

PSYCHOLOGY RESEARCH

Psychology experiments on animals aim to investigate human psychological conditions. It is claimed that by using non-human animals, light may be cast upon the nature and treatment of human disorders.

The BUAV believes that this experimentation is morally and scientifically unjustified. Animals used in this type of research can be caused severe physical injury and mental suffering. Research into human psychology should instead be focused upon work which does not cause harm to animals and which uses technology that may be directly applied to human cases.

Past and present research

Psychology experiments on animals have been carried out for many years. A notorious researcher, Harry Harlow, conducted a number of experiments in the late 1950's and 1960's in America that were published in scientific journals. These disturbing experiments, the results of which were fairly obvious, involved using monkeys to investigate the effect of depriving a baby of appropriate maternal care¹. Unsurprisingly, this research found there were profound and damaging effects on the baby monkeys, a fact that could have been discovered by studying children in care².

Psychology research on animals is still conducted today. Governments use taxpayers' money to fund psychology experiments throughout the world. These kinds of experiments take many forms but the impact upon the welfare of the animals used is immense. As these experiments are supposed to mimic distressing human disorders, the impact upon the research animals used is necessarily profound. If the symptoms of psychological disorder can be horrific in the case of humans, it is a reasonable assumption that producing them in animals can cause equally unpleasant results.

What is psychological research?

Psychological research is the study of behaviour and the processes of the mind. There is some crossover with other disciplines such as neuroscience and biological research.

There are many types of psychological research which seek to shed light upon a variety of questions. Basic research is designed to ask fundamental questions about the structure of the brain and the nature of various emotional and cognitive states. There are also more applied areas of psychology, in which attempts are made to understand the effects of specific areas of the brain on behaviour. Animals used in psychology studies may undergo brain surgery, have chemicals administered or be subjected to aversive stimuli such as electric shocks in an attempt to mimic a human condition. Monitoring equipment such as electrodes may also be implanted in their brain.

How many animals are used?

Throughout the world many millions of animals are used in psychological research. In 2002 in the UK alone there were nearly 39,642 reported procedures in which the field of research was classified as 'psychology'³. The majority of animals used were rodents, but there were also procedures carried out on non-human primates, pigs, ferrets, birds and fish.

The Issues

Psychological research on other animals reveals one of the fundamental hypocrisies of vivisection: researchers and their advocates cannot have it both ways, either other animals are not sufficiently psychologically complex to yield meaningful results **or** they share many psychological capacities with humans and, if it is wrong to conduct this research upon humans, it is wrong to inflict it upon other animals. It is not good enough to claim that these

animals are not human and therefore we can use them for any purpose.

It is interesting to note that traditional defences of vivisection draw a fundamental distinction between 'us' (humans) and 'them' (other animals). Using animals in psychological research shows that this is simply a convenient excuse rather than a legitimate rationale, as there have to be some similarities between these two groups in order for the researchers to claim 'meaningful results'. If animals are 'them', what could possibly be learned from driving insane a psychologically different being?

It is becoming clear in other branches of animal research that captive animals exhibit psychological distress when placed in barren cages. Animals who have access to enrichment in their environment perform better in memory tests and have a greater density and number of neurons in their brains⁴. At the very least this shows that the rats and mice in the study are psychologically complex enough to benefit from stimuli.

The question may be asked as to why this work is still conducted upon animals? There is not an easy answer to this, but a simple reason is that it is carried out in this way because it has always been allowed to be carried out in this way before.⁵ When it comes to deliberately inflicting psychological distress researchers can get away with doing things to animals that they never would be allowed to do to humans.

Types of Research⁶

Developmental research

This form of research studies the effects of various factors on the development of infants. Researchers try to recreate known human conditions in infant animals to explore both their short- and long- term effects. Harry Harlow's work, started in 1957 and mentioned above, is an example of such research.

