HEALTH DISPARITIES OF AFRICAN-AMERICANS IN A LIFE COURSE PERSPECTIVE
IN COMBINATION WITH INCARCERATION

ANNA-MARIA LAMI

Poverty it is said to have harsh outcomes on one's antisocial or even delinquent behavior. Other factors as well lead an individual to antisocial behavior those are the environment that they are living, and their genes that have passed from one generation to the other one. Parents, poverty, environment, genes and social determinants affect one's involvement in a crime and also affect the health in distinct ways. The focus of this essay is on the African American population within the American society and the health disparities that exist in this situation. We try to understand and answer if these health disparities were created after their birth, or pre-existed and were carried through the generations. One of the main issues is the examination of how much is the prison or incarceration in charge for these health disparities, or how much did these disparities previously exist, out of other reasons. These issues are put on a life-course perspective, and there is shown how much these morbidities affect one's life from the beginning till incarceration. A certain policy implication is made to eliminate those disparities by improving maternal, child and family health status.

*Keywords*: crime, disparities, health outcome, incarceration, life-course perspective, social determinants
ACKNOWLEDGMENTS
Firstly, I would like to thank my professor Carlo Pinnetti, for his sincere encouragement and confidence when we discussed what I wanted to achieve with this thesis. I would also like to thank my friends that encouraged me since I left home until now not only verbally but with their praxes as well. My family that was always there for me, day and night and every other time that I felt the need to have them close to me. Likewise, a special thanks to all these people that are different from the mass and exist in every different country, society, house, and corner of this planet that inspired me to start writing this dissertation. Showing that being “different” does not mean or presupposes that you are unequal.
# TABLE OF CONTENTS

1. Introduction ......................................................................................................................... 4
   1.1. Darwinian Evolution ...................................................................................................... 4
   1.2. Choice of Thematology ................................................................................................. 5
2. Research Aims ....................................................................................................................... 6
3. Background ............................................................................................................................ 7
   3.1. Life Course Perspective Theory .................................................................................. 7
   3.2. Discussion of Life Course Perspective Approach ....................................................... 9
   3.3. Evaluation of Life Course Perspective and Justification of its adequacy on present study .................................................................................................................. 10
4. Methods and Ethics .............................................................................................................. 11
5. History of African Americans and Crime ........................................................................... 12
6. Aim-Findings ......................................................................................................................... 15
   6.1. Literature Review ........................................................................................................ 15
7. Poverty, Linked Lives, and Incarceration ............................................................................ 17
8. Results- Research Gap ......................................................................................................... 20
9. Racial Disparities- Racist Disparities ................................................................................ 21
   9.1. Weathering .................................................................................................................. 22
   9.2. Epigenetics .................................................................................................................. 23
10. Applying Life- Course Perspective Theory ...................................................................... 25
11. Results ................................................................................................................................. 27
   11.1. Limitations ................................................................................................................. 30
12. Conclusion ............................................................................................................................ 31
References .................................................................................................................................. 34
1. INTRODUCTION

1.1. DARWINIAN EVOLUTION
People are, by their nature curious, something that leads them to understand and evolve in different sectors, domains, notions, sciences etc. Everything started from ancient Greek philosophers posing the question “Why?” meaning that they started to question everything around them, from why some hours of the day the sun rises up at the sky, and why the rest of the day there is darkness. Of course, a lot of queries followed and as a result, a new science was created, the name of which was philosophy. One of the main fields of philosophy is the ontology. Ontology deals with the “on” (meaning the existing organisms that inhabit on planet earth). Philosophers started to question the world around them and expressed questions about their origin like, “Who are we?”, “Where do we come from?”, “How was our planet constructed?”, “Why are we?” etc. They wanted to know the quintessence of their lives, their reality, and their evolution. Following this procedure more domains and fields of philosophy came out on the surface, leading to Heraclitus- who is well known because of his famous saying “τα πάντα ρέουν”, meaning “everything flows”. Heraclitus in the 6th century BC was the first one who stressed the evolutionary process that human beings follow in their lives. Addressing that you cannot enter the same river twice since the river is not anymore the same. The stream of the river constantly changes, since it has not been static rather dynamic. He wanted to make clear that nothing is stable, but everything is moving and altering. He is the pioneer of the evolutionary process as we have it now in our minds. The other person that took that knowledge and took it a step further was Charles Darwin, with his book “The origin of species” in the 19th century. In his book, he refers to basic principles of evolutionary theory and the theory of natural selection. Theory of evolution argues essentially that everything in the world is subject to constant and gradual changes which evolve from imperfect to more perfect forms. This process cannot be considered as linear. On the contrary, it is full of trade-offs and various zigzags, which is the result of thousands of natural, social, historical factors that also play their role to its existence (Stroumbos, 2015). Theory of natural selection consists the main element on the evolutionary theory of species. We are talking about the procedure of evolution of species by which the organisms which are more adjusted to the environment and cohort of living, leave behind more offspring than the one that is less adjusted; which are being led to gradual extinction (Darwin, 1859). This is based on the observation of heritability of species, meaning that one generation inherits to the next one some characteristics (Stroumbos, 2015). From Darwin’s natural selection of the species, it is obvious that different species are trying to survive in the environment they live. Natural selection can produce entirely new species, by causing extravagant changes within the species; bringing “macroevolution” which turn dinosaurs into birds and apes into humane (Darwin, 1859).

Taking Darwinian Theory a step further we move to Elder’s theory of life-course perspective. This theory is relevant because it introduces anew in our contemporary history that the environment in combination with genes affects the evolutionary process. Notions such as ”developmental plasticity” and ”heritability” are main components of this theory. A description of the theory is being made further down.
1.2. CHOICE OF THEMATOLOGY

Throughout the years of my master studies in criminology, my attention was captured from the population of African Americans and their involvement in the crime. It was of great importance for me to understand the reason why they committed disproportionately more criminal acts than their white co-citizens. I was thinking that they are living in, a more or less, same environments and nowadays they have the same opportunities to every social, medical, educational, economic sector and mechanism. From the literature that I read, I realized that that was not the case since this population from 1970 has experienced mass incarcerations in the United States, with a percentage of imprisonment of 397% the last 30 years (Bureau of Justice Statistics, 1986; Carson & Sabol, 2012). African Americans were incarcerated historically in a higher rate than any other ethnic group, and still, until 2011 the rates of incarceration concerning African American populations were 3023 individuals per 100,000 persons, while for the white-citizens were 478 individuals per 100,000 persons (Bureau of Justice Statistics, 1986).

Because of my curiosity and interest about that specific population, I wanted to know why such an alarming number of black people had ended up behind bars with an increasing number of health disparities. And what are the health outcomes that prison causes to them, or triggers up to them? Thus, the more I got to read the more I realized that jail did not change that much their health since these disparities turned out that were pre-existing imprisonment. As I based my research on life course perspective theory and the critical philosophy of race with focus on the biology of that specific population I found out that due to all aforementioned difficult situations that this population has dealt with, their genetic cargo had changed, directly or indirectly by the environment mostly causing their DNA different mutations. From past generations to present ones, mutations have taken place because of the embodiment of the suppression and all the stressful situations. Embodiment here is being used under the prism of epidemiology, where the term refers to how we, as living organisms, incorporate the world that we are living in on a literal way, meaning all the biological, societal and ecological circumstances (Krieger, 2004). Racial and racist disparities had reformed their health in a negative way, this means that the upcoming fetus can be affected through the placenta of their mothers, being obliged to carry twice the weight of their parents’ burden, caused from their skin color because they are being considered as second generation African American population.

This situation pushed me to search for literature that examined the pre-existing situations of incarceration to that specific population. I needed to see the previously written literature on incarceration and the health outcomes, the effects that this situation had on African American population. Right afterward I tried to check the situations that pre-existed imprisonment. I chose literature review of the last seven years, because I needed to be up to date, and because the area that I wanted to get informed of, could not be supported from any other researching method except life course perspective prism; I will justify further down why was the most appropriate one. In parallel, I focused on an analysis of life course perspective theory.
2. RESEARCH AIMS

The focus of this paper is my attempt to give answers at two different, but still correlational-for me-questions, which as is being mentioned above are dealing with African American population. Incarceration is said to affect health outcomes, but it does not prove what degree imprisonment impacts health when health disparities are already there. African Americans have so many health differences in comparison with white population and that is of great interest to be examined.

Consequently, there are two research aims/questions in this paper:

- The first aim is to review the already existing literature about incarceration and the health outcomes that incarceration has on the health of African American population. By this, I will attempt to answer the question: “To what extent does incarceration create these health disparities among African American population?”

- The second aim is to study the pre-incarceration period of this population based on a life course perspective theory and examine the most relevant aspects through the critical philosophy of race. This will help the author to answer the following question: “Since health disparities of African American population could be pre-existed incarceration, then there should be other variables that affect this populations’ involvement with crime. Which are these variables?”

About the connection between incarceration and health outcomes, I state the findings from the literature read concerning that specific approach, using as a departing point that there exist causality between incarceration and health outcomes. That is to say, that the literature review helps us empower or weaken the argument. From a life course perspective procedure, I have the intention to examine and analyze the social and biological factors that create behaviors and health issues to this specific population, over their lifespan. Starting from a historical flashback which helps the reader to understand some hidden aspects of this population “differences”, and the biological "mutations" that have taken place in this specific population. This thesis describes a literature review on incarceration and the impact that this situation has on the African American health outcomes. Through the review of the existing literature, I try to prove the correlation between this specific life-phase and health results.

