Purpose
Emotional distress, in terms of anxiety and depression, is common in sudden cardiac arrest (SCA) survivors. The Hospital Anxiety and Depression scale (HAD) is one of the most used instruments to assess emotional distress. Despite this, measurement properties of HAD have to our knowledge not been evaluated in this group of patients. The aim was therefore to evaluate the psychometric properties of the HAD in SCA survivors, with focus on factor structure.

Materials and methods
Data from the Swedish Registry of Cardiopulmonary Resuscitation was used. In the registry, data is collected 3-6 months after resuscitation by using a questionnaire including HAD. Parallel analyse and confirmatory factor analysis (based on polychoric correlations and a WLSMV estimator) was conducted to evaluate the psychometric properties of the HAD in SCA survivors, with focus on factor structure.

Results
The sample consisted of 488 in-hospital cardiac arrest (IHCA) survivors (mean age 69.4±12.6), 304 men and 184 women.

The parallel analysis, based on a polychoric correlation matrix, supported the hypothesized two factor structure. Two CFA models were examined; I) a baseline model without modifications and II) a model with collapsed response categories (2 and 3) and a cross loading for item 7. Model I showed good fit according to some of the fit indices but not all ($\chi^2(76)=258.0$, $p<0.001$, RMSEA=0.07, 95% CI=0.06-0.08, CFI=0.98, TLI=0.97, WRMR=1.11). Model II (Figure 1) demonstrated excellent fit except for $\chi^2$ ($\chi^2(75)=168.0$, $p<0.001$, RMSEA=0.05, 95% CI=0.04-0.06, CFI=0.99, TLI=0.98, WRMR=0.91).

HAD demonstrated excellent internal consistency according to ordinal alpha, 0.93 for both Anxiety and Depression.

Conclusions
The HAD demonstrated good psychometric properties among SCA survivors. Both Anxiety and Depression, seems to be uni-dimensional measures with good internal consistency. Therefore, HAD can be recommended to assess emotional distress among SCA survivors.