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Gender Dysphoria: A Biological and Psychological Perspective

With the recent media coverage on the transgender woman Caitlyn Jenner, questions are arising in American culture on the nature of gender identity. Many see gender identity as correlating with one's biological sex. In other words, if you are born with a male or female organ, you automatically identify yourself as a man or woman. However, those with gender identity disorders such as gender dysphoria don't identify with their own sex and often feel trapped inside their own body. This is stated by transgender individuals themselves such as Caitlyn Jenner. In a one on one interview with Diane Sawyer, Caitlyn Jenner described her life as a young boy struggling with gender identity. Jenner used to play dress up with his mother and sister's clothes when they were gone with Jenner stating that, "at the time, I didn't know why I was doing it besides it just made me feel good "(as cited in Dooley et al., 2015). Others such as Jan Morris in "Herstory", briefly describes her inner feelings on wanting to be a female. Both transgender women give insight on the matter and the struggle with gender identity doesn't appear to be a personal choice.

So the question arises, if gender dysphoria isn't a choice, what factors lead to this state in one's inner self? There are a multitude of theories that suggest gender dysphoria may be impacted by biological factors as well as psychological. The analysis will provide the strongest evidence and theories on how biology and psychology are contributing factors for gender

dysphoria. Furthermore, it will provide evidence on the possible issues with gender reassignment.

When diving into any analysis that deals with a great amount of scientific research, it is important to clarify the difference between scientific terms that will be used. Biological factors are uniquely different when compared to the psychological aspects of humans. These factors are, "anything which affects the function and behavior of a living organism" (Biological Factor, n.d.). Internally, this factor can be a physical, physiological, chemical, neurological, or genetic condition which causes a psychological effect" (Biological Factor, n.d). In other words, biological factors are made up of physical processes and properties within the body. For example, the amount of hormones within the body and how they fluctuate can determine an individual's behavior when it comes to mood, sexual desire, and appetite. This would be separate from psychological factors because the main cause of the behavior is not stemming from the mind, but the hormones within the body. Psychological factors concentrate more on what is happening in the mind. Unlike biological factors, psychological factors stem from a mental cause rather than a physical one and are often impacted by one's environment. Take for instance an individual that lost a close relative or was abused as a child. Due to these external pressures, some people may experience depression as a result of this. The depression itself didn't stem from biological factors such as genetics or hormonal fluctuations, but from outside sources that impacted the individual's mental well being. Therefore, studying the psychological factors of gender dysphoria will not only be focused on the workings of the mind, but the external contributing factors as well as family life. However, before going into depth about the psychological factors, the biological causes must be closely examined.

When it comes to the biological factors of gender dysphoria there is a wide range of

theories and possible evidence available that try to explain the reasons behind the phenomenon. Research conducted by scientists and doctors alike have found that gender dysphoria and gender identity may be more biological in nature than psychological. This means that it is something that cannot be altered over time like a psychological problem such as anxiety and depression. A professor at the University of Virginia by the name of F.P.M. Kruijver released possible evidence that falls in line with the biological determinants of gender identity and dysphoria. In his published doctoral thesis, Kruijver (2004) claims that gender identity has a direct relationship with sexual dimorphisms in the human hypothalamus and adjacent areas.

So what exactly does this mean? For a scientifically unaware audience these terms may seem confusing. However, despite the fancy names they are quite straight forward. Sexual dimorphisms are, "the differences in appearance between males and females of the same species, such as in color, shape, size, and structure, that are caused by the inheritance of one or the other sexual pattern in the genetic material" (Sexual Dimorphisms, n.d.). The hypothalamus is the part of the brain that "contains a control centre for many functions of the autonomic nervous system, and it has effects on the endocrine system" (Hypothalamus, n.d.) Therefore, Kruijver is hinting at the differences in the structure of the hypothalamus between men and women in relation to gender identity.

Kruijver continues to go into more detail about these biological features and states that a researcher by the name of Zhou saw a connection between the bed nucleus of the stria terminalis or BSTc, with gender identity(as cited in Kruijver,2004, p.24). The BSTc is the, "predominantly cellular structure defined on the basis of Nissl stain that wraps around the dorsal, rostral and ventral surfaces of the anterior commissure"(Stria Terminalis, n.d.). The important thing to notice is that Zhou found the BSTc be, "larger in men than in women with a female-like volume

in male-to-female transsexuals as noted by Zhou (as cited in Kruijver,2004, p.24). This means there is a key biological difference in relation to how gender identity is formulated within the human brain, as well as the difference in size of the BSTc in relation to transgender women. This of course is just one example of the biological factors that deal with gender dysphoria. Other research shows other possible contributing factors as well.