Since health disparities have a leading role in this master thesis, I think that a definition is needed. The term has no clear-cut since it means different things to different occasions. Such lack of clarity has led federal agencies to use the term referring to health differences about any group of people generically, without any restrictions (Braveman, 2013). Here the term is referring to:
“the potentially avoidable differences in health among groups of people who have different levels of social and economic advantage or disadvantage; it refers to differences in health on which socially disadvantaged groups (e.g. people of low incomes or educational attainment or members of a racial or ethnic group that historically has experienced discrimination, marginalization, or exclusion from economic or social opportunities in a society) systematically do worse” (Braveman & Barclay, 2009, p.166).

I try to have a clear view of these disparities in this dissertation, not only socioeconomic factors as income and education will be discussed, but also ethnic and racial identities. It is important to know whether these health disparities depart either from their imprisoning status or because the system treats them differently because of their different racial background. African Americans who belong to an ethnic or racial minority group receive poorer care when they are in jail and the outcomes are different compared with white populations (Binswanger et al, 2012). That is to say that different social factors and post-incarceration phase have an effect on non-whites physical and mental health (Sullivan, 2013). Such health outcomes are diabetes, heart strokes, HIV/AIDS/STI, coronary artery disease, infant mortality comparing to the health rate of white Americans (Smedley et al., 2012).

3. BACKGROUND

3.1. LIFE COURSE PERSPECTIVE THEORY  
Life course framework is best assessed in a historical context (Wise, 2009). Throughout the developmental period of individual different things and facts take place according to different geographical and historical contexts. This embeddedness and transformation that takes place within an individual affected by conditions that happen to a specific time period and a specific cohort, "transform" the individual. For example, we talk about facts as wars, different economic and ideological transformations that cannot leave intact anyone. Due to the environment alteration, peoples' choices and perceptions change something that would not have happened otherwise (Elder, 1998). The place and the time that an individual lives, affects his behavior to the society. One representative example is the one of 9/11 when this unfortunate incident caused death to so many innocent people. Only because the main perpetrator was coming from an Arabic country, all the population without exception who was coming from Arabic countries were considered terrorists. Furthermore, discrimination towards Arabic American women caused health problems to their offspring. After six months of that disaster Arabic woman were at higher risk of giving birth to low-weight children (Lauderdale, 2006). Socio-historical time in which these things took place, affected individuals, their families, society, economy, their biology and maybe even whole future generations.

By the characteristics mentioned above, one can deduce that past experiences or facts can create and recreate one's present and future perspective, choices,
opportunities, and position throughout the lifetime. This can occur at different levels by an individual or a social context as a family. As being stated in the previous example of 9/11, one generation can transmit to the next generation the echo of all the situations that took place from their perspective. The timing of an event can produce chain reactions afterward that can transform perspectives of the next generation. For instance, what has occurred in past can affect the socioeconomic status of the coming generation, their health and create different patterns that otherwise would not have been created at all. Of course, these advantages and disadvantages in a life course perspective can be used to create different policies and in favor of understanding previous facts from the correct prism (O’Rand, 1996).

I would like to introduce the reader to life course perspective. Life course theory made its appearance in approximately 1960’s and from then till now has evolved in different aspects. The main goal is human development and the process throughout the individual’s life. Some innovations that made their appearance are the factors like the historical context and the changes that are taking place in every, single environment (Elder, 1998). Elder’s first contact with the beginning of life course theory was when he started studying Children of the Great Depression (Elder, 1974). His interest was moving around social change, life pathway, the developmental process of the participants according to their changes and continuity in their behavior (Elder, 1998). Everything was studied in accordance with individual's choices and the human agency was put in a social context (ibid). He was interested in that specific historical period and historical location because it deprived children of a lot of things and put them to some risks. Concluding, he found out that historical time and place, timing in lives, linked lives and human agency are the things that most affect one's life (ibid).

When Elder refers at historical time and space he means, that a human being is not living in a social vacuum rather than an environment where his life is included and shaped from the historical time and space that he is living at that specific moment. Timing has to do with something that occurs in a chronicle period on an individual's life, like a transition or an event that takes place. Linked lives, have to do with the relationships that we create throughout our lives, and try to express how our network, society, and history affect these relations. Human agency departs from our choices, and how these choices shape our individual life course by the opportunities or the restraints that the social and historical place offers (ibid). The first one refers to a specific situation like the 9/11 terrorist attack being put in a specific time frame at a specific geographical cohort and analyze these facts through a specific lens. The second one has to do with three different types of time, such as individual time, generational time, and historical time (Price et al., 2000). The third one talks about the networks of an individual and especially family, and how one factor affects the other and vice versa by transforming choices and decisions (Elder, 1998). The last one involves individuals who are active agents and take their own decisions under same circumstances, which differ from one another. What is interesting here is that every phase is interrelated with the rest of them. For example, history plays a crucial role concerning the choices that an individual can make; choices are affected from the specific time frame, and of course, everything happens under the umbrella of that specific historical time and place. Historical, societal and developmental factors are of importance to that theory; the transitions that take place between these phases are also
interesting. Transitions make up life trajectory, which helps us understand "lives in motion" which affect developmental processes (ibid).

Life course perspective includes so many different factors which exist at the specific moment that one's life can be under the scope of study of research, and if the timing changes then the next phase, is a totally new and completely different context which needs to be examined anew in its entity. As Hernandez said in Schneider article, life course theory offers a way to study the myriad of changes that happen in a child's life nowadays (Schneider, 2007). Here the author thinks that life course theory can offer many ways to study the myriads of changes that are taking place in everyone's life. Since a lot of different disciplines are being embedded in that theory.

As is being mentioned further up life course perspective introduced new notion as the one of developmental plasticity and heritability, which notions are interconnected with the theory of one’s life course. So, developmental plasticity is the flexibility of capability that one has to adjust to the environment, within the developmental prism (Kuh et al., 2003). It gives the best fitness for the present life course and it gives/prepares people for the optimal of the future adoption of the environment (Gluckman et al., 2009). Every living creature forms characteristics that are well adaptive to the environment that they live (Bateson et al., 2004). Characteristics that were affected by previous generations and were carried out to the next generations through genes (ibid). I am going to give a more in-depth analysis of this term further down.

Heritability "is defined as the proportion of trait variation associated with a corresponding genetic variation— in a particular population under particular circumstances" (Schneider, 2007, p.95). Environments affect gene expression and activity (Gottlieb, 1997). Environments can send signals that activate genes, as well as genetic mutations, come as an outcome, when and where is needed (Jablonka & Lamb, 2005). One of these factors that lead to genetic mutation considers being stress, which alters the DNA, as a result, the experience of stress can directly affect our genes (Schneider, 2007). Heritability, states clearly that a trait is being determined from the genes as well as the environment (ibid). This term is being analyzed in depth further down when I am going to talk about weathering and epigenetic.

3.2. DISCUSSION OF LIFE-COURSE PERSPECTIVE APPROACH

As is stated above, life course perspective has implemented some new notions, as the theory of the development of human beings; the most important of them is developmental plasticity and heritability. Heritability has already been defined at the introduction and will be elaborated further down, so it is time to focus on developmental plasticity. Developmental plasticity promotes the survival and reproductive success of Darwinian Theory (West-Eberhard, 2003) and “provides individuals with the flexibility to adjust their trajectory of development to match their environment” (Gluckman et al, 2009, p.1654). This notion refers to the well being of a person, his future health and survival; environment plays a crucial role for that to be accomplished. If an individual is used to the adoption of a specific environment, the change of that environment can cause abnormalities and make the individual more susceptible to diseases. The main reason for this case problem is the role of the environment to the individual (Bateson et al., 2004). These environmental pathways which can be triggered by environmental events can be
urged through sensitive or critical periods; periods of a humans' developmental period (Gluckman & Hanson, 2006). Other than that the environmental cues can be used to improve present conditions and prepare future ones for improving the environment and raise its fitness (Bateson, 2001). What is more common is that the results of the experience of one generation to be obvious in the development and behavior of their offspring should pass from one generation to the second one. This experience offers historical information of the offspring which helps to predict the future of this generation (ibid). Environmental conditions play a significant role, which affects, evolves and mutates our future existence through biological procedures. That means that if previous conditions produce inconsistencies with the present ones, then developmental plasticity may have adverse results on developmental survival and reproductive process (ibid). Environmental variability affects adaptability and life cycles' length of the species that live in it (Gluckman et al., 2007). An indicative example can be the one of low birth weight offspring, affected by the mother's poor nutrition which causes slow growth of the baby and underdevelopment (Bateson et al., 2004). Those low birth weight babies are more prone to express coronary heart disease, type 2-diabetes and hypertension (West-Eberhard, 2003; Kuzawa, 2005; Hales & Barker, 1992). Biology empowers this statement by suggesting that the condition of malnutrition of pregnant women can give the signal to the fetus that it is about to enter into a harsh world (Baterson et al., 2004). That leads at the result that if the environmental conditions were better, then the nutrition would be richer and the babies would be healthier; this sequence makes clear the importance of the environment to developmental plasticity (McKeigue, 1996).

