Behavioral Genetics Theory

Student's Name

Institution

Professor's Name

Course No

Date

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Behavioral genetics refers to a branch of science that uses genetics methods to study the nature and origin of people's differences in how they behave. While the name of the theory suggests a focus on genetic factors, the field involves broad research of how genes and the environment influence individual behavior, using research methods that allow removal of the confounding of genes and surroundings. Behavioral genetics is a scientific discipline that was founded by Francis Galton in the Nineteenth Century; he was however, discredited during the Second World War.

In the Twentieth Century attention was given to behavioral genetics with lots of studies conducted on inheritance of behavior and mental health. The studies were motivated by the need to come up with a scientific quantifiable way of understanding, studying, and explaining human behavior. The studies used twin and family studies, as well as study of genetic information through selective breeding and crossbreeding. In the Twentieth and Twenty-First Centuries, there has been major progress in technology in molecular genetics, making measuring and modifying genome easier and this has led to major discoveries. Research on behavioral genetics has greatly influenced understanding of how genes and the environment impact behavior. Individual behavior, to a certain degree, is influenced by genes and the influence increases as the person grows into an adult. The environment also plays a significant role but it makes members from the same family more different from each other.

Selective breeding and domesticating animals is one of the earliest evidence that differences in individual behavior might be a result of natural causes. Modern studies of behavioral genetics were started by Francis Galton, a Nineteenth Century scholar and cousin to Charles Darwin. Galton conducted many studies including the ability to inherit human and

mental characteristics; he investigated social and scholarly achievement in the English upper class. In his study, Galton found out that close relatives of people who were of the English upper class had eminent characteristic, and the eminence reduced as the degree of the relationship decreased. He did not eliminate environmental factors and how they impacted eminence, but he started an important conversation on how genes impact behavior (Galton, 1869). Galton introduced multivariate analysis which paved way for Bayesian Statistics that has been widely used in launching statistical enlightenment.

Pedigree designs are used to study behavioral genetics like twin and adoption studies. Quantitative genetic modeling makes it possible to study the extent to which genes and the environment impact behavior of known relatives like parents and their children (Falconer, 2017). In the study of twins, monozygotic twins share 100% of their genes while dizygotic twins share about 50% of their genes. Therefore, the difference in behavior of monozygotic twins can only be caused by the environment they grow up in. Dizygotic twins can differ due to genes and the environment. There is enough evidence that behavior and disorders are influenced by genes and can be inherited; most evidence comes from studying twins where identical twins are more similar to each other than fraternal twins.

The societal motivation behind studying behavioral genetics is to better understand how people behave and apply that understanding to improving their quality of life. Behavior has an impact on health and social sciences; an important part of studying health in the society. The study of behavioral genetics is instrumental in advancing the wellbeing of the society. It helps in treating individuals in the autism spectrum disorder, helps in designing instructions based on analyzing the relationship between the teacher

and the students, helps in developing solutions for individuals with addiction problems, helps in developing programs to treat brain injuries, and strengthens work environments to maximize employees' performance.

Behavior and social thinking is guided by the environment and one's personality. Different fields of psychology focus on one influence over others; situationism suggests that behavior is guided by the environment while dispositionnism suggests that behavior is guided by internal influences. However, modern behavior genetics studies suggest that behavior is guided by both the environment and one's personality. For example, in a class environment where scores are determined by participation, an individual with a reserved personality may be forced to participate because they want to have a good grade.

The conclusion that genes influence behavior has been drawn from other studies, not only twin studies. Evidence studies show that adoptees have more similarities with their biological parents than their adoptive parents. In a study conducted in Minnesota, two monozygotic twins were separated at birth and reunited in adulthood. On reuniting it was discovered that despite the fact that the twins were brought up by different parents in different environments, they shared many similarities like religious attitudes, cognitive abilities, and vocational interests (Bouchard et al., 1990). According to Cautin, (2015) there are many conclusions made from studying behavioral genetics, some of the major ones are; genes influence all behavioral traits and disorders, environmental factors family members more different rather than similar, and gene influence increases relative to importance as a person gets older.

References

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