Harlow's work⁷, was based upon inducing depression in infants through the use of 'monster mothers', perhaps his most disturbing work. In this experiment he and a student removed an infant monkey from his/her mother and replaced the

mother with a surrogate. This surrogate was made of cloth and, on command, would eject high-pressure compressed air. The intention of this experiment was to see how the infant would react. The infant, unsurprisingly, clung tightly upon his/her 'mother'. The next experiment was a surrogate mother that rattled the baby, as Harlow put it, "...so violently that the baby's head and teeth would rattle."⁸ Again, the infant clung tighter to their 'mother'. Finally, Harlow constructed a surrogate mother that would eject sharp brass spikes from its body upon command. Yet again, the infants waited for the spikes to recede and clung onto the 'mother', although Harlow notes that the baby was distressed by these continual rebuffs.

Harlow then moved on to producing a *real* monster mother. He reared, in isolation, female monkeys and made them pregnant. When the infant was born, they found that there were a variety of responses to the infant: some ignored them, resulting in developmental problems; and others expressed highly deviant behaviour- crushing the baby's skull with their teeth or smashing the baby's head on the floor and rubbing it to and fro.

This experiment showed what would have been expected, that an infant clings onto what they perceive to be their mother despite this behaviour resulting in injury or confusion. Also, it illustrated that individuals who have experienced a radically impoverished childhood, without maternal care or instruction may not develop the skills to raise their own offspring. These conclusions can and have been clearly seen by observing humans and wild animals.

Neurophysiology

Neurophysiology attempts to understand the structures of the brain and their functions. Surgery is often used to alter animal brain function and the often devastating consequences of this are monitored. An example of this type of research was uncovered by a BUAV undercover investigation carried out at the University of Cambridge in 2002⁹. Twenty marmosets were used to study the effect on brain function of lesions (injections) into the brain. While confined in a container placed against a touch-sensitive screen the marmosets were trained on various discrimination tasks where they had to

respond to the 'correct image' amongst various images flashed up on the screen in front of them for example. During this time the marmosets had their food and water deliberately restricted to make the animals more receptive to food and liquid 'rewards' given during the testing. The marmosets then underwent their first operation. Anaesthetised and with their heads clamped into a metal frame, the marmosets had a total of 18 toxic injections into nine different locations on each side of their brain. Ten experimental marmosets received the 6OHDA toxin and the others had control injections. Cognitive testing began after two weeks. Five to eleven months after the first operation, the marmosets were anaesthetised again and a dialysis probe inserted into the brain to find out whether the damaged brain cells had made any recovery. This operation lasted 8.5 hours, after which marmosets were allowed 7-10 days' recovery before testing recommenced. All the marmosets were killed after 18-24 months.

Another common example of neurophysiological research is the insertion of electrodes into animals' brains in order to record the electrical activity of neurons. This is designed to help with mapping the functions of the various parts of the brain and the connections between these regions. Traditionally, brain activity has been monitored one brain cell at a time but, given the large networks of neurons that comprise the brain, the intention has always been to increase this number. Reports show that a total of 96 electrodes have successfully been implanted into a brain and that the main obstacle to the implantation of more electrodes is the difficulty of analysing the vast volume of data¹⁰.

Clearly this research has profound implications for the welfare of the animals. Highly invasive brain surgery is required to implant the electrodes, and animals used in this way have to live with these implants permanently attached to their skulls.

Psychopharmacology

Psychopharmacology is the manipulation of emotional states or psychological function by the use of chemical compounds. It is part of the process

by which drugs are developed and assessed for the treatment of mental disorders.

Many procedures require drugs to be administered to specific sites of the brain and autopsies to be performed post mortem¹¹.

In one experiment rats were used to conduct studies into the effects of a schizophrenia drug, results of which were reported in the Journal of Psychopharmacology. The experiment investigated the effects of an anti-schizophrenia drug Olanzapine on rats' food intake. The rats were food deprived as motivation, and were administered the antipsychotic drug. The drug works by reducing unusually high levels of brain activity. The study found that Olanzapine increased feeding activity by the suppression of the feeling of fullness¹². Other reported side effects of this drug include distressing symptoms such as headaches, vomiting and diarrhoea¹³.

