Harry Harlow Theory & Rhesus Monkey Experiments In Psychology

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Harlow (1958 wanted to study the mechanisms by which newborn rhesus monkeys bond with their mothers.

These infants depended highly on their mothers for nutrition, protection, comfort, and socialization.  What, exactly, though, was the basis of the bond?

The [learning theory of attachment](https://www.simplypsychology.org/learning-theory-of-attachment.html) would suggest that an infant would form an attachment with a caregiver that provides food. In contrast, Harlow explained that attachment develops due to the mother providing “tactile comfort,” suggesting that infants have an innate (biological) need to touch and cling to something for emotional comfort.

Harry Harlow did a number of studies on attachment in rhesus monkeys during the 1950’s and 1960″s.  His experiments took several forms:

Cloth Mother Vs. Wire Mother Experiment

Experiment 1

Harlow (1958) separated infant monkeys from their mothers immediately after birth and placed in cages with access to two surrogate mothers, one made of wire and one covered in soft terry toweling cloth.

In the first group, the terrycloth mother provided no food, while the wire mother did, in the form of an attached baby bottle containing milk.

Both groups of monkeys spent more time with the cloth mother (even if she had no milk).  The infant would only go to the wire mother when hungry.

Once fed it would return to the cloth mother for most of the day.  If a frightening object was placed in the cage the infant took refuge with the cloth mother (its [safe base](https://www.simplypsychology.org/mary-ainsworth.html) ).

This surrogate was more effective in decreasing the youngster’s fear.  The infant would explore more when the cloth mother was present.

This supports the evolutionary theory of attachment, in that it is the sensitive response and security of the caregiver that is important (as opposed to the provision of food).

Experiment 2

Harlow (1958) modified his experiment and further separated the infants into two groups: the terrycloth mother which provided no food, or the wire mother which did.

All the monkeys drank equal amounts and grew physically at the same rate. But the similarities ended there. Monkeys who had soft, tactile contact with their terry cloth mothers behaved quite differently than monkeys whose mothers were made out of hard wire.

The behavioral differences that Harlow observed between the monkeys who had grown up with surrogate mothers and those with normal mothers were;

1. They were much more timid.
2. They didn’t know how to act with other monkeys.
3. They were easily bullied and wouldn’t stand up for themselves.
4. They had difficulty with mating.
5. The females were inadequate mothers.

These behaviors were observed only in the monkeys who were left with the surrogate mothers for more than 90 days.

For those left less than 90 days, the effects could be reversed if placed in a normal environment where they could form attachments.

Rhesus Monkeys Reared In Isolation

Harlow (1965) took babies and isolated them from birth. They had no contact with each other or anybody else.

He kept some this way for three months, some for six, some for nine and some for the first year of their lives. He then put them back with other monkeys to see what effect their failure to form attachment had on behavior.

The results showed the monkeys engaged in bizarre behavior such as clutching their own bodies and rocking compulsively. They were then placed back in the company of other monkeys.

To start with the babies were scared of the other monkeys, and then became very aggressive towards them. They were also unable to communicate or socialize with other monkeys. The other monkeys bullied them. They indulged in self-mutilation, tearing hair out, scratching, and biting their own arms and legs.

In addition, Harlow created a state of anxiety in female monkeys which had implications once they became parents. Such monkeys became so neurotic that they smashed their infant’s face into the floor and rubbed it back and forth.

Harlow concluded that [privation](https://www.simplypsychology.org/maternal-deprivation.html) (i.e., never forming an attachment bond) is permanently damaging (to monkeys).

The extent of the abnormal behavior reflected the length of the isolation. Those kept in isolation for three months were the least affected, but those in isolation for a year never recovered the effects of privation.

Conclusions

Studies of monkeys raised with artificial mothers suggest that mother-infant emotional bonds result primarily from mothers providing infants with comfort and tactile contact, rather than just fulfilling basic needs like food.

Harlow concluded that for a monkey to develop normally s/he must have some interaction with an object to which they can cling during the first months of life (critical period).

Clinging is a natural response – in times of stress the monkey runs to the object to which it normally clings as if the clinging decreases the stress.

He also concluded that early [maternal deprivation](https://www.simplypsychology.org/bowlby.html) leads to emotional damage but that its impact could be reversed in monkeys if an attachment was made before the end of the [critical period](https://www.simplypsychology.org/critical-period.html) .

However, if maternal deprivation lasted after the end of the critical period, then no amount of exposure to mothers or peers could alter the emotional damage that had already occurred.

Harlow found therefore that it was social deprivation rather than maternal deprivation that the young monkeys were suffering from.

When he brought some other infant monkeys up on their own, but with 20 minutes a day in a playroom with three other monkeys, he found they grew up to be quite normal emotionally and socially.

The Impact Of Harlow’s Research

Harlow’s research has helped social workers to understand risk factors in child neglect and abuse such as a lack of comfort (and so intervene to prevent it).

Using animals to study attachment can benefit children that are most at risk in society, can also have later economic implications as those children are more likely to grow up to be productive members of society.

Ethics of Harlow’s Study

Harlow’s work has been criticized.  His experiments have been seen as unnecessarily cruel (unethical) and of limited value in attempting to understand the effects of deprivation on human infants.

It was clear that the monkeys in this study suffered from emotional harm from being reared in isolation.  This was evident when the monkeys were placed with a normal monkey (reared by a mother), they sat huddled in a corner in a state of persistent fear and depression.

Harlow’s experiment is sometimes justified as providing a valuable insight into the development of attachment and social behavior. At the time of the research, there was a dominant belief that attachment was related to physical (i.e., food) rather than emotional care.

It could be argued that the benefits of the research outweigh the costs (the suffering of the animals).  For example, the research influenced the theoretical work of [John Bowlby](https://www.simplypsychology.org/bowlby.html), the most important psychologist in attachment theory.

It could also be seen as vital in convincing people about the importance of emotional care in hospitals, children’s homes, and day care.

References

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