

Gelstein (2011)

Human Tears Contain a Chemosignal

This study is used to answer questions on:

Pheromones
Brain Scanning (fMRI)
Evolution (attraction)
Interpersonal Relationships (Biological)

Abstract

The researchers investigated if tears caused by emotion contained pheromones. Previous research has demonstrated that emotional tears have a different chemical make-up than emotional tears. Research has also shown that mice tears contain pheromones. In this study, 50 Israeli males (mean age 28) were asked to watch a sad film. Whilst doing so, they continually smelled either emotional tears from a female or a non-tear solution. The level of sexual arousal in the males was monitored via GSR (a technique that measures skin responses e.g. temperature), self-reporting data and testosterone level. The researchers found that males who smelled the emotional female tear showed decreased GSR and decreased testosterone, both indicators of a low sexual arousal. However, the participants' self-report of sexual arousal did not differ between conditions. The researchers followed up the study by repeating the experiment whilst participants were in an fMRI which monitored the areas of the brain associated with sexual arousal. It was noted that the males exposed to the emotional tear showed less activity in the sexual areas of the brain. The researchers concluded that female tears contain a pheromone that decreases male sexual arousal.



Aim

- To investigate if tears contain pheromones (chemosignals)
- To investigate if female tears reduce sexual arousal in males

Method

Participants

50 males (mean age 28) were recruited for the experiment.

Procedure

Tears were collected from 5 donor women who watched sad films in isolation. A saline liquid was also trickled down the cheek of the women to create a non-tear solution. In smelling the two solutions (emotional tear and non-tear), the 24 males were unable to detect any odour or difference between the two solutions. The males were then assigned to either the tear or non-tear condition.

A drop of the solution was deposited onto a cotton pad that was stuck to the male participant's lip directly under the nose. This ensured that, throughout the experiment, the male was constantly exposed to the solution.

The participant then watched a sad film to generate negative emotions. Arousal was measured before during and after watching the sad film via GSR (skin response), self-ratings of mood and testosterone level. A repeated measures design was used with the participants repeating the experiment the following day with the other solution. The groups were counterbalanced to avoid order effects and a double-blind technique was used (both the participants and the researcher administering the test were unaware of which condition was which).

Results

The males in the emotional tear condition self-reported lower sexual desire than those in the non-tear condition, although the results were not statistically significant.

The males in the emotional tear condition showed a much lower GSR than those in the non-tear condition. A low GSR suggests a low arousal state.

The males in the emotional tear condition showed decreasing testosterone levels whereas the non-tear solution showed little change. Low testosterone is a significant indicator of sexual arousal.

The researchers followed up their study by having the males repeat the experiment whilst in an fMRI. The researchers found that the areas of the brain associated with sexual arousal showed much less activity in the emotional tears condition than in the non-tear condition.

Conclusion

The researchers concluded that female tears contain a pheromone (chemosignal) that reduces sexual arousal in males.

Evaluation

Generalisability

- There was a reasonable sample of 50 male participants but only from Israel.

Reliability

- The experiment took place in a highly controlled environment using the latest technical methods.
- The fMRI adds an objective component to the research study as it is scientific.
- Other researchers attempted to replicate this study and found no link between tears and a reduction in male sexual arousal.

Application to life

- The researchers suggest that the pheromone in tears may have an effect because humans are likely to be in close proximity when crying e.g. hugging and consoling.
- If a pheromone exists in female tears, it would need to be very potent in order to have such a significant effect on males. This is unlikely as most studies examine sweat as carrying pheromones which is produced in much large quantities. Evidence is still unclear.

Validity

- The method used is questionable, despite the attempts at a scientific approach. This is highlighted by the lack of a significant difference in self-reported sexual arousal.
- The situation is an unrealistic one. Watching a sad film is different from experiencing a genuine emotional situation with another person.

Ethics

- Informed consent was obtained from all participants.
- There is some slight psychological issue in that participants were exposed to sad stimuli, but this is not an unnatural exposure and they would be likely to experience this in everyday life.



