

**ORIGINAL ARTICLE**

The two-sided paradox of ageism during the COVID-19 pandemic: The cases of Hungary, Tunisia and Uzbekistan

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Abstract

The consequences of ageing populations around the globe have necessitated policy changes that encourage people to stay in the labour force longer. Finding a job depends on two conditions: the willingness to work and employers' decisions. However, the COVID-19 pandemic created special circumstances that negatively affected the perception of older workers. Older people were particularly vulnerable to the disease, which justified government action to protect them but at the same time provoked resentment among young people. We conducted an online questionnaire survey in July and August 2020 among the citizens of Hungary, Tunisia and Uzbekistan. Our research aimed to determine the general extent of ageism during the COVID pandemic. Respondents had to possess at least a college degree – i.e. be potentially suitable for the position of human resource manager. Despite the wealth of scientific literature and our own experience, the survey results revealed only low levels of ageism because of so-called social desirability bias. Even so, the participants' responses reflected the characteristics of ageism in relation to their respective countries and living conditions. The small variations in the answers were also enough to provide useful

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information. Structural equation modelling was used to obtain results.

KEYWORDS

age discrimination, ageism, COVID-19, older people, structural equation model

JEL CLASSIFICATION

C30, C38, H00, J14, I18

1 | INTRODUCTION

Ageing societies are a severe problem in most countries worldwide and will create more difficulties in the future. The rapid increase in the number of people aged over 65 is a sign of increasingly better health, which will require older people to remain in the labour market longer. However, seniors who want to keep working must overcome ageism. Age discrimination makes it very difficult for older people to secure positions when younger applicants are available, and in comparison to younger workers, seniors are also much more likely to be dismissed from their jobs. In addition, older people face a lot of harmful discrimination at work and in general, which only multiplies after retirement. This situation worsened in almost every country around the world during the COVID-19 pandemic when measures were taken to protect the elderly, as they are more vulnerable to the disease. Many considered these regulations extreme and unnecessary, and the blame was mainly pinned on the elderly.

Our research was designed to explore ageism in three countries that are geographically and socio-economically diverse. We conducted a survey in the summer of 2020 in one European, one African and one Asian country, namely, in Hungary, Tunisia and Uzbekistan. The countries' demographic situation, economic development and cultural background differ in multiple ways, so we expected that the self-completed anonymous questionnaires would reveal significant differences in the manifestation of ageism. The investigation of age discrimination is particularly interesting in Tunisia and Uzbekistan because there is hardly any literature of this kind focused on these countries.

The demographic structure of the three countries differs greatly, as do their cultures. In addition, the countries under investigation represent the different phases of ageing well. The Hungarian population is older than Tunisia's, while Uzbekistan has the youngest population of the three countries, but its proportion of older people is predicted to increase soon (Gyarmati, 2019; World Development Indicators, 2022; World Health Organization [WHO], 2015). Presumably, these different characteristics potentially influence the level of ageism in the three countries.

Moreover, Hungary is an individualistic country where living in the same household with extended family occurs infrequently (Countries and their culture, 2008; Hofstede, 2001). Consequently, older people have very little support from their families, and the majority of them live alone (Gyarmati, 2019). However, the Tunisian and Uzbek cultures are different. Older people rarely live alone and usually reside with their families, who are responsible for their financial, physical and moral care (Karlin et al., 2018; Labidi, 2005; Pulatova et al., 2012). On the other hand, retired people in Tunisia and Uzbekistan face challenges managing their integration into society, while integration happens in Hungary but there are many obstacles. These cultural differences are probably reflected in the expression of ageism as well.

Our online questionnaire was administered to adults with at least a college education who in theory could occupy the position of human resource manager and thereby have considerable influence on seniors' labour-market opportunities. Thus, the extent to which they hold ageist views is very important.

The word 'paradox' is used in the title of our paper because, contrary to our expectations, our survey found low levels of ageism in all three countries. This contradicts the authors' own experiences. We explain why the expression



of ageism may be weak and explore the other side of the paradox, thereby showing how slight differences among the drivers of ageism in the countries can be analysed using structural equation modelling (SEM).

Overall, we hypothesised that the COVID pandemic increased ageism in all countries. In addition, we made other assumptions about human behaviour in terms of who is liable to be more tolerant of older people. For example, we assumed that those who found gainful employment during the epidemic would show less ageism, along with those who had helped others informally during the epidemic. Moreover, we theorised that people in smaller settlements would be more tolerant of older people. Our analysis confirmed most but not all of our hypotheses. It transpired that in different countries the key determinants of ageism were captured by different indicators.

The structure of our paper is as follows. The following section discusses important studies on ageism in the three countries under study. This section also reports on the situation during the COVID pandemic. The third section describes our survey questions, the participants' main demographic characteristics and the average level of ageism found in the responses. The fourth section describes the methodology used for analysing the survey, and the results themselves are presented in the fifth section. The final section contains our conclusions.

