Assessing age or assessing needs –

a literature review of age assessment of unaccompanied asylum-seeking children

Bachelor thesis, autumn 2010

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Aldersvurdering af uledsagede asylsøgende børn – en litteraturgennemgang

Resumé

For uledsagede asylsøgende børn har det stor betydning om de er over eller under 18 år. Samtidig ved barnet ikke altid selv, hvor gammelt det er, og det har ikke nødvendigvis dokumentation, der kan bevise alderen overfor Udlændinge myndighederne. Formålet med opgaven er, at belyse hvorledes den medicinske litteratur beskriver og diskuterer forskellige måder at foretage aldersvurdering blandt uledsagede asylsøgende børn. Opgaven er baseret på en systematisk litteraturgennemgang foretaget via PubMed.

De metoder som beskrives og diskuteres i litteraturen er aldersvurdering af knogler og tænder samt aldersvurdering som en del af en holistisk bedømmelse. De problemer som diskuteres er relateret til den biologiske variation og den manglende generaliserbarhed af resultaterne til andre populationer end dem, de er udført på. Den holistiske fremgangsmåde repræsenterer et andet perspektiv, då den ligeledes fokuserer på at vurdere individets behov.

Assessing age or assessing needs –a literature review of age assessment of unaccompanied asylum-seeking children

Abstract

For unaccompanied asylum-seeking children, being over or under 18 years old has important consequences. Simultaneously, unaccompanied asylum-seeking children may not know their age or they may not have documents that can prove their age to Immigration Authorities. An increasing number of age disputes have led to a demand for medical methods to assess age in an objective way. The aim of this study was to find out the methods of age assessment of unaccompanied asylum-seeking children presented and discussed in the scientific medical literature. The study was carried out as a literature review based on a systematic PubMed search.

The methods discussed in the reviewed articles were skeletal and dental age assessment, and age assessment as part of a holistic evaluation. The problems presented in relation to the medical methods' capacity to assess the chronological age were the biological variation and the accuracy of the methods when applied to other populations than those on which the references are built. The holistic approach represents another perspective, as it includes an evaluation of the needs of the individual.

1. Introduction

"Unaccompanied children" are defined as children under the age of 18, who are separated from both parents and are not being cared for by an adult who, by law or custom, is responsible to do so (1). The exact number of unaccompanied children seeking asylum in Europe is difficult to establish due to differences in definitions, registration practices and the quality of national statistics. According to United Nations High Commissioner for Refugees' (UNHCR) statistics from 2009, 15,100 unaccompanied children sought asylum in Europe that year (2). An earlier report by UNHCR based on figures from 28 industrialized countries during the period 2001-2003 presented more detailed characteristics about this group of asylum-seekers (3). The report showed that unaccompanied children constituted 4% of the total number of asylum applications that year. The vast majority of unaccompanied children came from Africa (45%) or Asia (38%), with a minor share coming from Europe (13%). This pattern partly follows the pattern of general asylum flows. Moreover, the report showed that a majority of unaccompanied children were male (72%), and that about two-thirds were 16 to 17 years old.

For unaccompanied asylum-seeking children, being over or under 18 years old has important consequences. If they are over 18 years old their application of asylum may be assessed in a more restrictive way (4) and they do not have the rights to legal and social support entitled to children (5;6). At the same time, not all unaccompanied asylum-seeking children know their age or have documents to prove their age, and during the asylum process the age stated or the documents presented may be questioned by Immigration Services.

There are several reasons for a child not knowing his/her age, or for discrepancies between the age stated by the child and the age given on their documents. The importance of birth dates differ between cultural contexts, banning of calendars (e.g. in Afghanistan), chaotic circumstances surrounding the time of birth, spending time separated from parents, adoption, visa authorities making an inappropriate estimate and systemic or administrative errors or mishaps (7). On a global level, United Nations Children's Fund (UNICEF) estimates that about a third of all children are not registered before their fifth birthday. The highest numbers are found in South Asia (63%) and sub-Saharan Africa (55%), i.e. the same areas where most unaccompanied children come from (8).

1.2. Study aim

The aim of this study was to find out the methods of age assessment of unaccompanied asylum-seeking children presented and discussed in the scientific medical literature.

2. Material and Method

In order to answer the research questions a review of 13 articles from PubMed was undertaken.

