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Patterns of Ageism in Different Age Groups

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abstract

This paper examines age-based stereotypes in accordance with the Stereotype Content Model in four different age groups: schoolchildren, adolescents, adults and the elderly. Participants were asked to rank graphic portraits of both genders of four age clusters in terms of warmth and competence. The hypothesis that age groups, besides a positive evaluation of their own age cluster, would rate old people in an increasingly negative way as they themselves get older, was not confirmed. On the contrary, young children seem to have the most extreme prejudice against older people. Interestingly, adults and elderly appear to evaluate their own age cluster rather negatively too. Other relations between age groups indicate that ageism does not only affect old people and that it can include positive stereotypes as well. It is also argued, that ageism may have a changing pattern throughout the lifespan.

Keywords: ageism, Stereotype Content Model, warmth, competence

The focus of this study is on the development of stereotypes about the elderly, that is, how people of different ages evaluate old people, from school age through adolescence and adulthood to the senior age group. Another aspect will be what other tendencies are there to observe among these age groups concerning their attitudes to other age clusters as well as to their own. The term "age group" will simply be used to denote people of similar age, like the participating groups of this study, whereas "age cluster" will refer to people who are perceived to belong to certain age-based stereotypical categories which, in this case, were represented by graphic portraits.

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Ageism, i.e., negative prejudice towards old people (especially in terms of competence) is primarily a phenomenon originating from the Western, and particularly the American cultural context, and therefore it is less studied in Eastern European countries (Pecze, 2007). Previous studies mostly concentrate on one age group's stereotypes about the elderly, and thus do not provide a comprehensive insight into the potentially different patterns of ageism throughout the lifespan (Woolf, 1998).

Ageism is a form of prejudice, just like racism and sexism, and can lead to discrimination based merely on the age of an individual (Butler, 2006). Nelson (2004) underlines that while there are a large number of studies discussing racial and gender stereotypes, ageism still remains an insufficiently examined subject. This fact is all the more strange considering that other people's age is of

great importance in everyday life, since it affects the basic rules of social contact and communication (Kite, Deaux, & Miele, 1991). It is also to assume that ageism too can possibly rear its head in every life stage: young children can already perform categorization not only by racial characteristics (Hirschfeld, 2008), but also by age, based on height, facial features and voice (Montepare & Zebrowitz, 2004).

A developmental point of view reveals an important and special characteristic of ageism, namely that the person who bares prejudice against the out-group of elderly people becomes by necessity an in-group member of the former out-group as he or she ages (Nelson, 2004). This makes ageism a stereotype that can "backfire" over time, and that potentially affects everyone in the course of his or her life. On the other hand, it is possible that the age of other people is not equally relevant to different age groups, and that ageism is therefore more typical in certain life stages: Greenberg, Schimel, and Mertens (2004) suggest that the negative attitudes towards old people intensify when individuals themselves are on the edge of becoming old — as if they wanted to deny entering the final chapter of their own lives.

This explanation would be consistent with Tajfel's Minimal Group Paradigm and the Social Identity Theory, according to which people build their identity and self-esteem by seeing themselves as members of desirable in-groups, and making biased comparisons with other out-groups, who can be derogated (Tajfel & Turner, 1986). Later research has shown that the tendency of out-group derogation is less strong than the effect of in-group favouritism (Hewstone, Rubin, & Willis, 2002). However, in his Optimal Distinctiveness Theory, Brewer proposed that a satisfying in-group membership — besides meeting the need of assimilation and identification — provides an ideal degree of differentiation for the individual both within the in-group and between the in-group and other out-groups (as cited in Hewstone et al., 2002). Accordingly, if a person's own group fails to ensure sufficient distinction from other, non-desired groups, the in-group membership could become rather unpleasant. With regard to ageism, a person's in-group (e.g. the adult age group) might provide less and less differentiation from the out-group of the elderly as time goes by, and so — with the weakening positive bias towards the own group — the derogation of the elderly age cluster may become increasingly important in maintaining optimal distance from its members.

Based on these theories, one can assume that the older someone gets, the more negative his or her attitudes become towards older people, before possibly reaching a new, positive social identity with the elderly as an in-group. On the other hand, the younger someone is, the less he or she needs to use old people as an out-group that can be devaluated.

This would predict that ageist prejudice reduces when we examine younger populations. There is empirical evidence that confirms this assumption, and states that children evaluate elderly people positively (Davidovic, Djordjevic, Erceg, Despotovic, & Milosevic, 2007; Thomas & Yamamoto, 1975) or neutrally (Woolf, 1998). However, other studies have reported opposite results (Seefeldt, Jantz, Galper, & Serock, 1977), suggesting that an early negative attitude towards the elderly can develop in children, in which the stereotypes of parents, the effect of media and the changes in family structure probably have an important role (contact with grandparents becomes less frequent in nuclear families, which provides less opportunity for positive experiences; Montepare & Zebrowitz, 2004).

A study of adolescents stated positive attitudes towards the elderly, which showed that time spent with grandparents did not have a significant effect, but socioeconomic status (SES) did: participants of higher SES showed less negative stereotypes (Ivester & King, 1977). Of course, in this case too, there are contradictory data showing that adolescents can also bear negative prejudices against the aged (Doka, 1985; Kastenbaum & Durkee, 1964).

Further results regarding the effect of own age on ageism are also inconsistent. While the fact that only five per cent of an adult population saw middle and late adulthood as the happiest period of life (Woolf, 1998) seems to support the concept of adults refusing ageing,

other findings imply that there may be a process of identification with the elderly age cluster as a new in-group. For example, psychologists of higher age gave better prognoses for their old patients than younger psychologists (Ray, McKinney, & Ford, 1987).

As for the elderly age group, little research has been conducted on how they relate to old age and to their own age cluster. The biggest issue is that most studies have surveyed institutionalized persons, whose negative attitude towards old age can be a consequence of their own bad experiences (Woolf, 1998). However, other results also indicate that older people hold both implicit and explicit negative stereotypes of their own age cluster, while being positively biased towards the younger generation. The younger age group did not show such a pattern, but older people seemed to stereotype themselves (Hummert, Garstka, O'Brien, Greenwald, & Mellott, 2002).

One can see that the literature of ageism is highly contradictory in many cases. As Woolf (1988) points out, this can be accounted for by the diversity and also by the deficiencies of the methods applied, e.g. suggestive composition, and a reductionist approach of a multidimensional phenomenon. As for the latter aspect, the possibility that stereotypes may consist of different dimensions has been ignored for a long time. Earlier theories suggested that stereotypes were uniform reactions towards groups of people (Allport, 1954, as cited in Durante, 2008), and were simply based on social roles, e.g. work roles (Fiske, Xu, Cuddy, & Glick, 1999). In the case of age discrimination too, many studies have discussed stereotypes of the elderly solely in terms of their perceived abilities and competence (or rather incompetence), describing them as people who are regarded as less productive, less flexible, dependent and harder to train (Shore & Goldberg, 2004).

But as Fiske and colleagues (1999) argue, this kind of approach tends to overlook the complex and often ambivalent nature of stereotypes. The Stereotype Content Model (SCM) therefore proposes two separate dimensions in conceptualizing stereotypes: warmth and competence (Cuddy, Fiske, & Glick, 2008). Warmth is composed of traits like friendliness, kindness and trustworthiness, and can be used for assessing the perceived positive or negative intent of others. Competence, on the other hand, represents the capability of people to enact their intents and achieve their goals, and relates to traits like skillfulness, confidence, and intelligence. Based on the different combinations of ratings along these scales, the model describes four categories of stereotypes, two of them being consistent (high/high or low/low), and two of them ambivalent (high/low or low/high) in evaluation (Cuddy et al., 2008). While consistent stereotypes can be regarded as classical, uniform biases of admiration (easily associated with in-group favouritism) and contempt (purely negative stereotypes of derogated out-groups), mixed stereotypes offer a new way of understanding specific attitudes towards certain groups. The envious prejudice targets groups who are evaluated as competent, but are regarded as threatening, or at least unfriendly (Cuddy et al., 2009). On the contrary, people who are viewed as warm but incompetent are affected by the paternalistic prejudice, which was found to be a typical form of stereotype towards the elderly (Cuddy & Fiske, 2002; Cuddy, Norton, & Fiske, 2005). Accordingly, the present research will examine ageist prejudices based on the SCM, the consistency of which has been tested in different cultures (Cuddy et al., 2009), but not in multiple age groups covering the major developmental stages, especially not amongst individuals as young as schoolchildren.