2 | LITERATURE REVIEW

There is a wealth of literature on ageism. However, for the three countries under study, only the Hungarian situation is covered in any depth, while there is hardly any literature on ageism in Tunisia and even less in Uzbekistan. The impact of COVID-19 on the economy and society has been the driving force of many recently published articles, including ones on ageism. However, pandemic-related surveys on ageism are rare in the literature, so relatively little is known about how people tolerated their elderly compatriots during this time.

Fraser et al. (2020) summarised the extent to which the pandemic contributed to the rise of ageism. Pandemic-related measures taken in favour of older people often backfired and instead provoked hostility towards them. Vale et al. (2020) in a preregistered paper presented the results of their survey on the impact of COVID-19 on the growth of ageism. They highlighted that hostility towards the elderly increased because of measures taken to protect them from the virus. Other authors have surveyed the situation in different countries. For instance, Barth et al. (2021) showed that French older adults complained of confinement during quarantine, the loss of social contact and not being asked for their opinion about anything that influenced their lives. The same results were found by Ayalon and Cohn-Schwartz (2021), who through a telephone survey of older adults in Israel showed that both self-defined ageing and health-related worries significantly predicted COVID-19-related concerns. In another relevant paper, Nia et al.'s (2021) survey proved that an increase in ageism and age-related discriminatory attitudes resulted from the pandemic in Iran.

Turning to papers about ageism in general in the three countries, we find abundant literature by Hungarian authors. Of the three countries, Hungary had the largest proportion of people aged 65 and over in 2019 – almost 20%, according to UNESCO data (see data.uis.unesco.org database demographic indicators) – and this proportion is expected to double within 20 years. This also means that Hungary was forced to battle ageism much earlier than the other two countries in our survey, which may explain the existence of the extensive literature.

Interestingly, we found pro-ageism opinions among the Hungarian papers, indicating that ageism in Hungary exists not only informally but in written form. A publication by the Central Statistical Office (KSH, 2013) is an example of such content. In the report, the authors encourage employed older people to stop working after reaching retirement age to make way for the younger generation. Ironically, the paper was written in 2013 when rapid population ageing in Hungary necessitated that older people remain in the labour market for longer.

Furthermore, most Hungarian papers reveal ageist behaviour. Lovász and Simonovits (2019) presented different types of labour-market discrimination but also highlighted the problematic situation of older applicants during job interviews. Berde and Mágó (2022) used fictitious job applications to show that older women find it much more challenging to obtain jobs than their younger counterparts with the same skill sets.



Hofmeister-Tóth et al. (2021) prepared a Hungarian version of the Fraboni Scale of Ageism, which is used in developed countries to measure age discrimination. The results showed that respondents try to avoid contact with older people and that many of them think of older people using false stereotypes. Kolos and Kenesei (2020), using an online questionnaire, found that an essential component of people's subjective well-being is the development of appropriate social relationships. However, older people find it notably difficult to maintain relationships with younger people because of ageism.

Papers about Tunisian ageism are scarcer. According to some authors, ageism is much less prevalent in Asia and Africa than in either Europe or North America (Gutterman, 2021). However, after reviewing many studies, Gutterman (2021) clearly demonstrated that ageism is strong in Asia and Africa, despite the expected tolerance of these continents. He also mentioned that the phenomenon culturally manifests differently compared to Europe and North America. As previously mentioned, in Asia and Africa, it is primarily the family's responsibility to maintain the living conditions of their elderly members, and the usual rhetoric involves respect for the elderly. Looking more deeply at familial issues, Gutterman (2021) suggested that ageism is often much more robust in Asian and African countries than, for example, in Europe. However, because of the relatively small share of older people in society, this is less evident. According to UNESCO data, only 8.5% of the population were aged 65 or over in Tunisia in 2019, but by 2040 this figure is expected to reach 20%. Labidi (2005) showed that ageism is clearly noticeable in the exclusion of older people and their poor living conditions in Tunisia, which is an obvious shortcoming of the Tunisian pension system.

Karlin et al. (2019) described the problems of the Tunisian pension system and investigated ageism as well. Their article offers conclusions drawn from interviews with 60 senior Tunisians in 2017, which revealed exclusionary attitudes towards older people. After the end of French colonial rule in Tunisia, efforts were made to establish a more egalitarian society and promote urbanisation. However, the implementation of equality policies targeted at the elderly were less successful because of the hostile, discriminatory attitude of many Tunisians towards seniors. In another paper, Hentati and Matoussi (2019) analysed violence against older people in Tunisia. The study is based on fieldwork carried out to collect data from a sample of older people and civil society. Age discrimination in Tunisia can be observed in private settings, such as family homes and elderly-care institutions; public services, such as hospitals and public transport; and in public settings, like markets and streets. Discrimination against older adults in health care institutions is especially strong.

