Conditioned Emotional Reactions

By John Watson and Rosalie Rayner (1920)

One theory proposes that because there are very few patterns of emotional reaction during infancy compared to the wide range observed in adulthood, there must be a way of increasing the range of stimuli which provide emotional reactions. It was believed that the early home life of the child acted as the laboratory within which this range could be increased through conditioning. This theory is tested here on one child, Albert B, who was chosen for his strong physical health and emotional stability. Albert was used in four experiments which aimed to answer four questions about conditioning emotional responses;

- Can fear of a previously neutral stimulus be conditioned by presenting it simultaneously with an established negative stimulus?
- Could this conditioned response be transferred to other animals or objects?
- Does this conditioned response change over time?
- If, after a reasonable period, the emotional responses have not died out, how might they be removed?

Establishing a conditioned emotional response.

The testing began when Albert was 11 months old. The procedure is described below;

1. A white rat is presented to Albert who then reaches for the it. As he touches the rat a loud noise is made behind him by hitting a steel bar with a hammer. He is startled and falls backwards.
2. Joint stimulation with rat and sound. This time Albert starts to cry.
3. Joint stimulation is repeated 6 more times and Albert cries and starts withdrawing from the rat as soon as it is presented. .
4. The rat is presented alone. Albert immediately starts crying and quickly crawls away.

This experiment demonstrates that a fear response can be conditioned to a neutral stimuli. It is highly likely that a louder noise would have meant fewer joint stimulations were required.

Transferring a conditioned response to other stimuli.

Five days later Albert was brought in for further testing. A preliminary test where Albert was presented with the rat showed that the conditioned fear response was still present.

1. Albert was first presented with a rabbit. He immediately turned away from the animal and then began to cry. When the rabbit was placed in contact with him he crawled away from it.
2. He was then presented with a dog, he stared at it and shrank back a little. When the dog came closer, Albert turned his head away and began to cry.
3. His reaction was the same when a fur coat was presented to him.
4. When he was presented with cotton wool, he initially kicked it away but after time began to play with it, but made sure only to hold the paper packaging of the wool, and avoided touching the wool itself.
5. Albert was presented with the rat and withdrew his whole body but kept his eyes on the rat and did not cry. His hand was then placed on the rat and the rod was struck resulting in a violent reaction.
6. The rabbit is presented alone. Albert leans away from it and begins to whimper.

It is then decided to change the setting to see if it would have any effect on the conditioned response. Albert was taken to a lecture hall.

7. The rat was presented alone. There was no sudden fear reaction although he did hold his hands away from the animal.
8. The rabbit is presented alone. Albert turned away from the animal.
9. The dog is presented alone. Albert turned away and cried until the dog left.
10. The rat is presented alone, there was a slight negative reaction.
12. The rat is presented alone. No initial reaction, but when the rat was placed nearer he began to whimper and draw back.
13. The rabbit is presented alone. Albert whimpered and fell backwards.
14. The dog was presented alone. There was not much of a reaction until the dog barked, whereupon Albert began wailing and continued until the dog was removed.

This experiment demonstrates that emotional transfers can occur.

**The effect of time on conditioned emotional responses.**

No further emotional experimentation was conducted for a month.

1. The fur coat was presented alone. He withdrew his body and when the coat was placed in contact with him he began to cry.
2. The rat was presented alone. Albert stared at it and stayed still as it crawled towards him. When the rat touched his hand, Albert withdrew it immediately and leaned away. When the rat was placed on him he withdrew his body and covered his eyes with his hands.
3. The rabbit was presented alone. Albert pushed the rabbit away with his feet whilst withdrawing his body. When the rabbit moved towards him he began wailing. When his hand was placed on the rabbit's back, he withdrew it immediately and covered his face with both hands.
4. The dog was presented alone. Albert began to cry but did not fall over backwards as he had done when he dog was last presented.

This experiment demonstrates that emotional responses brought about by conditioning and transferring persist for at least a month, although the there is a reduction in the intensity of the reaction. It is believed that they persist and modify personality throughout life.
Removal of conditioned emotional responses.

Unfortunately Albert was removed from the hospital before the last experiment could take place. It is the authors' beliefs that these responses will persist indefinitely, unless a method for removing them is accidentally hit upon. Three possible methods are suggested:
1. Constantly presenting the stimuli to the child which should result in habituation and reduced response.
2. Try to recondition the object linked to a fear response by presenting it and simultaneously stimulating the erogenous zones. ¹
3. Reconditioning by giving the child sweets or food when the animal is shown.

Incidental Observations

Thumb-sucking as a way of blocking fear and unpleasant stimuli.
During the course of these experiments, especially in the final test, whenever Albert was on the verge of tears or emotionally upset, he would put his thumb in his mouth. The moment he did so, he became impervious to the fear-producing stimuli. Before the conditioned response could be obtained, his thumb had to be removed from his mouth. This phenomenon seems to be present from birth as it also occurs in babies less than 10 days old. Albert only resorted to thumb-sucking in the presence of fearful stimuli and would stop as soon as his toys were presented to him. This indicates that, rather than being the expression of a pleasure-seeking principle as Freud suggests, thumb-sucking is a compensatory device used to block out fear.

Equal importance of fear and love in conditioning.
According to the Freudian school, sex (or love) is the principal emotion in which conditioned responses arise which later limit and distort personality. However, these experiments indicate that fear is as important a factor as love.

Conclusions

It is probable that many of the phobias in psychopathology are true conditioned emotional reactions either of the direct or the transferred type. It is also possible that the persistence of conditioned responses will only be found in people who are not as strong willed. Emotional disturbances in adults cannot be traced back to sex alone, as Freidians would theorise. They must be considered with regards to conditioned and transferred responses set up in infancy and early youth in all three of the fundamental human emotions; love, fear and rage.

¹ By today's standards, it would be unlikely that this practice would receive ethical approval.