The articles were found using the MeSH words “Emigrants and Immigrants” OR Emigration and Immigration” OR “Refugees” OR “Minors” AND “Age Determination by Skeleton” OR “Age Determination by Teeth”. This search strategy resulted in 28 hits. Of the 21 articles in English, 10 were considered relevant. One more article was considered relevant but was not accessible through the university library. Articles were excluded on the basis that that they exclusively discussed age assessment in the perspective of diagnosis and treatment, that they did not deal with the relevant age interval, or that the methods discussed were outdated (articles from 1964 and 1966).

Two additional articles (9;10) were included, as they were considered part of an ongoing debate of which the other contributions were among the hits. One additional article (6) was found replacing the MeSH word “Age Determination by Skeleton/Teeth” with “Anthropometry”. This strategy resulted in 134 hits, of which only one discussed age assessment. This article was also included. An overview of the reviewed articles is presented in table 1.

Table 1

Author	Publication type	Methods adressed	Publication
Aynsley-Green (2009)	Letter	holistic approach	Br Dent J
Benson and Williams (2008)	Case report	holistic approach	Aust. Fam. Physician
Cole (2009)	Letter	dental age assessment	Br Dent J
Garamendi et al. (2005)	Reproducibility of results	skeletal age assessment dental age assessment	Forensic Sci Int
Michie (2005)	Review	holistic approach	Arch Dis Child
Olze et al. (2006)	Review	dental age assessment	Forensic Sci Int
Roberts et al. (2008)	Research	dental age assessment	Br Dent J
Roberts et al. (2009)	Letter	dental age assessment	Br Dent J
Santoro et al. (2009)	Retrospective study	skeletal age assessment dental age assessment	Forensic Sci Int
Schmeling et al. (2001)	Commentary	skeletal age assessment dental age assessment	Lancet
Schmeling et al. (2003)	Retrospective study	skeletal age assessment dental age assessment	Leg Med
Schmeling et al. (2006)	Review	skeletal age assessment	ForensicSciInt
Solheim and Vonen (2006)	Forensic methods and standards/ quality control	dental age assessment	Forensic Sci Int

The described search strategy did not include all literature about the relation between physiological measures and chronological age. However, this delimitation was relevant, as the purpose of this study was not to evaluate the methods of age assessment as such, but to

discuss how age assessment of asylum-seeking children is approached in the literature. In order to describe the different methods of age assessment, the major reference studies on which the methods are based, were referred to.

Some of the articles included in the review discussed age assessment specifically in the context of unaccompanied asylum-seeking children. Other articles referred more generally to legal procedures where age is of importance, including the asylum process. In practice, however, the situation that the chronological age of a young, living individual is unknown or undocumented, is a situation that primarily arises in the asylum process. The age of asylum-seeking children arriving with family members may also be questioned, but in these cases there are more possibilities to assess the age through the parents narrative account.

3. Results

3.1. Skeletal age assessment

During puberty the skeletal age is determined trough the examination of form and size of bone elements and the degree of fusion of the epiphyses with their shafts (4;11;12). The skeletal age then corresponds to the chronological age within some interval. Regarding age assessment through X-rays of hand/wrist, the reviewed articles referred to the Greulich and Pyle atlas (4;11-13). The atlas was compiled in the 1930s (4) and the images are drawn from a reference population of 1000 Americans of northern European descent and of upper social class (7). There are different reference images for boys and girls and the atlas depicts development stages for the age interval 0 to 18 (14).

Greulich and Pyle (14) [p 15] pointed to the fact that the general body maturation, as well as the skeletal development, is orchestrated by the reproductive system. In girls, for example, there is a fairly constant relationship between the menarche and specific stages of skeletal maturation [p 9]. This means that variations in sexual maturation influence the variation in skeletal age, something that was also highlighted by Benson and Williams (7). Greulich and Pyle (14) [p 2] stated that: ”The existence of early-maturing as well as late-maturing strains in our population makes for a wide difference in the age at onset of puberty and, consequently, in the age at which the maximum annual increment in height- the so-called preadolescent spurt of growth- occurs.”

According to Schmeling et al. (12) the standard deviation of the Greulich-Pyle method is 0.6-1.1 years. However, it is important to note that the higher values refer to the higher ages. Benson and Williams (7) noted that “age estimation after the adolescent period is more difficult as changes in the carpals are not clear after 14-16 years of age”. After the fusion of the epiphyseal plates, the Greulich-Pyle method cannot be used to assess age. This, according to Schmeling et al. (12), occurs at the mean age of 17 years in girls and at the mean age of 18 years in boys.

