

Animal Research Ethics and Behavioral Genetics in Psychology

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Introduction

The use of animals in psychological studies has increased despite the advancement in technology and the ability to use other methods to study human behavior. The persistence of the use of animals as subjects in behavioral studies meant to offer recommendations on human subjects is caused by several factors. These factors include the ability to use the data obtained to draw a conclusion on possible human behavior with lesser ethical considerations, the ability to obtain several data sets due to the shorter lifespan associated with animals, and the ability to manipulate the environment associated with the research subjects.

Reasons for using animals in psychological research

Some animals have a lot of similarities to human subjects. Given that the use of humans as research subjects is highly regulated, it is not possible to manipulate the physiological aspects of a human being in order to form the required research conditions without raising ethical concerns. The physiological conditions of interest may include the injection of the research subject to hormonal alters and other compounds and later collecting data on the behavioral effects of the altered hormonal state.

Some behavioral experiments that require invasive procedures like brain surgery and hormonal treatment are illegal in human subjects. The only exception is the use of human victims of disease, which might affect the accuracy of the data obtained. Such research leads to the use of animal subjects that are genetically or behaviourally near humans, making it possible to draw conclusions about possible human responses without necessarily using human subjects. The research question determines the animal that best suits the scenario. Animals such as pigs demonstrate stress responses identical to human responses. Social and eating behavior in humans is best mimicked by rats, making them ideal for dietary behavioral research.

The shorter lifespan of most research animals, like rats, makes it possible to monitor generations and their responses to a given research variable. Given that the use of human subjects restricts the research to fewer generations, using animals to simulate human subjects becomes an accepted procedure. It is also possible to manipulate the physical environment of animals without incurring

many costs. The ability to restrain the movements of the animal gives an added advantage to the research since they can use any study model that gives the most favorable outcome. Controlling the social and physical environment of a human subject is impossible (Ferdowsian, 2011).

Examples

The study of sexual behavior in rats after hormone treatment has been done by several scientists with the findings being used to make conclusions on possible human behavior on treatment with the same hormones. With rats, it is possible to alter all the factors surrounding the research including castration at a given stage of the research. The use of rats makes it possible to avoid the ethical inclinations necessary when using human subjects.

Rats have the same eating habits as humans which explains their presence near human habitation. Carrying out dietary research on rats makes it possible to monitor the behavioral relations of manipulating the dietary behavior of the parents on the offspring. Such conclusions are made possible by the short generation time of rats (He Nan, 2016).

Genetic methods in research

Genetic methods can be used in research to obtain data on the effects of genetic alterations on the behavioral manifestations of the research subjects. An important genetic technique in the study of the physiology of behavior includes experimental mating and controlled breeding in research animals. The resultant generation obtained after the mating of two animals with the required genetic makeup is known as the F1 generation. The F1 generation shows the presence of genetically different organisms in the same lineage, a phenomenon that can be used by research to conclude the influence of genetic constitution on the behavior of a given animal. Crossing the F1 generation in a random mating manner leads to the production of pure breeding lines and, hence, possible animal subjects for the analysis of genetic contributions to the psychological development and manifestations of a given animal sample (Levitt, 2013).

The use of genetic techniques to study behavior is based on the belief in the nature versus nurture analogy in animal behavior. The behavior portrayed by any animal is determined by both the genetic interplay and the environmental contributions. It is believed that the environment plays a major role in shaping the behavior of an organism. The environmental factors, on the other hand, unmask already existent genetically determined abilities from certain behaviors. The genes serve as the blueprints of the traits unmasked by the contribution of the environment. Hereditary studies are used to show the relationship between the behavior of a parent and the offspring on exposure to different environmental conditions.

Examples

By using rats as the subjects of research, scientists have been able to develop animals that adapt to different environments. The different environments include open fields and thermoregulatory nesting. Survival in any environment requires the manifestation of survival behavior and techniques necessary in the given environment. Breeding of different parents with different genetic blueprints has led to the development of animals with the required behavior for the designed environment. The presence of advanced methods of genetic isolation techniques has made it possible to isolate the actual genes coding for a given behavioral advantage and insert it into the study populations as need be.

The use of twin and family studies has helped establish how the interplay of genetic and environmental inputs shapes the phenotypic characteristics of a given person. Associations between research individuals can be through genetic ties or adoption, which provides a good platform to compare the behavioral manifestations of different individuals. When using monozygotic twins, the differences in their behaviors are mainly attributed to the environment rather than genetic interplay. The use of dizygotic twins leads to different conclusions, with their differences in behavior being attributed to the differences in their genetic makeup. In such studies, the environment is treated as a constant factor that affects the research subjects in equal measure. Family models can also be used to observe the differences in behavior between the parents and the offspring due to the genetic interaction without an effect on the environment. It is possible to observe if the offspring shows the behaviors of both parents if they are all maintained in the same environment.

References

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