Peachey (1999) drew attention to the fact that the needs of older people in developing countries are not sufficiently understood. Partly because of ageism, inadequate services are provided for older people, which leads to an increase in their vulnerability. In developing countries, the proportion of older people in society has been small until recently but will increase much sooner than in developed countries. Thus, communities may face challenges in adjusting to the increased numbers of older people.

Among the three countries under analysis, the smallest share of people aged 65 and over is presently found in Uzbekistan. According to UNESCO data, this proportion was less than 5% in 2019. Nonetheless, the percentage share of 0-to-14-year-olds declined from around 40% in 1960 to below 29% in 2019, while the number of 15-to-64-year-olds increased (see data.uis.unesco.org database demographic indicators). Thus, a significant rise in the proportion of older people in Uzbekistan is expected in a few years. However, probably due to the small proportion of older people, we were unable to find any academic papers about ageism in Uzbekistan (only tabloid-like websites have published articles specifically on this subject). Even so, a small number of scientific papers have analysed other types of discrimination in Uzbekistan, and some even included age discrimination in their research.

For example, Hutchins and Sevilya (2021) focused on gender discrimination in Uzbekistan. Using a vignette method, they randomly sampled job applications from a set of defined items, which were assessed by the managers participating in the experiment. They revealed that the managers' ageism strongly influenced the selection of candidates.

Working on a description of quality of life, Aniyozova (2017) developed a comprehensive assessment to evaluate older people's quality of life based on their health, economic and social status as well as their needs for social and



medical services in Uzbekistan. The results suggest that the quality of life for the elderly in Uzbekistan is rather inadequate, with age discrimination being one reason for this. In another piece of research, Radnitz (2006) implemented a survey to explore the reasons for dissatisfaction with living conditions among Uzbek people. The results highlighted that the main reason for pessimism among older people were economic decline and unemployment. The elderly also receive insufficient pensions due to high inflation, making their retirement years more difficult.

UNICEF (2020), in collaboration with the Youth Union of Uzbekistan, conducted a study entitled *Youth of Uzbekistan: Challenges and Prospects* to create a comprehensive overview of the situation for young people in Uzbekistan. Young people were asked what 'a fair and happy life' meant to them. Only 13% answered that it meant – among other things – respect for the elderly, while the majority mentioned only trust and health.

3 | OUR SURVEY IN THE THREE COUNTRIES

As written in the introduction, our questionnaires were distributed to people who held at least a university degree in the summer of 2020. The choice to include only participants who had at least a bachelor's degree was straightforward, as this is a minimum requirement for those who hire and fire staff – human resource managers. At the time of our survey, the first wave of the pandemic was ebbing in Hungary and Tunisia, but in Uzbekistan the incidence of new cases was still relatively high. The first wave of the pandemic was a great test of society's tolerance for older people.

The survey was distributed through various internet forums as well as our own social networks. In all three countries, participants received the questions in their own language. A total of 432 valid responses were received. The number of respondents per country, the gender breakdown and the average age of respondents are shown in Table 1. The size of the settlement where the respondents live is also revealed. We use aggregated measures to illustrate that significantly fewer responses were received from small municipalities. However, as will be shown later, the size of the settlement had an impact on ageism in all three countries.

Participants' opinions were measured using six ageism-related statements. To indicate the extent of ageist attitudes, respondents were asked to evaluate each statement using a five-point Likert scale. Later, for analytical purposes, everything was rescaled so that 1 indicated the most ageist opinion and 5 indicated a complete lack of ageism. Taking the average of an ordinal scale may be unusual, but cross-country averages are informative in that they clearly show social desirability bias. The averages are high, so the responses did not indicate strong age discrimination, as one can see from Table 2. Nevertheless, the literature review clearly demonstrated that ageism exists in the three countries under study, and only the suspected social desirability bias diminished the magnitude of the ageism revealed.

TABLE 1 Demographic data of questionnaire respondents and their distribution by settlement size

	Hungary	Tunisia	Uzbekistan	Total (3 countries)
Women	120 (81.08%)	61 (81.08%)	102 (53.97%)	283 (66.66%)
Men	28(18.92%)	33 (18.92%)	87 (46.03%)	148 (34.34%)
Average age (SD of age indicted in brackets)	45.70 (16.74)	32.25 (11.31)	33.5 (7.6)	37.41 (13.6)
Total sample	148	94	189	431
Respondents from settlements...				
With less than 2,000 inhabitants	6.08%	12.77%	4.76%	6.96%
With 2,000–9,999 inhabitants	11.49%	6.38%	5.29%	7.66%
With 10,000–49,999 inhabitants	12.84%	15.96%	7.41%	11.14%
With at least 50,000 inhabitants	69.59%	64.89%	82.54%	74.25%