It is also important to note that most of the studies do not try to identify the intrapsychic factors behind ageism (Woolf, 1998). The most influential theory regarding this matter is the presumption that the fear of passing away, and with it the negative attitudes towards old people become more and more intense as individuals age (Greenberg et al., 2004; Nelson, 2005). This conception led to the hypotheses of the present research, in accordance with the Social Identity Theory and the Optimal Distinctiveness Theory.

The two main hypotheses were that 1. a pattern of ageism will unfold, where the evaluation of the elderly age cluster becomes more and more negative (at least on one dimension) as the age of other participating "out-groups" increases, and that 2. every age group will evaluate its own

age cluster the most positively (including the elderly age group), because of the need for a positive social identity.

Method

Participants

A total of 113 participants aged from 9 to 77 years took part in the research.

The schoolchildren group consisted of fourth grade pupils of a primary school in Pilisszentiván (near the capital, Budapest). Some members of the elderly group were also inhabitants of this village, whilst others came from Budapest. Adolescents were recruited from a graduating class of Árpád High School in Budapest, and the adult group from the Budapest Central Library.

One of the objectives when selecting participants was to find persons who could easily be identified as members of one of the four age clusters represented by the pictures (they had to choose the picture that resembles them the most, see Appendix A).

Age limits and self-categorization did not raise any questions or difficulties when it came to schoolchildren and adolescents. Participating children, each of them either 9 or 10 years old, cannot be regarded as adolescents, even with consideration to the period of early puberty, and would be categorized as schoolchildren by various studies, regardless of the cultural context (Berntsson & Gustafsson, 2000; de Assis et al., 2007; Mahajan et al., 2011; Yamamah et al., 2012). Also, with none of the adolescents exceeding the age of 18, they fall under all of the modern categories using upper age limits of 18, 21 or 25 years in defining adolescence (American Psychological Association [APA], 2002).

Because the early ages of young adulthood overlap with some definitions of adolescence (APA, 2002; Erber, 2009), only people from the age of 30 and above were included in the adult group (with the exception of one 28-year-old male, who categorized himself as an adult when completing the test). With the age of 30 being around the midpoint of various age ranges describing young adulthood, this margin seemed to ensure a large enough gap between adolescents and adults.

Separating an elderly age group from adults poses more difficulties. As Erber (2009) points out, there is no solid consensus about when people are considered to enter old age. While participants targeted for the adult age group were not near the age limits of 60 or 65, proposed for marking the end of adulthood and the start of elderly age (World Health Organization [WHO], n.d.), the age of some subjects who were chosen as anticipated members of the elderly age group may raise questions because of these different versions of age limits. Since the beginning of elderly age is widely connected to the point of retirement, which is the age of 65 in many Western countries (WHO, n.d.), participants of this age group were recruited from a local pensioners' club. However, the Hungarian law made it possible for many people to retire as early as the age of 60 (for men) or 55 (for women) before the mid-1990s (Ferge, 1999). Therefore, the age of the elderly participants ranged from 60 to 77 years. If we accept that age categories are more related to social age (roles and expectations connected to specific life stages) than to chronological age (Erber, 2009), it is justifiable to compare these 60-year-old participants to 65 year-old retired people from other countries. Furthermore, in a study assessing the characteristics and the living conditions of the elderly Hungarian population, the Hungarian Central Statistical Office (2004) also categorized people above 60 years as old, underlining that the life expectancy in Hungary is lower than in many other European countries. Based on these facts, it seemed plausible to define participants over 60 years as being elderly. This decision was supported by current research, according to which the perceived onset of old age indeed lies around 60 years across European countries (Age UK, 2011).

The fact that many participants — mostly from the elderly and the adult age group — considered themselves as a member of a different age category than suspected may be explained by the difference between chronological and subjective age. Goldsmith and Heiens (as cited in Erber, 2009) argue that the older someone gets, the bigger the gap between their actual and their subjectively perceived age becomes. People tend to feel younger than they objectively are, and modify their view about age

limits of life periods. This assumption also concords with the result that only participants from older age groups chose for themselves a different age category than expected (i.e., the younger category below).

In order to neutralize the subjective component of categorization, and to see if the pictures used in the test material are recognizable as members of the age clusters they were meant to represent, three independent judges were asked to assign the portraits used in the test (see Appendix A) to different variations of age and gender (see Table 1). These combinations were identical to the age and gender of participants with the minimum and maximum age values of each participating age group. In order to make the categorization task less predictable, the number of choices was increased by including additional descriptions, using rounded averages[1] of the minimum and maximum age values of each age group, which were assigned to random genders. In this way, every potentially questionable border-line case of self-categorization was to be evaluated without any explicit personal consideration. Judges (a 22-year-old female psychology student [Judge 1], a 46-year-old male English and German teacher [Judge 2], and a 66-year-old female kindergarten teacher [Judge 3]) were presented the same portraits as in Appendix A, with the following instruction: "Please observe the following pictures and assign the letter of the most appropriate picture to the given descriptions of individuals (age and gender). You can use the letters more than once.". Table 1 shows the choices of the three judges in each case in the order presented.

As shown, the opinions of the three judges were consistent, and corresponded to the expected choice of categorization in all but one case. The description of a 51-year-old male was matched with the picture of the elderly male by each judge. This might suggest that an even lower age limit for regarding someone as an elderly would be acceptable. However, since the participant's self-categorization was concordant with the expected choice based on the pre-determined age limits, there was no reason to exclude him from the adult age group.

Table 1

Judges' Choice of Portrait for Each Age Group's Minimum and Maximum Ages, and for Their Mean Value

Descriptions	Expected choice	Participant's own choice	Judge 1	Judge 2	Judge 3
40-yr-old female*	C	-	C	C	C
9-yr-old male	A	A	A	A	A
17-yr-old male*	D	-	D	D	D
18-yr-old female	E	E	E	E	E
10-yr-old female	H	H	H	H	H
17-yr-old female	E	E	E	E	E
51-yr-old male	F	F	G	G	G
10-yr-old male*	A	-	A	A	A
77-yr-old female	B	B	B	B	B
28-yr-old male	F	F	F	F	F
60-yr-old female	B	E	B	B	B
68-yr-old male*	G	-	G	G	G

Note: Generated descriptions (mean values with a random gender) are marked with a star. The letters represent portraits from the presented test material (see Appendix A). A: schoolchild (male), B: elderly (female), C: adult (female), D: adolescent (male), E: adolescent (female), F: adult (male), G: elderly (male), H: schoolchild (female).

The only participant who crossed her predicted category was a 60-year old female, who chose the portrait of the adolescent female as the picture, which represented her age most accurately. Based on the judges' evaluation, this choice seemed more than questionable.

Since the post-hoc validation of age limits brought a congruent result, individuals between these minimum and maximum scores categorizing themselves differently than expected (11 adults and 15 elderly), along with those who did not fill in the form correctly (8 people), were excluded from the study. The final sample consisted of 79 participants, 39 males and 40 females, with a mean age of 32.5, divided into four age groups (see Table 2).

Table 2

Sample Size, Gender Distribution and Mean Age of the Age Groups

Age groups	Sample size (persons)	Males	Females	Mean age (years)
1. Schoolchildren	18	9	9	9.6
2. Adolescents	24	12	12	17.8
3. Adults	19	9	10	40.9
4. Elderly	18	9	9	65.8
Total	79	39	40	32.5

[1] In the case of schoolchildren (all of them aged 9 to 10 years) and adolescents (all of them aged 17 to 18 years), the maximum or the minimum age was included again, respectively, but with the opposite gender.

Materials

A self-compiled form was presented to the participants who then ranked graphic portraits of both genders of four age clusters (8 pictures) by different attributes and descriptions (see Appendices A and B). Assigning a picture to the first cell in the appropriate line of the table would mean that the given item suits that represented person the most. Likewise, the picture associated with the 8th cell of the line would embody the given description the least.

