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The Role of Age at Migration in Socio-Cultural Integration: Testing Mediating Mechanisms among Recent Refugees

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Although age (at migration) is an important factor to influence the socio-cultural integration process of refugees, we know fairly little about exactly how ageing does so. We consider intergroup contact and identification as member of the host city as socio-cultural integration and take the case of recent refugees in the Netherlands to propose and test two mechanisms; language comprehension and health. Using data from 764 recent refugees from the Bridge survey we employ structural equation modelling to test these mechanisms simultaneously for the two measures of socio-cultural integration. Language comprehension mediates the relationship between age and intergroup contact, while health mediates between age and identification. We conclude that a more careful consideration of age in integration literature is necessary, as up till now it has too often been used as a proxy for an array of (social) phenomena. The findings add to better understanding older refugees' challenges in socio-cultural integration.

Keywords: socio-cultural integration, age at migration, recent refugees, language proficiency, health

Introduction

Since the summer of 2015, high numbers of refugees from Syria have sought protection in European nations (Spindler 2015). A pressing issue is how to ensure successful integration of new arrivals into host societies, which concerns 'the process of becoming an accepted part of society' (Penninx 2005: 141), on an economic, as well as social and cultural level (Dagevos 2001). This study focuses on the

integration of recent new arrivals, because the early years after arriving in the host country mark a dynamic phase that has important implications for future integration (Diehl *et al.* 2016). We study socio-cultural integration, as it is more in sync with the start of the integration process—labour market integration is less to be expected (Miltenburg and Dagevos 2019).

One factor that is believed to influence socio-cultural integration is age at migration (Fokkema and De Haas 2011). Some studies view socio-cultural integration as one coherent concept, for which mechanisms all work in the same way and in the same direction (Ersanilli and Koopmans 2010; Fokkema and De Haas 2011; Damen *et al.* 2022a). Other studies have suggested that the relationship between age at migration and socio-cultural integration is not quite unequivocal. For instance, it has been found that those arriving while they were younger develop social contacts with members of the host society at a higher rate than those arriving when they were relatively older (Martinovic *et al.* 2009a). Moreover, those who are older have less contact outside of their own ethnic group (Vervoort *et al.* 2011; Martinovic 2013). However, in terms of identification with (members of) the host society, age at migration seems to take a different direction: older age was found to intensify host country identification (Igarashi 2019; Van Bochove *et al.* 2010; De Vroome *et al.* 2011). These studies that examine socio-cultural integration indicators separately seem to do so because they expect theoretical mechanisms to differ, however, often do not explicitly specify why that is. This often happens because age (at migration) is merely taken into account as a control variable (Van Bochove *et al.* 2010; De Vroome *et al.* 2014; Damen *et al.* 2022a), or as a proxy of age-related phenomena such as host country language proficiency, prejudice, or socialization (Diehl and Schnell 2006; Martinovic *et al.* 2009a; Fokkema and De Haas 2011). Hence, research shows that age at migration partly determines the socio-cultural integration trajectory, but as the underlying mechanisms are often not clearly theorized or tested, we know fairly little about *through which mechanisms* age at migration impacts which indicator of socio-cultural integration—and in which direction it does so.

In addition, the effects that have been found for age at migration have often been researched in non-refugee populations, while migratory conditions differ tremendously between those who fled their country because of war or prosecution, and labour—or other migrants (Bakker *et al.* 2017). Unprepared migrations, asylum procedures, trauma, and ill-mental health may produce significant extra barriers to older refugees' socio-cultural integration, on top of the challenges a new country brings regardless of migrant-status (El Khoury 2019). Besides, the scarce, mainly qualitative small-N studies that have focused specifically on *older* refugees (Bolzman 2014; Oglak and Hussein 2016; Slade and Borovnik 2018), have often favoured those who fled their country of origin at younger ages and have grown older in host societies over those who were forced to migrate *in older age* (Bolzman 2014). This is a qualitatively different phenomenon, because—as we will argue—older ages present people with additional challenges in negotiating a new socio-cultural context as compared to people migrating in younger ages. Likewise, *commencing* an integration trajectory in older age is different from

experiencing integration struggles in later life while having migrated earlier in the life course (Klok 2020). We hence know fairly little about how specifically older refugees embark on socio-cultural integration and which factors are hindering or helping. As especially the early years after arrival are crucial for later integration, it is important we know more of how it unfolds among older refugees, to elude unfavourable trajectories (Damen *et al*. 2022a).

We use representative survey data from the Bridge project with an age range of 16–77 to better understand what (older) age at migration means in the early socio-cultural integration process of refugees, and which mechanisms are salient in predicting integration outcomes. Thereby, we ambition to improve knowledge on how refugees who migrate later in life navigate their new societies socially and culturally.