**TABLE 2** Average score per country

Country	Average score	Median score	Standard deviation
Hungary	4.29	4.33	0.64
Tunisia	4.59	4.83	0.54
Uzbekistan	4.29	4.33	0.56
Total sample	4.35	4.50	0.60

Thus, Table 2 illustrates the paradox described in the title of our article. Although the previous section showed that ageism is widespread in all three countries, our participants moderated their ageism and only partially ‘admitted’ to holding such views. However, average values close to 5 do not mean that our survey cannot be used to study the small variations among the three countries. Assuming that ‘blood is thicker than water’, respondents’ different cultures were presumably reflected in their answers. The approach we employed can be seen as another way of looking at or resolving the paradox. We analysed the differences in the answers in the following sections. To make our analysis easier to follow, we first list the questions used in the survey. (The full questionnaire can be downloaded from <https://drive.google.com/file/d/1YRx Cz5E0JvC1W9xFr0rVvYsvnkAnf1dcW/view?usp=sharing>).

1. Age-related issues. Attitudes towards older people (‘older people’ are defined as those aged 60 and over) were measured through six statements. Responses were given on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). As described above, responses were recoded so that 1 always indicated the strongest ageism. The statements were as follows:
 - i. Older people are a burden to society.
 - ii. During pandemics, older people must sacrifice themselves on behalf of younger generations.
 - iii. Even during normal times, older people must sacrifice themselves on behalf of younger generations.
 - iv. Older people are assets to society.
 - v. Older people should be given extra care.
 - vi. Older people must have similar rights to those of younger people.

- vii. Questions related to the impact of COVID-19. The focus was on lockdown experiences to capture the pandemic’s effect on ageism. In particular, we were interested in whether it made a difference if the respondents had unofficially helped others or received help from others during the outbreak. In the same vein, we wanted to know whether their ability to earn money during the lockdown as well as the outbreak’s influence on their future expectations impacted ageism. Extending this line of thought, we created a dummy asking whether respondents officially worked in one of the ‘helping professions’ (such as nursing, medicine or teaching). We assumed that this could have influenced the level of ageism in the three countries.

- viii. Demographic questions. Participants were asked about their age, gender, size of municipality where they lived and household size. The goal was to uncover other factors that could impact ageism.

Table 3 presents the questions’ classifications, which were later used to create the constructs built into the models for each country.

**TABLE 3** Indicator names, abbreviations and explanations

Question categories	Indicator abbreviation	Meaning
Ageism	Not_Burden	Older people are a burden on society
	Not_Pandemic_Sacrifice	During pandemics, older people must sacrifice themselves on behalf of younger generations
	Not_Normal_Sacrifice	During normal times, older people must sacrifice themselves on behalf of younger generations
	Old_Value	Older people are assets to society
	Old_Extra_Care	Older people should be given extra care
	Similar_Rights	Older people must have similar rights to those of younger people
Infected	Got_COVID	Caught COVID (yes/no)
COVID impact	Future_Optimism	Future prospects after COVID
		Negative
		Neutral
		Positive
	Work_Official	Officially worked for others during the COVID pandemic (yes/no)
	Help_Unofficial	Helped others unofficially during COVID (yes/no)
	Receive_Help	Received help from others during COVID (yes/no)
	Earn_Money	Income earned during COVID
Less than before		
Same as before		
Personal characteristics	Age	Respondent's birth year
	Household	Number of people living with respondent
	City_Size	Size of respondent's settlement
	Gender	Male/female

4 | SURVEY ANALYSIS AND METHODOLOGY

Our main research question was whether the relatively small differences among the responses of people from different countries indicated country-based variance in ageism. We hypothesised that ageism existed in all three countries, and its manifestation mirrored variability in culture and lifestyle.

Initially, we considered different methods to analyse the data, including ordered logistic regression, ordinary least squares and confirmatory factor analysis. Each of these methods involved considerable disadvantages, so we rejected their application. Ageism is not directly observable – it is ‘latent’, and structural equation modelling (SEM) can uncover the relations that influence such variables (Russo & Stol, 2021). SEM can also handle one or more independent and dependent variables at the same time, making it ideal for modelling complex social phenomena (Astrachan et al., 2014; Chin & Dibbern, 2010; Hair et al., 2013, 2017, 2019; Hair, Hult, et al., 2014; Russo & Stol, 2021). There are two main types of SEM: covariance-based (CB-SEM) and partial least squares (PLS-SEM). The two involve different estimation techniques and are associated with distinct advantages (Collier, 2020; Russo & Stol, 2021). We opted to use the latter for the reasons explained below.