In addition to an X-ray of the hand, Schmeling et al. (12) recommended an X-ray or CT of the sternal end of the clavicle in persons assumed to be older than 18 years, as this is one of the last parts of the skeleton to complete growth. Schmeling et al. (12) concluded that: “If the fusion of epiphyses is complete and an epiphyseal scar is visible, it can be assumed, in the case of women, that the person is at least 20 years old, and, in the case of men, that the person is at least 21 years old. Total fusion of epiphyses with disappearance of the epiphyseal scar was first noted in both sexes at the age of 26 years at the earliest”. The standard deviation yielded by this method was not mentioned in the article.

Santoro et al. (4) recommended an X-ray of the pelvis in addition to the hand/wrist X-ray in “borderline cases of sub-adult subjects”. This was based on the “assumption that iliac crest usually appears at 16 years in males and 15 years in females, and fuses with the iliac bone at 19 years. Furthermore the iliac tuberosity appears at 17 years in males and 15 years in females and fuses in both sexes at 20 years”. The standard deviation yielded by this method was not mentioned.

3.1.1. Social and ethnic variation of bone development

Greulich and Pyle (14) [p 40] noted that "[t]here is no reason to expect that [the standards] will fit exactly any other group" and they pointed to the huge variation in growth and development observed in different groups. Garamendi et al. (13) referred to a large number of studies on the impact of racial, ethnic and socioeconomic characteristics on bone development. They concluded that findings were contradictory and that the quality of the studies was sometimes poor. Black subjects were reported to be ahead of the Greulich and Pyle standards in some studies (15;16), delayed in some (17) and in yet other studies they adhered better to the standards than whites (18). Studies on Chinese, Japanese, Indians and Pakistanis showed a delayed development in the pre-pubertal phase, but that the process of bone age maturity later speeded up in the post-pubertal phase, so that maturation was completed at a similar age to whites (Chinese and Japanese) (19;20) or even ahead of whites (Indians and Pakistanis) (21). In some of the studies the differences were explained by socioeconomic status (22), while other pointed to differences in ethnicity irrespective of socioeconomic factors (17).

According to Schmeling et al. (11;12) the differences in skeletal maturation are caused primarily by differences in socioeconomic status, and not ethnicity. They argue that a low socioeconomic status would result in developmental retardation, which would underestimate chronological age. Thus, it would put the individual in a more advantageous position when being age assessed. Although they did not attribute ethnicity any noteworthy influence, they still concluded that forensic age estimates should take both ethnicity and socio-economic status into account and they recommended further research in this area (12;23).

3.2. Dental age assessment

Tooth development follows a regular pattern, which can be studied on radiographs and correlated to a chronological age within some interval. As long as the teeth are developing, methods of age assessment are based on the identification of developmental stages. After tooth development is completed, age assessment has to be based on regressive changes, although these methods are more imprecise.

There are several systems to classify the degree of maturity. Olze et al. (24) recommended classification according to the system elaborated by Demirjan et al. (25). It defines eight stages (labeled A-H) on the basis of tooth formation, four stages each for the crown and the root. The system was elaborated based on seven teeth, from central incisor to second molar. As these teeth are fully developed before the age of 18 in most individuals, the system is only applicable from age 3 to 17 (25). In late adolescence, assessment has to be based solely on the third molars, which are the only teeth that continue to form. In a study carried out by the American Board of Forensic Odontology (26) Demirjan's method was applied to assess the maturation of third molars, and this study was referred to in most articles (4;11;13;24). The ABFO-study was based on a sample of 823 cases (54% women) with ages ranging from 14.1-

24.0 years. The third molars are the most variable tooth in the dentition and the findings showed a standard deviation for each stage of third molar formation of about two years (26).