The pictures were scanned and computer-adjusted self-drawn portraits, intended to be simple and equally neutral (see Appendix A). The order of the portraits was controlled so that the factor of ageing would not be conspicuous. Also, faces of the same and different genders were placed next to each other, in order to reduce one sided, gender-based judgements.

A separate form handed over to the participants consisted of an introduction, a 10-item rating table, and a short questionnaire for collecting basic data (see Appendix B).

The 10 items of the rating table constituted two scales, the warmth scale and the competence scale. The warmth scale consisted of the following five items: 1. friendly, 2. irritating (reversed item), 3. has a good sense of humour, 4. good-hearted, 5. selfish (reversed item). The items of the competence scale were: 6. can help other people, 7. has difficulties in understanding things (reversed item), 8. is successful in his/her tasks[2], 9. has good manual skills, 10. requires help of others (reversed item). As a result of the eight-cell ranking table, the minimum and maximum scores for each picture were 5 and 40 points on both scales.

It was an important goal to use simple attributes and descriptions for each scale to make them easily understandable for every age group. Therefore, the Perceived Competence Scale for Children (Harter, 1982) was used as a starting point for the competence scale. Harter (1982) suggests that there are three main aspects of competence: cognitive, physical and social competence. The self-developed items were supposed to incorporate either intellectual or physical abilities, with less emphasis on social competence, which might have overlapped too much with the warmth scale due to its relation to successful and positive human interactions. In retrospect, items 6 and 10 ("can help other people" and "requires help of others") thus may seem undesirably connected to social aspects, but the original consideration behind these items was that one can be mastered in certain skills sought by others who do not possess them, and who are accordingly less competent. In this way, being able to help and being independent of other people's help may grant a higher social status, and so can be regarded as traits which are self-profitable — an important aspect of traits belonging to the competence dimension, according to Cuddy and colleagues (2008).

On the contrary, the warmth dimension corresponds more to other-profitable traits, such as being friendly, sincere and good-natured (Cuddy et al., 2008). Seen in this light, having a good sense of humour (item 3 of the warmth scale) might seem to be related to social competence, but again, when developing these items, the emphasis was meant to be on having a pleasant nature, which makes one seem warm and friendly.

In this case, the reliability of the scales cannot be measured with Cronbach's Alpha, since it is not appropriate for rank order scales. Therefore, Spearman's rank order correlations of the items are presented in Table 3.

The closing questions of the test material served the purpose of determining whether the participants identified themselves with their predicted age group (see above), and whether the sympathy and antipathy choices were equally distributed among the pictures or not (which would possibly mean that the portraits were not neutral enough).

[2] In Hungarian, there is no linguistic sex-differentiation in third person reference.

Table 3

Spearman Correlations Between Items of the Warmth and Competence Scales

	Warmth dimension					Competence dimension				
Dimension / Items	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Warmth dimension										
1. friendly	—									
2. irritating	-.504**	—								
3. sense of humour	.330**	-.303**	—							
4. good-hearted	.350**	-.309**	.205**	—						
5. selfish	-.160**	.283**	-.166**	-.449**	—					
Competence dimension										
6. can help others	.153**	-.214**	.265**	.334**	-.360**	—				
7. difficulties underst.	-.187**	.300**	-.287**	-.123**	.127**	-.215**	—			
8. successful	.269**	-.264**	.345**	.208**	-.102*	.300**	-.405**	—		
9. good manual skills	.217**	-.226**	.191**	.167**	-.170**	.268**	-.223**	.262**	—	
10. requires help	-.101*	.127**	-.244**	-.045	-.055	-.333**	.304**	-.413**	-.227**	—

Note: * $p < .05$, ** $p < .01$. Calculating with the strength of the correlations (absolute values), the average inter-item correlation within the competence scale is $r_c = .295$. Average inter-item correlation within the warmth scale: $r_w = .305$. Average correlation between items of the two different scales: $r_{cw} = .203$. After removal of items number 3 and 6: $r_c = .305$, $r_w = .343$, $r_{cw} = .177$.

Procedure

All participants received the test material in printed form. In the fourth grade class, the task had been explained before the papers were handed out. Individual assistance was provided if there were any questions. Also, the text of the schoolchildren's material was edited in order to address them less formally[3]. The adolescent group was given the "adult version" of the form. They too worked in a classroom, but did not need any assistance. The adults and the elderly were asked individually to fill in the form.

Results

The preferences for pictures are illustrated in Table 4, showing that pictures of the adolescent age cluster (especially of the female adolescent) were the most likeable, while pictures of the elderly age cluster were the least preferred.

Table 5 summarizes each age group's warmth and competence ratings for each age cluster. These scores are the mean ratings of female and male faces of the same age.

Table 4

Frequencies of "Most Likeable" and "Most Dislikeable" Choices for Each Picture

Portraits	"Most likeable"	"Most dislikeable"
Schoolchild (male)	6	4
Schoolchild (female)	11	7
Adolescent (male)	14	10
Adolescent (female)	30	1
Adult (male)	10	4
Adult (female)	1	15
Elderly (male)	5	21
Elderly (female)	2	17
Total	79	79

[3] There is a distinction between formal and informal second-person pronouns in the Hungarian language.

Table 5

Participating Age Groups' Warmth and Competence Ratings for Each Age Cluster

Rated age clusters		Participating age groups: School-children	Adolescents	Adults	Elderly	Average (whole sample)
Schoolchildren	Warmth	27.78	19.17	24.16	23.94	23.42
	Competence	25.08	16.98	17.92	18.86	19.48
Adolescents	Warmth	26.31	25.69	25.11	23.72	25.24
	Competence	27.19	26.94	26.16	24.61	26.28
Adults	Warmth	19.72	22.27	20.74	21.58	21.16
	Competence	21.92	26.67	26.18	24.42	24.96
Elderly	Warmth	16.17	22.81	20.03	20.75	20.16
	Competence	15.94	19.42	19.76	22.11	19.32

Warmth

Friedman's test was used in order to determine if there were significant differences in how members of the age groups (and the whole sample) rated different age clusters on the warmth scale. Wilcoxon signed rank tests were run in order to identify specific differences.

A Bonferroni correction is usually recommended in the case of multiple paired comparisons, where the level of significance is divided by the number of paired comparisons. However, this adjustment is often considered overcautious, and can result in ignoring actual significant differences. An alternative of this method, designed to overcome this issue, is the sequential Bonferroni correction (Holm, 1979). In this adjustment, if the number of comparisons is k, the .05 level of significance is divided by k for the smallest *p*-value (strongest difference), then by (k-1) for the second most significant *p*-value, by (k-2) for the third most significant result, and so on. So here for example, in the case of age group comparisons, the most significant result has to have a *p*-value smaller than .05/6 = .008 or than .01/6 = .0017 in order to be regarded as significant at the .05 or .01 level. See Table 6 for the adjusted significance of Wilcoxon *Z*-values, and Table 5 for the compared mean warmth scores.

Friedman's test showed a significant difference between warmth scores of age clusters in the entire sample (see Figure 1) (χ^2 = 20.242, p < .001). As for Wilcoxon tests, the difference between ratings for adults and elderly was not significant (Z = -1.178, p = .239). The differences in rated warmth separating the age cluster of schoolchildren from adolescents (Z = -2.151, p = .031), adults (Z = -2.040, p = .041) and from the elderly (Z = -2.424, p = .015) cannot be regarded as significant either, due to the Bonferroni adjustment. However, a significant difference was found between scores for adolescents and adults (Z = -4.270, p < .001), and adolescents and the elderly (Z = -3.971, p < .001). In other words, adolescents had a clearly higher mean warmth score than the two older age clusters, which were rated equally lower. Furthermore, the perceived warmth of schoolchildren did not differ from the higher scores of adolescents and the lower scores of adults and the elderly either, placing this age cluster in a midway position.

