critique of transhumanism, he states that transhumanism is a biotechnological enhancement of human beings and claims that biotechnology allows humans to control their own evolution and it may allow them to alter human nature that puts liberal democracy at risk and might lead to radical inequality.

But as Bostrom says, transhumanism should not be associated or equated with technological optimism, because there are transhumanist approaches that address the side-effects of technology, and acknowledge that the risks of the improvement must be taken

seriously. Only the responsible use of scientific and technologic improvement leads to a posthuman future, in which posthuman entities have greater capacities than human beings have today. From a transhumanist perspective, humans are works-in progress. (Bostrom 2003, pp.493)

Transhumanist approaches lead to the part that examines medical biotechnologies, which remake the human body, challenge its capacities, and the traditional notions of humanism. It elaborates on the notion of biomedicalization that based on modern, boundary crossing medical technologies that construct the posthuman body. The question is how the potential to technologically enhance the capacity of the human body is represented in medical dramas? How this genre of popular culture discusses whether the human is under transformation or not, and the moral uneasiness of the question and potential change? Are post and transhumanist medical improvements something that should be accepted or embraced? Chapter Four will discuss these issues in more detail and elaborate on the representations of certain medical practices.

2.4. Emerging Biomedical Technologies

This chapter focuses on the processes of biomedicalization that reinforces the forthcoming age of posthumanism from a medical perspective; and discusses several biomedical practices that represent the blurring boundaries of human embodiment. The technologies I introduce in this chapter are tightly connected to posthumanist notions of embodiment and present the interaction between human biotechnology and posthumanism.

The field of biomedicine is a significant arena for complex questions that challenge core ideas about human beings. Biotechnological approaches of posthumanism explore the boundaries between humans, machines and animals: the distinction between entities blurs as

the result of modern biomedical innovations. Some of these developments also question the limitations of the human body; and the differences between regenerative medical practices and capacity enhancement technologies. Practices like artificial reproduction technologies, the creation of chimeras and hybrids by using human genes; the creation of body parts and organs, designer babies, gene technology, cloning, stem cell research, sexual selection are elements and results of the process called biomedicalization that is the extension of medicalization according to the conceptualization of Clarke and Shim (2011). According to them, the way how people think about life and how they live their lives is influenced by digitalization and emerging medical technologies including visualization, biotechnologies, genetics, genomics, pharmacogenomics, and nanotechnologies. These innovations altered the former approaches of health, illness, healing processes, and the institutional level of health care. New technologies have changed the aims of medicine:

> *"While conventional medicalization practices typically emphasize exercising control over medical phenomena - disease, illnesses, injuries, bodily malfunctions - biomedicalization practices, in contrast, emphasize transformations of them by technoscientific means. These are accomplished largely through quick high-tech interventions not only for treatment but increasingly also for enhancement or optimization."* (Clarke and Shim 2011, pp.173)

Biomedicalization is constituted and manifested through different practices, but biopolitical economy, including corporatized and privatized biomedical research projects, products and services have an inevitable role in the improvement of such practices that are particularly important today, because within consumer cultures, health is a new kind of commodity. The common character of the innovations and practices is the increasing techno- scientific nature,

and as the result of innovations, not only bodies are transforming, but new kind of techno-scientific identities come to existence (Clarke and Shim, 2011 pp. 178).

As Hogle's (2007) study states transplantation, assisted artificial reproduction, artificial life forms and bioinformatics are those practices that most significantly question the taken for granted categories of nature and human. (Hogle, 2007 pp. 854). She claims that the usage of prosthetics, implants and enhancement technologies establish and extend the interface between human and technology, and this phenomenon change the received notions and understandings of the human (Hogle, 2007 pp. 858) Research on these questions reinforces that modern medicine not only alter the construction of the human body, but it influence the way how people think about life and embodiment. Bodily boundaries are usually seen as static or sacred, but in reality these boundaries can be transgressed by medical technologies. The techno-scientific character of the innovations implicates that modern medical technologies are not only practices that repair the body, but these are sources of bodily enhancement:

> *"With the technological capability and social acceptability of modifying and augmenting the body, there has been rapid growth in the kinds of procedures and assists made available. Most of these have been based on repair and restoration of function, but increasingly, techniques are being employed to improve mental and physical traits beyond what is considered to be normal or necessary for life."* (Hogle, 2007 pp. 856)

Posthumanism that based on the mechanization and medicalization of the body and comes together with the technologization of those processes that formerly were considered as natural. Nayar states that the technological interfacing of humans and machines, humans and

animals eroded the former notions of humanism and the idea of the self-enclosed biological organism (Nayar, 2009 pp. 3). For instance, advanced prosthetics not only replace the missing body parts, but many of the newest prototypes enhance the bodily capacities and challenge the distinctions between human and machine.

By using the examples of transplantation and genetics, Lock also reflects on the posthumanist consequences of biomedical practices:

> *"The practices of transplant technology and of genetic testing and screening make it abundantly clear that researchers have no choice but to recognize the ubiquitous presence of hybrid, postmodern bodies, fluid subjectivities, and shifting human collectivities, which in turn are associated with the potential for new forms of embodiment and identity."* (Lock, 2007 pp.893)

She also uses these two practices as examples in order to interpret the common characteristics of certain biomedical technologies. This presentation entails that as a result of commonalities the application of certain medical practices might influence the usage and development of other technologies. She lists commonalities between organ transplantation and genetics, just as:

1. Technologies of biomedicalization require the special apparatus and complex infrastructure of techno-medicine;
2. Biomedical technologies question the ownership of the body: who owns it and who has the right to make decisions about it, for instance in the case of organ donation?

3. The application of the biomedical technologies entails hybridity, and challenges the boundaries of the body, questions the existing notions of embodiment (Lock 2007, pp. 876)

One of the biggest promises of modern technologies is the predictable medical future of the human body. Technologies, like genetic mapping make it possible to detect the hidden, inner structure of the body and its encoded characteristics. This knowledge is necessary for further developments that provides more effective control on the body, helps to improve the field of personalized medicine and preventive technologies.

Modern reproductive technologies like in vitro technologies also challenge the human and technology divisions, and the traditional notions of fertility and motherhood. From the perspective of gender one of the most important posthumanist biomedical practices are medically assisted reproductive technologies that challenge traditional sexual and gender roles, and the ordinary limits and boundaries of the human body:

> *"At the beginning of the 21st century, however, posthumanist and transhumanist discourses about using technologies to intentionally transcend the limitations of the human body began to address the transcending of gender."* (Hughes and Dvorsky 2008, pp.7)

As Hughes and Dvorsky claims, by the usage of artificial technologies the importance of gender and parental roles are eliminated in human reproduction. They suggest that artificial reproduction makes it possible to challenge the reproductive limits of the human body and sex. Technologization of reproduction provides a different understanding of materiality and embodiment: the female body is disconnected from the capacity of reproduction, human life

come to existence outside of the human body, and artificial wombs might be able to replace pregnancy: assistive practices just as in vitro fertilization places the reproduction outside of the body. In a posthumanist age it is an ordinary phenomenon, and the term reproduction is more connected to technology than nature, thus, posthumans are not the product of the so called natural reproduction. This world order has serious potential to destabilize the existing system of sex and gender; and to build up a postgender order:

> *"Postgenderists argue that gender is an arbitrary and unnecessary limitation on human potential, and foresee the elimination of involuntary biological and psychological gendering in the human species through the application of neurotechnology, biotechnology and reproductive technologies."* (Hughes and Dvorsky, 2008 pp. 2)

A postgender system is based on the application of advanced medical technologies, therefore today the concepts of gender not only challenged from social and political perspectives: biological and technological approaches act important role in the destabilization and transformation of the term.

2.5. Potential harms and consequences

As Lock sees it, practitioners of biomedical technologies can manipulate the human body by challenging its formerly stable boundaries or by the enhancement of its original, given capacities; thus new technologies imply a wide range of ethical, political and social effects and repercussions. (Lock 2007, pp. 875) Modern medical technologies are worth to consider, because as for instance, Linda Hogle claims, medicine is an inevitable part of human

life and medical technologies permeate every aspects of life from the beginning until the end whether one is healthy and able bodied or not. Emerging innovations are promising in one hand, and fantastical future scenarios often appear in discussions about the new technologies (Hogle 2007, pp. 842). But at the same time, innovations are also ambiguous, thus new medical technologies eventuate excitement and anxiety. The changes in the meaning of human lead to ambiguities in different levels and the effects of medical technologies are not only scientific, thus it is inevitable to consider moral and legal implications particularly because many of these technologies not only affect the individual, but also the society as a whole.

Posthuman embodiment constructed by modern human and medical technologies, causes ethical, moral, and social uncertainties about medical developments that fuel the improvement of the posthuman condition and the transformation of the human. Because of these effects and ambiguities, I argue that people have to be aware with these issues and concerns. These advances provide agenda for bioethics, which reflects on clinical practices, biomedical improvement, and medical research. Innovations that suggest a posthumanist future are in many cases governmentally regulated thus health policies influence the transformational potential of posthumanist medical practices. Bioethics deals with the existing and the imagined forthcoming consequences of innovations, thus regulators have to examine the supposed premises, impacts, and threats of developments, by considering the fact that the interest of scientists is not always equals with the civic societies'.