Solheim and Vonen (27) presented the methods used for dental age assessment of asylum seekers in Norway. In individuals below 20 years of age, the tables by Haaviko (28), by Andersson et al. (29), by Kullman et al. (30) and by Harris and Nortje (31) are used. The methods represent different systems of classification, but they have in common that they are based on the estimated future length of the root. Olze et al. (24) criticized systems built on estimated root length, which they considered as "a speculative approach". Moreover, classification systems built on tooth size rather than form, are more susceptible to external influences. For example the study by Harris and Nortje (31) showed that the presence or absence of the first and second molar possibly influences the final length of the root of the third molar. A high number of stages, as in the above mentioned methods, also decrease reliability (10;24). This is demonstrated by the study by Kullman (30) which included seven stages of root development (compared to Demirjan's four stages of root development, stages E-H) and which shows a significant inter-observer difference. The methods presented by Solheim and Vonen (27) yield standard deviations of about 2 years (28-31), i.e. similar figures as the ABFO-study.

Santoro et al. (4) concluded that age assessment of younger individuals is more accurate as there are more teeth undergoing development to base the estimate on, and as the morphological stages are shorter. It was recommended that the assessment is based on as many of the third molars as possible, as there are small differences in the speed of development between maxilla and mandible and between the right and left side of the jaw. (26;27) In practice, though, third molars are often congenitally absent or extracted (9;26), or quality of the X-ray may be poor (13).

Solheim and Vonen (27) also discussed methods to assess age based on regressive changes, which is the only alternative when all teeth are fully formed. These methods yield a standard deviation of around ±10 years and they are more imprecise in young individuals where they tend to overestimate the age. In Norway, the method developed by Kvaal et al. (32) is used in individual over 20 years with all teeth fully formed. This method is based on the size of the pulp in relation to the whole tooth. The retrospective study by Schmeling et al. (11) included the DMF index, which describes the average number of Decayed Missing and Filled teeth, in the tooth age assessment. In a later article by some of the same authors (24), they dismissed this method as unsuitable for forensic age estimation of young adults as it is too imprecise, probably, according to them, because the DMF index depends on caries which is an exogenous process.

3.2.1. Social and ethnic variation of tooth development

Like skeletal development, tooth development may be retarded by diseases or nutritional deficiencies or accelerated by rare hormonal conditions. Tooth extraction may also influence development (27). There was, however, disagreement regarding the importance of these

factors. While Solheim and Vonen (27) meant that this factors need to be assessed and taken into account, Roberts et al. (10) claimed that external conditions only have a minimal effect on dental maturation.

Regarding the influence of ethnic origin on tooth development, results from different studies are contradictory and the quality of the studies is sometimes poor (24). Olze et al. (24) referred to a number of studies. According to some of these, mineralization of third molars was about 1 year earlier in black subjects than in whites (33;34), although in the study of Harris and McKee (14) the difference between black and whites referred to the earlier stages, while the gap narrowed for later stages. The ABFO study (26) showed a similar trend, although the number of black subjects included was too small to establish a statistic significant difference. One study referred to found that South African individuals reached the earlier stages of tooth development 1-2 years before the German individuals, while Japanese individuals were about 1-2 years behind (35). Another study, however, showed no difference between Japanese and whites (36). One explanation to population differences may be the palatal dimensions. A larger palate, as observed among black people, provides more space, earlier eruption and thereby earlier mineralization among the developing teeth (24). Olze et al. (24) concluded that "population-specific standards would enhance the accuracy of forensic age estimates based on wisdom tooth mineralization". Solheim and Vonen (27) were of a different opinion. According to them "ethnic difference means less than the individual variation" and that eventual differences is only about months. Nevertheless, they use the table of Harris and Nortje (31) (based on a South African population) in age assessment of black asylum-seekers in Norway.

3.3. Reproducibility of the skeletal and dental age assessment methods

Santoro et al. (4) compared assessed age, by a combination of physical examination, examination of hand/wrist, of dental development and, in selected borderline cases , also of pelvis, with reported age in 52 illegal immigrants and found statistically significant differences. However, as there were no means to establish the "true age", the difference observed cannot yield any conclusion regarding the accuracy of these methods of age assessment.

Schmeling et al. (11) and Garamendi et al. (13) compared assessed age with a combination of physical examination and skeletal and tooth development with verified chronological age, either determined during the course of legal procedure (Schmeling et al.) or as confirmed by the Moroccan Embassy in Spain (Garamendi et al.). In the study by Schmeling et al. (11) the verification sources during the legal procedures comprised "identification procedures, rectified information on their age given by the persons concerned during the proceedings, passports, birth certificates and tapping of phone lines". The result showed a deviation between estimated and verified age of ±12 months in 41 of the cases. However, in the four cases were the deviation between the results exceeded 12 months, this deviation was attributed to the verification sources, not to the age assessment (11). Garamendi et al. (13) found a mean difference of 1.07 years between assessed age by X-rays of the hand and

chronological age, with a standard deviation of 1.76. The authors also added that pitfalls in Morroccan birth registration may have introduced “an incorrect classification bias into the truth criterion used (chronological age of the subject)”.