3.3. EVALUATION OF LIFE COURSE PERSPECTIVE AND JUSTIFICATION OF ITS ADEQUACY ON PRESENT STUDY

Life course perspective helps us understand the timing of an exposure which is harmful to the human health. It does not give us information only about the onset and the duration of this exposure, but it offers us information about all the lifespan. This is a theory that follows an individual throughout his life and helps us assess all the variables that the person interacts with. That is the main reason why this theory has been chosen as the most important tool of this study. Within the theory of life course, the genetic and non-genetic factors are of vital importance. Despite the clear advantages of longitudinal studies as life course perspective theory, cheaper and quicker designs are being preferred (Clayton & McKeigue, 2001). Life course perspective implication policy is of great importance here since politicians should consider it wisely before putting into practice a plan like that. Politicians who are in charge of policy implications want to get the credits for the initiatives they take in a rather short period of time, but what life-course perspective suggests is that it can take one or more than one generation for people and society to be benefited from the investment, and such an initiative is rather ambitious (Braveman & Barclay, 2009).

Life course perspective theory is a theory that can be used by different disciplines but also can bridge different areas of research under the same umbrella (Byrne & Phillips, 2000; Fisher et al., 2006; Galobardes et al., 2004). Also, integrates disparate explanations about the health of individuals and group of peoples (Kuh et al., 2003; Elford et al., 1991). Another positive effect of LCP is that extends across all the life stages and examines if any links exist between life stages of childhood that affect adult life, or if the past generation affects the futures one
(Braveman & Barclay, 2009). Out of these correlations, researchers can be led to outcomes of causations or correlations in different disciplines and help individuals or social groups to improve their lives, by implying this theory into practice. Even though life course perspective theory is a promising and ambitious theory, it is impossible to fully describe all the social and economic factors that are significant in one’s life at any given point of his life (Braveman & Barclay, 2009). Life course research in general and life course research in criminology is rather limited since there does not exist many researchers that have followed an individual from his birth until his death, most of them have followed individuals for some time or some "waves" of their life just to collect the data that they needed (Gibson & Krohn, 2012). This is an attempt from the author of this study to implement life course perspective theory in a criminological essay, and try to show the importance of the theory, as well as the best fit to this study.

Life course perspective can help in the creation, implementation, and generalization of preventive programs, which forms one of the most important advantages of this theory. Life course contributes in every discipline that wants to use this approach because it offers a combination of early life factors with later life factors to recognize risk and protective issues that take place at one’s lifespan. Of course, as we can speak about individuals, we can also refer to a group of people, ethnic groups, and societies and even generalized it in a broader way.

On the other hand, one of the greatest disadvantages of the theory is that even though it is ambitious and promising in nature because it predisposes us that will cover the whole surface of the living prism of an individual's life. For a life course perspective theory to get applied into practice, there are some parameters that should be fulfilled. That is to say when talking about longitudinal and follow-up studies that will offer the opportunity to check all the alternatives that affect one's health outcomes but also the other social factors that play a crucial role in an individual's self-fulfilling prophecy. Additionally, the cohort plays a significant role as well, ideally, information should be available from birth to adulthood, and till the end of life, as well as information of generations should be of importance.

Researchers should have access to every measure that they want to count, all the sectors involved, such as psychological, biological, behavioral, social, physical, and environmental; because all of them interact throughout their lives. They should have the possibility of a repetition of the whole procedure of research for every different individual at any time that they want to (Braveman & Barclay, 2009). But, it has a rather doubtful operationalization, and that is because such a research that will use this theory as its stepping stone cannot be repeated in its entity, leading to a poor reliability and validity. –“A weakness of applications of the life course perspective to health is that many studies do not go beyond the accumulation perspective. Health is viewed as a product shaped by a pile-up of risk factors. A more interesting approach—one that would be very useful for designing educational interventions— would be to concentrate on people who are exceptions to the accumulation of disadvantage rule”. (Wethington, 2003, p,118).

4. METHODS AND ETHICS

As it has been stated above there seems to be a relationship between incarceration and health outcomes or health disparities according to incarcerated populations
and populations that have never been to prison. What it was of great interest to the author was to search in previously existed literature and find out how much of a correlation exists between incarceration and health outcome effects on African American populations. The literature was huge, so it was tried to narrow it down to specific words-search and specific platform search. Moreover, the majority of the journals used for this thesis emerged from the library of Malmo university related journals and from Google, Google Scholars and SAGE platform for journals. Usage of university's library and SAGE internet location allowed using the vast amount of journals both in printed and electronic format. Journals were used because they focus on the most recent ideas in circulation and one can have access to them by only using the internet (Ridley, 2009). All the data involved were provided from literature itself. The words used for this procedure were the ones that were relevant to the theme and research aim, such as: "effects", "incarceration", "health", "African American", "men". That means that the outcome of that keyword search provided the author with about twenty to twenty-five related journals. Not all of them were included since some of them seemed irrelevant to the information that was searched. Furthermore, the time frame of written journals was restricted, since the personal desire was to mention the most recent ones, the focus was on journals written from the year 2010 till 2017 because it was thought wise to stick to the most recent journals and find the gap that exists in the most recent research which was available. An additional thought was that within these last written articles and journals that previously existed and written knowledge that already existed around the topic of interest, will be included, so there will be created a holistic perspective of that area. The reality was that most of the included journals were referring to articles or books that had been written ten to twenty years ago, so the purpose around that issue, of including more past knowledge, was accomplished. Obviously, restriction and discretion were used because the findings were some hundreds.

A blend of thematic review and meta-synthesis was used as a method for data gathering and analysis. Except for the literature review concerning incarceration, meta-synthetic articles and journals were used to present life course theory and critical theory of race. Since the goals are two, the approaches are also two to that specific master thesis. As a result, a literature review is used for answering the first question and an analysis of life course perspective for the second one. A review of the current literature was used which can be valuable to the population tested, the managers and policy makers, since considering an alternative way of approaching this issue could provoke innovation to different sectors. This master thesis can also be beneficial to the criminological field as well because it uses theories that are involved in criminology and will probably challenge further research on that approach. Likewise, an ambitious plan is to show whether a correlation exists between pre-incarceration phase and health outcomes that African Americans demonstrate.

Concerning the fact that this master dissertation took the form of a literature review and there was no need for collecting data, then no ethical approval was needed. Instead, ethics were considered while discussing the literature review.
5. HISTORY OF AFRICAN AMERICANS AND CRIME

African American history is full of suppression, discrimination and fights that they have given to accomplish the same rights and liberties that for white population were out of the question. Let's focus on the U.S.A. and discuss the population that we are interested in. The Country of U.S.A. consists of an amalgam of different ethnicities and races, as 2000 U.S. Census has shown 34.6 million are African American (U.S. Census Bureau, 2008), and this proportion is being expected to reach 14.6% of the whole population in 2050 (Passel & Cohn, 2008).

A big part of the country is being dominated by African American population which still receives racism and discrimination or suppression because of their color. This racism is not without liability but is to be blamed for many inequities and disparities, accumulated stressors that lead to different psychological and physical illnesses and segregation for African American population from the “white” society (Passel & Cohn, 2008). Racism can be defined as: “the beliefs, attitudes, institutional arrangements, and acts that tend to denigrate individuals or groups because of phenotypic characteristics or ethnic group affiliation” (Clark et al., 1999, p.805). Since life course perspective is one of the two main components of this master thesis, racism should be included in the life course approach and health disparities that result from that should be discussed.

African American male populations consist 306% of all prisoners in the USA (Minton & Zeng, 2014). This population is twice more likely to get arrested and the likelihood for them to get incarcerated is 6 times higher than their white fellow citizens (Bonzcar, 2003). Also, one-third of African American male has a criminal conviction, and the same proportion of working-age will spend some time in jail (Pettit & Western, 2001). This phenomenon of mass incarceration to that specific group of people of color had inevitably affected their well-being and their health outcomes (Assari et al., 2017).

According to the FBI crime statistics for 2014 (see Table 1) the rate of arrests of black people was 27.4% since the whole amount of the incarcerated population was 13% of United States population (https://therationalists.org/2016/07/13/why-do-black-people-commit-more-crime/). These statistics show that black population is the one to be blamed for the majority of criminal actions at that specific period in that specific place. In 2007 a percentage of 33% of African American men was expected to serve time as prisoners during their lifetime, while only 6% of white men were expected at the same year (U.S. Department of Justice, 2007).

What should be taken into consideration for African American population are different cumulative adverse factors that suppressed and discriminated them throughout their history. Slavery is one of them and had to deal with it since 1857, another one is the attacks from Ku Klux Klan in 1871 which tried to keep them away from voting, and all the actions that took place for suppressing them and their rights in general. The fact that every time they had to fight against the social existing situation to achieve equal rights to different sectors, such the one of education, housing, voting etc. (Federer, 2016). All these disparities of race can be
seen as racist disparities, which have begun from the period of slavery and continues till contemporary period. These previously mentioned statements have helped us understand that these individuals who have faced discrimination and suppression in a micro-, meso-, macro-level have led to their marginalization (Brinkley-Rubinstein, 2015).