PLS-SEM focuses on the predictive power of exploratory research and consists of a structural model (the ‘inner’ model) and a measurement model (the ‘outer’ model) (Russo & Stol, 2021). In the outer model, PLS-SEM linearly combines measured indicators (the responses to our demographic and COVID-impact-related questions) to form



constructs (Lohmöller, 1989) that serve as proxies for social concepts (latent and emergent) in the research (MacKenzie et al., 2011; Rigdon, 2012, 2016; Sarstedt et al., 2016). The inner model applies to the relations between the constructs that are regressed similarly to an ordinary least square in order to maximise explained variance (Astrachan et al., 2014; Hair, Henseler, et al., 2014; Sarstedt et al., 2016; Tenenhaus et al., 2005). One must clearly define the model by deciding which construct will be dependent and which will be independent.

When indicators create the construct, this is called a formative measure. Indicators of formative constructs are not interchangeable; every indicator captures a specific aspect of the construct (Bollen, 1989; Russo & Stol, 2021; Sarstedt et al., 2016). In this case, the graphical representation of the model is such that the arrows point to the construct (Russo & Stol, 2021). In PLS-SEM, formative constructs are calculated using Mode B, which means regressing the constructs on the indicators. Formative constructs are often called emergent variables to clearly differentiate them from reflective constructs (see later). Thus, in our models, emergent variables are constructed from the responses to personal and COVID-related questions in the survey.

Another type of measure is called reflective. In this case, the construct causes the indicators. Thus, the arrows point to the indicators (Hair, Sarstedt, et al., 2014). In the case of reflective measures, the indicators should be strongly correlated with each other and be considered interchangeable (Edwards & Bagozzi, 2000; Jarvis et al., 2003; Russo & Stol, 2021; Sarstedt et al., 2016). In our models, the latent variable ageism is reflective and is inferred from the observed indicators, namely, the survey's six statements about older people.

One shortcoming of PLS-SEM is that construct correlations and indicator loadings are not estimated consistently. A recent solution to this is the development of a consistent partial-least-squares structural equation model (PLSc-SEM) (Dijkstra & Henseler, 2015a), which we decided to use. This allows for consistent parameter estimates and testing of goodness of fit (Benitez et al., 2020; Dijkstra & Henseler, 2015b; Dijkstra & Schermelleh-Engel, 2014; Hair, Sarstedt, et al., 2014). In the case of all three countries, latent ageism was defined as Mode A consistent. The rest of the estimation works similarly to PLS-SEM, which we describe above.

To summarise, we evaluated the survey results and found differences among the drivers of ageism in the three countries by building three separate PLSc-SEM models applying Adanco software. To make the results easily interpretable, we adjusted the scale so that 5 expressed the least ageist behaviour. Thus, we henceforth refer to the latent variable as 'not ageist'. Increasing the power of statistical inference was enabled by bootstrapping, which is a process that creates subsamples using replacements from the original sample. This created 4,999 subsamples.

In Figure 1, Figure 2 and Figure 3, the indicators, which are the responses to the questions in the survey, as well as the six ageism statements are illustrated in rectangles that make up constructs for the latent variable 'not ageist' in an ellipse and the emergent variables in hexagons. Arrows indicate the direction of relations, the numbers on them are the estimated path coefficients, and the circles and stars signal their significance. It is crucial to mention that different indicators were left out for some countries but were included for others. The omitted indicators proved to be

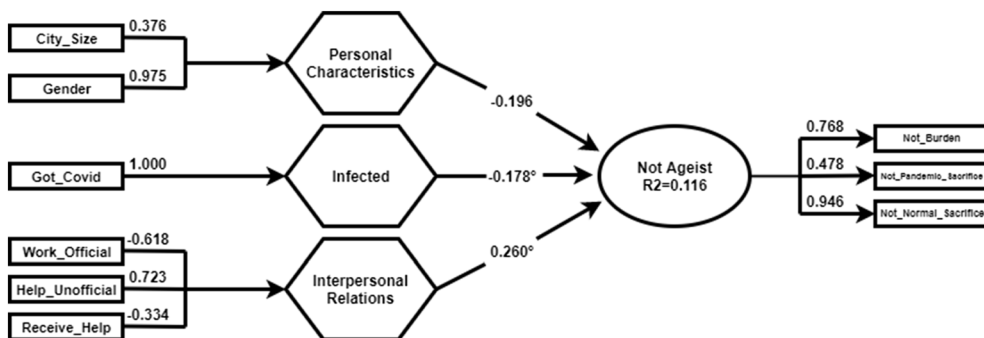


FIGURE 1 PLSc-SEM graphical representation – Hungary * 'COVID impact' reflected by 'interpersonal relations'

