

## Development of psychopathology in adults with congenital heart disease: a 40–53 years follow-up study

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**Background:** Nowadays, more than 90% of patients with congenital heart disease (CHD) reach adulthood. However, little is known about long-term psychopathological problems in these patients.

**Purpose:** To investigate the development of psychological outcomes of adults with CHD operated in their childhood.

**Material and methods:** Our unique, single center, longitudinal cohort-study evaluates a series of consecutive patients who underwent cardiac surgery in childhood between 1968 and 1980 every 10 years. Standardized questionnaires were used to measure psychopathology at 4 follow-up time points (1991, 2001, 2011 and 2021) and outcomes were compared with normative data. Results in the current evaluation were corrected for the Covid-19 stringency index.

**Results:** At the current (4th) evaluation in 2021, 204 patients (46% female, age: 49.9±5.2) participated. Female patients with CHD reported significantly more internalizing problems than the normative group. More specifically,

they reported significantly more somatic complaints. Proxy-reports showed significantly less externalizing problems for males. No significant difference was found between simple and moderate/complex CHD in terms of psychopathology. Correction for Covid-19 pandemic stringency showed no significant effect.

Over time, the percentage of patients scoring in the psychopathological range decreased from the first (1991, 25.4%) to the third follow-up (2011, 1.8%). However, the current study showed a significant increase (9.6%) of the psychopathology levels in comparison with 2011. (figure1)

**Conclusions:** Compared to normative data, female CHD patients reported significantly more internalizing problems, particularly more somatic complaints. Initially, the level of psychopathology decreased over time. However, in the last decade, there was a significant increase in psychopathology, not explained by the Covid-19 pandemic, warranting continuous attention to the psychological health of adults with CHD.

Figure 1. Percentage of patients scoring in the psychopathological range (above the 90<sup>th</sup> percentile), of the 114 consecutive CHD adults who completed the questionnaire at all 4 follow-up.