Table 1

<table>
<thead>
<tr>
<th>Offense charged</th>
<th>Total arrests</th>
<th>Percent distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>White</td>
</tr>
<tr>
<td>----------------------------</td>
<td>---------------</td>
<td>-------</td>
</tr>
<tr>
<td>TOTAL</td>
<td>8,730,665</td>
<td>6,056,687</td>
</tr>
<tr>
<td>Murder and nonnegligent manslaughter</td>
<td>8,230</td>
<td>3,807</td>
</tr>
<tr>
<td>Rape</td>
<td>16,325</td>
<td>10,977</td>
</tr>
<tr>
<td>Robbery</td>
<td>74,077</td>
<td>31,354</td>
</tr>
<tr>
<td>Aggravated assault</td>
<td>291,600</td>
<td>185,612</td>
</tr>
<tr>
<td>Burglary</td>
<td>186,794</td>
<td>129,242</td>
</tr>
<tr>
<td>Larceny-theft</td>
<td>971,199</td>
<td>671,260</td>
</tr>
<tr>
<td>Motor vehicle theft</td>
<td>53,456</td>
<td>35,551</td>
</tr>
</tbody>
</table>

1 Includes American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander.

NOTE: This table is based on incidents where some information about the offender is known by law enforcement; therefore, when the offender age, sex, race, and ethnicity are all reported as unknown, these data are excluded from the table.

(Taken from: https://therationalists.org/2016/07/13/why-do-black-people-commit-more-crime/).

On a historical background, African American women have suffered from slavery and domination of mainstream society to sexual exploitation, in the context of United States (Davis & Tucker-Brown, 2013). African American population through the period of slavery did not have any ownership of their labor, something that was continued after their freedom, for a small period of time, as well. Mismatches were evident as well as their economic lives, for example in 1980 when "white people" used to earn twelve times as much as African American population did (Mills, 1997). These economical mismatches did not end back then but still exist in 2010 where white Americans earned twenty-two times more than their fellow-citizens African American (Luhby, 2012). This
phenomenon has lead Sullivan and other scientists to believe that these economic disparities are intergenerationally inherited, the same way as health disparities are being passed from one generation to the other one—more clarification would be given further down and affect their health in a morbid way (Sullivan, 2013). Another thing that should be mentioned here, are the differences in the diseases that African American have in comparison with white Americans, as high blood pressure, obesity, kidney disease, low levels of LDL, greater risk of infant mortality and diabetes (Gravlee, 2009; Kam, 2010).

Although incarceration is a period of time that does not only affect their health, African American populations have experienced throughout their lives and their previous generations different stressful situations. Their burdened past experience of slavery and all the discrimination and racism that they had to deal with, all the killings and suppression from the mainstream society have played a significant role. Their everyday fights on the decade of 60’s to gain equal rights in education, vote and living position have mutated their environment and eventually their genes.

6. AIM-FINDINGS

6.1 LITERATURE REVIEW
The biggest percentage of the literature written the last seven years was in favor of the negative relation and effects that incarceration has upon health outcomes of inmates in general, and more specifically on African American population. Focusing on the analysis of the already existing literature what came up were some rather homogenous results.

In this way, the first findings empower the argument that incarceration has not only direct results on one’s health but also affects his social background, network communities etc.

A lot of literature has been written which argues that incarceration affects health and the disparities among different ethnic/racial groups. The mental and physical state is being affected, leading to results that burden the individual’s health. For example incarceration of an individual affects not only his health but the health of the inmate’s family as well (Brown et al., 2016). They found that such an experience increases psychological distress to the familial as well as the person involved. The conclusion that was made is that Black men’s mental health is being affected by the incarceration of their family members. The research found a positive correlation between psychological distress and incarceration (ibid). Incarceration produces increased risks at HIV/STI because seems that there exists an increase in the sexual partners when individuals are in prison (Knittel et al., 2015), meaning that male incarceration of African American male population affects these increasing HIV risks at Black women as well (Davis & Tucker-Brown, 2013). Taking these findings a step further Brinkley-Rubinstein combined the stigma of incarceration with HIV positive inmates; what she found was that stigma has an impact on the general and mental health of incarcerated HIV positive populations. That means that not only HIV but also incarceration affected their feelings (Brinkley-Rubinstein, 2015). What is of main importance from her study is that incarceration affects indirectly in a harmful way health. The focus of
that study was that multiple stigmas worsen health and other different domains. That leads to the result, that stigma and self-stigma that someone feels are being created by the society rather than incarceration per se (ibid). She mentions as well that health outcomes are being affected by the reason that inmates do not have access to medication and because the quality of medical care is poor inside the prison-set (Brinkley-Rubinstein & Turner, 2013), also that incarceration is being considered as a catalyst on worse health outcomes. These health disparities are being produced from the environment of the prison itself, the deprivations that inmates feel, the prison code that makes them react in a hyper-masculine way, coercion, prison conditions, the healthcare provisions of prison and lack of education (Brinkley-Rubinstein, 2013). That led to the result that incarcerated HIV positive inmates needed the support from the important others –family and friends- stressing that incarceration has a supplementary role here and not the main one (Coatsworth et al., 2017). Of course, the disproportion of African American HIV positive incarcerated population should be highly considered since this population is eight times higher than the white inmates (Ricks et al., 2015), which led to a correlational result among incarcerated population and health outcomes.

Additionally, literature empowers an intergenerational relation of bad health and imprisoned population with their familial, meaning that the health of the whole family is of great importance since children with incarcerated family members are at greater risk. It is mentioned that imprisonment affects both mental and physical health, with stress-related distress and infectious diseases (Wildeman & Western, 2010). This intergenerational transmission of crime impacts and empowers the statement of life course perspective, and especially the sub-group of linked life association. Incarceration seems to have social disadvantages as well since inmates are leading to partner loss when inside the prison (Khan et al., 2011). Incarceration has a negative effect on inmates status since notions like stigma and discrimination, as well as self-identity of every different individual, are being encompassed under the umbrella of imprisonment (Schnitter & Bacak, 2013). What is clear from this study is the stigma of incarceration which is permanent, and an analytical approach to the theory is of great importance. One of the main contributions of this study is that it perceives incarceration as a part of the process of a continuum on a triptych of crime-arrest-incarceration and incarceration is taken as a separate part (ibid). Obviously, incarceration has a lasting impact on depression and mood disorders, also has some economic and social consequences on an individual's life and family, closely related with issues of depression and psychological restrictions (Turney et al., 2012). Incarcerated populations seem to have worse health outcomes than non-incarcerated one (Schnittker et al, 2011), especially African American male population incarcerated history had a positive association with discrimination felt and their health results like psychological distress and depressive symptoms (Assari et al., 2017).

Of course, there weren’t all the findings in favor of the statement that incarceration affects health directly. What these studies suggested were that incarceration by itself does not affect health outcomes, but it is the post-incarceration period and the status of the individuals after that makes clear that something went wrong when inmates were inside the prison. An indirect influence is being suggested which is obvious after incarceration. As an opposition to what has already been said, Wildeman and Wang seem to write about the paradox that takes place inside some prisons in the U.S.A. (Wildeman & Wang, 2017). This
paradox stresses the fact that incarceration can basically protect health temporarily for some populations. The populations that seem to have been affected the most by that position and seem to improve their health outcomes are African American male inmates. Although the literature existed stresses different outcomes concerning incarceration and health disparities, what should be kept on mind is that the most negative effects take place after incarceration or throughout the period of rehabilitation rather than through incarceration (Schnittker et al., 2011). So, according to the findings of the literature, there was no direct adverse outcome concerning health disparities of the African American population.

7. POVERTY, LINKED LIVES, AND INCARCERATION

Literature suggested that incarceration cannot determine health disparities, but can worsen or trigger the already existed deficiencies. Promoting a correlation between incarceration and health disparities but not a causation. That leads us to start considering alternative perspectives that can lead us to accepted answers to our question. Taking a historical perspective of incarceration maybe can be of more use. History of incarceration of African American population overlaps with poverty.

Incarceration per se influences one’s life course (Gibson & Krohn, 2012). Ex-prisoners are more likely to suffer from mental and physical illness than individuals from the normal population (Lattimore et al., 2010). This emerges mostly because after release individuals suffer voting restriction, exclusion from the work market or from specific employment positions and limited access to housing (Wethington, 2003). Incarceration can be seen as a significant turning point in the lives of the inmates and ex-inmates, and that’s because individuals are abused or victimized while incarcerated, and after their release, they have to face the reluctance of the society or their families to achieve re-entering (Gibson & Krohn, 2012). Incarceration itself can be perceived as a critical life event and ex-prisoners that constitute minority groups as African American populations can face more barriers because of racism, discrimination and cumulative disadvantages (Bellair & Kowalski, 2011; Sampson, 2009). Life course perspective theory can be seen as the more accurate to test this situation, because it can put incarceration as a point inside the whole lifespan of the individual and can be lead to a result since it can take into consideration all the different physical, economic, social, psychological etc. events that take place in that individual's holistic life. So, all the life trajectories of employment, family, career and other pathways in one's life will be examined by LCP theory (Gibson & Krohn, 2012). What should be kept in mind is that incarceration by itself constitutes a critical life event (Gibson & Krohn, 2012) and the only way to be seen or examined is through life course approach. As a critical life event, incarceration can be seen as well as a turning point, according to the period of life that someone is spending (ibid). All the above-mentioned literature shows that health disparities among African American population have been pre-existed (Turney et al., 2012), or passed intergenerationally from one generation to the next one (Wildeman & Western, 2010).
The fact that incarceration can be seen as a turning point, or a critical life event in life course it is important because it can be seen as a specific life event inside the life course outcome, also prisoners or ex-prisoners constitute a critical population which can be investigated and researchers can be led to results from the accumulated disadvantages that incarceration has to one's lifespan (Gibson & Krohn, 2012). Life and health disparities that can be seen after incarceration are the trauma and stress that some ex-inmates feel that lead them to a limitation of interaction within the mainstream society, and other diseases that were affected from incarceration (Wethington, 2003).