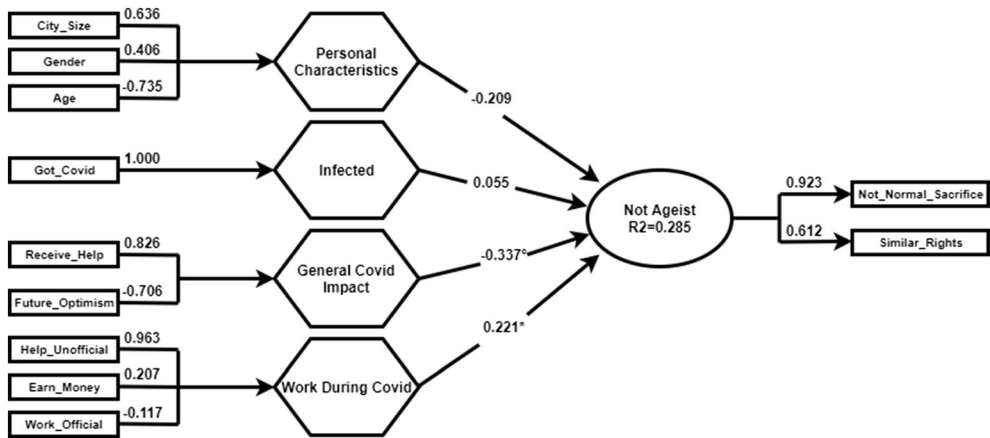


FIGURE 2 PLSc-SEM graphical representation – Tunisia * ‘COVID impact’ is represented by two emergent variables: ‘general COVID impact’ and ‘work during COVID’ (specifically related to work during the pandemic).

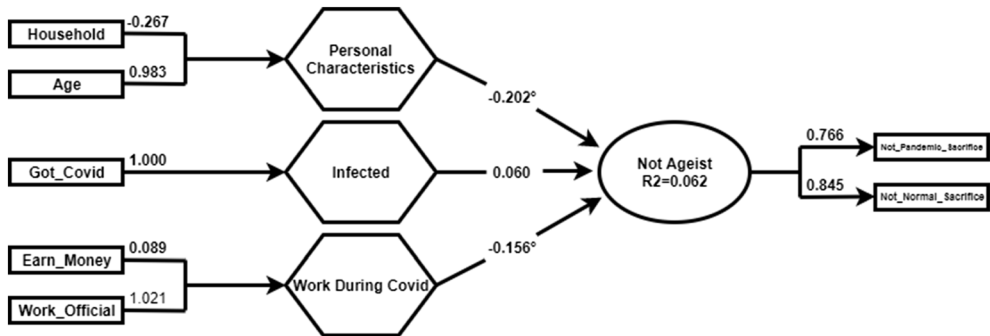


FIGURE 3 PLSc-SEM graphical representation – Uzbekistan * ‘COVID impact’ reflected by ‘work during COVID’

unimportant in explaining ageism in specific countries. This is in line with our hypothesis that culture and lifestyle differences among the countries investigated are reflected in the variability in ageism.

5 | RESULTS

5.1 | The outer and inner model

Assessing outer model fit is the first step in evaluating PLSc-SEM results. Constructs must meet desired statistical criteria as suggested by Henseler (2017), Dijkstra and Henseler (2015a) and Hair et al. (2019). All three countries' constructs met the necessary criteria (see Appendix Tables A1–A3). Cronbach's alpha – a measure of internal consistency – was above 0.7 in the case of all three countries' models, which is a sign of good fit. Dijkstra–Henseler's rho shows the reliability of the reflective measurement ('not ageist') and is recommended to be above 0.7, a criterion that was also met in the case of all three countries. The average variance extracted (AVE) shows on average how much variation can be explained by the construct (indicator reliability). This should be above 0.5, a criterion also fulfilled by all three models (Russo & Stol, 2021). Weights and loadings, along with their respective *t*-values, are also



reported. Most indicators are significant and display good reliability and moderate-to-strong relationships with the constructs.

5.2 | Graphical representations and analysis of the inner model

Below we describe our inner models for each country.

5.2.1 | Hungary

The latent variable ‘not ageist’ was defined using three ageism statements: being a burden, the necessity of sacrificing oneself during an outbreak and in normal times. ‘Personal characteristics’ was constructed using the respondents’ gender and city size (see Table 3). ‘Infected’ was created to incorporate the impact of coronavirus infection on ageism. To account for ‘COVID impact’ we included several indicators (again, see Table 3). We found indicators contributed to ‘COVID impact’ differently in all three countries, also affecting ageism. For instance, in Hungary, ‘COVID impact’ was represented by ‘interpersonal relations’, which included questions about unofficial help-giving and receiving as well as officially working with other people (see Figure 1). Hungary is an individualistic country, thus atypical interpersonal relations during the pandemic had a meaningful impact on ageism. Later, we show that different indicators played significant roles in the other two less individualistic countries.