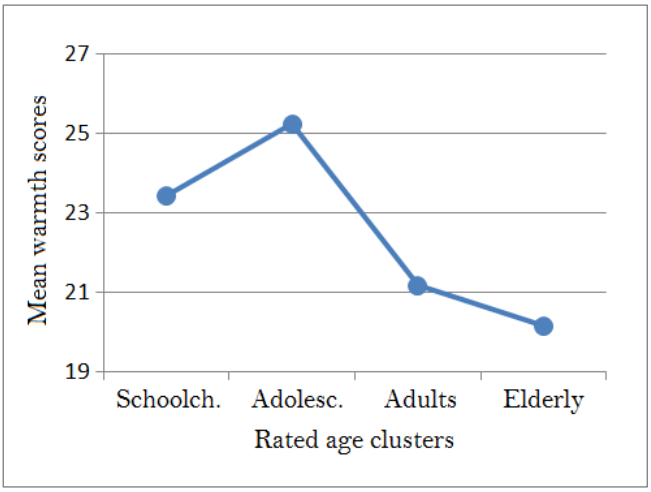


Figure 1. Mean warmth scores for each age cluster on the level of the entire sample.

Another analysis was run for each age group (see Figure 2). According to the Friedman test, a significant difference was found in participating schoolchildren's ratings for age clusters (χ^2 = 24.860, p < .001). Based on the post hoc tests, schoolchildren rated their own age cluster as equally warm as the age cluster of adolescents (Z = -1.092, p = .275). However, differences in warmth scores occurred in almost every other case: schoolchildren and adults (Z = -3.312, p = .001), schoolchildren and the elderly (Z = -3.355, p = .001), adolescents and adults (Z = -3.436, p = .001), adolescents and the elderly (Z = -3.386, p = .001) all showed significant differences. Although scores

of the adult and the elderly age cluster (Z = -2.008, p = .045) did not differ significantly when the Bonferroni correction was applied, there was a tendency of schoolchildren evaluating the elderly even more negatively than adults. So, similarly to the pattern of the whole sample, schoolchildren rated the two younger age clusters higher than the older age clusters.

The age group of adolescents also distinguished between the warmth ratings of age clusters (χ^2 = 9.850, p = .020). However, since adolescents' ratings for adults and their own age cluster did not differ (Z = -1.904, p = 0.057), the only significant difference was between the mean ratings for schoolchildren and adolescents (Z = -3.244, p = .001), where schoolchildren were evaluated less warm.

As for the adult (χ^2 = 5.951, p = .114) and the elderly age group (χ^2 = 2.039, p = .564), the Friedman test did not report any significant differences regarding the warmth scores for different age clusters. In the case of adults there were some age cluster comparisons with p-values near the original significance level — in the relation of adolescents and the elderly, for example (Z = -1.952, p = .051 — but the results were not significant. In the elderly age group all the differences were non-significant, with the lowest p-value being .177 (Z = -1.350).

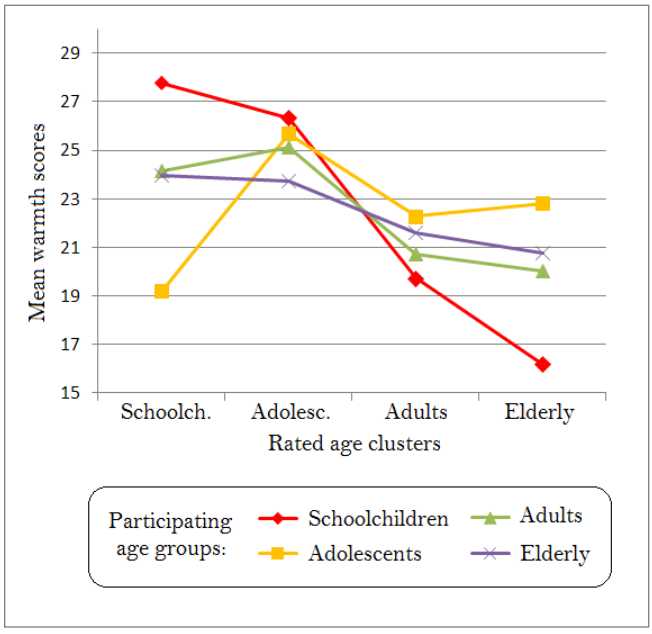


Figure 2. Mean warmth ratings for each age cluster by each participating age group.

Table 6

Wilcoxon Z-values for Compared Warmth Scores of Rated Age Clusters by Each Age Group

	Rated age clusters					
Age groups	C1-C2	C1-C3	C1-C4	C2-C3	C2-C4	C3-C4
Schoolchildren	-1.092	-3.312*	-3.355*	-3.436*	-3.386*	-2.008
Adolescents	-3.244*	-1.572	-1.630	-1.904	-1.515	-.457
Adults	-.545	-1.350	-1.732	-1.809	-1.952	-.458
Elderly	-.611	-1.350	-1.042	-0.959	-.937	-.348
Total	-2.151	-2.040	-2.424	-4.270*	-3.971*	-1.178

Note: * p<.05, after applying a sequential Bonferroni correction. C1=Schoolchildren, C2=Adolescents, C3=Adults, C4=Elderly.

Competence

With regard to the analysis of competence scores, the same procedure was used as described above in the case of warmth scores. See Table 7 for the adjusted significance of Wilcoxon Z-values, and Table 5 for the compared mean competence scores.

The Friedman test found significant differences in participants' ratings for different age clusters (χ^2 = 55.747, p < .001). On the level of the entire sample (See Figure 3), competence scores differed statistically in four cases: when comparing the age cluster of schoolchildren to adolescents (Z = -6.661, p < .001) and to adults (Z = -4.179, p < .001), and when comparing the elderly age cluster to adolescents (Z = -5.412, p < .001) and to adults (Z = -5.836, p < .001). The age clusters of schoolchildren and the elderly (Z = -.038, p = .970), and adolescents and adults (Z = -1.334, p = .182) were not separated in terms of competence values. This means that schoolchildren and elderly people were rated equally lower on this scale, while the adolescent and the adult age clusters both received higher scores.

When examined on the level of age groups (See Figure 4), various tendencies were found. Schoolchildren evaluated their own age cluster as being on the same level of competence with adolescents (Z = -1.661, p = .097) and adults (Z = -1.568, p = .117), and higher than elderly people (Z = -2.722, p = .006). They rated adolescents higher than adults (Z = -2.527, p = .012) and the elderly age cluster (Z = -2.940, p = .003). The mean competence score of adults was also higher than that of the elderly (Z = -2.772, p = .006) in this group.

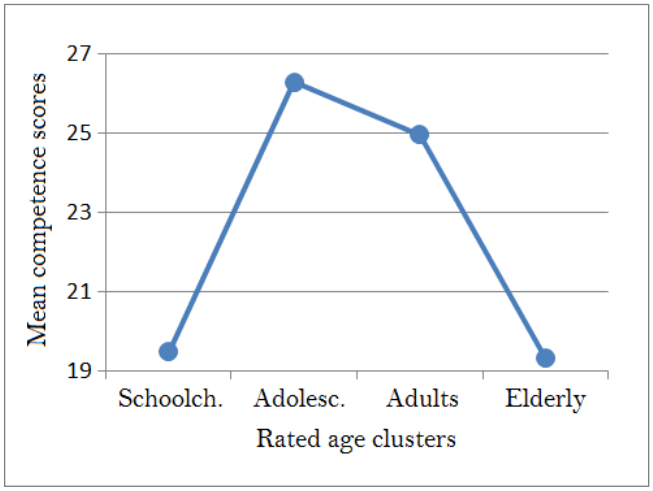


Figure 3. Mean competence score for each age cluster on the level of the entire sample.

Adolescents and adults showed the same pattern in rating age clusters' competence. Both groups gave higher scores to adolescents than to schoolchildren ($Z_{adol.}$ = -4.143, $p_{adol.}$ < .001; $Z_{adul.}$ = -3.362, $p_{adul.}$ = .001) and to the elderly ($Z_{adol.}$ = -3.544, $p_{adol.}$ < .001; $Z_{adul.}$ = -2.810, $p_{adul.}$ = .005), and also rated adults higher than schoolchildren ($Z_{adol.}$ = -3.372, $p_{adol.}$ = .001; $Z_{adul.}$ = -2.919, $p_{adul.}$ = .004) and the elderly age cluster ($Z_{adol.}$ = -3.644, $p_{adol.}$ < .001; $Z_{adul.}$ = -3.465, $p_{adul.}$ = .001). No difference was found between the competence ratings for schoolchildren and the elderly ($Z_{adol.}$ = -1.142, $p_{adol.}$ = .254; $Z_{adul.}$ = -.839, $p_{adul.}$ = .372), or for adolescents and adults ($Z_{adol.}$ = -.243, $p_{adol.}$ = .808; $Z_{adul.}$ = -.196, $p_{adul.}$ = .845).