3.4. Age assessment as part of a holistic evaluation

Benson and Williams (7), Aynsley-Green (5) and Michie (6) argued that age assessment should be carried out as a holistic evaluation. Benson and Williams (7) described the holistic evaluation by citing the Royal College of Paediatrics and Child Health’s policy statement from 2007 where the holistic evaluation was described as “incorporating narrative accounts, physical assessment of puberty and growth, and cognitive, behavioural and emotional assessments.” Furthermore, it stated that “[s]uch assessments will provide the most useful information on which to plan appropriate management” (7).

Benson and Williams (7) presented an “age assessment tool” used in their health service to assist age estimation. The tool takes the form of a chart where estimates based on several different sources are recorded. Sources include documents (visa, passport, childhood immunisation records), health and educational professional’s estimates, physical assessment (height, weight, puberty, developmental stage). Most importance is attributed to the parents’ narrative accounts and the tool gives example of questions that may be used in order to help the parents remember hallmarks during the child’s upbringing. The emphasis on the parents’ narrative account constitutes a problem when assessing the age of unaccompanied children. It was not clear from the article if the age assessment tool is also used when assessing the age of children in the absence of the parents. According to the information on the chart the final assessment will be “within a range of approximately 2 years”. However, the result ”should be expressed as an estimate for educational purposes only”, which is not legally binding.

Aynsley-Green (5) argued that “assessment should be performed in Regional Assessment Centres in a holistic way led by trained social workers, who can interpret the narrative of the individual’s circumstance, and coupled with expert paediatric, psychological and education assessment to determine the needs of the individual”. Michie (6) proposed a similar approach, where skilled, trained assessors work at major ports of entry. They could be “social workers experienced with adolescents, accountable to and audited by a child protection team with a paediatric opinion available to them in some form”.

The accuracy of the holistic approach was questioned by Roberts and Lucas (37) as they pointed out that: “Despite vigorous attempts to establish the validity of the ‘holistic’ approach, it has not been possible to find any objective research indicating the reliability of the age estimates using this holistic method and then comparing these age estimates with the gold standard of a verifiable birth date. In this day of evidence-based clinical practice this is a fatal shortcoming and in our view is unacceptable”.

With this statement, Roberts and Lucas called for objective, evidence-based research to establish the capacity of the “holistic method” to estimate chronological age. However, the medical methods and the holistic approach are based on different perspectives and any

comparison needs to take this into account. While the medical methods focus solely on establishing the chronological age as accurate as possible, the focus of the holistic approach is on evaluating the needs of the individual. Aynsley-Green (5) claimed that the age assessment should be "coupled with expert paediatric, psychological and education assessment to determine the needs of the individual" and the RCPCH policy statement cited by Benson and Williams (7) expressed a similar reasoning. Benson and Williams (7) also stated that an age assessment should be included in the medical or educational assessment, as this "will ensure that they have the correct vaccinations, are taught at suitable educational level and are appropriately served by government institutions such as schools and hospitals, and dentists." Moreover, a correct age helps in assessing the "potential emotional resources for dealing with stressful life events and the attainment of developmental milestones".

4. Discussion

This review study aimed at describing how age assessment of unaccompanied asylum-seeking children is approached in the scientific medical literature. The methods discussed in the reviewed articles were age assessment by skeleton and by tooth and age assessment as part of a holistic evaluation.

4.1. Discussion of results

One of the problems discussed in relation to the methods was the biological variation, which is especially pronounced after the onset of puberty, i.e. the age interval of the majority of unaccompanied asylum-seeking children. As a consequence it is often not possible to determine with accuracy on which side of a given age limit the individual may fall.

As a way to increase the accuracy of age assessment the result of more than one method may be combined, and this approach was recommended in most articles (4;11-13;23;24;27). However, at the moment no satisfactory method to statistically determine the margins of error when different methods are combined has been presented. There is also no reference study available built on the assessment of several features for a single reference population (12). The retrospective studies and studies on reproducibility included in the review all used a combination of methods, but they did not present any satisfactory answer on how to combine the results (4;11;13).