R^2 shows how much of the variance of ‘not ageist’ is explained by the inner model. The R^2 for the Hungarian model was just shy of 12%, but this level is quite common in ageism studies (Ayalon & Cohn-Schwartz, 2021; Werner et al., 2021). In the case of Hungary, both ‘COVID impact’ and ‘infected’ were significant at 10% (see Appendix, Table A4). One interesting point is that ‘COVID infection’ was only significant for the Hungarian model, showing that the Hungarian respondents who caught the virus tended to be more ageist. ‘COVID impact’ showed that people who stayed in personal contact with others during the first wave were less ageist (0.26) in Hungary. This indicates that helping and working in favour of Hungarian society during the pandemic brought people closer together, positively affecting the relationships between different age groups, perhaps even after the outbreak.

5.2.2 | Tunisia

The latent variable ‘not ageist’ included two of the six ageism statements: sacrificing oneself during normal times and having similar rights to younger people. ‘Personal characteristics’ consisted of three indicators: city size, gender and age. ‘Infected’ was the same as it was for Hungary, indicating infection with the virus. However, ‘COVID impact’ in the Tunisian case was considerably different. We divided it into two separate constructs. The first, ‘general COVID impact’ covered effects that were brought on by the appearance of coronavirus that were not work-related. This includes the increased demand for help from others unofficially and thoughts about one’s future prospects. The second construct, ‘work during COVID’, specifically captured the work-related impacts of the outbreak and proved to be an important distinguishing factor for this country. The indicators thereof included unofficially helping others, officially working with others and the ability to earn money during the pandemic (see Figure 2). The Tunisian model was similar to the Hungarian model, but the variable ‘unofficially receiving help’ was excluded, and ‘ability to earn money during the pandemic’ was included. Thus, in the Tunisian case, the model differentiated between two types of ‘COVID impact’: work-related issues and non-work-related issues.

The R^2 of the Tunisian model was an outstanding 29% (see Appendix, Table A5). ‘COVID impact’ was significant at 10%, while ‘work during COVID’ was significant at 5%. Therefore, we found that ‘general COVID impact’ was correlated with ageism in Tunisia. The estimated coefficient for this variable was -0.34 , meaning the pandemic



exacerbated ageism in the country. It is interesting to note that Tunisians, who are culturally less ageist, became more ageist as a result of the outbreak. On the other hand, ‘work during COVID’ was positively associated with ‘not ageist’ (estimated coefficient of 0.22), indicating that productive activity during the pandemic clearly translated to less ageism in the country.

5.2.3 | Uzbekistan

The latent variable ‘not ageist’ was made up of two ageism-related statements: whether there was a need for older people to sacrifice themselves for younger people during the pandemic as well as in normal times. In Uzbekistan, ‘personal characteristics’ was constructed using two indicators: the age of the respondent and the size of their household. ‘Infected’ still accounted for the possible impact of the coronavirus infection on ageism. ‘Work during COVID’ was similar to the Tunisian model but excluded unofficially helping others during the outbreak (see Figure 3).

The R^2 was only 6% in the Uzbek model (see Appendix, Table A6). This implied that age discrimination seemed to have little to do with either the Uzbek respondents’ demographic characteristics or their experiences of COVID. The path coefficients significant at 10% were ‘work during COVID’ and ‘personal characteristics’. The latter was only significant in Uzbekistan, signalling that the issue of ageism is becoming more relevant in the country. It had a negative effect of magnitude -0.2 on ‘not ageist’, meaning the combined effect of the size of the respondents’ households and their age was negatively associated with ageism. The result of ‘COVID impact’ as represented by ‘work during COVID’ was also negative. This was intriguing, as the same variable indicated a positive influence on ageism in the Tunisian model. It is possible that strict rules during the pandemic caused a decrease in the respondents’ ability to earn, which was reflected in intergenerational tension in Uzbekistan.

Summary

The clear differences among the three models visibly demonstrate the slight variation in the drivers of ageism in the three countries. First, participants’ demographic characteristics were independent of the pandemic and were only significant in Uzbekistan. Their combined effect on ageism was negative (i.e. older people and males – which were the statistically significant demographic variables in Uzbekistan – influenced ageism negatively). Second, catching the virus was associated with increased ageism only in Hungary. Third, participants’ personal contact with others during the first wave of COVID-19 had varying effects on ageism in the three countries. In Tunisia, it was associated with greater ageism, while in Hungary it indicated decreased age discrimination, but it did not play any role in Uzbekistan. Similarly, work-related issues during the pandemic were of different influence in each country. They led to ageist attitudes in Uzbekistan but had the opposite effect in Tunisia. As for Hungary, no such phenomenon could be detected (see Table 4).