From the elderly participants' point of view, only schoolchildren were differentiated negatively in terms of competence from the two other age clusters: from adolescents (Z = -3.313, p = .001) and from adults (Z = -2.550, p = .011). Just like the compared values for adolescents and adults (Z = -.207, p = .836), the competence scores of the elderly did not significantly differ from ratings given to adults (Z = -1.010, p = .312), adolescents (Z = -.893, p = .372) or schoolchildren (Z = -1.700, p = .089).

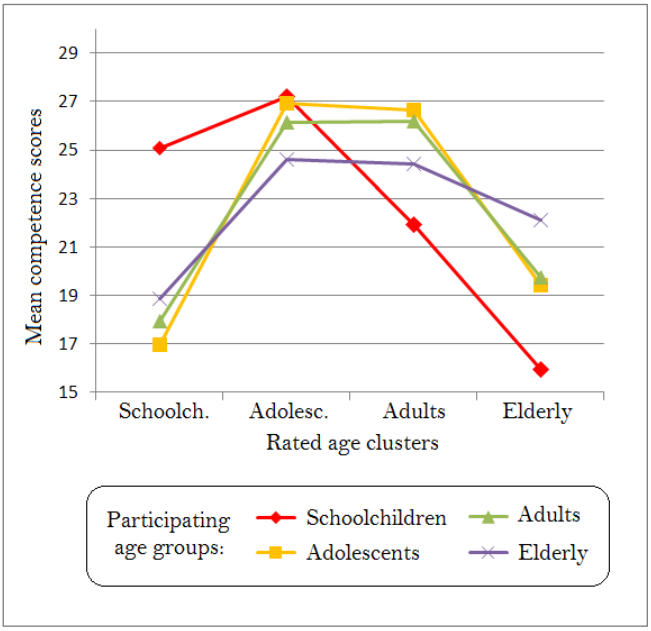


Figure 4. Mean competence ratings for each age cluster by each participating age group.

Table 7

Wilcoxon Z-values for Compared Competence Scores of Rated Age Clusters by Each Age Group

	Rated age clusters					
Age groups	C1-C2	C1-C3	C1-C4	C2-C3	C2-C4	C3-C4
Schoolchildren	-1.661	-1.568	-2.722*	-2.527*	-2.940*	-2.772*
Adolescents	-4.143**	-3.372**	-1.142	-.243	-3.544**	-3.644**
Adults	-3.362**	-2.919*	-.893	-.196	-2.810*	-3.465**
Elderly	-3.313**	-2.550*	-1.700	-.207	-.893	-1.010
Total	-6.661**	-4.179**	-.038	-1.334	-5.412**	-5.836**

Note: * p<.05, ** p<.01 after applying a sequential Bonferroni correction. C1=Schoolchildren, C2=Adolescents, C3=Adults, C4=Elderly.

The relation of warmth ratings to competence ratings

Wilcoxon signed rank tests were run to determine if the participants had rated age clusters differently on the warmth scale than on the competence scale (see Table 5 for the mean scores).

As for the whole sample, significant differences were found between the warmth and competence of schoolchildren (higher warmth, lower competence, Z = -5.384, p < .001), and adults (higher competence, lower warmth, Z = -6.250, p < .001), but not for the adolescent

(Z = -1.612, p = .107) and the elderly age cluster (Z = -.927, p = .354).

When specific age groups were analysed, schoolchildren's differentiation of ratings for the adult age cluster on the two dimensions (higher competence than warmth scores) remains insignificant (Z = -2.159, p = .031) because of the modified level of significance (.05/4 = .0125). Also, there was no difference in warmth and competence scores given to the elderly (Z = -.087, p = .931), the adolescent (Z = -.751, p = .452) or their own age cluster (Z = -1.591, p = .112), both ratings being relatively low in the first case, and high in the latter cases.

In the evaluations of the adolescent age group, adults achieved higher competence and lower warmth scores (Z = -3.346, p = .001), while elderly people were rated as less competent than warm (Z = -2.633, p = .008). The difference between the ratings for schoolchildren (higher warmth, lower competence) cannot be regarded as significant (Z = -1.979, p = .048) due to the Bonferroni-adjustment. Finally, the adolescent age cluster was rated relatively high on both scales and scores did not differ (Z = -.761, p = .446).

The test showed significant differences between adult participants' scale ratings for schoolchildren (less competent than warm, Z = -3.342, p = .001) and also for the adult age cluster (less warm than competent, Z = -3.553, p < .001), but not for adolescents (equally higher scores, Z = -.938, p = .348) and the elderly (equally lower scores, Z = -.327, p = .744)

Finally, the elderly age group showed the same pattern, but with different statistical values for each age cluster (schoolchildren: Z = -3.443, p = .001; adults: Z = -2.856, p = .004; adolescents: Z = -.698, p = .485; elderly: Z = -.923, p = .356).

Discussion

The goal of this study was to examine if ageist stereotypes can be observed in how elderly people, adults, adolescents and young children are evaluated by members of these different age groups. The nature of specific prejudices, assessed with the warmth and competence dimensions of the Stereotype Content Model, can best be described in two different ways: by analysing the convergent and divergent relations of these scales within each rated age cluster, and by comparing the ratings of different age clusters along both dimensions.

Reliability and independence of the warmth and competence scales

As shown in Table 3, significant correlations were found between the items in all but two cases (between items number 4 and 10, and between items 5 and 10), that is, both within and between the warmth and competence dimensions. At first glance, this could mean that the independence of the theoretically distinct constructs of warmth and competence could not be replicated. However, there are some points which are worth considering.

For instance, previous studies using the Stereotype Content Model were largely based on a Likert scale rating method (Cuddy et al., 2009; Durante, 2008). While the ranking method used in this paper has the advantage of delineating a more differentiated picture of stereotypes by not allowing to choose the "easy way" of giving about the same score to multiple objects to be rated, it may also have the disadvantage of a more inconsistent rating style. That is, the structure of the test might have encouraged the participant to look for slight differences in the meaning of items by picking a different "prototype" for each trait, that would embody it the most. If the task had been to focus on one picture at a time and to rate it along different items — which can be more easily recognized as similar elements of specific dimensions — it could have resulted in more consistent warmth and competence scores. In other words, giving the same Likert score to multiple objects following each other may seem more appropriate than choosing the same portrait for the same position consecutively. Also, properly arranging eight pictures requires more effort and planning than choosing one value of a scale at a time. If a picture is accidentally left out of the intended order, a less motivated participant may just insert it elsewhere instead of reorganizing the current ranking. As a result, the likelihood of a portrait receiving the same or

approximately the same score on multiple items of a scale will decrease, making the item scores less homogeneous and the correlations less strong within the given scale.

At the same time, between-scale correlations cannot be expected to be as low as in Likert scale tasks, because the ranking structure does not allow for the distribution of ranks along two scales in a fully independent way. Since there is a continuity in the ranking, and so the rated age clusters cannot be separated with a "gap" in the scores (like when using a Likert scale), and since there is a given latitude for arranging the pictures, there will most probably be pictures and age clusters with similar scores on both scales, which brings these dimensions closer to each other.

However, if we accept that in this case the correlations cannot be expected to be strictly differentiated, it could be informative to examine the relative strength of different correlations. Omitting the direction and calculating only with the strength of the correlations (absolute values), the average inter-item correlation within the competence scale and within the warmth scale is by approximately 33 per cent stronger than the average correlation between items of the two different scales. The removal of two questionable items mentioned above from each scale (items number 3 and 6) would make this tendency become even more explicit, with the average within-scale correlations being by 42 and by 48.4 per cent stronger than the average between-scale item correlations. This relative analysis implies that the two scales may in fact measure different constructs.

