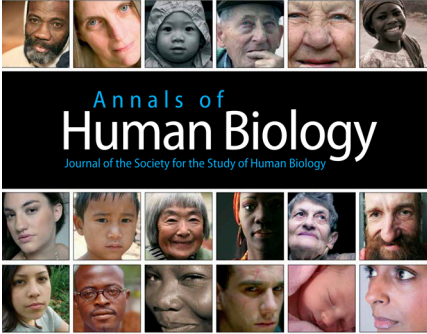


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The European refugee crisis and biological age – is it right to use skeletal maturity as an estimate of chronological age?

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The absence of certified age documentation carried by many refugees seeking sanctuary in Europe has led to countries using biological variables, usually skeletal maturity, to determine chronological age under the rationale that biological maturity is either closely related to chronological age or that it is related closely enough for the small discrepancy or misclassification of those younger than 18 years to be acceptable. However, the discrepancy, no matter how small, has life changing consequences because it results in the loss of any access to the rights and privileges afforded to children including housing and foster care and may lead to repatriation and continued persecution.

The relationship between maturational and chronological age has been a focus of child growth research for almost 80 years. T Wingate Todd developed the concept of maturity indicators in 1937. In his “Atlas of Skeletal Maturation” he defined them as “...those features...which, because they tend to occur regularly and in a definitive and irreversible order, mark...progress towards maturity.” (Todd, 1937). Importantly maturity indicators were not described in relation to chronological age but to the process of maturation. Chronological age is a social construct defined on the basis of a calendar that has astronomical rather than biological roots. Julius Caesar in 46 BC introduced the Julian calendar and Pope Gregory XIII in 1582 the Gregorian calendar; the solar year was divided by the former into 365 days and by the latter into 365.25 days. The Gregorian calendar was only adopted by Britain 170 years later when in 1752 Wednesday September 2nd was followed immediately by Thursday September 14th – a shift of 11 days that had grown by a day from the 10 day difference in the original calendar of 1582.

Whilst chronological age may be an astronomical derivative it does of course have biological associations; chronological age and biological maturity *are* related albeit only loosely at times, but tightly enough at others to imply real biological outcomes. But this is only true at a population level. We can use 18 years of age as a marker of adult maturity because, at a population level, the average 18 year old is mature in all respects. However, a significant percentage of 18 year olds have not reached biological maturity in a number of critical respects such as skeletal and sexual maturity. Of course a lack of full adult maturity in either of these characteristics is not important or significant in determining behaviour at 18 years of age. Biological maturity is not checked by those who monitor 18 years of age as a limit for entry into say, adult only establishments, or age-related activity such as alcohol consumption in the UK. In both situations ones stated age is checked against an identity

document bearing ones date of birth, or astronomical age, and if one is older than 18 years the maturity required to take advantage of the facilities available to adults is assumed to have been reached. In these examples the outcomes of being greater or less than 18 years of age are trivial and the level of maturity an individual has in relation to their chronological age is of no concern. But that is not the case if the 18 year limit applies to ones rights for sanctuary or asylum because of political or social persecution (Cameron, 2015).

It is common in the human biological sciences to use a maturational scale of functional ability such as developmental age, skeletal age, or dental age. However, it is widely recognised that these maturational scales are imperfectly correlated with chronological age. Skeletal age, for instance, has a standard deviation of approximately one year about any chronological age meaning that 95% of the time a child's chronological age could be within ± 2 years of any skeletal age. Skeletal maturity is reached by the average European boy at about 16.5 years of age (Tanner, et al., 2001). This means that whilst 50% of boys are skeletally mature at 16.5 years of age, over 50% of boys are *not* skeletally mature on their 16th birthday and 20% are not mature on their 18th birthday. Thus a decision based on adulthood being defined as the attainment of full skeletal maturity condemns those skeletally advanced 16 and 17 year olds to laws governing adults and those skeletally delayed 18 year olds to laws governing children. It is not the aim of this commentary to say whether those laws are right or wrong, fair or unjust, but this commentary does maintain that the use of a biological maturity indicator to signify a specific chronological age, and thus the fate of an asylum seeker, is inappropriate at best and simply wrong in over one third of assessments (Cole, 2015).

In the UK in the year ending June 2015, there were 2168 asylum applications from unaccompanied asylum seeking children (UASC); 8% of the 27000 applications for that year. Age assessments were carried out on 488 UASC and the UK Government reports that in this time period 58% had a date of birth showing that they were over 18 "despite claiming to be a child when the age dispute was raised". It is not clear where the "date of birth" of those without birth documentation was obtained, but it is clear that 58% of the 488 assessments resulted in an adult age estimation. It is a cause for concern that 58% of those assessments resulted in an adult age estimate and these could well be erroneous determinations if based solely on skeletal maturation. Figures similar to these can be found in most countries of the European Union who have been the target for asylum seeking refugees in the last few years. Almost all use skeletal maturity as the primary method to determine chronological age.

It is scientifically indefensible to ignore the known imperfect association between maturity and age in order to decide who will, or will not, be granted the opportunities afforded by asylum in Europe.

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