Another study done by researchers in 2013 from a journal in Plos ONE showed that besides transgender individuals having a structural difference in the BSTc, they also had differences in other areas of the brain. The method for this testing was to take transgender individuals and have them go through a psychiatrist who would give them questions to determine if they had gender dysphoria throughout their life. Once the test subjects had been given their psychiatric evaluation they were clear for the testing. This testing was done by taking MRI images of the anatomy of the brain to get a clearer picture of what the structures on the inside looked like. What they found confirmed that there were other structural differences in the brain rather than just the BSTc. The images showed that there were clear differences in the, " leftposterior cingulate, precueneus and calcarinus, the right cuneus,the right fusiform, lingual, middle and inferior occipital, andinferior temporal gyri(Simon et al., 2013)

They also found differences in the cerebellum which is the, "section of the brain that coordinates sensory input with muscular responses, located just below and behind the cerebral hemispheres and above the medulla oblongata(Cerebellum, n.d.), Although these are complex medical terms, the fact is that transgender men and women had structural differences compared to individuals not suffering from gender dysphoria. These are advances towards the biological perspective of the gender dysphoria and could be key in trying to treat it, or at least allowing people to know it isn't simply a choice for that individual.

Another case that would link gender dysphoria with a biological cause is a study that showed the difference in levels of anxiety and depression after transgender individuals received gender reassignment surgery. This surgery is used to change the sexual organs of those suffering from gender dysphoria. It is well known that those with gender dysphoria often suffer from depression and anxiety simply because they can't identify with their gender. A study done by Deepak Megeri and Deenesh Khoosal in the journal *Sexual and Relationship Therapy,* showed that despite having the gender reassignment surgery, transgender individuals still suffered from symptoms of anxiety and depression. This was concluded by the study when forty transwomen had no significant positive scores in relation to improving the symptoms of anxiety and depression.(Megeri & Khoosal, 2007). Since anxiety and depression mainly stem from psychological sources, one would expect that if gender dysphoria was psychological in nature, than it could be fixed by having a gender reassignment. However, this study shows the opposite and the symptoms these patients face did not change by a considerable margin. This brings up questions on whether transgender women like Caitlyn Jenner will finally receive some sort of relief from their surgery. Only time will tell if this sexual fix will make her truly into the woman she has always wanted to be. On the other hand, transgender women such as Jan Morris did not report in her essay that she still had symptoms of anxiety and depression. It appears further research must be undertaken to determine if biological factors are a causation for gender dysphoria. The problem is if it is biological in nature, this means people that are trying to treat it will have a harder time since psychiatry upholds the notion that symptoms of anxiety and depression can be changed through counseling and other means such as prescription drugs.

Another researcher by the name of Dr. Scott P. Kerlin, provided information from a five year study from various researchers that measured the side effects of prenatal exposure to

Diethylstilbestrol and its relation to gender dysphoria. Diethylstilbestrol or DES is most commonly known as a man made estrogen that is used to prevent a miscarriage among pregnant women. Although it was banned by the FDA in 1971 due to its correlation with vaginal and breast cancer, it is estimated that there are still between one million and three million DES daughters and DES sons in the United States (Kerlin, 2005). This means all of these individuals are at risk for different types of cancer as well as gender dysphoria. Over the course of five years interesting findings were discovered in relation to DES and gender dysphoria.

In one particular study, Kerlin (2005) found that one hundred and fifty individuals with confirmed or suspected prenatal DES exposure reported moderate to severe feelings of gender dysphoria across their lifespan. While this may be a small test group, one must consider the high percentage of people within the study that confirmed that they had these gender issues. While these statistics are encouraging, it still doesn't confirm absolutely that DES exposure is the main cause for gender dysphoria. However, it does offer a new perspective on the role that prenatal drugs have in matters such as these. It certainly wouldn't be the first time a type of man made drug would have consequences that deviate from their intended purpose in relation to providing adequate health. Transgender women such as Caitlyn Jenner may have been exposed to this type of prenatal drug which impacted her gender identity. Although there is possible evidence pointing towards biological factors, there are also theories that point towards the psychological side of the origin of gender dysphoria. Most of these studies focus on child development and how they interacted with their social environment especially within the family. Therefore, the focus is more on how the mind changes as a result of these environment factors rather than any internal source.

In a study done in the German Journal " Deutsches Arzteblatt", Doctors showed

examples on how psychological factors in early childhood impacted the individual's gender identity. Their studies examine the etiology or the causation of the issue of gender dysphoria in relation to psychological trauma. For example, this disturbance of the mother-child relationship can often empirically be demonstrated and is postulated to be a causative factor" (Korte et al., 2008). A psychiatrist by the name of Ravi Philip Rajkumar also showed a link between the parental relationships with a child and gender dysphoria. He showed statistics from the *International Journal of Impotence Research* that found, "high rates (25%) of childhood maltreatment in male-to-female transsexuals" (Rajkumar, 2014). This is a startling statistic and this factor is obviously a key area to look at since the parents are responsible for the nurturing of a child and in most cases oversee the child's home life.