Also, the correlations were calculated on the level of single portraits. Since this paper examines the stereotypical perception of warmth and competence based on the average scores of the male and female portraits of an age cluster, it may be more adequate to examine how these scales relate to the level of age clusters, rather than to separate pictures of people.

The comparison of warmth and competence ratings (see the Results section) makes it clear that these two scales could in fact be used to evaluate different aspects of certain age clusters. These differences also take us to the first signs of ageism in the examined sample.

Prejudices of pity, envy, admiration and contempt

Analysing the convergence and divergence of warmth and competence scores can show whether the different types of mixed and consistent stereotypes suggested by the SCM manifest themselves in the present sample.

The significantly higher warmth and lower competence scores indicate the presence of the paternalistic prejudice in how schoolchildren are viewed. They are nice and kind, but lack competence and are thus not treated equally or with envious respect, which is consistent with previous findings (Cuddy et al., 2008; 2009).

On the other hand, adults are generally regarded as more competent than warm. Their skills are to be respected, but they also seem to be less approachable or likeable. This envious stereotype towards adults has also been confirmed earlier (Cuddy et al., 2008; 2009).

Besides these ambivalent prejudices, the other two, consistent type of evaluations could also be observed. Adolescents were rated as warm and competent, which makes them objects of general admiration. This is in line with the pro-youth bias found to be prevalent in older age groups (Hummert et al., 2002). However, the consistent prejudice of contempt towards the elderly observed on the level of the whole sample is in contrast with results supporting the universality of the paternalistic prejudice in evaluating old people (Cuddy et al., 2009). In this study, elderly people were rated as both cold and incompetent, which indicates a purely hostile form of stereotyping the elderly. But even more surprisingly, this result is strongly determined by ratings of one participating group, namely schoolchildren.

By examining evaluations on the level of age groups, it is clear that schoolchildren do not share the view of the other three groups regarding their own age cluster: they do not see themselves as less competent than warm, and what is more, they rated schoolchildren as being as competent as adolescents and adults, and more competent than elderly people. This can be regarded as evidence for the hypothesized need for a positive social identity,

resulting in in-group favouritism (Hewstone et al., 2002), where the positive attitude is extended to the age cluster of adolescents as well. Although schoolchildren showed a tendency to regard adults more competent than warm, the result did not reach the modified level of significance. Given the relatively low scores, "envy" would not be the best term to describe such an attitude anyway, meaning that schoolchildren regard middle-aged people rather both incompetent and cold. They rated the elderly even lower on both dimensions, which indicates a purely negative stereotype towards old people.

In the group of adolescents, a paternalistic prejudice can be observed towards the elderly. The fact that this result could only be reported in the adolescent age group could indicate that they hold more diverse and milder stereotypes towards the old (also, see comparisons of between-cluster ratings below). One could assume that this calm attitude may be explained by adolescents having less fear of the elderly age cluster than children or adults do in some way. Children, with less knowledge about ageing and passing, may fear the unfamiliar (Mérei & V. Binét, 2006), while adults, being closer to the elderly age group than adolescents, may fear the "too familiar" in the sense of non-optimal distinctiveness between in-group and out-group (Hewstone, et al., 2002). In any case, fear and perceived threat increases intergroup tension and can trigger out-group derogation (Hewstone, et al., 2002) resulting in contemptuous stereotypes.

Adults and elderly showed the same pattern in differentiating between the warmth and competence dimensions. While they also regard schoolchildren as being warmer than competent, adolescents are seen as competent and warm. This positive rating corresponds to the adolescents´ ratings of themselves. This indicates that older age groups might indeed show the above mentioned pro-youth bias towards the younger generation, while holding less positive stereotypes toward their own age cluster (Hummert et al., 2002). The latter aspect is supported by the fact that both groups rated adults less warm than competent, while evaluating elderly people relatively low on both scales.

In order to understand these tendencies better, it is important to examine not only the relation of the two dimensions, but the differences between the rated age clusters along each dimension.

Differences in rating various age clusters

As seen above, based on the comparison of the warmth and competence scales, both convergent and divergent ratings can be observed. The magnitude of these scores is revealed by the comparison of ratings given to different age clusters.

The general perception of old people's warmth and competence, supported by the frequencies of preference choices (see Table 4), indicates negative stereotypes towards the elderly. Pictures of older persons were rated as equally incompetent as young children. This result supports findings suggesting that the elderly are regarded as people of substantially degraded skills, often infantilized in different ways, like with the patronizing and simplified form of communication (with higher pitch and exaggerated intonation) termed "secondary baby talk" (Nelson, 2005). Also, this negative prejudice is not compensated with the perception of more warmth. Again, only adolescents rated old people somewhat positively: as not being less warm than other age clusters.

In general, adults too are rated less warm than the youth (especially than adolescents), and in this sense, negative stereotypes affect them too. On the other hand, together with adolescents, they are perceived to be more competent than schoolchildren or the elderly, which was expected from previous studies (Cuddy et al., 2008; 2009).

As mentioned above, an important factor of the general negative stereotypes are the ratings of the schoolchildren group. They regard themselves as competent as adolescents and adults, and by far more competent than old people. Young children have the most polarized stereotypes in terms of warmth as well. They are positively biased towards the groups of their own and that of adolescents.

Adolescents do not seem to share this perception of equality: of all participating groups, they appear to like children the least. They distanced themselves from schoolchildren regarding competence too, and — just like young children — rated their own age cluster as being equal to the neighbouring older age cluster: adolescents seem to think of themselves as competent as adults, ranking these two clusters clearly higher than the elderly. On the other hand, they do not regard old people (or adults) as less warm than their own age cluster.

Adults also evaluated the adolescent and adult age clusters identically competent, placing them by far above the other two groups (i.e., schoolchildren and the elderly). In accordance with the pro-youth bias, described by Hummert and colleagues (2002), it appears that adults do not find their own age cluster very likeable: they put themselves on the same, relatively low level of warmth together with the elderly. However, the tendency of adults rating the younger age clusters higher on the warmth scale was not significant either.

The elderly age group showed the most balanced attitudes towards the different age clusters, and did not seem to distinguish between them in terms of warmth. As for competence, the elderly age group placed their own age cluster between the competent age clusters of adults and adolescents and the less competent schoolchildren.

Taken together, these results suggest an interesting pattern of in-group and out-group dynamics, and can point out important aspects of self-categorization. Apparently, in-group favouritism is prevalent in younger age groups, complemented by the perception of equality with people of the next life stage, although with different types of attitudes: with the terminology of the SCM (Cuddy et al., 2008), schoolchildren regard adolescents as allies (rated both warm and competent), while adolescents see adults as competitors (rated more competent than warm). Either way, people of younger age groups, while having a positive group identity, seem to appreciate the positive aspects of being a little bit older too.

Older age groups, on the other hand, appear to struggle with in-group favouritism in terms of warmth (adults) or both warmth and competence (elderly), and might not have a promising perspective of future values either. Instead, they seem to idealise the young (the "admired" adolescents), and to regard themselves as more or less comparable to younger age clusters. Results suggest that adults may be able to retain one aspect of a positive group identity (competence), and to put themselves ahead of other groups (children and elderly) at least on one dimension. On the other hand, elderly people did not show such a tendency, and do not seem to counterbalance the negative stereotypes of their own age cluster by developing a positive in-group bias (rating old people higher) or excessively devaluating any other age cluster (e.g. the competence of children).

The fact that older age groups do not show sign of in-group favouritism, may partly be explained by self-categorization and the various degrees of identification with different age categories. Since 2010, when the present research had been conducted, a comprehensive study of ageism in Europe was published (Age UK, 2011). In this survey too, participants were asked to categorize themselves as members of different age groups, and also to rate the sense of belonging to their group. Middle-aged participants reported a weaker sense of belonging to their age category than younger or much older participants. As the study concludes, it might be harder to develop a strong sense of belonging to the group of middle-aged or the elderly, because the lack of consensus about the age marking the end of adulthood and the start of old age results in fuzzy categories (Age UK, 2011). As mentioned earlier, a lot of adult and elderly participants were excluded from the present study because of unrealistic self-categorization. Although the remaining subjects showed objectively appropriate self-categorization after filling in the form, it might be reasonable to assume that many individuals had evaluated their actual age cluster with the sense of belonging to another, younger age group. This way, people can stereotype their own in-group without being aware of it (Levy & Banaji, 2002, as cited in Age UK, 2011). Interestingly, while this peculiar tendency of self-categorization was apparent, participants of the Age UK study showed positive attitudes towards the elderly, at least in terms of warmth, even in the Hungarian sample.