Scholars emphasize the potential harms and negative consequences of such technologies, and one of the most critical is Francis Fukuyama. In his book (2002) he discusses that there are technologies that are frightening from the beginning and these developments require institutional control or political regulation. He admits that it is not easy to make preliminary decisions about the necessity of regulation. His essay (2012) states that

the ongoing biotechnological revolution already has inevitable social consequences, and the benefits of future biotechnologies generally regarded to be socially good things (Fukuyama: 2012, pp. 157). He argues that the innovations might be better or worse for humans, but it depends on the technologies and the governmental mechanisms that control these. The potential harms of developments come from the question of safety, the unknown side effects and negative externalities: despite of preliminary research, it is possible to misunderstand the complexity of human evolution, human nature and beings. (Fukuyama 2012, pp. 158)

Thus, at the age of biomedicalization, where emerging technologies have serious impact on the lives of individuals and the society as a whole, the distribution and consumption of biomedical knowledge becomes an important concern. The production and transfer of medical knowledge play important role in biomedicalization and beyond the traditional medical forums new channels showed up and became important in medical communication.

> *"Today, information on health and illness is proliferating through all kinds of media, especially newspapers, on the Internet, in magazines, and through direct-to-consumer prescription (...) Biomedicine is today so much a fundamental element of mass culture."* (Clarke and Shim 2011, pp. 177)

Internet and the new media have an important role in people's perception on medicine, thus a genre like medical drama that particularly focuses on health and medical related questions has to be object of consideration if we think about the communication and representation of modern medical practices and the distribution of medical knowledge. Since improvements of modern biomedicine and human biotechnology have implications that affect the everyday lives of people, the representation of issues and practices are important factors:

> *"With such dramatic effects on life, labor, and governance, it is little wonder that the study of medical technologies has been an area of intense focus in studies of science, technology, and society. The techniques, forms of knowledge, and practices emerging in the twenty-first century promise to be fruitful ground for future studies of medical technology and will contribute to understandings of science, technology, and society more generally."* (Hogle 2007, pp. 865)

The aim of this review was to discuss and clarify what kind of content can be called posthuman within the selected dramas that represent a wide range of cases. After the general overview of scholarly literature on posthuman embodiment and medical human biotechnologies and the possible consequences of these I argue that people have to be aware with the existence and working of technologies that medically challenge the meaning of human. The next chapter discusses how medical dramas enhance the public's understanding on medical developments and provide valuable medical information for the audience. I argue that it is useful to look at how these discussions about posthumanism are enacted in medical dramas series' representation in order to understand some specific issues of posthumanist transformation of the body and the feelings towards it.

CHAPTER THREE

MEDICAL DRAMAS

Scholars of posthumanism, like Stephan Herbrechter (2012) have examined genres such as science-fictions that explicitly present posthumanist, transhumanist, Cyborgian, or other kinds of futuristic content; but they usually leave out other genres from their analyses. However, it is important to notice that science fiction is not the only genre in popular culture that portrays posthumanist concepts. I argue that medical dramas such as *Grey's Anatomy* and *E.R.* display significant posthumanist content through many of their represented medical cases, especially with those that reflect on the issues of modern human biotechnology and medical research. Products of this genre introduce various ideas about posthuman embodiment, but there is no scholarly work on medical dramas from this perspective. The gap I identified in the scholarly work is two sided: first, posthumanist scholars have not considered the representations of posthumanism in medical dramas; and second scholars of media and cultural studies have not examined the content of medical dramas from a posthumanist perspective. Consequently, the scholarly discussion misses two potential fields of debate that could extend the approaches of further elaborations on posthumanism and medical dramas. This thesis aims to fill this gap by its reviews and the analysis of *Grey's Anatomy* and *E.R.* story lines that present posthumanist issues.

This chapter examines introduces the selected two medical dramas, the general characteristics of the genre, the infotainment potential of such series and their effect on how the audience understands posthuman embodiment and modern medical technologies. Beyond the scholarly literature I elaborate on the media coverage of these series including articles and case studies.

3.1. General introduction of the selected series

3.1.1. Grey's Anatomy

Grey's Anatomy is an American prime-time television series created by the American Broadcasting Company (ABC) and it is written by Shonda Rhimes. This popular, multiply-award winner medical drama started at 2005 and currently it is in its tenth season. The story based in the fictional medical complex called Grey-Sloan Memorial Hospital[1] and it is written from the perspective of Meredith Grey, who is a surgical intern in the first seasons. The protagonists of the show are her colleagues, including other interns, residents and specialists.

> *"'The doctors of Grey Sloan Memorial Hospital deal with life-or-death consequences on a daily basis-it's in one another that they find comfort, friendship and, at times, more than friendship. Together they're discovering that neither medicine nor relationships can be defined in black and white. Real life only comes in shades of grey."*[2]

The cases usually underscore the relational tension between the characters and improve their personal story lines, and nearly all of the cases have a message or a life lesson for the practitioners. The creators turn big attention to professional accuracy and reliability thus they co-operate with medical expertise. The story mainly focuses on the following fields of medicine through the specialization of the characters: Cardiothoracic Surgery; General Surgery; Neurology and Neurosurgery; Orthopedic Surgery; Plastic Surgery; Pediatric

[1] During the ten seasons, the hospital had different names: first it was called Seattle Grace Hospital, than Seattle Grace Mercy West.

[2] Link to the official website's description: http://abc.go.com/shows/greys-anatomy/about-the-show

Surgery; Trauma and ER. The series presents different kinds of cases, according to my categorization these can be listed under four main types: routine cases; emergency cases; rare disease; and cases that are connected to research project or medical trials.

3.1.2. E.R.

NBC started to screen *E.R.* in 1994 and ended it in 2009. The series had fifteen seasons and this is the longest running prime-time medical drama in American television history[3] and its creators including the award-winning producer John Wells and writer Michael Crichton. According to Davin's study, the first season of the series hailed as the highest-ranking drama in the American media history: it had about 35 million viewers.

Michael Crichton created the first movie-format version of the story at the end of the 1970s. Although he was a trained physician, he never practiced this profession; rather he created the basic ideas of *E.R.* based on his education and experiences as an intern. The aim of the creators was to make a realistic drama with reliable representation of medicine and in order to keep the commitment to medical accuracy, the scriptwriters consulted with physicians, nurses, and health care providers.[4]

The story based in the fictional Cook County General Hospital, which is an urban teaching hospital in Chicago and mainly focuses on the hospital's emergency department and includes storylines about the Trauma and General Surgery. Beyond emergency cases *E.R.* present surgical cases like transplantations and prosthetizations, moreover it presented pressing social issues just as HIV/AIDS and LGBT rights. Some episodes were radically

[3] Link to the official website's description: http://www.nbc.com/er (June, 2014)

[4] Alley, Randall: „Prosthetist Consults on 'ER'" *The O&P EDGE*, 2004
Link: http://www.oandp.com/articles/news_2004-02-02_02.asp (June, 2014)

different than the usual ones: *E.R.* raised awareness about the humanitarian crisis in the Sudan and presented medical missions in Iraq.

Where it is necessary further information about the series will be provided in Chapter Four, which examines these series from a posthumanist perspective that currently missing from the scholarly literature.

3.2. General Introduction of Medical Dramas

Medical drama has been a popular genre since its first appearance at the end of the 1950's. As Solange Davin (2003) writes in her essay, in 1959 Norman Felton was the first who intended to create a medical drama. Felton was in charge of development at the CBS, but his idea was first rejected by the senior executives because they supposed that people do not want to watch sick and suffering in their free time. But this standpoint was mistaken, because medical dramas gain huge attention for the first time and the genre preserved and renewed its popularity. Medical dramas have an extraordinary position in the contemporary television industry: the format attracts large audience including those groups that are the most important for the advertisers.

However, the genre went through several changes during the last decades. As John Collee (1999) states, medical dramas became obscure and ambiguous in order to gain more attention: according to his argument, too obvious and fully explained stories cannot be dramatic thus these do not engage the audience emotionally. He calls the end of the 1990s as the renaissance of medical drama series that rises because the creators realized the importance of ambiguity that they keep up with the blurring activities and fast instructions for instance. Moreover, things not always go well and easily. Ever if it is harder to comprehend the content

of the newest medical series, these products are more profound and satisfying than their predecessors.

> *"The fact that we don't understand the medical process makes us more appreciative of its complexity. The chaos and the jargon engage us intellectually in trying to work out what's happening. The moral ambiguity adds richness and depth while enabling us to put our own interpretation on events."* (Collee 1999, pp. 955-956)

What else could stand behind the popularity of the genre and the viewers' interest in these shows? Strauman and Goodier states that the genre is ever changing but always strong, and there are three main reasons that explain its popularity:

> *"First, the drama inherent in the often life and death struggle of medicine offers a prime device to move along plots and examine relationships. Second, television physicians with their expertise and charisma, represent attractive characters to audiences. Last, the medical drama offers audiences a glimpse into the backstage of a world that is simultaneously engaging and exciting as well as frightening and overwhelming. All of us, at one point in our lives, will enter the medical maze. While these representations of medicine may in fact be problematic, unrealistic, and sometimes contradictory, they still provide a map for understanding the unfamiliar world of medicine for audiences."* (Strauman and Goodier 2008, pp.131.)

