# References for features of sadness

Ito et al. reported a strong influence in the upper area of the face in recognizing anger, sadness, and surprise and a strong influence in the lower area of the face in recognizing fear and happiness.

* Itoh M., Yoshikawa S. Relative importance of upper and lower parts of the face in recognizing facial expressions of emotion. *Journal of Human Environmental Studies*. 2011, 9, 89–95. doi: 10.4189/shes.9.89 [[CrossRef](https://doi.org/10.4189%2Fshes.9.89)] [[Google Scholar](https://scholar.google.com/scholar_lookup?journal=Journal+of+Human+Environmental+Studies&title=Relative+importance+of+upper+and+lower+parts+of+the+face+in+recognizing+facial+expressions+of+emotion&author=M.+Itoh&author=S+Yoshikawa&volume=9&publication_year=2011&pages=89-95&doi=10.4189/shes.9.89&)] [[Ref list](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10550163/#pone.0291735.ref006)]

Features:

Distance between left eye-brow right point and nose top point L(22,28)

Distance between right eye-brow left point and nose top point L(23,28)

Distance between left eye-brow right point and nose bottom point L(22,34)

Distance between right eye-brow left point and nose bottom point L(23,34)

Distance between left eye-brow and left eye bottom point L(21,41)

Distance between right eye-brow and right eye bottom point L(24,48)

Sadness is demonstrated by ‘inner brow raiser’ plus ‘brow lowerer’ together with ‘lip corner depresser’.

* Friesen, W. and Ekman, P. 1983. EMFACS-7: Emotional Facial Action Coding System. (1983) Unpublished manual, University of California, California.

Features:

Angle at left eye-brow A(18,20,22)

Angle at right eye-brow A(23,25,27)

Angle at lip left point A(50,49,60)

Angle at lip right point A(54,55,56)

Sadness depress the lip corners.

* Darwin C. (1998). The expression of the emotions in man and anmals. New York, NY: Oxford University Press.

Features:

Angle at mouth upper part A(49,52,55)

Angle at nose with mouth A(49,31,55)

Angle at face bottom point with mouth A(49,09,55)

The facial muscles used in expressions are difficult to activate in the absence of relevant emotions and difficult to inhibit in the presence of relevant emotions. These include two facial actions involved in the expression of sadness: the inner eyebrow raiser (medial frontalis) and the lip corner depressor (triangularis).

* Ekman P., Levenson R. W., Friesen W. V. (1985). Autonomic nervous system activity distinguishes between emotions. Science, 221, 1208–1210.

Features:

Distance between lower lip and chin L(58,9)

Height of lip L(52,58)

Distance between nose and mouth left point L(31,49)

Distance between nose and mouth right point L(31,55)

Distance between mouth left point and mouth right point L(49,55)