This inconsistency could be attributed to methodological differences, namely to the fact that the study mentioned used Likert-type scales for rating age clusters (Age UK, 2011). While people tend to evaluate other people rather positively on Osgood and Likert scales, in accordance with social desirability and the denial of explicit prejudices (Fiske, 2006), a ranking task might serve as a better model for a real-life preference situation, in which implicit stereotypes may show their true nature.

In summary, the hypothesis that the closer a person gets to being regarded as old, the more negatively he or she evaluates elderly people, could not be confirmed. On the contrary, young children proved to have the most negative stereotypes of the old, which contradicts other findings (Davidovic et al., 2007; Thomas & Yamamoto, 1975).

The second assumption, according to which each group would rate its own age cluster the most positively, was only partially fulfilled. Apparently, younger individuals can achieve more easily a positive social identity within their age group, while members of older age groups tend to evaluate their own in-group rather negatively or neutrally along one (adults) or both dimensions (elderly). From a developmental view, this may imply that over time, initially divergent and biased evaluations of different age clusters transform into more convergent and generally neutral attitudes towards people of various ages. According to this, one remedy against ageism could be to get old.

The above results show that individuals of different age groups, including young children can hold stereotypes towards members of any age group. The specific relations of age categories to each other underline the importance of examining ageism in a broader, developmental context, focusing not only on the evaluation of elderly, but aiming to explore and explain perceptions of different ages in various stages of life.

Limitations and further research

A possible disadvantage of the applied method is that the ranking task might inevitably result in different evaluation of age clusters along any dimension. However, the various items in both dimensions would allow an equalization of ratings, if no stable tendencies were present. In any case, examining a larger sample would probably shed light upon the reliability of these results. Also, questionable items of the warmth and competence scales mentioned above should be revised.

An unequal distribution of picture preference may indicate that some portraits were not neutral enough. The replication of the research with another set of faces would be informative regarding this issue.

In order to understand intrapsychic factors behind the observed patterns, it might be useful to combine rating methods with more unstructured ways of data collection, especially in the case of children. Such findings might point out so far ignored, but potentially relevant theories of developmental psychology, and new directions in researching ageism.

References

Age UK. (2011). *Ageism in Europe and the UK*. Retrieved from: http://www.ageuk.org.uk/Documents/EN-GB/Forprofessionals/ageism_across_europe_report_interactive.pdf

American Psychological Association. (2002). *Developing Adolescents: A reference for professionals*. Retrieved from: http://www.apa.org/pi/families/resources/develop.pdf

Berntsson, L. T., & Gustafsson, J. E. (2000). Determinants of psychosomatic complaints in Swedish schoolchildren aged seven to twelve years. *Scandinavian Journal of Public Health*, *28*(4), 283-293. doi:10.1177/14034948000280041201

Butler, R. N. (2006). *Ageism in America*. New York, NY: International Longevity Center.

Cuddy, A. J. C., & Fiske, S. T. (2002). Doddering, but dear: Process, content, and function in stereotyping of older persons. In T. D. Nelson (Ed.), *Ageism: Stereotyping and prejudice against older persons* (pp. 3-26). Cambridge, MA: MIT Press.

Cuddy, A. J. C., Fiske, S. T., & Glick, P. (2008). Warmth and competence as universal dimensions of social perception: The Stereotype Content Model and the BIAS Map. In M. P. Zanna (Ed.), *Advances in Experimental Social Psychology, 40*, (pp. 61-149). New York, NY: Academic Press. doi:10.1016/S0065-2601(07)00002-0

Cuddy, A. J. C., Fiske, S. T., Kwan, V. S. Y., Glick, P., Demoulin, S., Leyens, J., Bond, M. H., . . . Ziegler, R. (2009). Stereotype content model across cultures: Towards universal similarities and some differences. *The British Journal of Social Psychology, 48*, 1-33. doi:10.1348/014466608X314935

Cuddy, A. J. C., Norton, M. I., & Fiske, S. T. (2005). This old stereotype: The pervasiveness and persistence of the elderly stereotype. *Journal of Social Issues, 61*(2), 267-285. doi:10.1111/j.1540-4560.2005.00405.x

Davidovic, M., Djordjevic, Z., Erceg, P., Despotovic, N., & Milosevic, D. P. (2007). Ageism: Does it exist among children? *Scientific World Journal, 7*, 1134-1139. doi:10.1100/tsw.2007.171

de Assis, M. A. A., Rolland-Cachera, M. F., de Vasconcelos, F. A. G., Bellisle, F., Conde, W., Calvo, M. C. M., Luna, M. E. P., Ireton, M. J., & Grosseman, S. (2007). Central adiposity in Brazilian schoolchildren aged 7-10 years. *British Journal of Nutrition, 97*(4), 799-805. doi:1017/S0007114507657936

Doka, K. J. (1985-86). Adolescent attitudes and beliefs toward aging and the elderly. *The International Journal of Aging and Human Development 22*(3), 173-187. doi:10.2190/MKYY-7VGG-J1EL-MKQ4

Durante, F. (2008). *Testing and extending the stereotype content model.* (Doctoral dissertation). Retrieved from: http://paduaresearch.cab.unipd.it (Item ID: 341)

Erber, J. T. (2009). *Aging and older adulthood* (2nd ed.). Hoboken, NJ: Wiley-Blackwell.

Ferge, Zs. (1999). The politics of the Hungarian pension reform. In K. Müller, A. Ryll, & H. J. Wagener (Eds.), *Transformation of social security: Pensions in Central-Eastern Europe* (pp. 231-246). Heidelberg: Physica Verlag.

Fiske, S. T. (2006). *Társas alapmotívumok* [Social beings. Core motives in social psychology]. Budapest: Osiris.

Fiske, S. T., Xu, J., Cuddy, A. J. C., & Glick, P. (1999). (Dis)respecting versus (dis)liking: Status and interdependence predict ambivalent stereotypes of competence and warmth. *Journal of Social Issues, 55*(3), 473-489. doi:10.1111/0022-4537.00128

Greenberg, J., Schimel, J., & Mertens, A. (2004). Ageism: Denying the face of the future. In T. D. Nelson (Ed.), *Ageism: Stereotyping and prejudice against older persons* (pp. 27-48). Cambridge, MA: MIT Press.

Harter, S. (1982). The perceived competence scale for children. *Child Development, 53*(1), 87-97.

Hewstone, M., Rubin, M., & Willis, H. (2002). Intergroup bias. *Annual Review of Psychology, 53*, 575-604. doi:10.1146/annurev.psych.53.100901.135109

Hirschfeld, L. A. (2008). Children's developing conceptions of race. In S. M. Quintana & C. McKown (Eds.), *Handbook of race, racism, and the developing child* (pp. 37–54). Hoboken, NJ: John Wiley & Sons

Holm, S. (1979). A simple sequential rejective multiple test procedure. *Scandinavian Journal of Statistics, 6*, 65-70.

Hummert, M. L., Garstka, T. A., O'Brien, L. T., Greenwald, A. G., & Mellott, D. S. (2002). Using the Implicit Association Test to measure age differences in implicit social cognitions. *Psychology and Aging, 17*, 482-495. doi:10.1037/0882-7974.17.3.482

Hungarian Central Statistical Office. (2004). *Az időskorú népesség főbb jellemzői és életkörülményei [Main characteristics and living conditions of the elderly population].* Retrieved from: http://www.szmm.gov.hu/download.php?ctag=download&docID=656

Ivester, C., & King, K. (1977). Attitudes of adolescents toward the aged. *The Gerontologist, 17*(1), 85-89. doi:10.1093/geront/17.1.85

Kastenbaum, R., & Durkee, N. (1964). Young people's view of old age. In R. Kastenbaum (Ed.), *New thoughts on old age* (pp. 237-249). New York, NY: Springer.