In summary, the genre is popular, because it presents emotional content that interpret life and death questions through the represented cases. Their argument emphasizes the charisma and attractiveness of the fictional doctors as a rate enhancing factor, and I find it problematic

because as it was discussed above, the one sided, positive portrayal of practitioners has entirely changed: new series usually present various types of doctors. Charisma might be attractive for certain viewers but others might prefer fallible characters. Supposedly, the creators of these shows changed the former representational model in order to engage a bigger percentage of the audience with the presented characters. The third reasons is the most connected to the thesis argument, since it reinforces that people emotionally react on these series because they are personally connected to the institution of medicine in a smaller or bigger extend during their life. Thus medical knowledge is important for them, because sooner or later they have to face with medical issues.

3.3. Medical dramas as infotainment

As we see, medical information is important for the audience and the viewers use medical drama series to learn about medical issues. Thus, in this part I examine whether these series are useful sources for the audience to get medical information or not.

These series should not be examined as documentaries that's first aim is to transmit scientific knowledge in an entertaining form. But there are exemptions, just as the Kaiser Foundation's research on *Grey's Anatomy* shows, but in most of the cases, these series have to be considered as products of commercial television companies, which seek good rates and the attention of the audience in order to gain money from the advertisers. As media specialist, Joseph Turow says:

> *"In a medical story, in any TV tale, a writer or a production company has only limited power. The storytelling process is shaped from within and from without the television industry. Telling stories on television is, above all, a game of power."* (Turow: xiii)

Turow also states that medical authorities try to guide and influence the portrayals of medicine in the level of fictions too, because these representations could have significant impact on the perception of the medicine as an institution. (Turow: xv) He regards the industry of popular culture where shows like medical dramas come to life as a field of conflicts and contradictive interests, in which medical institutions, social power, production executives and the leaders of the cultural industries try to find the common ground.But in the other hand, the creators are usually aware of the audience's expectations towards reliable content, thus if they serve entirely the interests of medical institutions, they probably mislead the audience. As it becomes clear, because of the contradictory interests, popular cultural representations of medicine require careful examination with a certain amount of sustenance

It is important to examine the possibilities and limitations of the genre's infotainment potential, in order to reinforce that these series are effective representational platforms of posthumanist concepts. While the analysis of the series posthumanist readings is missing from the existing scholarly literature, it is possible to make analogue arguments regarding to these kind of content by using former reception studies that focused on the perception of the series' medical content.

As Davin claims medical dramas provide reliable medical and social data for the audience through emotional interpretations. Her essay introduces a study that examined the audience's perception of *E.R.*'s medical content and the audience's responses to these narratives. The researchers asked the viewer's why they watch this series, and the respondent expressed their interest in medical questions. They described *E.R.* as a quality entertainment and as a trustworthy, reliable source of medical information and knowledge. Many of the viewers reported that they learnt about symptoms, disease, treatments, general human physiology, and practices of medicine by watching *E.R.* Moreover, they learned about social issues that were addressed in the show, and institution of the American health care system.

Since the presented fictional hospital is a state founded county hospital, the world of unemployed and homeless people appeared on the television screen through the life stories of the patients, and it was a completely different American reality that was represented in soap operas. *E.R.* portrayed an America where poverty, violence and exclusion are daily experiences of many, and presented the United States as a socially unequal country. Davin concluded that the genre requires further reception studies regarding to the reception of medical narratives:

> *"How televised representations of health and illness contribute to spectators' knowledge thus needs urgent attention, particularly as the medium is increasingly prevalent. (...) The reception of health and illness narratives needs further research, particularly since viewers rely heavily on television for their medical knowledge."*(Davin 2003, pp. 675)

So further perception studies are needed, but in the other hand, it is not easy to get hard and representative evidence about the impact of edutainment and infotainment potentials of television shows that incorporate medical and health information- according to the Kaiser Foundation that works to incorporate health messages into media and popular television shows and also studies the impacts of the different methods. According to the Foundation, communication of medical health information can be a conscious educational effort, or an incidental "side-effect" of the storyline. Their data present that television is still a dominant communicational tool because of the size of its audience. For instance, *Grey's Anatomy* is a top rated series that usually has about 20 million viewers. As the result of their *Grey's*

Anatomy case study shows[5], entertainment television has an enormous potential to serve health and medical information and it is a powerful communicational tool because the audience is engaged with and emotionally invested in the story; usually the audience regards the characters as almost real; top actors strengthen the effect and messages by their professional skills and popularity; and finally, the creators often connect the exciting or ambiguous medical content with the personal development of the character and in this is a powerful opportunity to strengthen the audience's engagement with the content.

It is important to note that while these series are not documentaries, but for instance, the creators of *E.R.* and *Grey's Anatomy* turn serious attention on the accuracy of the series' medical content[6] thus the creators collaborate with real life practitioners and expertise in order to create series that are not only believable for laypeople, but accurate. Otherwise, the presented medical cases often based on real stories partly or entirely. The effort of the creators to produce reliable medical series enhances the reliability of the content.

Despite of this effort to make accurate shows, the plots might be misleading. For instance, many of the contemporary medical dramas include a genetics story line that enhances the awareness towards this technology, but according to the genetics expert Dr. Allie Janson Hazell - who supervised *Grey's Anatomy's* genetics line[7]- misrepresentations

[5] The summary of the foundation's trial: the creators of *Grey's Anatomy* placed a formerly selected story in the plot in order to evaluate its effect on the audience by survey method. According to the analysis many viewers say that they have learned new information about medicine and health from the show (45% of the regular viewers), and many believe in the accuracy of the information especially the younger viewers and those who have lower-income. 13% of the respondents were encouraged by the show to try to find more information about the represented issues: some of them used the Internet, while other asked their practitioner.

[6] Gever, John: „Grey's Anatomy and other TV doctors skirt bioethical issues". *KEVIN MD*. 2010
Link: http://www.kevinmd.com/blog/2010/04/greys-anatomy-tv-doctors-skirt-bioethical-issues.html (June, 2014)

[7] Malamut, Melissa: "The Science Behind Grey's Anatomy: How Harvard's Ting Wu made Dr. Meredith Grey's genetic testing storyline believable." *Boston Magazine*, 2013.
Link: http://www.bostonmagazine.com/health/blog/2013/10/03/science-behind-greys-anatomy/ (June, 2014)

might have negative consequences[8]. Moreover, the series format does not make it possible to cover certain medical issues properly because the story line has to flow, stay interesting, and the 45-50 minutes long time limit of the episodes influence the way how things are presented. Thus, medical dramas are nearly never entirely accurate.

In this part by using academic texts and media sources I argued that medical dramas have a capacity to inform people about contemporary medical questions and developments; and these series are effective platforms to shape awareness about medical issues. I reinforced this statement with case studies and articles that interpret these potentials of the genre. Medical dramas are particularly important because medical journals, reports, sophisticated professional forums are not available for the general audience since they might not have access to these sources, or they are not interested or trained to read specialist accounts of the developments in medicine. In the other hand as the above introduce studies show, they are interested in medicine, thus alternative ways to enhance public awareness of science, just as medical dramas become important beyond the traditional scientific communication. Products of this popular genre use a narrative and language that is cognitively approachable and emotionally engaging for the audience. The examination of such perspectives is important because I argue that these series provide an effective forum to learning about and discussing contemporary questions of posthuman embodiment, medical biotechnology and bioethics.

[8] Dr. Allie Janson Hazell: „Misrepresentation of Genetics on TV: Harmless or Harmful?" The DNA Exchange, 2009. Link: http://thednaexchange.com/2009/10/07/misrepresentation-of-genetics-on-tv-harmless-or-harmful/ (June, 2014)

3.4. Real life effects

This section continues the analysis of medical drama's media coverage by a particular focus on the genre's effect on the audience's perception of medicine, medical institutions and practitioners.

As the article of The Cristopher Weaver [9] addresses, medical shows drive up medical costs, because the series represent the newest accounts of high-tech medicine, latest devices, drugs and treatments; but the side effects of these practices are often underrepresented. However, the series encourage the viewers to ask for the latest medical improvements:

> *"Yet some analysts suggest that what patients really want is a medicine as portrayed on TV. Advice such as "watchful watching" doesn't make for good story lines, so some patients might resist suggestions from doctors to forgo intensive tests and treatments for their illnesses."* (Weaver: 2009)

Medical dramas portray an aggressive and expensive approach to health care that is far from those practices that are recommended in real life[10]. Series like *House* and *Grey's Anatomy* influence the viewers' perceptions and expectations about real medical and health care, and as the research concluded, patients want to follow the model established by fictional physicians like Dr. House, who regularly order more than necessary tests and examinations. The article emphasize that television presents medicine in a sensationalistic, fast-paced way, the effort of

[9] Weaver, Cristopher: „Do TV medical shows provoke higher health costs?" *McClatchy DC*, 2009.
Link: http://www.mcclatchydc.com/2009/09/01/74714/do-tv-medical-shows-provoke-higher.html (June, 2014)

[10] Gutierrez-Folch, Anita: "Do Medical Dramas Skew Patients' Health Care Expectations?" *Finding Dulcinea* 2009.
Link:http://www.findingdulcinea.com/news/entertainment/2009/sept/Do-Medical-Dramas-Skew-Patients--Health-Care-Expectations.html (June, 2014)

accuracy and reliability creates a semi-fictional world of health-care practitioners who often turns hopeless cases back with phenomenal cures, find outs and innovations that raise people's expectations towards real life doctors.