Theoretical Framework

Age

We first spend a few words on the relationship between migrants' age and ageing processes on the one hand and age at migration on the other in this paper. We study age at migration, but as we study recent refugees, age at migration is almost the same as age at time of interview. This means that the impact of general processes of ageing on early socio-cultural integration are relevant here—indeed, one has to *age* to reach a certain age at migration. Moreover, the physiological and sociological substance of what constitutes age does not change in static and abrupt ways with ones' birthday (Carstensen 2006) but evolves slowly, thereby further intertwining the relationship between ageing processes and age at migration. For the sake of brevity, we consistently refer to age in the theoretical sections of this paper.

Socio-Cultural Integration

The concept of socio-cultural integration is multi-dimensional, and the realm of what can be considered socio-cultural integration is extensive (Ager and Strang 2008). Though many scholars acknowledge this theoretically, operationalizations and analyses seem to lag behind (Ersanilli and Koopmans 2010; Fokkema and De Haas 2011; Damen *et al*. 2022a). Along with others that focus on specific dimensions of socio-cultural integration, both theoretically and empirically (De Vroome *et al*. 2011; Martinovic 2013), this article distinguishes two of its main important characteristics: a behavioural and an attitudinal aspect (Berry 1980). Typically, contact with members of the host society is studied as a behavioural aspect of socio-cultural integration (King and Skeldon 2010) and is considered an important building block for social cohesion in society (Pettigrew 1998). An often-used attitudinal indicator of socio-cultural integration concerns the extent to which migrants experience feelings of belonging, commitment, attachment, and connection to the host society and is often shortly captured as the extent to which one

identifies as a member of the host society (Dagevos 2001; Verkuyten and Martinovic 2012). Identification is often thought of as a dichotomy between the national and the transnational, in which cities as a 'middle ground' are mistakenly ignored (Holston and Appadurai 1999). Particularly local contexts are considered significant in migrants' early integration processes, because they provide the environment in which everyday lives are negotiated (Van Bochove *et al.* 2010; Huizinga and Van Hoven 2018; Ryan 2018) and where local integration policies apply (Damen *et al.* 2022b). Hence, we investigate identification with Rotterdam, a major city in the Netherlands.

Setting the Scene: Syrian Refugees in The Netherlands and in Rotterdam

Between 2014 and 2017, 89,000 people received asylum in the Netherlands. Syrians formed by far the largest group with 58,000 persons granted refugee status. Initially, it mainly concerned men (65%); women and children followed later through family reunification (Huisman 2020). Research reports that about 20% has a higher education diploma (Miltenburg and Dagevos 2019). As in the Netherlands municipalities are responsible for housing refugees more or less in proportion to their population, the bigger cities (Amsterdam, Rotterdam, The Hague, and Utrecht) house a considerable number of refugees, in absolute sense.

Rotterdam is a typical port city and is home to 635,000 inhabitants and around 2000 Syrian refugees. It counts more than 180 different nationalities and was typified as a majority-minority city: The indigenous Dutch population has become a numerical minority (Crul *et al.* 2019). From descriptive comparisons with Syrian refugees in the Netherlands we expect that the Syrian refugee population in Rotterdam does not differ substantially from that in the rest of the Netherlands when it comes to the main demographic characteristics. An exception is educational level: lower educated people seem to be somewhat overrepresented and higher educated somewhat underrepresented in Rotterdam (Van Der Linden and Dagevos 2019).

The Syrian population in the Netherlands is rather young. Slightly more than half of the asylum migrants are under the age of 25 when they receive a residence permit and only 9% is older than 45 (Huisman et al. 2018)—though this figure is 14% for the Rotterdam population (Van Der Linden and Dagevos 2019). In general, refugees are young: according to UNHCR (2022), today, older refugees make up some 4% of the overall population of refugees. Though this is a very small proportion, we agree with Bolzman (2014) that research should not merely be led by statistics when determining what is interesting and not and that older refugees form a qualitatively distinct population with their own realities and struggles. Moreover, 'older age' is a flexible concept, not only determined by biological age. Older age from a western perspective is usually understood as starting with the retraction of active participation in society—basically in the labour force—around the age of 65 (Roebuck 1979). Yet, due to cultural norms about age(ing) and regional life expectancy 'older age' in non-western societies often starts earlier (Slade and Borovnik 2018). Besides, the (physical) ageing process of refugees is accelerated by traumatic experiences and the financial and social

burdens associated with migration (Hatzidimitriadou 2010). The relatively young average age of our population hence does not form an obstacle for studying our research population.

Resources for Socio-Cultural Integration

This investigation draws mainly from the scarce literature on *older* refugees to identify dominant determinants of the two indicators of socio-cultural integration. As such, we propose and test host country language proficiency and health conditions (Chenoweth and Burdick 2001; Bolzman 2014; Slade and Borovnik 2018). We view language proficiency as a mechanism rather than an *indicator* of socio-cultural integration (in contrast to others: Ersanilli and Koopmans 2010; Fokkema and De Haas 2011; Damen *et al.* 2022a), because qualitative research among this population shows that refugees themselves consider learning the language as 'key to integration'—among other goals, to be able to make contact with the Dutch (Damen *et al.* 2022b: 6). We regard language proficiency and health as resources from which refugees can draw, more or less available to them according to their age (Ryan *et al.* 2008). The mechanisms proposed influence the relationships between age on the one hand and social contact and identification on the other, in different ways.