Garamendi et al. (13) offered the most thorough discussion on how to combine the results in a scientifically way, as well as on the ethical dilemmas raised by the statistical variability when medical methods are used for age assessment. They distinguished between what was labeled “technically unacceptable errors (i.e. that an individual over 18 years is estimated as a minor) and “ethically unacceptable errors” (i.e. that a minor is estimated as being over 18 years old). Further, they argued that in the context of forensic age diagnosis, although it is important to reduce technically unacceptable errors, the primary task is to eliminate the ethically unacceptable errors. For this purpose, combining the result of both methods (i.e. skeletal and dental age assessments) was recommended. The combination should be used to rule out the appearance of false positive results (minors being assessed as over 18 years), which will, indispensably, be on the expense of an increase in false negative results (individuals over 18 being assessed as minors).

The other main problem discussed was the accuracy of the methods when applied to other populations than those on which the references are built, as there are seldom reliable reference studies on the population of which most unaccompanied asylum-seeking children belongs to. In most cases, there is even not consensus in which direction the influence of ethnicity affects the results. This means that any age assessment has to limit itself to a more general discussion on the appropriateness of the reference studies used, but that there is not possible to draw any conclusion in relation to the individual.

A major finding of the study is the very different perspectives underpinning the approaches to age assessment within the literature. Because of this, it is not possible to compare the methods and approaches in a fruitful way, unless finding a common framework that encompasses the

different perspectives. One such framework could be UNCHRs “Guidelines on Policies and Procedures in dealing with Unaccompanied Children Seeking Asylum” from 1997 (1). It states that age assessment should take into account “not only the physical appearance of the child but also his/her psychological maturity” and the guiding principle should be “whether an individual demonstrates an “immaturity” and vulnerability that may require more sensitive treatment”. Moreover they also state that, when scientific procedures are used, “margins of error should be allowed” and that “the child should be given the benefit of the doubt if the exact age is uncertain”.

For now, there seems to be no scientific method to determine age of unaccompanied asylum-seeking children with sufficient accuracy in the age group concerned, and the prospect to establish such methods are limited. In this context, the UNCHR guidelines on age assessment offer another perspective to approach the problem. While still acknowledging the scientific methods when used in a way that respects the limitations imposed by the biological variation, it also states that the assessment should take not only the chronological age, but also the psychological maturity should into account. The holistic approach offers such a possibility, as it puts focus on evaluating the needs of the child. However, the holistic approach cannot be understood as simply another “method”, which can be evaluated on the same terms as the scientific methods, within the context of “evidence-based clinical practice”, as proposed by Roberts and Lucas. Rather, it has to be understood as a different approach and a way to fulfill the intentions of the UNCHR guidelines.

4.2. Discussion of methods

The study has several limitations. Firstly, it is important to note that the study limits itself to literature dealing with age assessment in relation to unaccompanied asylum-seeking children. There are a huge number of articles addressing the relation between physiological measures and chronological age in general and it is possible that there may be solutions to some of the problems raised in this study within this bulk of literature. For example, the retrospective studies or studies of the reproducibility of results included in the review all suffered from the methodological problem that the chronological age used as a truth criterion could not be confirmed beyond any doubt. Among the literature excluded from this review there may be studies with a better methodological record.

Secondly, the study does not say anything about how age assessment of unaccompanied asylum-seeking children is carried out in practice. Some of the reviewed articles certainly provided insights into the methods applied in the asylum process and the challenges offered. Solheim and Vonen, for example, described age assessment of asylum seekers in Norway and Benson and Williams (7) presented an age assessment tool used in their health practice. Schmeling et al. (23) presented the results of a questionnaire which was sent to institutions conducting age assessment in Germany, Austria and Switzerland. However, it is important to bear in mind that these accounts are not necessarily representative of actual age assessment practice.

4.3. Conclusion

Unaccompanied asylum-seeking children are a particularly vulnerable group. Most of them come from adverse circumstances, such as war, persecution or poverty, and may have experienced hardships during their flight. Moreover, they have all been separated from their parents. In other words, they are just the kind of group that the human rights law is designed to protect. However, how this intention may best be fulfilled in the process of age assessment is an area that needs more research. Especially studies in order to map how age assessment is undertaken in different countries would be important, as well as the identification of best practices. Another area that needs attention is research on unaccompanied asylum-seeking children's experiences of being age assessed.

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