Medical series not only represent medical issues but set up a platform for the viewers to discuss certain cases, questions and practices. Creators of *Grey's Anatomy* established an official blog called Medical Case File[11] where they display proper information about the most interesting, contradictory, or socially important cases that were represented in the show. This activity shows that the creators are aware of the requirements toward accuracy and infotainment and the fact that the audience is interested in thorough, professional explanation of medical cases.

Certain amount of the audience not only consume medical dramas but carry on a participatory attitude that manifested for instance in the discussions of the represented issues. Medical dramas have an important life beyond the television screen; the viewers not only talk about the series with relatives: they communicate with each other via blogs, forums and most recently social media like Facebook and Twitter.

3.5. Portrayal of the practitioners

Television impacts public perceptions of doctors, even despite people's personal, real life experiences with physicians: the audience wants doctors like the TV practitioners. According to the Professor Brian Quick's study[12] on the real-life effects of *Grey's Anatomy*:

[11] Link: http://abc.go.com/shows/greys-anatomy/news/medical-case-file

[12] Hans**,** Daniel: "Grey's Anatomy's Real World Effect"**,** *Prospective Doctor*, 2012
Link: http://prospectivedoctor.com/articles/item/37-greys-anatomys-real-world-effect (June, 2014)

"The more people watch the show, the more they believe that real-life doctors are like the ones portrayed on the popular TV show (…) the more episodes viewers watched, the more likely they were to perceive the show as credible, and then the more likely they were to perceive the show as credible, the more likely they were to perceive real world doctors as their doctors to be courageous." (Hans, 2012)

Surveyed fans of the show believed that the show portrayed reality, or at least that they hoped it did, thus Quick concluded that media influence the relationship between healthcare providers and patients[13].

However, according to the scholarly literature, there is a noticeable shift in the portrayals of fictional doctors. Strauman and Goodier reflect on a study of Joseph Turow (1989) which concluded that the early medical shows' formula such as *Ben Casey* and *Dr. Kildare* presented a positive image of physicians who were portrayed as biomedical authorities. This idealized picture has changed, today the television physicians are more realistic, later products turn attention to their professional and private life struggles, and dilemmas. Today, physicians portrayed as more fallible, but as the authors conclude they act in the interest of the patients:

"The idealism of past television doctors is tempered by a healthy dose of realism. We no longer only see doctors who display near perfect medical skills, supreme devotion to patients, and quick, effective decision-making. The new doctor shows also focus to a great extent on the internal and private world of fictional physicians. (…) *Although ER promotes a view of physicians as selfless heroes acting in the best interest of their*

[13] Quick, Brian: "The Effects of Viewing Grey's Anatomy on Perceptions of Doctors and Patient Satisfaction" *Journal of Broadcasting & Electronic Media*, Vol. 53, No. 1, 2009.
Link: http://www.questia.com/library/journal/1G1-197233665/the-effects-of-viewing-grey-s-anatomy-on-perceptions (June, 2014)

> *patients, the show also offers story lines in which physicians are uncertain, racist, mistaken, and uncaring toward each other, staff, and patients."*(Strauman and Goodier 2008, pp. 128.)

Even today's fictional doctors are less idealized and more fallible than their predecessors, the viewers wish to have these kinds of doctors in real-life, and courage and innovatory attitudes seem to have important role in the audience positive perception. But as Turow's study show, the new fictional doctors are not only fallible, but sometimes incorrect as well. From the perspective of bioethics, John Gever (2010) examines different forms of unprofessional behavior within medical dramas. He focuses on general clinical practices, questions about medical education and patient's rights and clarifies that the fictional doctors frequently deal with serious ethical dilemmas, probably more often than real life practitioners do. According to him, even if these series are not documentaries, patients and professionals might take the represented attitudes as norm, and vexing ethical dilemmas likely to invite the audience to make moral reflections. These answers and judgments reinforce the participatory attitudes of the audience and it underlines that medical series are platforms for reflections and discussions.

The portrayal of the fictional doctors is particularly important from the perspective of the thesis, because posthuman embodiment that constructed by modern medical technologies comes to existence through the innovatory research projects and practices of the physicians according to the series. Importantly, as I discussed above, fictional doctors effect the audience's perception on real-life practitioners. Thus, the way fictional doctors' involvement in the processes of posthuman transformation is represented influence how people think about the role of real-life practitioners in this activity.

Furthermore, it is important to elaborate on the question how do medical dramas effect the forthcoming generation of practitioners. Again, medical dramas have life outside of the screen, and as blogs and forums present, there are medical students, who criticize the dramas because these represent a radically different medical milieu that exists in the reality, or they notice the not entirely appropriate practices or jargon. Others are more inspired by these series and see the fictional doctors as role models. As Wilson Kwong's writes in his article[14]:

> *"…medical students tend to fall right into the general targeted demographic of primetime medical dramas. The appeal of using medical dramas as a teaching tool seems to come from their ability to connect with students on an emotional level. When you watch a show regularly for a number of years, you are bound to develop some form of attachment to the fictional characters being depicted on screen."* (Kwong 2013, pp.1.)

The role-model aspect is important, because as the next chapter presents, practitioners of current medical dramas like *Grey's Anatomy* highly engaged with processes of posthumanist embodiment and medical research. So it is important to consider whether the new generation of the practitioners who are engaged with these series will be more interested and involved in posthumanist body construction or not. They might be more engaged with technologies, practices of posthuman medical embodiment, or medical research projects that aim to make posthuman medical innovations. The fact that medical dramas have been used as a teaching source in medical and health education strengthen the argument that these series have some kind of infotainment potential.

[14] Kwong, Wilson: "TV medical dramas: pure entertainment or a useful teaching tool?" *Healthy Debate*, 2013. Link: http://healthydebate.ca/opinions/tv-medical-dramas-useful-teaching-tool (June, 2014)

In this chapter I have argued that medical dramas have infotainment potential to inform people about medical questions and provide platforms for further discussions. Creators of these series are filling an informational gap between scholars, professionals and laypeople about medical issues, and most recently about questions of emerging medical technologies and posthuman embodiment. It is important to realize that various concepts of posthuman embodiment are circulating in the field of popular culture. Moreover, creators of medical dramas intend to represent emerging issues like genetic mapping or cloning that cause excitement and ambiguity within the audience. These issues together with the strong feelings and personal engagement that comes together with the represented issues also help to keep up the interest of the audience.

One of the main questions of the thesis is the way how medical dramas present the way how such technologies changes the world and embodiment. The theoretical approaches that were described in the previous chapters provide the basement for the content analysis that examines medical dramas' representation of posthumanism, medical technology, and bioethics. Because of the presented potentials and effects of medical dramas series it makes sense to look at how a particular issue such as the value or threat of post human transformations are being negotiated through representations in these series. Thus far, there is no scholarly research on how medical dramas provide a space for such negotiations, this is why I forefront this question in the chapters that follow in this thesis.

CHAPTER FOUR

CONTENT ANALYSIS

This chapter analyses story lines of *Grey's Anatomy* and *E.R.* in order to give examples how the concepts of posthumanism are represented in these two medical drama series, and discusses how the different approaches of posthuman embodiment are presented in the narratives. For instance, the Kaiser Foundation's case study and the articles that were presented in Chapter Three show that medical dramas have a significant effect on the public's perception and understanding of medicine. I argue that the selected examples reinforce that medical dramas present emerging issues of posthumanism and enhance the public's awareness regarding posthuman embodiment. The analysis discusses whether the selected cases encourage or discourage a posthumanist future and the way how the technologically influenced scenarios are explained, problematized or mediated by the series, since the controversies that were presented in Chapter Two generate excitement and anxieties as well.

This chapter mostly builds on those cases that appeared in the ninth and tenth seasons of *Grey's Anatomy*, which were aired between 2012-1014. Practitioners of this series have always tried to challenge the scientific boundaries with their trials, but recently, medical research as a topic has been getting more attention in the script than before. Moreover, the newest episodes present emerging contemporary questions of medicine like genetics, brain mapping, 3-D organ printing, artificial construction of organs and thought-controlled prosthetics. Currently, the series raises academically and socially relevant questions about the division between the human and machines, and about the boundary between the human and the posthuman. Furthermore, some of the *Grey's Anatomy's* physicians who lead the ongoing research projects explicitly clarified that they aim to change the meaning of human and the

face of medicine. This is why I argue that the creators not only present emerging medical human biotechnologies but also promote significant posthumanist ideas. The aims of the research projects reflect on those posthumanist approaches that are connected to medical human biotechnology. It is also worth to discuss whether these aims are posthumanist or rather transhumanist; to evaluate the way how the represented cases reflect on the academic discourses about posthumanism and the ethical dilemmas of biomedicalization.