Host country language proficiency Speaking the language of the host society is a valuable resource in making contact and developing relationships with the surrounding population (Ryan *et al.* 2008; Martinovic *et al.* 2009a; Martinovic 2013). As explained, Rotterdam's population is ethnically heterogonous, and multilingual (Crul *et al.* 2019), but Dutch is considered the main language (Dekker and Van Breugel 2019) and a requirement to pass the Dutch civic integration exam and acquire Dutch citizenship. Learning a second language can be understood as being dependent on incentive, exposure, and efficiency (Chiswick and Miller 2001). Age at migration is likely to impact all three mechanisms (Van Tubergen 2010). With higher age, incentives and motivations to invest in residence country language proficiency diminish, because the estimated time to benefit from language skills is shorter (Van Tubergen 2010). Al Ajlan (2021) shows that second language teachers question older refugees' abilities and motivations to learn, which impact the learners' self-esteem, thereby further hampering successful second language acquisition. Furthermore, relatively older refugees are less exposed to the second language, such as at school or on the labour market (Stevens 1999). Consequently, they have less opportunities to bring into practice what they have learned, which is known to improve language skills. Finally, when ageing, cognitive abilities decline, like working memory performance. Therefore, older migrants are less efficient in learning the host country language than younger refugees (Stevens 1999). Hypothesis 1a thus reads: *Age at migration is negatively associated with Dutch language proficiency, which in turn hinders contact with members of the host society*.

Language is an important marker of culture (Riley 2007). Antonsich (2010) argues that language implies particular ways of interpreting and conveying

meaning, thereby constructing reality. Sharing that language with others who understand what you mean—beyond just being able to conversate—contributes to a shared sense of belonging. For migrants, (investing in) speaking the majority language can be interpreted as a behavioural demonstration in order to become accepted by the host population (Verkuyten and Martinovic 2012). De Vroome *et al.* (2011) found an effect of language comprehension on national self-identification, even after controlling for duration of residence, labour market position and a variety of measures for social ties with members of the host population. This shows that the impact of language on identification not merely exists through its benefits for structural or social integration. Above we argued that older refugees face more barriers in learning a new language than younger refugees. We now hypothesize (1b): *Age at migration is negatively associated with Dutch language proficiency, which in turn hinders identification as a member of Rotterdam.*

Health Good physical and mental health are considered important resources (Ryan *et al.* 2008). Research suggests that poor health obstructs the extent to which social contacts come into existence (Phillimore 2011; Lee *et al.* 2015). Poor physical health can hinder mobility, thereby limiting opportunities to leave the house for social activities and maintaining relationships (Aartsen and Jylhä 2011). Cognitive decline further impedes independent functioning and the ability to communicate (Boss *et al.* 2015). Also, refugees frequently suffer from mental health problems due to pre-migration contexts of war and oppression, combined with an often hazardous journey to safer places and insecurity about asylum processes in challenging reception centres (Porter and Haslam 2005). Thus, to engage in social contact—particularly with strangers in a new social setting—requires abilities less available to refugees with deteriorated health (Schick *et al.* 2016).

Older people suffer from age-related physical and cognitive decline, impacting social network dynamics (Aartsen *et al.* 2004). These age effects do not only concern the oldest old in a refugee population: of Syrians in the Netherlands aged 35–44 only 61% experienced good general health [compared to 78% in the general population of the Netherlands (aged 40–50 years)] (Uiters and Wijga 2018). Moreover, the poor mental health of refugees is also worse for relatively older than younger refugees (Porter and Haslam 2005). This leaves them at a 'double jeopardy' (Dowd and Bengtson 1978): suffering from both the ill effects of being older and being a refugee. People that are older when entering and learning to navigate a new social context are consequently at a disadvantage as compared to those that are younger. We thus expect that (Hypothesis 2a): *Age at migration is negatively associated with health, which in turn hinders contact with members of the host society.*

Research suggest that poor mental health complicates the ability to establish emotional ties to the host society and affects identification processes (Phillimore 2011; Damen *et al.* 2022a). Older refugees' mental health is, as we have established above, worse than that of relatively younger refugees (Porter and Haslam 2005; Gerritsen *et al.* 2006; Uiters and Wijga 2018) and age-related health deterioration comes on top of this. Because of poorer health, dreams and ambitions for the future may lose focus, whereas feelings of loss and a sense of being redundant may

gain attention (Chenoweth and Burdick 2001). Moreover, imminent deteriorating health and perhaps hospitalization, to be experienced in the host country, may form a daunting prospect—research shows this is indeed the case for older settled migrants (Hunter and Soom Ammann 2016). Older refugees may thus feel less at home in a new society than younger refugees—who have more future time and possibilities ahead of them (Chenoweth and Burdick 2001). Previous research also found a negative effect of better health on belonging in an older migrant sample (Klok *et al.* 2017). Hence, the extent to which older refugees identify as a member of the local host society may be hampered. Therefore, Hypothesis 2b is: *Age at migration is negatively associated with health, which in turn hinders identification as a member of Rotterdam.*