On the other hand, the poverty that one individual lives in through the first years of his life, has implications to one's health, education, nutrition, development, and poor health in adulthood (Wadsworth, 1997; Lundberg, 1993; Rahkonen, 1997; West, 1997). A family poverty that an individual is grown to effects all the basic needs and creates health disparities to the population that deals with this low social class (Hart & Risley, 1995). Also, poor parental mental health leads to impairment of the important connection of child-parent and this has a result that children have fewer opportunities in learning experiences because of their home environment, and poses risk for child development (Hertzman et al., 2005; Keating & Hertzman, 1999; Power et al., 1999). The economic situation of the families is a strong influencing factor in early child development (Maggi et al., 2010).

The circumstances that take place in the childhood affect an individual’s adult life. When we are referring to the circumstances, we are talking about socioeconomic conditions that exist in the family of the individual (Almquist & Brännström, 2014). Children who grow up on adverse socioeconomic conditions can develop more negative effects across their lifespan (DiPrete & Eirich, 2006). Health-related outcomes cannot be isolated from other living conditions since these outcomes arise from the cumulation of aspects of one's life (Almquist & Brännström, 2014).

Braveman and Barclay argue that health disparities are being affected from the socioeconomic background of an individual, racial and ethnic background and present how social and physical context affects the biology of an individual throughout his life from the early age (Braveman & Barclay, 2009). Health disparities in a specific population are created/formed from their early childhood experience of trauma or adversity (ibid). Poor socioeconomic context leads to health disparities in adult life, especially in African American women; this disparity is being translated in low weight babies, where the weathering that the mothers have experienced passes through their genes to the coming generations and as a result to their babies (Sullivan, 2013). That means that the stressful experiences that they have lived before pregnancy passes through biology to the coming generation. It is said that African American women experience more chronic stress which emerges out of poverty and their economic situation and/or the racial discrimination that they have experienced (Braveman et al., 2005).

Family poverty is closely associated with poor maternal nutrition which affects drastically the health of the fetus in utero, also during childhood and into adulthood (Karp et al, 2005). Life course and this social factor of poverty should be seen together, so as to understand their developmental trajectories and understand why their health outcomes are the one that was found (Maggi et al.,
2010). This family poverty is a factor that reduces the positive parent–child relation (Belsky, Woodworth, & Crnic, 1996). So, poverty leads to ineffective parenting and this parenting results in delinquency and antisocial behavior of the child, which is an example of linked lives and demonstrates how much the family, in comparison with social factors, affects child development (Thornberry et al., 2002).

Additionally, when poverty is linked with criminality then a strong relationship emerges. Poverty is said to have a strong effect on delinquency (Bjerk, 2007). Offenders are being seen as socioeconomically disadvantaged and also half of the inmate populations are coming from poor families (Harlow, 2003). There exist numerous studies that demonstrate a positive relationship between poverty and criminal involvement (Cohen, 1955; Wilson, 1987; Moffitt, 1993). Cohen speaks about a poverty which shapes the parental values, frames, and views that are being instilled in children, and this affects their crime involvement (Cohen, 1955). Wilson argues that persistent poverty leads individuals at risk for a range of problems as delinquency (Wilson, 1987). Additionally, Moffitt says that experience of severe poverty is likely to create neuropsychological deficits at the individuals and produce a criminogenic family environment (Moffitt, 1993).

Poverty in childhood, except the creation of health problems/disparities, is in charge for lasting implications in crime since 80% of the children that experienced poverty at the first decade of their lives were ending at persistent offending (Kuh D & Ben-Shlomo, 2004). Low socioeconomic status (SES) of the family is a well-established risk factor for offending, the social class that people grow up has a direct environmental effect on their, probable, future criminal involvement (Moffitt, 1993).

“Linked lives” is one of the subcategories of the LCP theory, and implies that one generation affects the other one in a drastic way. Research has shown that familial concentration of crime is something usual, and 10% of the families in a community are in charge of 50% of crime commit (Farrington, Barnes, & Lambert, 1996; Farrington, Jolliffe, Loeber, Stouthamer-Loeber, & Kalb, 2001; Rowe & Farrington, 1997). Moffitt argues that this family concentration of criminal actions within a family can be justified from the fact that genetic influences antisocial behavior, as well as the environment that the family lives in influences and transforms behaviors into antisocial ones (Moffitt, 2005). The fact that environment affects our genes, and causes several differences between them is irrefutable. Moffitt tries to demonstrate the causal relationship between risk factors that one has in his environment and the antisocial behavior that follows because of these risk factors (ibid). Moffitt shows at her study that genetic factors affect 40% to 50% of antisocial behavior; the remaining percentage is being affected from other non-genetic factors as the environment (Miles & Carey, 1997; Rhee & Waldman, 2002). What seems to be Moffitt's stepping stone at her theory is that: “Once genetically influenced behavior has brought a person into contact with an environment, the environment may have unique causal effects of its own, cutting off opportunities to develop alternative prosocial behaviors, promoting the persistence of antisocial behavior, and exacerbating its seriousness (Moffitt, 1993, p.680).”

Except for delinquent peer groups and deviant lifestyle which are being considered as the most common risk factors, heritability is been perceived as an additional risk factor since abusive parents create aggressive children, due to
environmental and genetic transmissions (DiLalla & Gottesman, 1991). Parenting and especially bad parenting has played a crucial role in numerous researchers that try to show/demonstrate causation between bad parenting and antisocial children's behavior (Lahey, Moffitt, & Caspi, 2003; Thornberry, 1996). Bad parenting is being perceived as a phenotype, and that is because parenting styles are being associated with parents’ personality traits (Belsky & Barends, 2002; Spinath & O’Connor, 2003). So, the more time antisocial fathers spent with their children, the higher the possibility of children becoming more aggressive (Moffitt, 2005).

8. RESULTS- RESEARCH GAP

What is crystal clear from the previously mentioned literature is the fact that incarceration by itself, as a state of environmental deduction and lack of individual liberation does not affect health per se. Of course, these environmental adversities that inmates experience in combination with their health is the lack of medication and not the creation of a disease because of incarceration. Lots of the previously mentioned literature review empowers the fact that incarceration creates some latent situations from a psychological part that eventually lead to wrong decisions about inmates’ physical and mental health. But, is not only that, as there are also mechanisms that one has to deal with after incarceration, and these social determined mechanisms are the ones that lead a person to worsen health outcomes. This occurs in a micro and macro level of the society which has to do with the phase that follows their incarceration and the adversities that they have to face due to their previous state. What it is meant here, is that post-incarceration period is the one that affects their health as Wildeman and Wang suggest; and not the incarceration phase per se. What is absolutely clear is the fact that an action-reaction state is being created. That means that if incarceration was not preceded then post-incarceration health outcomes would not have followed. As a result, a causal relation between present incarceration phase and the phase after incarceration-re-entering society- can occur here since the life that prior inmates are being called to live now is not the same as the one they used to live, before entering prison.

This social re-entering, after incarceration phase, has somehow been investigated in a limited degree research, but the previous phase has not been touched the last seven years, which was my literature review research period. Additionally, within these articles, no one has made any statement that this research has previously taken place. In other words, the author’s contribution to this field departs from the last suggestion that was made from Assari et al., who suggested that individuals who commit a crime have followed a specific "way" of life and suggest further research on pre and post-incarceration period, meaning throughout their lifespan (Assari et al., 2017). Concerning African American populations, is of great interest to the author of this study to see what was their course in life and if their incarceration and harmful health outcomes can be affected by their previous lifespan. This is checked in a life course perspective approach and the focus is mostly on how biology can affect an individual's life, not only throughout their lifetime but also through other generations. It is also approached through the lens of the critical theory of race.
The challenging part of this act is that there is not a specific arithmetic sample of people to be examined, the research focuses only on literature and the population of interest is huge. The golden standard of life course perspective is following an individual or a group of people in a longitudinal way. One should start following an individual from childhood, adulthood and, ideally, through different generations. The researcher tries to collect as many information as s/he can about physical and social environments that the sample lives; so as to have psychosocial, behavioral and biological measures, which can be repeated and retested for the same sample over the time (Braveman & Barclay, 2009). Life course theory is not widely used in the sector of delinquency. For example, there exist so many longitudinal studies that mostly focus on the adolescence or young adult period of the subjects (Liberman, 2008). Research that has been done throughout life course is almost nonexistent (Kurlychek et al., 2012). Criminological studies that have to do with incarceration and crime follow participants for some years, or are cross-sectional and do not offer a holistic perspective that can be provided from the implication of life course theory (Farrington, 2006).

9. RACIAL DISPARITIES- RACIST DISPARITIES

Examining this issue of race/ethnic disparities within a life-course perspective, using another lens will lead to some more obvious and clear results, or why do African American suffer that much by racism and why these inequalities are being transferred to their offspring, through environment and genes (biology). Critical philosophers of race argue that “race is not biology”, but they claim that “race becomes biology” through the embodiment of racial inequalities (Roberts, 2012).