There are many other fields of experimental psychology which subject animals to equally unpleasant research. These are not unusual studies. The pages of many journals are filled with experiments in which animals are subjected to drug regimens or surgical procedures which cause them a great deal of suffering and use them as though they are simply unfeeling machines or experimental tools.

Non-animal research

There is plenty of scope in improving upon and continuing vital brain/ psychology research without using immoral and potentially misleading animal experiments. In order to map brain function, PET and fMRI brain scans may be used in humans. These are non-invasive techniques that are already in use, but may be incorporated more fully into psychological research. Both techniques are currently used to diagnose conditions such as brain tumours. They generate images that can reveal the desired information. Both techniques are considered to be safe and therefore suitable to be used with human volunteers.

Transcranial magnetic stimulation (TMS) is used to cause safe, temporary and reversible brain 'lesions' in healthy human volunteers. It thus offers a non-

invasive and relevant alternative to many lesioning studies in animals, by providing insight into brain areas which are critical for certain functions¹⁴.

Patients who have suffered specific kinds of brain damage can also be studied. For example, three amnesiac patients with damage limited to the hippocampal formation area of their brain volunteered for intensive neuropsychological studies, while they were alive. They also gave permission for their brains to be analysed post-mortem¹⁵.

There are, very sadly, many humans who suffer from psychological disorders such as these, whose behaviour could be studied in entirely non-invasive ways, and be helped at the same time. There is no need to create more dysfunctional individuals to study these phenomena and the results of this kind of human research would shed more light on *human* psychological disorders than trying to artificially mimic these conditions in other species of animals.

In conclusion

The BUAV is calling for an end to the use of non-human animals in psychological research. We believe that it is cruel and unethical to subject animals to this kind of research. If animals are considered psychologically sophisticated enough to be useful in this type of research, they should have this capacity protected rather than exploited. There are sound scientific reasons for moving away from animal based research towards exclusively human based work using volunteers.

Psychology in education

If you are planning to study psychology at university, it is unlikely that you will be expected to perform tasks using animals. It is generally acknowledged that psychology may be taught, even to degree level, without the use of animals. The number and quality of psychology graduates is testimony to the fact that a good psychology education is possible without the use of animals. As a result there is no requirement for animal use in most BSc and BA psychology programs. This is not universally true so if you do not want to use animals

but still want to study psychology, check with the university before application.

¹ H F Harlow (1959) *Sci Amer* 200:68

² *Child Dev* (1979) Jun 50:283-305

³ *Statistics of Scientific Procedures on Living Animals Great Britain* (2002)

⁴ Jonathan Knight (2001) Animal data jeopardized by life behind bars. *Nature*, Aug:669

⁵ For a general discussion, see Thomas Kuhn, 'The Structure of Scientific Revolutions' University of Chicago Press (1996)

⁶ This list is not exhaustive.

⁷ H F Harlow (1959) *Sci Amer* 200:68

⁸ In: Peter Singer, *Animal Liberation* Thorsons (1991):33

⁹ See <http://www.buav.org/zerooption> for campaigning report and <http://www.buav.org/zerooption/pdf/CambridgeReport.pdf> for full report.

¹⁰ Marina Chicurel (2001) Windows on the Brain, *Nature* July:68-70

¹¹ See 'Research with Animals in Psychology' at: <http://www.apa.org/science/animal2.html>

¹² Z Thorton-Jones, JC Neill, GP Reynolds (2002). The atypical antipsychotic olanzapine enhances ingestive behaviour in the rat: a preliminary study. *J Pharmacology* 16, Issue 1

¹³ <http://www.olanzapine.com>

¹⁴ Stewart, L et al (2001). The role of transcranial magnetic stimulation (TMS) in studies of vision, attention and cognition. *Acta Psychologica* 107:275-291.

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