Methods

Procedure and Participants

We employ the Bridge survey, a survey conducted in 2019 among recently arrived refugees living in Rotterdam. Using the Municipal Personal Records Database, respondents were recruited based on the following selection criteria: (1) refugee, (2) at least 15 years of age, and (3) received asylum status in the Netherlands since January 2016. The dataset included 764 refugees from Syria who received asylum residence permits in the Netherlands during January 2016 to May 2018. The missing rate was small across all included variables (i.e. 2%); these cases were automatically excluded from the analysis. Our final sample consisted of 751 respondents (46% female, $M_{\text{age at migration}} = 31.98$, SD = 11.82, range = 14–74 years old).

The fieldwork was carried out in correspondence with a sequential mixed-mode design: Initially, respondents were requested by letter to participate online (i.e. computer-assisted web interviewing: CAWI) but, upon nonresponse, were approached face-to-face by a well-trained surveyor (i.e. computer-assisted personal interviewing: CAPI). Both modes attract different respondents, belonging to different age groups, which improves the representativeness of the sample (Hox *et al.* 2017).

The survey was administered in Dutch, English, as well as Syrian-Arabic so that respondents could participate using their native language.[1] For the CAPI mode of data collection, the surveyors were of the same ethnic background as the respondent which helped overcome language and/or cultural barriers (Singer and Ye 2013). Respondents were approached up to four times by a surveyor on different hours of the day and different days of the week. This approach resulted in an overall response rate of 85%, and the sample was representative for the 2016 cohort of refugees in Rotterdam with respect to country of origin, sex, and age.[2]

Measures

Dependent variables We included one behavioural and one attitudinal measure of socio-cultural integration. Intergroup contact was assessed by 'How often are

you in contact with Dutch friends or acquaintances?' (1 = never/less than once a year, 5 = every day). Identification was measured as 'To what extent do you feel Rotterdammer?' (1 = not at all, 5 = very strongly). A 'Rotterdammer' is someone who lives in Rotterdam and identifies as such.

Independent and mediating variables The central independent variable was age at migration, which was calculated based on the respondent's date of birth and date of arrival in the Netherlands as provided by the Municipal Personal Records Database.[3] This study included two mediating variables. Language proficiency was measured as a latent construct based on the items 'How well do you speak Dutch?' (1 = I do not speak Dutch, 10 = I speak Dutch very well) and 'How often do you experience difficulties when [speaking/reading/writing] in Dutch?' (speaking was measured on a 4-point scale: 0 = I do not speak Dutch, 3 = no, never; reading and writing was measured on a 3-point scale: 1 = yes, often, 3 = no, never). Health was assessed by 'How would you describe your general state of health?' (1 = very bad, 5 = very good). This measure shows how people judge their own health on a variety of aspects, including mental and physical health, the extent to which one functions daily, and the way one feels (Simon *et al*. 2005).

Control variables The demographic characteristics included as statistical controls were sex, time living in the Netherlands (months), having a partner,[4] mode of data collection, pre-migration education level (i.e. highest level of education achieved in country of origin, 1 = no education or did not complete primary school, 5 = higher education diploma), having paid employment, and intragroup contact ('How often are you in contact with Syrian friends or acquaintances?'; 1 = never/less than once a year, 5 = every day).

Results

Descriptive Findings

Sample characteristics are summarized in Table 1. Respondents were aged between 14 and 74 at the time of migration; the mean age of 32 years old was quite young. However, as pointed out above, this was in line with the composition of the Dutch refugee population (also see Huisman et al. 2018). More than half of respondents were male and living with a partner. Respondents had been living in the Netherlands since one to 4 years with an average of 2 years. Reflecting the early phase of their integration process, the proportion of respondents having paid employment was small (also see Bakker *et al*. 2017). Table 1 further shows diverging educational backgrounds: having obtained a higher secondary or vocational education diploma was mentioned most frequently but was followed by no (completed) education. Intragroup contact also illustrates the diversity of our sample: having weekly contact with Syrian friends or acquaintances was mentioned most frequently, followed by once a month, and equal groups having no or daily contact.