A definition should be given to the critical philosophy of race for the readers to have a notion about that specific domain. Robert Bernasconi, the editor of critical philosophy of race has written:

"The critical philosophy of race consists in the philosophical examination of issues raised by the concept of race, the practices and mechanisms of racialization, and the persistence of various forms of racism across the world. Critical philosophy of race is a critical enterprise in three respects: it opposes racism in all its forms; it rejects the pseudosciences of old-fashioned biological racialism, and; it denies that anti-racism and anti-racialism summarily eliminate race as a meaningful category of analysis. Critical philosophy of race is a philosophical enterprise because of its engagement with traditional philosophical questions and in its readiness to engage critically some of the traditional answers” (Bernasconi, 2016, cover summary).

The previously mentioned historical review has already put us in a context that can explain exactly what this population had to deal and what it is still dealing with. The question that is crucial here, and helps us get an idea of what is going to be discussed is: “How does race get under the skin and influence our physiology if it isn’t biological?” (Smedley et. al. 2012, p.6). Biology in itself
does not cause any problem, but the results of people being oppressed, discriminated and harassed are the factors that change one's biology and lead them to biological inequalities (Sullivan, 2013). So biology can be seen as the things that happen outside ourselves, in the environment that we are living, and the behaviors that we are receiving from the surroundings that stresses us so much, and we take that “negative” feeling and we translate it within ourselves as racism, which produces more stress and anxiety (Smedley et. al. 2012). Ourselves embody this outside influence inside our DNA and genes which passes from one generation to the next one. This biology is being transformed to weathering and epigenetics; weathering and epigenetics will try to shed some light on health disparities between black and white Americans (Sullivan, 2013). In this paper, procedures that affect African Americans health outcomes are considered by a biological prism.

“When you confronted with racism, that covert racism, your stomach just gets like so tight. You can feel it almost moving through your body; almost you can feel it going into your bloodstream”. Kim Anderson, African American Lawyer, and Mother.

Here the notion of weathering and epigenetics is taken from the critical theory of race, it will be explained how these health disparities are in fact racist disparities talking only about the African American population that lives in the U.S.A. Trying to explain it from the prism of the environment as well as biology/genes, those two notions are the ones that Darwin was referring to in a more abstract way and life course perspective stresses as the core of its theory.

9.1. WEATHERING
One of the greatest differences between African American population and white American population is that the first one gives disproportionally birth to more preterm babies. Preterm birth is when a baby is delivered to the world at least three weeks earlier than the usual 40 weeks of the full term (Shullivan, 2013). This leads to greater infant mortality and future health problems, diseases in childhood and adulthood (Lu & Chen, 2004). Statistics have shown that African American women are 1.6 times expected to give birth to premature babies and 2.9 times more likely to give birth to more prematurely babies (thirty-two weeks or earlier) (ibid). Even though with the evolution of the societies in so many sectors someone would have expected statistics to get improved, but this is not the case. The last fifty years the risk of infant mortality among African American population in the first year of their existence has risen from 1.6 till 2.3 (David & Collins, 2007). “There’s something about growing up as a black female in the U.S. that's not good for your childbearing health. I don't know how else to summarize it” (Sullivan, 2013, p. 105). From statements like that it was questioned whether there existed something like the "preterm birth gene" in African American population (David & Collins, 2007). Biology only is not the answer here, but genetics and social reality should be integrated to offer a broader picture.

Weathering which means that the body’s system gradually wears down affected by stressors that are aggregated over time (Blitstein, 2009). These stressors can be produced from literally everywhere, and as those stressors increase the body is being weathered at the same proportion and is made more prone to ill-health and
different diseases (Sullivan, 2013). Darwinian Theory stresses the importance of environment and developmental plasticity; here “the notion of the allostatic load which helps to explain how environmental stressors, get under the skin and has detrimental biological effects”, are of great importance (Blitstein 2009, p. 6).

What someone should keep in mind is that if the allostatic load is high that means that the organism does not stop the production of extra hormones which lead to weathering (Sullivan, 2013). What forces hormone production is not a genetic quirk, rather the stress that social environment causes to the physiology of the organism (ibid). What is an additive significant stressor in African Americans is the racial oppression and discrimination that they have to deal with? That means that the problem is more environmental than genetic, contradicting the existence of preterm gene (ibid). This can be shown more clearly through an example, where we can think about African American women who immigrate to the U.S.A. and give birth at that period. These women have identical rates and infant mortality with white American women and not the same as the African American women who have lived for at least one generation in this environment. Once one generation passes, the rate of infant mortality rises to one of African Americans’ women that pre-existed there; that leads to the outcome that the environment is more to be blamed rather than biology/ genes (California Newsreel, 2008).

Weathering has significant health effects on the mother and her fetus arguing that the stress that the fetus experiences while in the womb within the nine months of pregnancy, is not only one of the nine-month periods but is also the accumulation of it throughout woman's life course (Lu & Halfon, 2003). It is not only the impact that stress has on fetuses health like limiting their growth and cause prenatal birth (Kuzawa & Sweet, 2009), but is also “the life-long impact on African American families and their health” (California Newsreel, 2008, p. 6). So, weathering focuses mostly on the fetus and its environment without mentioning biological replication across generations (Sullivan, 2013).

9.2. EPIGENETICS
In contrast with genetic determinism, which is being defined as: “the belief that genetic contributions to behavior and personality are more important than other factors such as environments . . . genetic determinism implies that knowing a person’s genetic makeup is tantamount to knowing his or her future” (Sankar, 2003, p. 398). Epigenetics argue that if a gene is present from the conception of a behavior or a health disparity, then the gene is a root cause of this behavior or morbidity (Moffitt, 2005). Of course, one should keep in mind that environment, as well as genes, are two variables that share the same portion of importance. Epigenetic processes contain those two factors, and show how the environment affects genes capacity to influence phenotypes (Pray, 2004). Genes affect the developmental process of an organism, but genes do not act in a social vacuum, non-genetic factors like environment are the ones that "turn on or off" the genes (Johnston & Edwards, 2002; Ridley, 2003). A gene in itself is in a neutral situation, but if the environment that interacts with is an environment of stress and threat then will have an impact on an individual’s physiology and behavior, which will be translated on the individual as depression or trauma, or other health disparities (Capsi et al., 2010). The importance of the environment should be taken into consideration throughout the development of an individual since the impact and influence of a specific environment will be salient in different ages (Moffitt et al., 2006).
The association of gene-environment diptych it is important since a lot of researchers have studied this phenomenon. The research ended up to demonstrate that cumulative measures are better than the measures that are calculated one time, also pathogen environments are important as well. That means that environmental pathogens that result from precise, sensitive, reliable cumulative measures are stronger and better (Wolfe et al., 1996).

Epigenetics acknowledge the role of the environment and the role of a gene in affecting cellular activity (Sullivan, 2013). The gene expression can be bodily inherited without altering the DNA sequence (Choi & Friso, 2010). In order to understand the procedure, we have to consider the gene in its "naked" form. Of course, such a statement is rather difficult since no gene can be found in such state since nothing functions by itself. Let's consider DNA in the double helix form that we all know, attached to organic molecules which regulate its activity (Francis, 2011). One of DNA's regulations is methylation, so a gene to be considered methylated should have methyl attachments (one carbon atom and three hydrogen atoms) (ibid). Environment impacts a gene to be methylated or demethylated, as well as environmental factors, affect us through our diets or pollution, or even psychologically by producing chronic stress or trauma (ibid). "Epigenetic modifications to genes can and do occur within the lifetime of a single being, continuing well after the developmentally crucial periods of birth and childhood" (Francis, 2011, p. 47). These modifications can affect and alter ones' life throughout the years of one’s lifetime. The process of epigenetic can be transgenerationally inherited (Sullivan, 2013).

According to critical race theory there exist three forms of such an inheritance; from the more direct one to the more indirect one. When we say “direct” form, we mean the epigenetic marks that are passing from the parents to the offspring, through the sperm and eggs, directly; while “indirect” is the opposite one (Francis, 2011). So, the indirect epigenetic transgenerational inheritance is the one that happens through repetition of the similar environment and social context to the following generation. This indirect epigenetic inheritance can be considered similar to weathering from the reasons that we have already mentioned above (Sullivan, 2013). The second less indirect epigenetic transgenerational inheritance is the genomic imprinting because it does not depend on womb or after birth environments. Genomic imprinting is a repetitive process that takes place during the development of sperm and eggs (ibid). During this process there is no transmission from the parent to the offspring concerning epigenetic attachment, these attachments are reprogramming themselves; this is called epigenetic reprogramming. By epigenetic attachment what we mean is the "biological memories of past environments" (Thayer & Kuzawa 2011, p.1). This happens before the implantation, but the epigenetic attachments of imprinting genes withstand the epigenetic reprogramming (Francis, 2011). What happens when imprinted genes are involved with health problems? Well, there are some environmental toxins, called endocrines disruptors that impact in a negative way imprinted genes which lead people to develop different diseases (Thayer & Kuzawa, 2011). A great thing to know, but also unpleasant is the fact that these endocrine disruptors have transgenerational effects (Sullivan, 2013). The last epigenetic transgenerational inheritance is the direct one, by which the genes are being transmitted from one generation to the other one directly, without any elimination (or re-imprinting) of epigenetic attachment (ibid). Even though, this
third case cannot be generalized to humans or mammals, can be used broadly for plants as is being suggested, but still is a rather ambitious plan for mammals as well (Francis, 2011).

What is of great importance to be mentioned here is that the past of an individual living in an environmental context does not end there, but is still obvious at the present. The stress or the trauma of African American people who were living in 1960's is not dead, nor the racism that they received. This never-ending racism can be blamed for the high levels of infant mortality and other diseases such cardiovascular ones, among African American populations (Sullivan, 2013). The effects of racism can be transmitted from the parents to children, or from one generation to the next one perpetuating inequalities in different sectors (Roberts, 2012).

