Background:
The AGE reader is a non-invasive device that measures tissue accumulation of advanced glycation endproducts (AGEs) through skin auto-fluorescence (AF) and gives prediction of cardiovascular risk. For the risk prediction, the AGE reader uses a single reference curve, for both females and males, obtained from Caucasian subjects. Based on these reference curves, clinical cut-offs for a low, medium and high AF have been made. This study examines whether these reference values can be used for ethnic populations seen in Qatar. Furthermore, we assess whether gender and smoking affect skin AF in this particular population.

Methods:
Skin AF was measured in 200 Arabs, 99 South Asians and 35 Filipinos. Using multivariate linear regression analysis and adjusting for the covariates age and the presence of type 2 diabetes, we assessed whether ethnicity, smoking and gender were associated with skin AF.

Results:
The Arabs and the Filipinos had a significant higher skin AF than the South Asian population (0.272 (95% CI: 0.138, 0.406), p <0.001 and 0.354 (95% CI: 0.147- 0.561), p=0.001 respectively). This is equivalent to a horizontal shift of 14.6% and 19.0%, respectively. Also, skin AF was significantly higher in women compared to men (0.432 (95% CI: 0.307, 0.558), p <0.001). Smoking was positively associated with skin AF (0.21 (95% CI: -0.01, 0.41), p=0.056), with an increasing effect of number of pack-years smoked on AF (p=0.024).

Conclusions:
The results of this study suggest that the existing reference values should be expanded for ethnicity, gender and smoking. These results also indicate that the use of the AGE reader in clinical settings should be used with caution, since the clinical cut-off points are dependent on various factors such as ethnicity that still need to be studied in greater detail.