

# Letters to the Editor

## Longevity of popes and artists between the 13th and the 19th century

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Longevity has increased steadily through history. Life expectancy at birth was a brief 25 years during the Roman Empire, it reached 33 years by the Middle Ages and raised up to 55 years in the early 1900s.<sup>1</sup> In the Middle Ages, the average life span of males born in landholding families in England was 31.3 years and the biggest danger was surviving childhood.<sup>2</sup> Once children reached the age of 10, their life expectancy was 32.2 years, and for those who survived to 25, the remaining life expectancy was 23.3 years. Such estimates reflected the life expectancy of adult males from the higher ranks of English society in the Middle Ages,<sup>3</sup> and were similar to that computed for monks of the Christ Church in Canterbury during the 15th century.<sup>4</sup>

Similar to landholders and monks, members of the Vatican were also likely, in the past centuries, to be better fed, clothed and sheltered, and to had better medical care and to survive longer than most of their contemporary people. Several steps were required before a cardinal could enter the Conclave, making longevity a necessary condition for being elected Pope. Bearing in mind this consideration, we aimed at investigating whether longevity of Popes was longer than that of other population groups of contemporary people, after having taken into account that Popes had to have reached a certain age before being elected to papacy.

In the past, artists were often on duty for the Vatican and could have shared with the members of the Vatican a better access to food and shelter than other people. However, artists were also more likely than Popes to suffer material deprivation and were characterised by social instability and risky behaviours (e.g. travels, sexual promiscuity). In our opinion, artists (e.g. painters, sculptors) constituted one of the suitable population groups for comparison with Popes with regard to longevity because (i) they were a well-defined population group that maintained its particularity across centuries, (ii) the individual information necessary for the aim of the study (i.e. gender, date of birth, area of birth, date of death) were easily available.

We thus carried on a statistical analysis based on historical data on Popes and on male Italian artists who lived between 1200 and 1900. We choose the 13th to 19th century period because the 13th century marks the beginning of artistic activity and the 19th century roughly marks the end of the pre-antibiotic era. For each Pope elected after 1200, calendar year at birth, calendar year at starting pontificate and calendar year at death were

searched for in books<sup>5</sup> and in the Web. Information was thereafter computerized by means of a standard package. For the same period, we collected the date of birth and the date of death of all Italian male artists who were listed in '*Storia dell'Arte Italiana*', an exhaustive opus on the history of art in Italy.<sup>6</sup>

To make the survival of the two groups comparable, we restricted our analysis to artists who were alive at the ages their contemporary Popes had when elected at the throne of Peter. The study period was divided in two parts to classify Popes by calendar year at death (1200–1599 or 1600–1900). For each period, the minimum age at starting pontificate was used to exclude artists who died before reaching that age (39 and 38 years, respectively). We chose to censor the analysis at 70 years of age because such cut-off represented—over the centuries—a reasonable indicator of longevity (e.g. 75 years as a cut-off would not be a reasonable choice in the first study period because of the very short life expectancy, whereas 60 years could not be a reasonable one in the last period). The Kaplan–Meyer method was used to compute the cumulative survival probability, and the Cox model was used to compute hazard ratios (HRs) and 95% confidence intervals (95% CIs) of death before age 70 of artists, as compared with Popes.<sup>7</sup> The HR were adjusted for century of death (i.e. a proxy of the improvement in survival across centuries).

We found and analysed relevant information on 80 out of 81 Popes (the date of birth of Celestino IV is unknown) elected between 1200 and who died as of 1900 (actually, 1903—when Pope Leone XIII died), and on 426 male artists selected according to the above mentioned criteria.

Between 1200–1599 and 1600–1900, the median age of Popes at starting pontificate increased from 60.0 to 65.5 years, while the median duration of pontificate raised from 6.5 to 11.0 years, respectively (Table 1). The median age at death of both groups increased in the study period, from 66 to 77 years for Popes, and from 63 to 70 years for artists (Table 1).

Figure 1 shows the probability that Popes and artists had of reaching 70 years of age during the study period. Longevity of Popes was significantly longer than that of artists ( $P = 0.02$ ), and through the Cox model we estimated that, after adjustment for century of death, artists had a 1.5-fold higher risk of death before 70 years of age with respect to Popes (HR = 1.53; 95% CI: 1.08–2.16) (data not shown in tables).

In conducting this statistical analysis we had to make some assumptions, which could have had implications on the study findings. In particular, artists cannot be considered representative of the other people who were contemporary of the Popes. Furthermore, we have taken into consideration the necessary condition of being old to start pontificate, but our statistical approach might not have fully addressed such a noteworthy bias.