Additionally, this stress has affected children who were born in America after 9/11 and was coming from Arabic countries (Sullivan, 2013). During their pregnancy period, their mothers were living in a rather "hostile" environment for them; in a “wrong” historical place and time (Elder, 1998). Life course perspective theory mentions the effects that the historical context has on one's health, as a result, those children of 9/11 developed PTSD, anxiety, and depression (Francis, 2011; Kuzawa & Sweet 2009). Concluding, the thing that is being stressed from epigenetics is something that Elder had already mentioned in his theory, that not only contemporary environment plays a significant role but also the historical environment has the same importance in one’s life and development (Kuzawa & Thayer, 2011).

10. APPLYING THE LIFE COURSE PERSPECTIVE THEORY

When human capital is being discussed health has never been considered as an important factor, although is something that should be considered since a healthier population is a more productive one concerning the economic domain (Gluckman et al, 2009). Research has shown that people with the lowest income suffer ill-health problems to a greater extent than the one with the highest income. For these obstacles to be overcome and to improve health of people that suffer from great risk factors, of ill-health and larger and economical disadvantages than the rest of the society, new initiatives should be taken into consideration, so as to reduce health disparities and improve the society as a whole (Braveman & Barclay, 2009).

It is said that education and socioeconomic status (SES) of an individual are good predictors of infant’s mortality, meaning that women of low SES and the least of education are of greater risk than the ones that are of high SES and holding a degree (Sullivan, 2013). Someone who will like to change the policies and make them more effective would have suggested that they should increase education and decrease poverty and everything is going to be fine concerning the African American women and their rates of infant mortality. Unfortunately, this is not the case because there exists the "paradox of well-off black mother" (David & Collins, 1991). There is the case of Kim Anderson who is a lawyer an both she
and her husband are coming from a high SES, her nutrition was very rich during her pregnancy period, she was not smoking rather drinking, despite the fact that she gave birth to her daughter two and a half months earlier (California Newsreel, 2008). Infant mortality among African American women of high SES and degree holders is three times higher than it is among white American women (Sullivan, 2013). As it has been shown further up, is not that they carry a specific gene, rather is the embodiment of stressful procedures like racial discrimination or suppression, which through methylated genes have passed intergenerationally to their ancestors (ibid). Her daughter, maybe, is more sensitive and not so tough towards racist behaviors or stress creators (ibid). Civil rights movement has brought into the surface the importance of racial inequalities and the elimination of them; the already existing policies do not facilitate or guarantee equal opportunities among all people throughout their lives (Wise, 2009).

We had a long talk about health disparities inside one specific population, but when a policy wants to make a change is not occupied with the problem anymore, but with the solution of that problem. The other end of health disparities is health equities, so health equities want to eliminate disparities in health among groups of people who are economically or socially worse than the other groups (Braveman, 2013). Life course perspective can be used for counting the progress of health equity by measuring the process of health disparities through time, measuring if those have fallen, stayed the same or widened (ibid). What offers to research a life course approach is the examination of health in a later stage of life-based on the early experiences that one has experienced. This kind of approach considers the individual throughout his different developmental stages, examining the roots of the diseases and ill-health that he may have had, from the beginning till the adult life (ibid). Since human beings do not live in a social vacuum, then this approach also considers the systematic changes or realities that may take place in one's economic, social, biological factors that can affect one's health throughout his life (ibid). So, if policies want to understand and eliminate these health disparities, should adopt a life course approach, because it offers the opportunity to demonstrate how these disparities are created, exacerbated and reproduced throughout the generations (ibid). As we said before if a pregnant woman feels stress then this will have an impact on the infant’s health (Sullivan, 2013). Life course perspective in that way makes it clear why African American women suffer more from high infant mortality rates, and how the embodiment of discrimination and oppression causes them stress and chronic diseases or trauma (ibid). If these disparities should be eliminated, then it is not only education and poverty that should be taken into consideration, it is rather the whole environment that African American people live, act and interact.

One example of applying life course perspective in a policy was Wisconsin's Maternal and Child Health (MCH) Program, were the health disparities of African American population within this area was the problem that needed to be fixed. The aim was to improve maternal, child and family health (Rohan et al., 2013). They started from infant mortality rate, which was almost five times higher among African American women in comparison with white American. That means that while in 2004 infant mortality rate of white population was 4.5, the one of African American population was 19.2, one of the worst of the country (ibid). What has surprised the researchers was the fact that in Wisconsin at 1979-1981 the infant mortality of African American population was one of the lowest, but after one generation this phenomenon changed completely (Kvale, 2004). The
only logical explanation that can be given is that in that drastic different within the period of a generation is the one that Sullivan suggests; saying that the previous low rates of infant mortality may come up because that population of African American is the first immigrants that arrived in that specific area (Sullivan, 2013). This dramatic worsening of health is being affected by the discrimination and suppression that they have experienced through racist behaviors which have triggered stressor that has caused different chronic diseases and trauma (ibid). Still, this is the authors’ assumption of making a critical consideration of the existing literature, and the one read. The purpose of this life course approach was to have a framework in which will be added the critical periods and early life events like the one of weathering -which has already been explained- that affects people's lives (Geronimus, 2001). What they come up with on 2008 was a project named Applied Behavior Change for Healthy Babies (ABCs) involving participants of African American population, mothers, fathers and grandmothers from the places with the highest birth disparities (Rohan et al., 2013). Of course, they did not want to see only the nine-month period of pregnancy, their main goal was the integration of life course perspective in their lives, the outcome of this movement was that participants confirmed experiences of racism and racism was a stressor for them which affected their wellbeing (ibid).

The results of this project in practice were that the infant mortality of African American population has fallen from 17 which was on 2007 to 14 in 2010 (Rohan et al., 2013), which was not that much important taking it in arithmetic consideration. Of course, we cannot talk about findings of life course approach on a period of three years, since sometimes a whole generation is needed for the findings to be obvious and generalized (Sullivan, 2013). Also, it is not clear if macro-society was embedded in that project since the only thing that they mention is the life of the family, and this is only the micro-society. Life course perspective needs a holistic approach to the social environment, family, peers, network etc. so I am cautious about these findings and the generalizability of these findings to different communities and geographical areas.

11. RESULTS

A review of the literature and the following literature stressing life course theory and health disparities among African American population, mentions that racism is still the reason why this population feels and gets marginalized from the society. Discrimination felt, to every specific sector and social mechanism “forms” the way that individuals deal with their jobs, friends, colleagues etc and interact. Meaning that these pre-existing situations through weathering and epigenetics, but also through other social determinants impact their genes, which in combination with the environment where they live, mutate and designate their DNA and make them prone to different mental and physical health problems. Moving Darwinian theory a step further. Consequently, children of this population are going to be more prone to experience stress, PTSD, psychological difficulties (Francis, 2011; Kuzawa & Sweet 2009). Producing different health problems, like cardiovascular problems, diabetes, etc (Blitstein, 2009). A lot of research has shown that African Americans have different health problems than white Americans, like high blood pressure, obesity, kidney disease, low levels of
LDL, greater risk of infant mortality, diabetes (Gravlee, 2009; Kam, 2010). All these diseases are being caused because race becomes biology, and racial oppression and discrimination produces a great quantity of never-ending stress, which becomes embodied and the body receives more spoilage.

Imprisonment takes place in a specific environment which is the prison, so this environment can affect the population that is involved within. Depending on the period of time that people are living in, the adoption of that specific environment can make inmates more susceptible to diseases (Bateson et al., 2004). This environment can affect their future outcome at the society and the abnormalities that can be created according to that previous situation. Biological consistency can be altered from that specific environment (Sullivan, 2013). As is mentioned above incarceration can be seen as a critical period, but environmental events can trigger environmental pathways which can be urged through critical periods (Gluckman & Hanson, 2006).

As a result, environment, as well as its stressors, can have disastrous biological effects on health (Blitstein, 2009). It can affect the biology, psychology, physiology something that means that environment determines the behavior and not only towards the context but to interpersonal relationships as well. Life course perspective stresses more or less what Darwin has stated some decades ago. Time is moving forward and the contribution of life course perspective is now to give importance to biological, psychological and behavioral processes which happen throughout a person’s life, or throughout the generations (Kuh et al., 2003). Factors that are taking place at our early age have to do with future health outcomes as well as outcomes that are affecting our lifespan in general (Kuh & Smith, 1993).

Life course research offers a lot of advantages in our lives because it combines early age factors with later life factors that will determine risk and protective issues that are happening in our lives. As easily, we can speak about individuals, we can also refer to a group of people, ethnic groups, societies, and even generalized it in a broader way. As Kuh et al. stress, except health outcomes, the socioeconomic position and inequalities can be also affected throughout our years which will as well impact our health and morality (Kuh et al, 2003). The socioeconomic factors that exist can either be presented through social chains of risks or other causal relations that play a drastic role to create our biology and psychology in combination with this chain of risks (ibid). These socioeconomic situations can be affected by the duration or the timing, and eventually, causality is going to be formed with health-related outcomes (Smith et al., 1998; Power et al., 1999).