Kite, M., Deaux, K., & Miele, M. (1991). Stereotypes of young and old: Does age outweigh gender? *Psychology and Aging, 6*(1), 19-27. doi:10.1037/0882-7974.6.1.19

Mahajan, P. B., Purty, A. J., Singh, Z., Cherian, J., Natesan, M., Arepally, S., & Senthilvel, V. (2011). Study of childhood obesity among school children aged 6 to 12 years in Union Territory of Puducherry. *Indian Journal of Community Medicine, 36*(1), 45-50. doi:10.4103/0970-0218.80793

Mérei, F., & V. Binét, Á. (2006). *Gyermeklélektan* [Child psychology]. Budapest: Medicina.

Montepare, J. M., & Zebrowitz, L. A. (2004). A social-developmental view of ageism. In T. D. Nelson (Ed.), *Ageism: Stereotyping and prejudice against older persons* (pp. 77-128). Cambridge, MA: MIT Press.

Nelson, T. D. (2004). *Ageism: Stereotyping and prejudice against older persons.* Cambridge, MA: MIT Press.

Nelson, T. D. (2005). Ageism: Prejudice against our feared future self. *Journal of Social Issues*, *61*(2), 207-221. doi:10.1111/j.1540-4560.2005.00402.

Pecze, M. (2007). Aggizmus – sztereotípiák és előítéletek az idősekkel szemben [Ageism – stereotypes and prejudices against the elderly]. *Educatio*, *11*(1), 160-163.

Ray, D. C., McKinney, K. A., & Ford, C. V. (1987). Differences in psychologist's ratings of older and younger clients. *The Gerontologist*, *27*(1), 82-86. doi:10.1093/geront/27.1.82

Seefeldt, C., Jantz, R. K., Galper, A,. & Serock, K. (1977). Using pictures to explore children's attitudes toward the elderly. *The Gerontologist*, *17*(6), 506-512. doi: 10.1093/geront/17.6.506

Shore, L. M., & Goldberg, C. B. (2004). Age discrimination in the work place. In R. L. Dipboye & A. Colella (Eds.), *The Psychological and Organizational Bases of Discrimination at Work* (pp. 203-226). Mahwah, NJ: Erlbaum.

Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behaviour. In S. Worchel & W. G. Austin (Eds.), *Psychology of intergroup relations* (pp. 7–24). Chicago, IL: Nelson-Hall.

Thomas, E. C., & Yamamoto, K. (1975). Attitudes toward age: An exploration in school-age children. *International Journal of Aging and Human Development*, *6*(2), 117-129. doi:10.2190/LRLU-AV99-TH41-YCBM

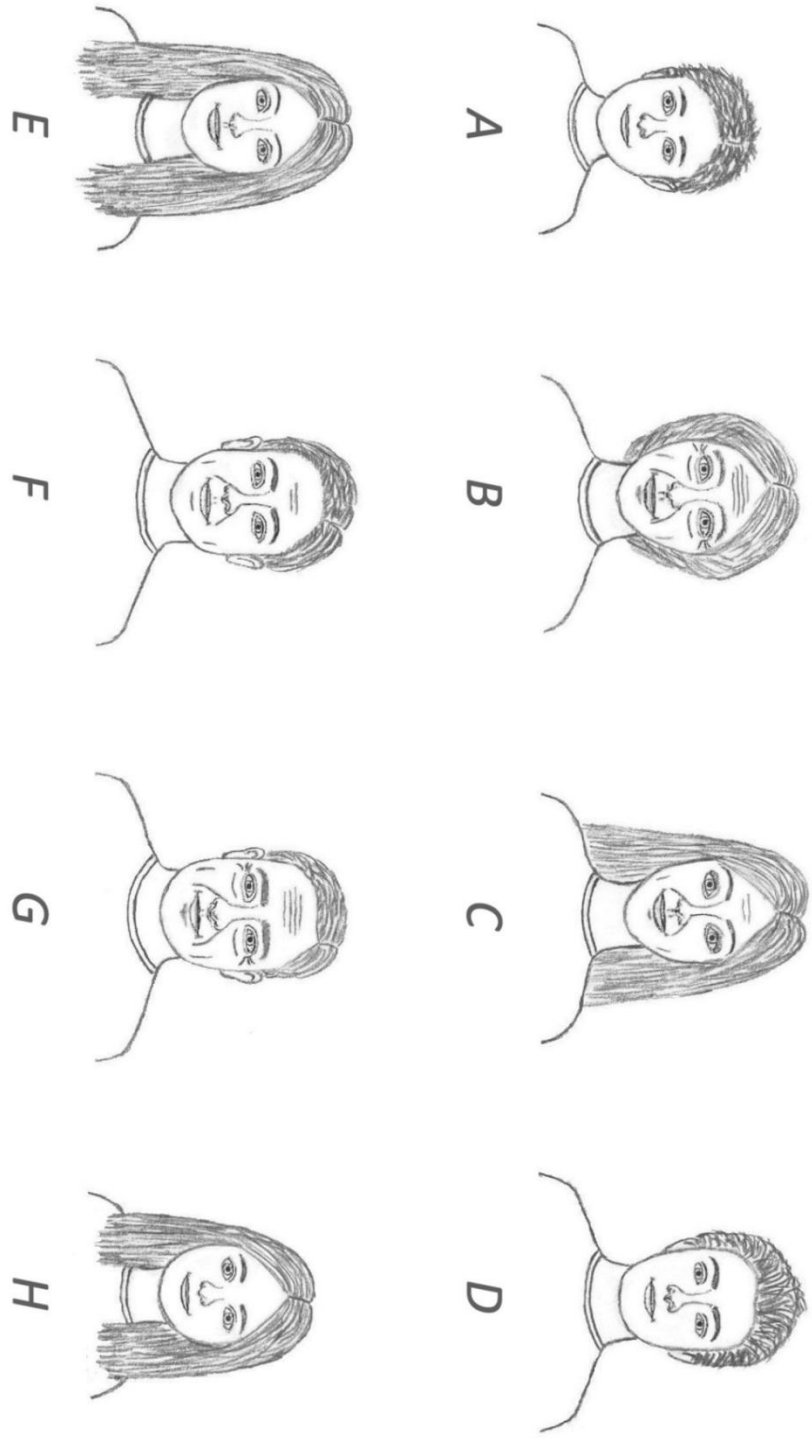
World Health Organization. (n.d.). Definition of an older or elderly person. Retrieved from http://www.who.int/healthinfo/survey/ageingdefnolder/en/

Woolf, L. M. (1998). Ageism. Retrieved from http://www.webster.edu/~woolflm/ageism.html

Yamamah, G., Mabrouk, A., Ghorab, E., Ahmady, M., & Abdulsalam, H. (2012). Middle ear and hearing disorders of schoolchildren aged 7-10 years in South Sinai, Egypt. *Eastern Mediterranean Health Journal*, *18(3)*, 255-260.

Appendix A

The presented test material



Appendix B

English translation of the form filled in by the participants

Dear participant!

Thank you in advance for your help. On a separate sheet you will see drawings of people. After looking at them, please turn to the task on the next page. Thank you.

Below you will see different attributes and descriptions. Please rank the people on the pictures according to how much the given attribute or description suits them.

Fill in the letter of the person in the 1. box, who matches the given description *the most*. Fill in the letter of the person in the 8. box, who matches the given description *the least*. There is no correct or incorrect ranking, any face can be placed anywhere in the line, so listen to your first thoughts.

Please pay attention, so that every number is linked to a letter and that a letter is used only once in a row.

	1.	*2.*	*3.*	*4.*	*5.*	*6.*	*7.*	*8.*
friendly								
irritating								
has a good sense of humour								
can help other people								
has difficulties in understanding things								
is successful in his tasks								
good-hearted								
selfish								
has good manual skills								
requires help of others								

Now please fill in the letter of the picture

a) that you liked the most: ____

b) that you liked the least: ____

c) that resembles you the most (based on age and gender): ____

And finally, please fill in your age and underline your gender.

____-year-old MALE / FEMALE

Thank you for your help.