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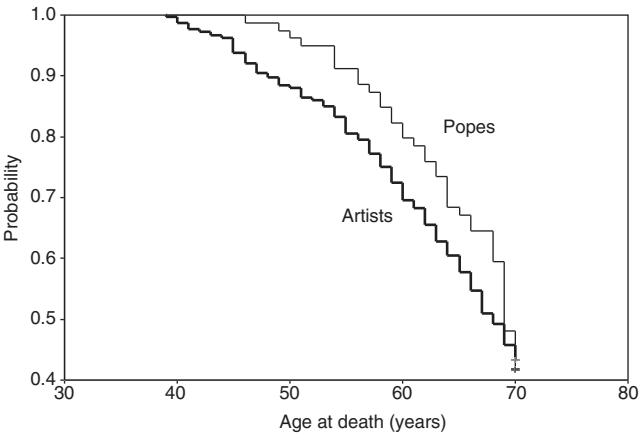
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**Table 1** Age at starting and duration of pontificate and age at death of Popes and artists, according to study period

Period	Years (interquartile range)		Median age at death	
	Median age at starting pontificate	Duration of pontificate	Popes	Artists
1200–1599	60.0 (51.5–67.0)	6.5 (2.0–10.3)	66.0 (59.0–72.0)	63.0 (51.8–71.3)
1600–1900	65.5 (57.5–70.0)	11.0 (4.5–18.8)	77.0 (69.0–82.5)	70.0 (60.0–79.0)



**Figure 1** Probability of Popes and artists to survive up to 70 years of age

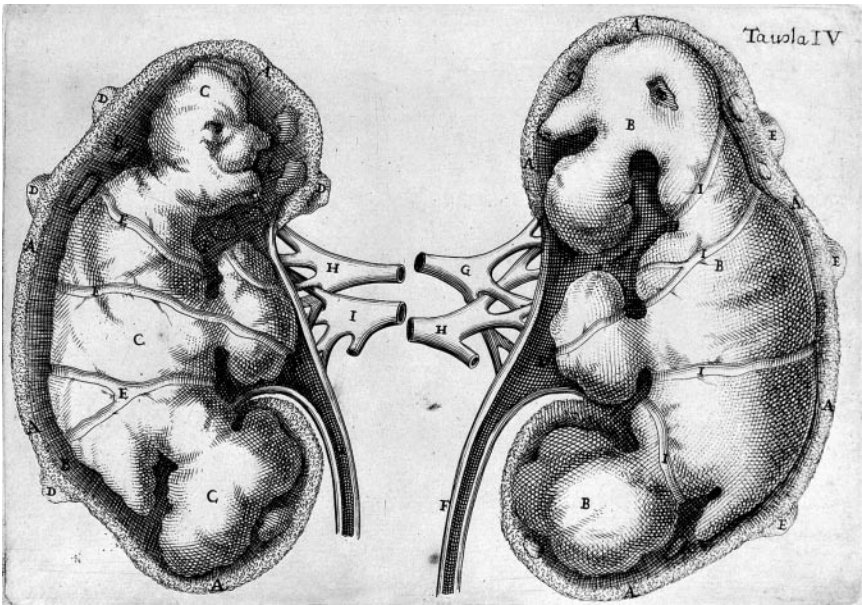
In conclusion, the findings of this analysis suggest that Popes had higher chances of survive up to 70 years than their contemporary artists, even when the effect of age at starting pontificate was taken into consideration. Bearing in mind the above mentioned study limitations, several hypotheses may constitute likely explanations of this finding. Among others, it is

likely that Popes represented in the past centuries a very privileged population group with regard to care and that artists—because of their lifestyle—were probably more at risk than Popes of diseases (like infectious diseases) that could be fatal in the pre-antibiotic era.

### References

- <sup>1</sup> <http://www.utexas.edu/depts/classics/documents/Life.html> (Last accessed 24 October 2005).
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- <sup>5</sup> Martin Greschat, Elio Guerriero (eds). *Storia dei Papi*. Milano: Edizioni San Paolo, 1995.
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Pope Innocent XI's kidneys containing massive stones (Wellcome Library London). Born in 1611 Pope Innocent XI lived to the ripe old age of 78, having survived primitive surgery to remove his kidney stones. He was said to be “loved by all on account of his deep piety, charity and devotion to duty”. (The Catholic Encyclopedia online: <http://www.newadvent.org/cathen/08021a.htm>)