Table 1

Sample Characteristics

Variable (response scale)	
Total *N*	751
Age at migration (years)	
Range	14–74
Mean	31.98
Time living in the Netherlands (months)	
Range	14–49
Mean	29.02
Intragroup contact	
Range	1–5
Mean	3.18
Sex	
Female	46%
Male	54%
Relationship status	
Partner	66%
No partner	34%
Pre-migration education level	
No education or primary education not completed	23%
Primary education diploma	18%
Lower secondary education diploma	16%
Higher secondary or vocational education diploma	29%
Higher education diploma	13%
Fieldwork mode	
CAWI	55%
CAPI	45%
Paid employment	
Paid employment	17%
No paid employment	83%

In Table 2, we present means and correlations to examine the bivariate relationships of age at migration with the mediators and dependent variables included in our study. Descriptive results show that identification as Rotterdammer and health were on average above the neutral midpoint of the scales, while intergroup contact and language proficiency were generally around the neutral midpoint. Bivariate results showed patterns of small to moderate correlations between age at migration, on the one hand, and the mediators and dependent variables, on the other hand. In line with our expectations language proficiency and health had a negative relationship with age at migration. For the dependent variables, however, age at migration had diverging effects as intergroup contact had a negative, while identification had a (small) positive relationship with age at migration. Moreover, whereas intergroup contact is positively related to both mediators, identification is

Table 2

Means, Standard Deviations, and Correlations Between Age at Migration, Mediating Mechanisms, Intergroup Contact, and Identification

	Mean	SD	Range	Correlations					
				1.	2.	3.	4.	5.	6.
Dependent variables									
1. Intergroup contact	2.67	1.27	1–5						
2. Identification	3.74	1.09	1–5	0.11**					
Independent variable									
3. Age at migration (years)	31.99	11.82	14–74	−0.14***	0.06				
Mediators									
Language proficiency									
4. Self-assessment of language proficiency	5.14	2.09	1–10	0.27***	−0.03	−0.48***			
5. Lack of difficulties with speaking, writing, and reading (sum scale)	5.58	1.81	2–9	0.26***	0.05	−0.44***	0.73***		
6. Health	3.79	0.95	1–5	0.07*	0.09*	−0.41***	0.32***	0.26***	

Note: $N = 751$.
*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

only positively related to health. These results suggest that, when tested in multivariate analyses, age at migration could have diverging direct and indirect effects on intergroup contact and identification.

Structural Equation Analysis

The proposed model was fitted in Mplus 8 using maximum likelihood estimation with robust standard errors (i.e. MLR estimator) to account for the inclusion of skewed variables, particularly age at migration. We used a two-step approach for our structural equation model (SEM) (Byrne 2012): We first built and tested the measurement model before we included the hypothesized relations in the model. Confirmatory factor analysis revealed that all items measuring language proficiency loaded significantly on their matching latent construct, confirming its measurement validity (all standardized factor loadings ≥ 0.83, $ps < 0.001$).

The fit of the original measurement model was improved by adding a correlation between the dependent variables. The final model proved to be adequate[5]: $\chi^2(10) = 48.595$, $p < 0.001$; CFI = 0.968, RMSEA = 0.072, in which the dependent variables intergroup contact and identification are predicted by language proficiency, health, age at migration, and the control variables. The mediators language proficiency and health are predicted by each other, age at migration, and the control variables.

Figure 1 and Table 3 provide an overview of the SEM results with standardized regression weights. First, we expected that age at migration is negatively associated with Dutch language proficiency, which in turn hampers intergroup contact (Hypothesis 1a) and identification (Hypothesis 1b). The analyses revealed that age at migration was indeed negatively associated with language proficiency ($\beta = -0.439$, $p < 0.001$), and language proficiency was positively associated with intergroup contact ($\beta = 0.365$, $p < 0.001$), but not with identification. Furthermore, there was a significant indirect effect of age at migration via language proficiency for intergroup contact in the expected direction ($\beta = -0.154$, $p < 0.001$). Considering there was no significant relation between language proficiency and identification, we found no mediating effect of language proficiency for the relationship between age at migration and identification. Thus, the findings partially support Hypothesis 1: age at migration hampers language proficiency, which in turn was negatively associated with refugees' contact with members of the host society (Hypothesis 1a) but was not associated with refugees' identification as Rotterdammer (Hypothesis 1b).

Second, we hypothesized that age at migration is negatively associated with health, which in turn decreases intergroup contact (Hypothesis 2a) and identification (Hypothesis 2b). The analyses showed that age at migration was negatively associated with health ($\beta = -0.424$, $p < 0.001$), and health was positively associated with identification ($\beta = 0.101$, $p = 0.019$), but not with intergroup contact. Furthermore, there was a significant indirect effect of age at migration via health for identification in the direction we expected ($\beta = -0.043$, $p = 0.021$). We found no mediating effect of health for the relationship between age at migration and