Where the similarity of the story lines makes it possible, I compare the narratives of *Grey's Anatomy* and *E.R.* In some cases it is not possible, because *E.R.* did not represent the given issue; if so, I examine the possible reasons behind the absence. For instance, the time difference between the two series provides a point for a comparison, moreover, the series present different types of hospitals: the Grey-Sloan Memorial Hospital is owned by the wealthy Harper-Avery Foundation; while the *E.R.*'s Cook County General is a state-funded hospital. As a result, the foundational opportunities to make research happen and the type of the practitioner's activity are different, just like their understanding of the aims of medicine. As a result, the narratives and messages of the two series might be different regarding posthumanist medical improvements and bodily transformation.

The analyzed storylines present various issues of posthumanist embodiment resulting from the application of medical biotechnology, and bioethical concerns entailed by these technologies. The introduction of the research projects names the main goals and expected outcomes of the research and the reasons why certain doctors take part in these. It is also worth examining how these series portray the main aims of biomedicine: for instance, as a set of practices that provide correction and replacement for the human body, or a potential of bodily enhancement and perfection. I analyze the narratives that make posthuman embodiment, medical body transformation, and the boundary crossings technologies more understandable or even acceptable for the audience. The main questions are whether these

series are pushing the audience's cognitive and moral boundaries to understand posthumanism or not, and how these medical dramas present the capacity limits and boundaries of the human body. Are the creators mixing posthumanist, futuristic content with traditional humanist values and standpoints about human embodiment, or are these two approaches represented in a well-balanced and clearly separated way? Are the given representations conservative or futuristic, pacifying or enhancing uncertainties and anxieties?

The analysis includes the following issues: the first subchapter examines the representation of the posthuman as a hybrid entity, the second focuses on the robotizations of the body, and the third elaborates on the inner structure and future of the human body that might be more predictable and controllable by the application of medical technologies. The last part examines the motivations of those fictional doctors who take part in the research projects in order to present the process of posthuman transformation.

4.1. The posthuman as a hybrid entity

4.1.1. Transplantation

Transplantation and organ donation supports the idea that posthuman bodies are mixtures of different beings and technologies; and as a significant practice of biomedicalization these entail hybridity and symbiosis. Organ, nerve and tissue transplantation imply the usage of animal and human tissues or organs, and organs can be replaced with artificial technologies, thus transplantation presents two types of boundary crossing. These practices signal the end of human purity: in a posthuman world there is less distinction between species, human and nonhuman actors, instead, there is a symbiosis between humans, animals, and machines on different levels. (Hogle 2007, pp. 854) Donation between humans is an encouraged medical

practice in many countries, and according to Lock, it reinforces the concept of hybrid bodies. She highlights the common assumption in the debates of organ shortage, for instance, non-donated organs go to waste thus citizens should contribute their organs to be transplanted; organs are mechanical entities that have no symbolic, affective meaning or value (Lock 2007, 884). In summary, organs are worthless for the dead person and the family, but donated organs are precious for those who get the organs. As it is often said, after donation the dead person starts to live in another body, or becomes a part of the saved life: this is how donation creates mixed posthuman bodies.

The transplantation cases of *Grey's Anatomy* represent different aspects of posthuman embodiment:

1. Organ donation blurs the boundaries between human beings and turns the body into a mixture of different bodies;
2. The transplantation of animal organs and tissues into humans challenge the boundaries between species;
3. Creation of artificial organs by using 3-D organ printing questions the division between human and machine, nature and technology.

Nearly all of the series physicians are transplantation specialists: the cardio and the general surgeon team sort out complicated, challenging cases. Cardio surgeries and heart transplantations are the central topics of the series from the beginning. Many types of transplantations were represented during the seasons through a wide range of cases. Beyond organ transplantations, *Grey's Anatomy* portrayed nerve and face transplantation too, which highlights that transplantation not only save lives, but also repairs the function of the limbs and the inner structure of the body: the audience learns that it is possible to repair the injured hand of a world-class surgeon through nerve transplantation[15]and in a domino surgery six

[15] Season 9: Episode 9: „*Run baby, run"*

people can get a new kidney through cross donation between the members of different families[16].

These stories present the variability of posthuman embodiment through the usage of organ donation and transplantation and many of the presented transplantation cases raise ambiguous bioethical questions, for instance about the ownership of the body. Moreover, many of these cases were represented in an emotional way and transplantation narratives were usually portrayed through the private lives of the practitioners. One of the biggest ethical issues is connected to a practitioner: in Season Two Dr. Izzie Stevens fell in love with her patient who was dying of his heart disease. To make the transplantation process faster and place the patient forward on the transplant list, Dr. Stevens makes the patient's condition worse, but in the end, he dies before the surgery. In Season Four, Dr. Meredith Grey's father, who left her when she was five needed liver transplantation. Her younger daughter, Dr. Lexie Grey is not a suitable donor because their blood type is different. Meredith is the only family member who can be a donor and the surgery is an emergency situation. First she refuses to donate a part from her liver[17], but after her sister's emotional argument about the "shared blood" she agrees to the surgery. Thus, it is worth discussing who has the right to decide about people's place in the transplantation list and what the acceptable medical practices that change the order are. In the case of Dr. Grey and her sister it is worth wondering where the ethical limit of convincing people about organ donation is. Since medical dramas affect the audience's perception about medicine, these representations might influence people's attitudes toward organ donation and transplantation.

Descriptions of the case on the official website of the series: http://abc.go.com/shows/greys-anatomy/news/medical-case-file/medical-case-file-909-nerve-transplant

[16] Season 5: Episode 5: „*There is no I in a team"*

[17] Descriptions of the case on the official website of the series: http://abc.go.com/shows/greys-anatomy/news/medical-case-file/medical-case-file-604-partial-liver-donation

After the examination of *Grey's Anatomy's* transplantation narratives, I provide an example from *E.R.* that also presents transplantation through the life story of a main character: in Season Six, a patient with mental problems attacks Dr. John Carter and his intern with a knife. The intern does not survive and Dr. Carter's kidney is seriously injured, so the surgeons have to remove it. In Season Fifteen he needs kidney transplantation because his other kidney stopped functioning. This episode was screened in 2010, and transplantation was portrayed as a routine surgery. The only difficulty was to find a suitable donor organ for him to replace the dysfunctional one. The story line implicates that people can live with dysfunctional organs for a limited amount of time through the application of technologies like dialysis, but this practice cannot solve the problem completely, moreover, it provides a bad life quality because the patient depends on a machine, and as time passes, the human's connectedness to the machine becomes stronger because as the organ's condition worsens, the patient needs dialyses more and more often. So the usage of a donor organ is a better option than the continuous connectedness of human and an external technology like a dialysis machine. This is exactly what the domino kidney transplantation surgery of *Grey's Anatomy* represents: people are not capable to live with dysfunctional kidneys with the help of machines; the transplantation of a functioning organ, which artificially mixes human bodies is a better option.

4.1.2. Three-dimensional organ printing

In the tenth season of *Grey's Anatomy,* Dr. Yang Cristina starts a 3-D heart model printing[18] project. She works on it together with surgical intern Dr. Shane Ross, and tries the

[18] Media coverage of the technology' s debut in *Grey's Anatomy* (June, 2014)
http://cubify.com/blog/3d-systems-cubex-printer-debuts-on-greys-anatomy/
http://www.3dsystems.com/blog/2013/11/3d-systems-cubex-printer-debuts-greys-anatomy
http://www.huffingtonpost.com/karen-fratti/greys-anatomy-recap-forki_b_4239756.html

model first on a young patient.[19] The bio printing of tissues and organs by using 3-D technology is represented as a promising practice that challenges and even crosses the boundaries of human and machine because as the plot suggests it might be possible to artificially construct a heart model that entirely replaces the organ. Moreover, these printers are able to produce model organs, and through the usage of these, the success of the transplantation surgery becomes more predictable. Models help to determine whether the transplanted organ will function within the body that receives the donated organ or not. This is where Dr. Yang started her research and she ended up with the intention to construct a professional artificial replacement organ. After realizing the potentials of the technology, Dr. Yang printed a three dimensional heart model that mirrors the characteristics of a certain donor heart; then placed it in the patient's body to see whether the body will reject the real, transplanted heart or not. Both the trial and the transplantation were successful. Dr. Yang built up her own method and for this she was nominated to the prestigious Harper-Avery Award, which she did not get after all[20].

Two episodes later, Dr. Yang visits a futuristic laboratory of a hospital in Zurich that has forty-nine 3-D printers, and one of these might make it possible for her to print a beating artificial heart, which is capable of replacing the real organ[21]. This is her new professional aim, which becomes achievable because the head of the Cardiac Surgery offers her a job and a research opportunity. Since she lost the Harper-Avery award and the support of the Foundation, she does not have a research perspective in the Grey-Sloan Memorial, thus she accepts the offer. This decision implicates her professional intention is to change the cores of human embodiment through her research on organ printing. The other job does not support this improvement, thus Dr. Yang refuses to be in a position in which she could only repair human bodies by using existing technologies.