Therefore, the importance of the causation factor relates to if that mother or father is neglectful to the child. In *Deutsches Arzteblat,* doctors explain that this neglect can lead the individual to have a desire to be the opposite sex. For example, boys will, "attempt to repair the defective relationship with the physically or emotionally absent primary attachment figure through fantasy; the boy tries to imitate his missing mother as the result of confusion between the two concepts of having a mother and being one(Korte et al., 2014). Girls on the other hand may switch their gender role as a result of a violent father and may take on the masculine characteristics in order to protect herself or her mother(Korte et al., 2014). So the main theory here is that parental influences or neglect could be a contributing factor to gender displacement and the lack of identification with one's own sex.

Another psychological and environmental causation stems from the parent's desire for their child to be the opposite sex. For example, a mother or father may have wanted a girl instead of a boy at birth so they purposefully raise that child in a feminine manner showering

him with toys and products that usually would be given to the opposite sex. This would obviously confuse the child to a high degree especially if this process is done straight from birth. The child essentially would have no choice in the matter and in a way be brainwashed by the paternal figure.

There is also another realm of theory that is used to describe how gender identity is formed and the subsequent dysphoria that an individual may have. Rather than putting all the eggs into either the biological camp or psychological one, it could be that gender dysphoria is a combination of both. In other words, they are inseparable and are integrated with each other in the formulation of gender identity as well as dysphoria. The researchers in the *Journal of Counseling and Development,* suggest from a study done by the Gender Identity Research and Education Society that " gender identity formation is a complex biological and psychological process, which is unique for each person and which involves a variety of genetic, hormonal, and environmental factors, acting separately, or in combination with each other".(Dragowski, Scharrón-del Río, & Sandigorsky, 2011, p. 363). This means that the issue at hand is not a simple matter to investigate. Of course this reason alone makes it even more difficult when trying to test individuals due to all the factors that may be at play.

Another consequence of this difficulty of the mixture of biological and psychological factors is the way gender dysphoria is treated. Most treatment is uses as a last resort if that individual displays symptoms of suicidal thoughts, severe bullying, social anxiety and depression. These treatment plans include hormonal therapy and in regards to the extreme, gender reassignment. There have been a multitude of studies that show the long term effects of gender reassignment and its potential consequences. The question is if gender reassignment is the correct path to go when facing these gender identity issues. They may in fact make the

problem worse or leave the patient in an unchanged mental state in regards to their psychological well being. This means that a dramatic surgery such as gender reassignment would be difficult to undo since it is a surgery that changes one's sexual organs. Obviously it is important for those individuals suffering from gender dysphoria to weigh out all the evidence that is provided in the medical world.

One such study done by Swedish Neuroscientists discovered that gender reassignment can have potentially deadly consequences. For example, the research concluded that gender reassignment may lead to , "have considerably higher risks for mortality, suicidal behavior, and psychiatric morbidity than the general population"(Dhejne et al., 2011). This leads to questions on whether gender reassignment is solving a long term problem, or simply adding a list of new health risks. The experimentation to find these results was done by collecting around 300 transgender individuals that were split about half and half between transgender men and transgender women. The study was done over a thirty year time span and measured the criminal rate, morbidity, and mortality of transgender individuals. The results showed that, "the overall mortality for sex-reassigned persons was higher during follow-up than for controls of the same birth sex, particularly death from suicide .Sex-reassigned persons also had an increased risk for suicide attempts"(Dhejne et al., 2011). This essentially means that over fifty percent of the participants suffered death from suicide as a possible result of their gender reassignment. The Swedish researchers recommended other options instead of the surgery to alleviate the gender identity crisis. For example, the end of the study suggests that the medical community on this matter, " should inspire improved psychiatric and somatic care after sex reassignment for this patient group"(Dhejne et al., 2011). While there are not definitive reasons as to why the gender reassignment had made individuals at risk for these possibilities, it raises even more questions

about the nature of gender dysphoria. One could assume that the transgender individual thought that the gender reassignment would alleviate their internal crisis. However, discovering that it had no impact could have possibly raised their anxiety and depression levels due to them feeling further trapped into the body that was assigned to them at birth.

In conclusion, gender disphoria is still being researched by many doctors ranging from psychiatrists, to neuroscientists. The research has shown that there are biological factors and psychological factors that could play a role in the way individuals have a gender identity disorder. Biologically, theories and possible evidence are pointing to prenatal care and the size of certain brain structures as being contributing elements to the disorder. Psychologists on the other hand see gender dysphoria as having more of a strict mental cause to it. The theories suggest that abuse as a child or neglect from a mother could impact the child's development and have them mentally confused as to what their identity is. Therefore, the psychological theories are more grounded and impacted by environmental causes rather than physical biological ones. All these studies on gender dysphoria are more important than ever. American society is becoming more accepting of individuals with different genders and sexuality, but there is still a significant of number that has negative views on transgender people. Evidence is crucial in dispelling myths on the nature of gender dysphoria to show people that transgender individuals are either a product of their environment, or are simply born that way. The evidence on long term gender reassignment is also a topic that people suffering from gender dysphoria should look into. A dramatic surgery such as this may not be able to solve their problems, but escalate them and put them on a path towards self-destruction. That is why it is necessary for the public as a whole to weigh in on the theories and evidence, before making any assumptions about the nature of gender dysphoria.

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