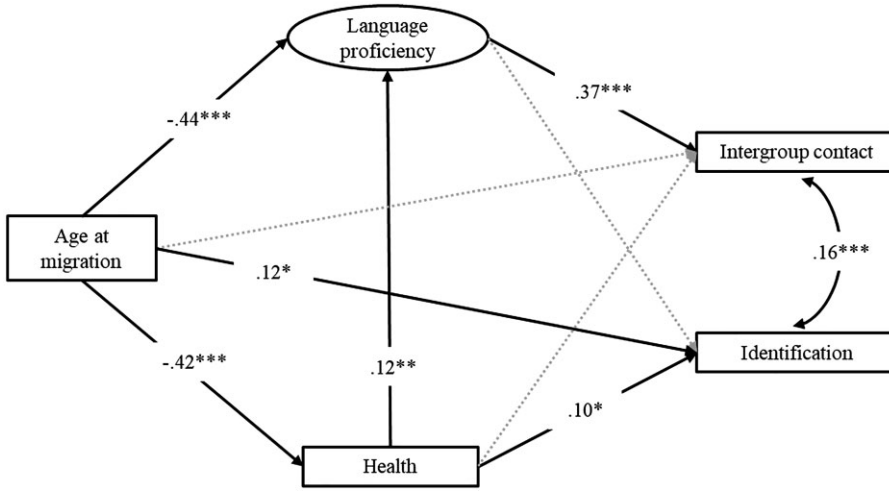

Figure 1.

Path Diagram of Standardized Direct Effects of Age at Migration, Language Proficiency, and Health on Intergroup Contact and Identification. The Grey Dotted Lines Represent Non-Significant Results.

Note: Entries Are the Results of an SEM Analysis in Mplus 8 using STDYX Standardization. Reported Are the Standardized Coefficients (β) and Their p Values. $N = 751$. Rectangles Are Observed Variables, and Ovals Are Latent Factors. Not Presented in the Path Diagram Are Factor Indicators, Error Terms, and Control Variables. The Standardized Coefficients of the Control Variables Are Displayed in Table 3. Model Fit: χ^2 (10) = 48.595, $p < 0.001$; CFI = 0.968, RMSEA = 0.072. ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

intergroup contact. Thus, the findings partially support Hypothesis 2: health worsened with age at migration but was not associated with refugees' contact with members of the host society (Hypothesis 2a); however, it did negatively affect refugees' identification as Rotterdammer (Hypothesis 2b).

Third, in addition to the relationships specified by the hypotheses, we found two other significant direct relationships. We detected that better health contributed to better Dutch language proficiency ($\beta = 0.115$, $p = 0.003$). Moreover, age at migration was positively associated with identification as Rotterdammer ($\beta = 0.120$, $p = 0.013$). Previous studies on immigrant identification have pointed in the same direction (De Vroome *et al.* 2011, 2014).

Lastly, Table 4 revealed additional meaningful results based on the standardized effects of the control variables for the mediators and dependent variables included in the structural equation model. Intergroup and intragroup contact are positively related ($\beta = 0.156$, $p < 0.001$). It is often implicitly assumed that more intragroup contact is related to less intergroup contact but these results show that both forms of contact are not inversely related (also see Vervoort *et al.* 2011). In addition, we replicated earlier findings (e.g. Van Tubergen and Kalmijn 2009;

Table 3

Specific Relations Between Age at Migration, Mediating Mechanisms, Intergroup Contact, and Identification

Path	β	SE
Age at migration → intergroup contact (total)	−0.100*	0.039
Age at migration → intergroup contact (direct)	0.066	0.047
Age at migration → language proficiency → intergroup contact	−0.154***	0.025
Age at migration → health → intergroup contact	0.005	0.016
Age at migration → identification (total)	0.072ˆ	0.037
Age at migration → identification (direct)	0.120	0.048
Age at migration → language proficiency → identification	−0.004	0.024
Age at migration → health → identification	−0.043*	0.019

Note: Entries are the results of an SEM analysis in Mplus 8 using STDYX standardization. Reported are the standardized coefficients (β) and standard errors (SE). $N = 751$. Model fit: χ^2 (10) = 48.595, $p < 0.001$; CFI = 0.968, RMSEA = 0.072.
ˆ$p = 0.051$. *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

Van Tubergen 2010) showing that language proficiency was positively associated with time spent living in the host society (β = 0.069, $p = 0.040$), pre-migration education level (β = 0.280, $p < 0.001$), and having paid employment (β = 0.323, $p < 0.001$). Having a partner (β = −0.218 $p = 0.006$), however, was negatively associated with language proficiency. Also, in line with earlier findings (Cheung and Phillimore 2017), the results showed that women reported poorer health than men (β = −0.220, $p = 0.003$). More highly educated refugees had a better language proficiency but had somewhat less intergroup contact (β = −0.080, $p = 0.029$). Other significant results relate to fieldwork mode, which underline our approach of using different modes to attract different groups of respondents. Respondents who participated in the CAPI mode had significantly less intergroup contact (β = −0.367, $p < 0.001$) but identified more strongly as Rotterdammer (β = 0.313, $p < 0.001$) and experienced better health (β = 0.242 $p < 0.001$). While mode effects are not the focus of the current research, these results do call for the inclusion of fieldwork mode as a control variable in future research.

Discussion

In this article, we proposed and tested two resources through which age at migration plays a role in the socio-cultural integration of recent refugees in the Netherlands: language comprehension and health. We discuss the findings in relation to our hypotheses and then explicate the contributions of this paper to the literature, and what they mean for refugees in general and for older refugees in particular.