[19] Season 10: Episode 8: *„Two against one"*
[20] Season 10: Episode 20: *„Go it alone"*
[21] Season 10: Episode 22: *„"We Are Never Ever Getting Back Together"*

The other story line of the 3-D printer is connected to general surgeon Dr. Meredith Grey, who leads an organ modeling research, which aims to build new, life-saving organs. Dr. Grey starts the trial with a liver. The core idea comes from her mother who was a world-class surgeon. Dr. Grey decided to continue her unfinished research and add a new direction to it, like the 3-D printing[22] . She works together with surgical intern Dr. Stephanie Edwards who believes that they will change the face of medicine together. She admits it when they operate a 3-D printed portal vein into a sheep[23]. The trial is not successful; the ship dies after the surgery. Dr. Grey does not lose her optimism, and starts to cooperate with a bioengineer, which helps to step forward, and it is a good example for interdisciplinary scientific collaboration[24]. The importance of this case from a posthumanist perspective is not only the presentation how physicians try to produce artificial organs: since the hospital has only one three-dimensional printer, the board had to prioritize between the two research projects and they put forward Dr. Yang's trial, which implicates a certain order of importance and hierarchy between the fields of surgery. Moreover, the hybridization of the human body with artificial technologies starts on this extremely high level: the heart, which is considered as the motor or centre of the human body.

4.2. Robotization of the body

The robotization of the body also presents the hybrid characteristics of posthuman embodiment and the close connection between the human and machines. New medical technologies, like artificial limbs and thought-controlled prosthetics, which are a result of

[22] Season 10; Episode 8: *„Two Against One"*
[23] Season 10: Episode 11*: "Man on the Moon"*
[24] Season 10: Episode 12: *"Get up, stand up"*

brain mapping studies, suggest that bodily limits can be extended, and technology makes more perfect bodies.

In this part I examine the research of *Grey's Anatomy's* Neurologist Dr. Derek Shepherd and Orthopedic Surgeon Dr. Callie Torres, which takes place in Season Ten and it focuses on the improvement of thought-controlled prosthetics. The chapter discusses the amputation narratives of *Grey's Anatomy* and *E.R.* generally, the series' positive and negative attitudes toward amputation and their pro vs. contra prosthetization arguments, since in many cases, amputation and artificial limbs are presented as better choices and solutions than the injured or malfunctioning "natural" body parts.

Dr. Shepherd admitted that his goal with the brain mapping study and thought controlled prosthetics was to change the meaning of human, and this approach clarifies that doctors have the capacity for this.[25] According to Dr. Shepherd, the result of his brain mapping study will make it possible to build improved thought-controlled prosthetics: artificial limbs moved by the thoughts of the user. This kind of prosthetics will give a chance for paralyzed and seriously injured patients to initiate and control movement with their thoughts, thus thoughts are replacing the injured nerves of the body that are responsible for movements. When Orthopedic Surgeon Callie Torres joined the brain mapping research, the improvement of prosthetics was the original goal and she extended the focus of her study with the idea of regenerative cartilage. Her specialty is rebuilding bones and limbs, and she deals with different prosthetization cases. In order to create improved artificial limbs, she joins

[25] Season 10; Episode 6: *„Map of You"*- Dr. Shepherd's opening and ending monologue:
"*Researchers are currently working on a map of the human brain. It may be the most complex map ever created. Billions of neurons making trillions of connections. At first glance, they seem completely random. But there's nothing random about them. All these connections have to happen in a specific pattern. It is designed for a function. These connections determine everything about us. What we love, what we hate, what we say, what we do. Every action we take. (…) We are just starting to learn the extent of the brain's connections. How far they reach, how deep they go. But we know that every connection matters. Every connection is crucial. And when one is broken, it usually means some damage has been done. This system of connections tells us to act and choose and behave. Sometimes seemingly against our own will. But it is not random at all. It is the map of who we are. We will work to understand ourselves, solve the puzzle. How all the connections work and all the pieces fit."*

Shepherd and they test the sensors of the though-controlled prosthetic together. The trial on the first patient is successful: the paralyzed woman manages to move her fingers by using the sensors. After it, Dr. Shepherd receives a call from the President of the United States[26] and the White House expresses its interest in the research. But they are only interested in his part of the research indicating what policy makers see as valuable, original, and promising medical research that should be supported and controlled by them.

Grey's Anatomy presents many cases in which the patients become paralyzed or amputated and the practitioners aim to find the best way to replace the missing limbs or abilities. Especially Dr. Torres, who has a private life story that makes her more engaged with her specialization: her wife Dr. Arizona Robbins lost her leg in a plane crash in the final episode of the eighth season and Dr. Robbins blamed her because she gave permit to the other surgeons to cut the leg off after Robbins lost her consciousness because of an infection.[27] Earlier, she had refused the amputation but finally Dr. Torres had to make a sudden, radical decision. Through this story line the audience gets rational pro-amputation arguments and emotional contra arguments. The pro-argument is to avoid infections and the long healing process. The leg will never be the same again, it will always hurt and nobody can predict the functional ability of it. Despite all, Dr. Robbins does not want to be amputated; she desperately wants her own leg.[28]

This story invites the audience to think about the choice between the amputation of a dysfunctional limb and prosthetization with an artificial one, or the life with an injured limb,

[26] Season 10: Episode 12: *"Get up, stand up"*
[27] Season 9: Episode 2: *"Remember the time"*
[28] Season 9: Episode 24:*"Perfect Storm"*
Arizona*: "I lost Mark; you almost died." You weren't on the fricking plane! You wanted the street cred, the badge of honor, the warrior wounds, Great! Stick out your leg and I'll grab a bone saw and let's even the score!*
Callie: *It always comes back to the leg…*
Arizona*: I trusted you more than anything…more than anyone in my life. And you decided to cut off..*
Callie: *To save your life!*
Arizona: *You didn't lose anything! I did, I did!*

which causes several disadvantages. This choice is a dilemma and a hard decision as it is represented in *Grey's Anatomy*, and the medically rational decision is not self-evident even for practitioners, as Dr. Robbins' case shows. This dilemma appears in other cases too: amputation and prosthetization are presented as a better choice which provides better life quality most convincingly through the story of a teenager girl who was born with deformed legs. She begs for her father to let her legs be amputated and replaced, because of the pain and dysfunctions. The father becomes convinced only when Dr. Robbins shows him her own prosthetics and assures him that it is possible to live a complete life as an amputee.

While presenting the blurring boundaries between human and machine, robotized bodies that function better than injured or original human bodies contain posthumanist and transhumanist concepts of embodiment. As it seems, according to *Grey's Anatomy,* in order to live a complete life the body does not have to be entirely real, and not only organs, but limbs are replaceable too. As I described in Chapter Two, transhumanism supports positive attitudes toward technology and the robotization of the body since behind these notions there is a strong belief in bodily perfection, even if many transhumanist thinkers state that transformations need thorough preliminary consideration.

Grey's Anatomy shows the necessity and rationality of the usage of technology as a replacement or enhancement, but the cases are mediated by emotional stories. I argue that amputation and prosthetization dilemmas are presented through the life of the practitioners, because the audience is emotionally more engaged with them than with patients who only appear for episodes. The messages of the creators can be more successfully mediated if the receiver is interested and engaged. Arizona Robbins is a popular character, a smiley, happy person but the amputation makes a huge difference in her personality. The amputation changes her embodiment and personality too; she seems to be a different human being after it. She admits it takes time to learn how to use the prosthetic, feel complex again, and finally she

feels that she gained a new, transformed complexity. For a while she suffers from phantom limb pain, which indicates that it is not easy for the brain to realize the loss of the body part and accept its replacement. The body has a different complexity after prosthetization and the brain has to learn that the lost and artificial limb cannot hurt, since these are not integral parts of the body[29]. It is an important moment when her artificial leg breaks because of a small accident: the prosthetic leg is easily replaceable with another one, and it does not lead to a serious emotional breakdown, she thinks about her real lost leg but does not feel pity for the artificial one. In a sense she is not emotionally dependent on or connected to a given prosthetic, but only to the practice of prosthetization.

How does prosthetization happen in a less glamorous hospital ten years before the above-mentioned *Grey's Anatomy* cases? The next part examines two certain examples from *E.R.* which also represent and discuss the question of amputation and robotic prosthetization through the practitioners' life story. First, the Chief of the Surgery Dr. Robert Romano lost his arm in a helicopter accident in Season 9 (2004): the rotor cut off his arm, but the surgical team managed to replace it. Later, as it often happens in real life, the replaced arm had negative consequences like pain, infection, function loss, and nerve dysfunction, which have further consequences: once Romano burned the arm, because he had not felt that the arm had rested on the hot oven. Romano's story represents the same amputation dilemma that Dr. Robbins had to face: he wants to keep his own arm and hopes that it can be reconstructed, but the negative consequences indicate the impossibility of this preference. Thus, he has to consider the other possibilities that mean re-amputation and prosthetization. After a long hesitation he selects the surgery, and explores the options of prosthetization: since his

[29] Season 9: Episode 12: *"Walking on a dream"* - Dr. Meredith Grey's opening and ending monologue:
"Patients who undergo an amputation often feel a sensation where the missing limb was as if it's still there. The syndrome is called phantom limb. It's as if the body can't accept that a terrible trauma has occurred. The mind is trying to make the body complete again. (...) The body can be stubborn when it comes to accepting change. The mind holds out hope that the body can be whole again and the mind will always fight for hope, tooth and nail. Until it finds a way of understanding its new reality and accepts that what is gone is gone forever."

insurance does not cover the most professional artificial arm, he stars to use a myoelectric "Utah Arm" produced by a company called Motion Control[30].