Research results that there exists an intergenerational continuity in antisocial behavior (Thornberry et al., 2002). A subcategory of life course perspective is one of the interdependent or linked lives where one's development takes place in a context, and this context with its social determinants and its individuals helps in shaping one's life course (ibid). So, there is a reciprocal influence between individuals, such as the one of father and child (ibid). Studies have shown that children are following the footsteps of their parents according to the antisocial behavior, an association between parental criminality and children criminality is being made as well, according to linked lives (Farrington et al., 1998).
Incarceration seems to deal with the same health problems that are already there concerning the African American population. Diseases like chronic heart problems, trauma, PTSD, diabetes are the same that an individual could have lived throughout his pre-incarceration period of life. The ones that are added to the post-incarceration phase are psychological distress, depressive symptoms, HIV/STI and other sexual diseases. Incarceration is being positively affected by discrimination (Assari et al., 2017), this suggests that racial discrimination affects incarceration and mental health. From the literature review, it is clear that incarceration causes post-incarceration health outcomes.

As after incarceration phase, the entrance to the society is different and the adversities that they have to face at that period are not the same as there were before incarceration. That is to say an interaction of action-reaction state, with incarceration state to be taken as the action part, and post-incarceration state taken as the reaction. This state does not affect only individuals but also families, communities, and policies (see Figure 1), meaning that incarceration has a multilevel impact above the different realms of one’s life, and there exist some additional mechanisms that affect one’s health outcomes. “More specifically it theorizes that incarceration affects the health of individuals, families, and communities via the incarceration experience, worsening social conditions post-release and macro-level policy” (Brinkley-Rubinstein, 2013, p.3).

These statements empower the argument that there should be a causal relation between present and follow incarceration behaviors with the impact that this has on one’s health outcomes. In other words, this was put in a life course theory to explore the longitudinal and continual impact of other factors in an individual's life. States that pre-existed incarceration, different experiences lived through weathering and epigenetic, attempts were made to be explained in detail so as to be as clear as possible the similarities and the differences that were there before, during incarcerated and after incarceration period.
Reviewing on a life course perspective what racism produces to the health of a specific population, in this study African Americans, is unavoidable not to see the correlation between racism and health disparities that pre-existed incarceration. That is obvious because the life of a human being cannot be tested in a specific time period only because such an outcome can be misleading. But, should be taken in a continuum, since the environment and the situations that one experiences, affects one's behaviors and decisions of committing or not committing a crime, as well as the decisions made after getting arrested, incarcerated and released back to the society.

11.1.LIMITATIONS
There are some limitations in this master thesis that should be taken into consideration, consisting a self-critique and provide knowledge to future researchers if they want to make a similar research. Only literature written in English was used, that is to say, the only provider for composing this paper statistics and statements was one-dimensional. Here underlies the danger to discuss an issue only from the dimension of American society, and not also from the African society. Maybe a comparison of those two different approaches would have been more interesting, and would have lead to a totally different outcome and would also have influenced conclusions in another way.

A further limitation is that the scope of this study was concentrated on the critical philosophy of race, which means that everything discussed before was taken from their perspective. For me as the author of this thesis that seemed the correct thing to do, but that does not compulsory means that it is the only alternative that one
may have. Maybe if I had taken a different perception I would have drowned different results.

Focusing only on the aspects and views of critical race theory can be perceived as a limitation since all the things discussed there were done from the perspective of African American population, and white population was "accused" of white superiority and was considered as the one in charge of all the negative things that took place against African Americans. Maybe if I had used literature showing and justifying the other part as well would have been given equal importance. During to lack of time, this could not be done.

Likewise, I took only one dimension from the existing policies for putting life-course perspective into practice, such a thing can lead to further limitations because this was addressing the disparities to health outcomes and was leading to campaigns that wanted to improve maternally, child and family health status. Something that eventually was not that effective, maybe an additional review of longitudinal campaigns would have been useful as well.

Another limitation can be considered from the aspect of searching the source of where the funding was coming from. Here the danger of the findings to have been biased is of great importance since the literature was probably written by keeping political agendas in mind. Since the sponsors were probably educational institutions or governmental organizations.

However, I tried to elaborate the findings in an objective perspective, and describe the whole procedure as a neutral observer. It should be taken into consideration that every one of us is a different personality, with different backgrounds, coming from different disciplines, as a result, I do not think that subjectivity was avoided at some extent. Meaning that this subjectivity can be seen as an underlying bias.

The fact that literature of incarceration was one of the last seven years, does not mean that the thematology elaborated has not taken place previously. Since the length and the timeframe of my master dissertation did not allow me to include all the literature provided, that means that this should as well be considered as a limitation. Of course, a literature review cannot be used as a measure for testing pre-existing theories but can be used as a supplementary factor for taking a specific period and testing it either qualitatively or quantitatively and this literature review can be used to form the theoretical argument.

12. CONCLUSION

This thesis has reviewed already existing literature, recognized the gaps that existed there and the possibilities for further research. Answering the two questions that were stated, and fulfilling the two aims that were examined. It can be stressed that incarceration has an indirect connection with health disparities. Another result of this research is the fact that life-course perspective was implied in a specific population on a pre-incarceration phase, and the findings stated that there is a correlation between discrimination and health outcomes. Especially when we are considering it from a historical approach and through pre-existing
literature it is being implied that biology is being affected except the genes, from non-genetic factors as well, like environment.

What is obviously shown by this approach is that health disparities are being explained thoroughly by the environment itself and the genes, exactly as life-course perspective states through the developmental process, plasticity of human beings and heritability. One should bear in mind, that these two factors should be considered as one, and walk hand in hand with each other whenever needed so as to be effective for the life-course theory. Even though the state of critical philosophers of race is being well defined, and supported by empirical data, it's an inspiring theory because it declares clearly that the homeostasis of the society is the one to be blamed and for a change to happen a lot of sectors, social determinants and mechanisms should be altered from their roots. Which is not always the case, because as I stated before politicians want to implement programs that will show results immediately, or in a small period of time.

There is a distinct lack of searching effects of pre-incarceration, incarceration and post-incarceration period in the already existing criminological literature. The aim of this study was achieved since it helped to explain the pre-incarceration period put in a life course. The outcome is that African American populations were really suppressed out of racist actions, discrimination and marginalization felt and embodied of them. Likewise, the policy implementation of life-course perspective theory demonstrates that such an ambitious plan is feasible. Of course, factors as poverty and their parents involvement with crime should be kept in mind, since there exist numerous research that demonstrates a causal relation between antisocial behavior and health disparities with poverty and delinquent familialis.

Incarceration was also proven not to affect health outcomes per se, but while people were incarcerated the way was paved from the experiences that they lived there and the situation existed inside that environment, that led to the result for their health to worsen after release. Additionally, they find it difficult re-entering at the mainstream society, since except the stigma that they were carrying, they were feeling the stress and trauma of the incarceration period (Brinkley-Rubinstein, 2015).

Life course perspective seemed to be the best approach to examine health disparities, racial discrimination, poverty, social determinants and the interaction of genes and environment since a great number of researchers suggested it so. Life course perspective was not only the best choice for discussing from a historical perspective the inequalities and ill-health of African American population, but it is the best choice for explaining why incarceration should be seen for such an approach. As came out of the study, incarceration is considered as a critical period and turning point in the lives of inmates. Literature review argued that incarceration should be seen in a continuum not only across one generation since every journal directly or indirectly was suggesting a more longitudinal approach which could be generalized.

Weathering and epigenetics made us understand how important a life course perspective is in these procedures since the findings were that one generation's health disparities, poor health and antisocial behaviors that lead to delinquent involvement pass to the next one through the genes physical, psychological, biological, behavioral inheritance (Miller, 1958; Sellin, 1938; Wolfgang &
Health disparities through the same prism, are being incorporated into physio-anatomy and influence our existence (Krieger & Smith, 2004). What those two notions helped us understand is that “race becomes biology” through a dynamic procedure which becomes embodied and causes health inequalities (Sullivan, 2013). These findings are robust since they have been examined throughout different sequences of generations. This is an additional reason why life course approach seemed to be most appropriate, as well as the historical time and place, was of great importance, since everything started at this period in time when African Americans had no or limited rights to the society. That's the most important reason why the history factor has an eminent role in this dissertation.

All the literature outcomes should be put into practice, and future researchers can use this theory based study to constitute the theoretical part of their practical or statistical future studies. Future research should take place for testing these findings and take the research a step further. Something that could not be achieved from this master thesis since I did not have the temporal factor in favor, and because the monetary investigation was not of choice since this kind of research is very expensive to be carried out.
REFERENCES


birthweight in African American infants: the role of maternal exposure to


Racism? *Ethnicity and Disease*, pp. 236-244.


Davis S K, Tucker-Brown A, (2013). The Effects of Social Determinants on


Inequality: A Review of Theoretical and Empirical Developments. Columbia
University, pp. 1-30.

experience. Chicago: University of Chicago Press


Development*, pp. 1-12.


cardiovascular disease: longitudinal and case control studies. *Int J Epidemiol*,
pp.833-844.

*Psychoneuroendocrinology*, pp. 366-375.

Farrington, D. P., Barnes, G. C., Lambert, S. (1996). The concentration of

Farrington, D. P., Jolliffe, D., Loeber, R., Stouthamer-Loeber, M., Kalb, L.
(2001). The concentration of offenders in families, and family criminality in the

*Journal of Experimental Criminology*, pp. 121-141.


Walsemann K M, Geronimus A T, Gee G C. (2008). Accumulating disadvantage over the life course: evidence from a longitudinal study investigating the