Regarding Hypothesis 1, we find support for the mediating role of language proficiency between age and intergroup contact (Hypothesis 1a). Age at migration

Table 4

Standardized Coefficients of Control Variables for Language Proficiency, Health, Intergroup Contact, and Identification

	Language proficiency		Health		Intergroup contact		Identification	
	β	SE	β	SE	β	SE	β	SE
Female	−0.07	0.07	−0.22**	0.07	0.02	0.08	−0.14	0.08
Time living in the Netherlands (months)	0.07*	0.03	0.01	0.04	0.01	0.04	0.00	0.04
Pre-migration education level	0.28***	0.03	0.09**	0.03	−0.08*	0.04	0.03	0.04
Partner	−0.22**	0.08	0.10	0.08	0.13	0.08	−0.06	0.08
CAPI (ref = CAWI)	−0.08	0.08	0.24***	0.07	−0.37***	0.07	0.31***	0.08
Intragroup contact	−0.02	0.03	0.06	0.03	0.16***	0.04	0.02	0.04
Paid employment	0.32***	0.09	−0.04	0.10	0.16	0.10	0.00	0.11

Note: Entries are the results of an SEM analysis in Mplus 8 using STDY standardization for dichotomous variables and STDYX standardization for continuous independent variables. Reported are the standardized coefficients (β) and standard errors (SE). $N = 751$. Model fit: χ^2 (10) = 48.595, $p < 0.001$; CFI = 0.968, RMSEA = 0.072.
*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

is negatively associated with contact with members of Dutch society, (partly) because of a weaker Dutch language proficiency. In addition, we detect that age at migration is negatively associated with health, which also contributes to lower levels of Dutch language proficiency. This shows the different ways in which age, language comprehension, and health affect the frequency of contact with members of the host population. No evidence was found that language proficiency plays a mediating role between age and local identification (Hypothesis 1b). Perhaps for language comprehension to impact identification, it should be more advanced than is the case for these recently arrived refugees. Maybe it is particularly in the finesses of speaking a certain language and sharing it with others that belonging is articulated. Eijberts and Ghorashi (2017) claim something similar when they show that better—nearly perfect—language comprehension goes hand in hand with noticing more subtle forms of in- and exclusion in language use, affecting belonging.

In relation to Hypothesis 2, the mediating role of health between age and intergroup contact (Hypothesis 2a) was not found. Our sample has been in the residence country for 1–4 years, which means their Dutch language proficiency is still developing, producing a strong language barrier to make contact. We know from qualitative data on this population that they view language comprehension as key to integration, whereas health problems as an obstacle is less referred to

(Damen *et al.* 2022b). Hence, the impact of limited language proficiency appears to overshadow the influence of health conditions on intergroup contact. Regarding Hypothesis 2b, postulating an association between age and identification via health, we find a mediated relationship in the anticipated direction. Age at migration is negatively associated with health, which in turn weakened local identification. Our findings underscore the importance of scrutinizing the impact of age at migration on identification. Whereas previous research found direct positive associations between age and identification (De Vroome *et al.* 2011; Igarashi 2019), our mediated model shows a direct positive but an indirect negative association. The relationship between age and socio-cultural integration may thus be more complex than seems at first sight in non-mediated models.

Our analyses proved insightful for grasping age-dependent mechanisms for early socio-cultural integration processes of recent refugees. We show that for intergroup contact the effect of age runs via language proficiency, while for identification the effect of age runs via health. First, these findings improve our understanding of how exactly age plays a role in the socio-cultural integration of recent refugees, in contrast to studies that employ age merely as a control variable, or as a proxy for other mechanisms, such as language proficiency, prejudice, or socialization (Diehl and Schnell 2006; Martinovic *et al.* 2009a; Van Bochove *et al.* 2010; Fokkema and De Haas 2011; Martinovic 2013; De Vroome *et al.* 2014; Igarashi 2019; Damen *et al.* 2022a). Second, the findings underscore that socio-cultural integration is a multi-dimensional concept, for which mechanisms work in different ways. Herewith, this study lays the groundwork for future research into explanatory factors and mechanisms related to (socio-cultural) integration. By theorizing and testing several mechanisms for multiple integration indicators, future work could usefully explore whether some mechanisms differ for the indicators studied, and whether some mechanisms might be more impactful. Such an approach would allow for a more detailed theoretical understanding of the integration process and contribute to targeted interventions aimed at the advancement of equal opportunities for refugees in host societies.