In the second *E.R.* case, in Season Thirteen, a truck hits Dr. Ray Barnett the young *E.R.* doctor and rock musician. Both of his legs have to be amputated despite the efforts of the group of surgeons. He leaves the series for a couple of seasons and comes back with professional prosthetics; he starts to work with amputated veterans, and his new hobby is running. He has a special pair of prosthetics for sports too, and as it is represented, he has the so called complex life by using the latest innovations of modern prosthetic research. Despite the representation of the advantages of improved artificial limbs there is no mention of thought-controlled prosthetics in this series. The time difference between the two series provides a valuable reason for this, moreover, *E.R.* rather deals with issues like insurances and equal availability of certain medical practices, while *Grey's Anatomy* presents biomedicine cases as an endless source: the physicians have capacity and talent to improve the existing technologies, social issues like insurance problems are rarely displayed and the board usually is not concerned about the prices of certain treatments and surgeries, only ongoing research projects. The discrepancy between the artificial limbs' qualities mediates different messages about prosthetization and the possibility to have exactly the same quality of life than before the amputation. The career perspectives of the two *E.R.* practitioners become worse: Romano cannot be a surgeon after the replacement, and Barnett lives a different life after his prosthetization too. The replacements are better than the malfunctioning human limbs, but not as good as the real ones. On the contrary, Robbins' career does not change; she is able to do the same sport as before, which requires good motoric functions and balance. Her prosthetic is a better replacement, which is represented being as good as a real limb, but not as a capacity

[30] 'ER' TV Show Features Utah Arm; Content provided by The O&P EDGE, September 30, 2003 Link: http://www.oandp.com/articles/news_2003-09-30_02.asp (June, 2014)

enhancement, thus this series does not represent the enhancement issue of posthuman embodiment described in Chapter Two.

4.3. Predictable and controllable future

One of the biggest promises of biomedicalization is that the future of the human body will be more predictable thanks to the use of mapping technologies, thus people might gain more control over the fate of their bodies. The inner genetic structure of the body is discernible through genetic mapping; the human body has a predictable future, which implies that certain diseases might be prevented more successfully. Genetic research is similar to 3-D organ printing in the sense that both technologies make it possible to get information about the formerly hidden inner structure of the body. Thus, before making an important medical decision that leads to effective changes in the body it is possible to get a deeper insight into the expectable consequences and predictable outcomes. This opportunity reinforces the importance of thorough scientific consideration before decision making about the application of certain technologies. It is inevitable to understand the structure of the body perfectly: mapping and 3-D visualization brings the practitioners closer to this goal. By creating model organs and tissues, 3-D printing supports the hybridity of the posthuman body, challenges the boundaries between the human and machines and enhances the predictable future of the body.

The issues of predictable future and genetic mapping are represented in *Grey's Anatomy* through Dr. Miranda Bailey's research projects. The series contains different genetics-related storylines that raise important bioethical questions. In Season Ten, Dr. Bailey treats a kid with a malfunctioning immune system with genetically modified HIV virus. This plan scares the parents, so they refuse the treatment, but since the kid is dying, Bailey secretly gives him the virus, which raises bioethical concerns about the right to make medical

decisions. The idea worked, but it was evident that nothing else could have helped except for the forbidden treatment. Despite the successful treatment, the Board shut down the genetic research, because they did not find the project promising.

Current medical research projects aim to find prevention and cure for disease like Alzheimer Disease (AD), which is also a central topic in the series and it is connected to genetics. Dr. Bailey's former genetics research focused on genome mapping[31], which provides information about risk genes for certain diseases. Since her mother had Alzheimer, Dr. Meredith Grey is the first who wants to have a genetic test and it turns out that she has the genetic markers for the disease. It scares her, and she takes it for granted that the risk means that she will definitely have AD, which is not a rational reaction from a doctor. But later her husband, Dr. Shepherd convinces her to treat this information consciously: his genetic test result shows that he has genes that indicate a risk of heroin addiction, which is not really likely to happen. Genetic mapping was more helpful to them to get information about Zola, their adopted daughter, because formerly they did not know anything about her family and medical past.

4.4. Backgrounds of the research projects

According to the selected cases posthumanist embodiment comes to exist through modern medical biotechnologies that are driven by medical professionals. The fictional physicians of *Grey's Anatomy* want to challenge the meaning of human, enhance the

[31] The official website's description about the "Genome Mapping Program": http://abc.go.com/shows/greys-anatomy/news/medical-case-file/medical-case-file-915-genome-mapping)

capacities of the body, or make better science which provides more control over the body: these aims reflect the post-, and transhumanist thoughts that were described in Chapter Two[32].

In *Grey's Anatomy*, the examination of motivations and background decisions behind the represented medical research projects show the amount of the practitioners' engagement with posthuman embodiment. It is worth discussing which practitioner works according to posthumanist or transhumanist values; and there are private life motivations, which fuel medical innovations that change the meaning of human, or present other important posthumanist questions.

For example, Dr. Robbins' amputation and prosthetization inspire Dr. Torres to improve sensory receptors which helps to develop better prosthetics. When she joins the brain mapping study of Dr. Shepherd with her idea, she admits that her motivation was to help her wife and create something that could make Arizona's life quality better.

This motivation is similar to Dr. Shepherd's intention: he started an Alzheimer trial to save his wife from Alzheimer before they learnt that Dr. Grey has AD genes. Thus, the series presented an effort to find a treatment to the currently non-curable and non-preventable AD, which is an important challenge of medical biotechnology. In Season Seven, the couple led the trial together, but Dr. Grey committed a professional misconduct by changing the research method: she intentionally gave the drug instead of the placebo to a patient she knew, thus she violated serious bioethical standards toward medical research.[33]

By presenting these examples I argue that not only scientific goals may lead to effective posthumanist innovations. Personal motivations and emotional story lines behind the

[32] These medical ambitions appear in other theoretical approaches and eras, but the thesis does not aim to make comparisons, but simply uses post-, and transhumanism as a conceptual framework and reference point.

[33] Dr. Grey's motivation usually comes from other practitioners, like her mother, husband, and best friend. On the contrary, her best friend, Dr. Yang's motivations are more professional, she dedicates herself to medicine. Behind the enormous commitment and passion that she feels for Cardio Surgery, she has a role model, Dr. Burke, the leader of the Cardio Surgery: Yang wants to be exactly like him.

research projects are important, because without these, the series would not be medical drama, just a series which deals with highly technological medical questions. I state that a content which does not problematize the different issues of technology emotionally and which pushes for uncritical optimism toward changes would keep away many people from the audience. .

Technological development in medicine are necessary according to the series, but the creators show that it is not enough to be professionally engaged in innovations, partly because other factors affect the success of emerging technologies, like emotional attitudes of the patients, or the rational arguments of decision makers like politicians and funders. To understand these factors, it is not always enough to be an engaged professional who aims to serve humans with medical innovations. Attitudes of laypeople and decision makers toward certain technologies rest on a wider social, political, and cultural context, which has to be considered during research processes. It is similar bioethics, where the control and restriction depend on predictable consequences of the given technology and people's attitudes toward these issues. Reflections on technology can be very varied: it changes from optimist, pro-innovation attitudes to critical and technophobe, pessimist approaches fueled by moralist and humanist fears that argue with the so-called human nature

In the examination of posthumanist medical innovation and its leaders it is also important to reflect on Chapter Four regarding the shifting doctor characters in medical dramas, which was described for instance by Joseph Turow. It seems a new form of professional heroism became represented in *Grey's Anatomy:* the doctors of this series not only want to save the lives of their patients, but they are also engaged in the improvement of better medicine that leads to better embodiment.

From the perspective of bioethics, as it is represented in the series, the decisions between right and wrong are not easy for the doctors. E.R. presents fewer modern ethical dilemmas probably because of the time difference of the series, the presented fields of

medicine, and the general circumstances and the aims of the institutions. While E.R.'s county hospital is more focused on regenerative medicine and general health care, the wealthy Grey-Sloan can be more engaged in medical research.

My concept is that the Grey-Sloan Memorial Hospital as an institution is more suitable to work according to post-, and transhumanist values. However, its practitioners have only limited opportunities to lead research, because they depend on the decisions of the professional Board and the Harper-Avery Foundation that stands behind the hospital financially. Thus, the doctors have to fit into the expectations of the two boards, and the collaboration between these provides more rights to the Foundation to make decisions about research. The Foundation focuses on the predictable outcomes and the effect of the projects; they only fund rapidly improving research. Moreover, the Harper-Avery has a prestigious award for doctors who make effective medical innovations. In the tenth season, Dr. Yang is nominated to the award for her 3-D heart printing technology, but she does not get it. Later it turns out that the head of the Foundation refused to give the award to her because she works for the Foundation's hospital. After this case, the Foundation revised the ongoing research projects of the hospital, and clarified that they only support projects with impressive results and groundbreaking successes. The conclusion is that the hospital works according to the interests of the Foundation, which aims to make better medicine but strictly control the way how it could happen.

It is also important to note that *Grey's Anatomy* represents brain and cardio research as top medical activities. These are the projects that are valuable for the Founders, the White House and award boards. This represents a form of hierarchy between the different fields of medicine and specializations, moreover, the heart and brain have culturally important meanings: these organs are identified with human life, as for instance Fernando Vidal's essay describes it. After the death of these body parts, the human body is dead, the other body parts

and organs of the human can be donated in order to save the lives of other human beings. The cultural importance of these organs probably enhances the audience's interest in the connected fields of medicine. The creators of the series have to find the fields of the audience's interest, so they have to represent cases with striking questions, emerging issues that might cause excitement or anxiety, which can be mediated by the narratives.

Medical drama series are important representational platforms of posthuman ideas and embodiment, which provide a forum for laypeople for further considerations and discussions of the presented medical issues. It is an opportunity to think about posthumanist issues and debate whether medical technology makes the world a better place for human beings or not. As Chapter Three discusses, accuracy and reliability are often regarded as expectations toward the genre. Therefore the basis of the public discussions comes from the level of fiction that contains reliable information.

4.5. Additions

After the examination of the decision making practices of the hospital in research questions and the scientific attitudes of the physicians, it is important to examine the question of involvement: which group of the doctors is able to lead the processes of innovation and transformation?

From a gender perspective, according to *Grey's Anatomy*, female and male physicians are equally involved in the process of posthumanization by improving modern medical technologies that have a serious effect on human life and embodiment. The responsibility for the research project depends on the professional level of the participants, so there is no

negative or positive discrimination towards gender[34], which limits the belief that science is led by males. The professional level of the practitioners and external circumstances such as foundation or other institutional politics are more effective factors than gender. Men and women are leaders and objects of posthuman transformation: according to the series, female and male bodies are equally transformable, hybridizable and robotizable. Young bodies are also objects to change. It is possible to donate organs between people whose sex is different, so there is no difference between male and female organs, which eliminates those concepts that build on the essential bodily differences of the two sexes.

The selected examples do not reflect on the highly gender-related medical practices of artificial reproduction, because currently, the series do not focus on gynecology and assistive reproduction. But in *Grey's Anatomy*, the possibilities and forms of artificial reproduction technologies were discussed through the case of the married lesbian couple, Dr. Torres and Dr. Robbins, who planned to have a baby by using a donor and artificial insemination (Season Nine and Ten). The selection of the donor implies that artificial reproduction makes it possible to select the inner and bodily characteristics of the offspring, since donation is not a blind process anymore. This kind of artificial fertilization reflects on the concepts of posthuman reproduction: people who cannot become parent in the so-called natural way are probably the first target of posthumanist reproduction. This example shows that physicians are both leaders and objects of change.

In summary, this chapter examined the representational level of different posthumanist issues that are connected to the medical transformation of the human body. As the cases of transplantation, prosthetization and mapping of the inner structure of the body show, medical

[34] The only case when a woman is discriminated is when the White House only wants to hire Dr. Shepherd while they are not interested in Dr. Torres' contribution to the thought-controlled prosthetics research. But this discrimination based on the field of medicine not gender: only the Neurologist part of the research regarded as an individual improvement for the White House representatives, the Orthopedic part is manageable without the inventor.

dramas provide a venue for the deliberation of many ambiguities and paradoxes of the ways how humans are impacted by medical developments. These dramas not only raise complex questions about what the human is or how it is changed by technological and scientific developments, but also suggest that human bodies can be replaced successfully by technology.

The costs and harms of these technologies and the question of loosing humanity are not problematized in the series; the technologies that transform the bodies are highly mediated by emotional story lines that strengthen the human face of technologies. In this way people do not become dehumanized or alienated by emerging technologies. The characters of the series accept the technologization of the body in an emotional way: these human emotions of the mediate the process of transformation. As it is evidenced by the media coverage of the series, story lines like the appearance of the 3-D printer or the robotization of the practitioner's body get noticeable media attention: in these cases, the journalists play an important role in the explanation and mediation of the shocking, unusual story lines in order to help the emotionally engaged audience to get a better understanding of these practices.

The question is whether these series are encouraging or discouraging the public to feel optimistic and comfortable about a posthuman future and bodily construction. I argue that these two series, especially *Grey's Anatomy* encourage people to accept the necessity of the mechanization and medicalization of the body and the patients are convincible about the rationality of robotization and hybridization of the body. These medical practices are required in order to regenerate bodily function or build up missing abilities and it seems human tissues, organs and limbs are replaceable, through the use of emerging technologies it becomes possible to reach tighter control over the body. Those who are against medical developments and the technologization of the body are usually represented as members of different cultural, ethnical or religious groups who have a different understanding about the human's right to

alter the given characteristics of the body. In season ten, there is a couple who do not allow an implant to be built into their deaf daughter's ear[35]. This case leads to an argument between the Christian Dr. April Kepner and Dr. Avery: while they both believe in the necessity of technological development and medicine, Dr. Kepner understands and respects the choice of the parents. Dr. Avery only believes in medicine and states that the only rational choice is the reparation of the body He also claims that that technology leads and improves the world instead of God. It is a clear step away from the religious and evolutionary approaches of human development, which prescribes an important role to technology and scientists within the process.

[35] Season 10, Episode 22: *„We are never ever getting back together"*

CHAPTER FIVE

CONCLUSION

The fact that because of the changes in medicine and technology advanced societies have a lot of new issues and possibilities has to be considered. These possibilities involve different questions about ethics, practical implications, and personal decisions for one's own lives. People have to make sense of these complicated options and advancements in order to keep up as well as to make decisions as citizens and individuals. While some people debate these issues based on reading scientific sources, most of them process the information and options through mainstream culture like newspaper articles, non-fictional media accounts, but also through fiction. In fact, science fiction has always been an important stakeholder in the public's processing of new technology and science, and the philosophical and social questions that follow from them.

This thesis has tried to underscore how popular television has also been a forum and source of information in the general public's understanding and beliefs about medicine; and looked at how two very popular medical series have participated in the collective analysis of key issues around what scholars call posthumanism.

Scholars have important debates about posthumanism and the concept exists on the level of representation too, for instance in contemporary art and popular culture. I argued that it is important to examine the latter, since scholarly debates do not give the opportunity for laypeople to participate: academic articulations of the issue require a certain amount of background knowledge which enables people to engage in high-level discussions. Thus, it is important to examine platforms that communicate posthumanist concepts for laypeople.

My thesis has focused on a genre of popular culture called medical drama series, because these focus explicitly on medicine, the human body, and questions like life and death,

health and illness. I examined the genre and its two products as an alternative way of scientific communication. I argued that medical drama series are more than entertainment since these have the potential to inform people about biomedicine and medical developments. As the introduced literature, case studies and articles show, the series have helped to understand medical issues for the audience and I state that the genre helps to raise awareness about and understand biomedical technologies that construct posthuman embodiment.

However, the content analysis shows that the quality and depth of the posthumanist debate within the fields of academy and popular culture are not the same. Popular culture does not represent the whole, contradictory debate about posthumanism, but only certain perspectives of it: those that entail attention, interest, resolvable professional and ethical controversies, which can be balanced with the emotional content.

Within the examined series there is no serious critical debate about the ethical boundaries of medical research. It can be explained by the fact that in *Grey's Anatomy,* it is not a bioethical institution, but rather a group of funders that controls medical research, and who also makes decisions about the significance of the outcomes. Thus the fictional physicians depend on other actors, just as the creators of medical dramas do: as the theory of Turow states, they are also actors in the game of power and contradictory interests that exist between the cultural industries and medical institutions.

Moreover, the motivations to make improvements and medical decisions do not always come from a professional level, in some cases these are connected to personal emotions and ambitions that are sometimes non-ethical according to the professional standards, but the emotional story lines mediate and make these cases more acceptable.

These dramas not only present posthuman embodiment but mediate its controversies: in *Grey's Anatomy*, the representation of controversial posthumanist issues is less critical than the scholarly debate about the concept, the series address posthuman transformation as an

optimistic option, and support the idea that it is better to apply artificial medical technologies like the robotization of the body than to live with malfunctioning human bodies.

My concern about medical dramas' infotainment potential is that as the study of the Kaiser Foundation show, well-paid and well-educated people are the most capable to understand medical contents, but considerably, these are the groups that supposedly already have at least some background knowledge about medicine. Those who are not involved in the academic discussion about posthumanism, including young, poor, not well-educated people, have the worst chances to get the newest, highly biotechnological treatments that effectively affects the capacities of the body. Medical dramas fill the informational gap around the issues of posthuman embodiment and medical technologies, but probably enhance unapproachable hopes in those people who do not have the chance to be involved in the process of posthumanization.

I am critical with many representations since in some cases these are more optimistic and leave out the problematization of social inequalities that affect people's position and chances in healthcare and biomedicalization. It is particularly problematic since as we saw, the audience relies on the medical content of these dramas, and the creators reinforce their attempt to create accurate and reliable content. In this way it is inevitable to reduce the misleading messages, but it is also worth teaching the audience to critical perception which considers that these medical dramas are not documentaries, rather products of the cultural industries and a genre of popular culture. I suggest that a medical drama like E.R., which represents a state-funded, urban hospital, is an important source that represents how the new medical improvements affect the embodiment of socially disadvantaged people.

The circulation of posthumanist concepts within popular culture and medical dramas is individually and socially important, awareness rising, and it is an invitation for further discussions. In an ideal case people get reliable content that enhances their understanding on

the certain medical issue and the representation entails discussions, negotiations, and further knowledge extension: this is how I see a well-functioning representation platform of medicalized posthuman embodiment.

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