We highlight the pivotal role of health as a valuable resource in refugee socio-cultural integration. Health was found to impact both language proficiency—which in turn impacted intergroup contact—and local identification. Refugees' health is in general rather poor (Gerritsen *et al.* 2006; Uiters and Wijga 2018), and their health is also worse than that of other migrants (Bakker 2017). The fact that we found such a crucial role for health in this rather young sample of refugees only underscores the underprivileged situation of refugees in socio-cultural integration—also in comparison to other migrants. Policies should address this alarming finding starting with improving conditions in asylum centres where mental health is severely put under pressure (Van der Linden *et al.* 2022) and continue by improving health care accessibility which is known to be poor (Lebano *et al.* 2020). Moreover, to improve health conditions, one should be aware of within-group differences, as this investigation shows that relatively older refugees suffer more from them than relatively younger ones. Sensitivity for the fairly early ageing of refugees and differences in cultural conceptions of what can be regarded old are

crucial to effectively combat the poor health of refugees and age-related inequalities in integration trajectories.

We further reflect on our measures of socio-cultural integration. The domain of what can be considered socio-cultural integration is comprehensive (Ager and Strang 2008). Our operationalization with only two indicators is thus perhaps somewhat meagre, but we succeeded in covering two important aspects of socio-cultural integration: a behavioural and an attitudinal aspect (Berry 1980). Furthermore, we chose to investigate identification with the environment in which everyday lives are negotiated because these are presumably most relevant in refugee lives (Ryan 2018), in this case Rotterdam. Surely, it is these very local contexts that they are familiar with in these early times after migration, more so than something more abstract like the national context (Van Der Linden and Dagevos 2019). Scholars have argued that 'superdiverse' contexts such as Rotterdam make it easier for newcomers to fit in and experience a sense of belonging, as their 'otherness' is less noticed (Pemberton and Phillimore 2018; Wessendorf 2019). Rotterdam's context relates quite strongly to other big cities in Europe—which are increasingly becoming majority-minority cities (Crul 2016) that house many refugees. Hence, we emphasize the generic context of the research location, in terms of how it relates to the experiences of many refugees in Europe. However, we are hesitant to generalize our findings to non-superdiverse contexts. This also means that our operationalization of intergroup contact may not provide a complete image of refugees' social networks: We study contact with 'the Dutch', but in a superdiverse context, it remains ambiguous what the respondent understands as Dutch. For instance, we do not know whether respondents regarded long settled migrant populations, such as those from Turkish or Moroccan descent, as Dutch.

Having said that scholars have argued that social integration improves health (Berkman *et al.* 2000) and language comprehension (Van Tubergen 2010). Deploying cross-sectional data, we relied on theory to study the relations that we were interested in and interpreted the results congruent with this theoretical foundation. However, we do not disregard the possibility for some relations to also exist vice versa. Another more technical point is that even though age at migration has played a substantial part in the integration literature so far, it has to be remembered that its explained variance in socio-cultural integration is, in absolute statistical terms, limited (for similar effect sizes see Martinovic *et al.* 2009a,b; De Vroome *et al.* 2011; Fokkema and De Haas 2011). It is important, therefore, to acknowledge that our findings cannot fully explain what factors drive refugees' socio-cultural integration and future studies are needed to paint a more complete picture.

To conclude, we disclosed that in integration literature, a more careful appliance of age, or age at migration in particular, is necessary. Too often, it is used as a proxy for an array of (social) phenomena, its effect is not further reflected upon, or it is unambiguously applied to a multi-dimensional concept. This hampers the improvement of knowledge on integration processes and undervalues the importance and complexity of a salient determinant of integration. We further increase

comprehension of how the barriers that refugees face influence their negotiation of new socio-cultural contexts by teasing out exactly which mechanisms play a role for which aspect of socio-cultural integration. Finally, our study aids a better understanding of age in the early socio-cultural integration of refugees, with which we hope to bring more nuance into research and policies targeting (older) refugee integration.

Data Availability

The data that support the findings of this study are available from the corresponding author (MvdL) upon reasonable request.

ENDNOTES

1. A professional translation agency was used for the translation of the questionnaire from Dutch into standard modern Arabic and English. The questionnaire was translated by one translator and checked by a second translator. Next, the survey was tested in a pilot study with Syrian refugees and discussed with the research team to make sure the survey was understood as intended. In a last step, revisions have been made by the translators based on instructions from the research team.
2. The demographic characteristics of our sample were generally similar to a sample of Syrian refugees based on a representative country-wide survey (Huisman *et al.* 2018; Van Der Linden and Dagevos 2019).
3. Since we surveyed respondents so soon after their migration, ages do not differ too much between time of migration and time of interview. As we have indicated before, this is why we use 'age' in the remainder of the article.
4. We could not distinguish between co-resident and non-co-resident partners, such as a partner residing in the country of origin. However, reports on recently arrived Syrian refugees show that the majority lives together with their partner (Van Der Linden and Dagevos 2019) or realize family reunification shortly after arrival (Huisman 2020).
5. A good model fit is indicated by an RMSEA value of <0.08 (MacCallum *et al.* 1996) and a CFI value of >0.95 (Hu and Bentler 1999). Moreover, the baseline model improved from $\chi^2(50) = 1251.814$, $p < 0.001$ to $\chi^2(10) = 48.595$, $p < 0.001$ for the final model.

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