TABLE 4 Summary of model results

Country	Significant path	Path coefficient
Hungary	Infected	-0.18^a
	Interpersonal relations	0.26^a
Tunisia	COVID impact	-0.34^a
	Work during COVID	0.22^b
Uzbekistan	Personal characteristics	-0.20^a
	Work during COVID	-0.16^a

^a10% significance,

^b5% significance.



Spatial dimension

In addition, we also examined whether the size of settlement where the respondents' lived was an important determinant of ageism. To do this, we ran separate calculations. In the first step, we divided the responses into two categories: 'bigger cities' and 'smaller cities and villages'. This was necessary because the homogeneity of the respondents' living places made it impossible to make a more meaningful distinction. The cut-off value was set as cities with fewer than 10,000 residents. In contrast to our expectations, the results showed that respondents from smaller cities were more ageist. The differences were slight but consistent in all three countries under investigation and suggest that there is an interesting geographical perspective to the potential drivers of ageism.

6 | CONCLUSIONS

This paper analysed the results of a survey conducted in three countries during the first wave of the COVID-19 pandemic at its peak in Uzbekistan and at its end in Hungary and Tunisia. Our aim was to explore discriminatory attitudes towards older people, with particular focus on the situation brought about by the pandemic. The questionnaires were distributed electronically, and all survey respondents had at least a bachelor's degree.

Although the three countries' socio-economic conditions and cultural environments are quite different, all three countries reported low levels of ageism. However, it is quite clear from the literature (and from our own experiences) that ageism is strongly present in all three countries; thus, we conclude that the results of the questionnaires are not free from social desirability bias. However, the survey respondents could not hide their different attitudes, which stem from their various cultural backgrounds. Hence, the slight variation in the expression of opinions indeed points to differences among the drivers of ageism in the countries. In this paper, we have highlighted these differences using consistent partial-least-squares SEM.

As we explained, the constructs correspond to the answers to the questions. We found significant relationships among the constructs of the model. Statistically significant path coefficients indicate that the survey revealed variation in ageism in the three countries. Thus, we found several important personal as well as COVID-related variables in the three countries that contribute to increasing or decreasing ageism.

In Hungary, those who officially or unofficially maintained personal relationships during the pandemic were found to be less ageist. While work-related activity decreased ageism in Tunisia, in Uzbekistan it acted in the opposite way. Demographic variables were influential on ageism only in Uzbekistan. COVID infection increased ageism in Hungary but had no effect in Tunisia and Uzbekistan.

Knowledge of the determinants of ageism provides important information for economic policymakers. For example, the fact that in Uzbekistan those who worked during the pandemic were more likely to be ageist than others raises the question of the adequacy of the institutional context and highlights the desirability of making official policy more age-friendly. The ageism-reducing effect of providing informal assistance to others in Hungary shows that encouraging citizens to help each other informally can increase tolerance. The fact that whether someone had earned money during the pandemic did not play a role in perceptions of older people in Hungary suggests that it was easier to find paid work there than in the other two countries. Additionally, money-earning opportunities in Tunisia and Uzbekistan had the opposite effect on ageism, representing a consequence of country-specific characteristics. Separate calculations also showed that people living in bigger settlements in all three countries were less ageist, the cause of which needs further analysis.

Overall, our research highlights that the COVID pandemic had varying effects on the perception of older people in the three countries studied. It also shows that people prefer to present themselves according to expected social norms even when asked anonymous questions and are only partially willing to share their honest opinions. This is one side of the ageism paradox. The other side of the paradox is that even responses biased by social desirability allow us to uncover the factors that influence ageism. In this way, handling the other side of the paradox becomes less critical.



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REFERENCES

- Anijozova, D. Z. (2017). Инструмент для комплексной оценки качества жизни пожилых людей в Республике Узбекистан [Tool for a comprehensive assessment of the quality of life of older people in the Republic of Uzbekistan]. *Клиническая Геронтология*, 23(5–6), 38–43.
- Astrachan, C. B., Patel, V. K., & Wanzenried, G. (2014). A comparative study of CB-SEM and PLS-SEM for theory development in family firm research. *Journal of Family Business Strategy*, 5(1), 116–128. <https://doi.org/10.1016/j.jfbs.2013.12.002>
- Ayalon, L., & Cohn-Schwartz, E. (2021). Measures of self-and other-directed ageism and worries concerning COVID-19 health consequences: Results from a nationally representative sample of Israelis over the age of 50. *PLoS ONE*, 16(5), e0251577. <https://doi.org/10.1371/journal.pone.0251577>
- Barth, N., Guyot, J., Fraser, S. A., Lagacé, M., Adam, S., Gouttefarde, P., Goethals, L., Bechard, L., Bongue, B., & Fundenberger, H. (2021). COVID-19 and quarantine, a catalyst for ageism. *Frontiers in Public Health*, 9, 321. <https://doi.org/10.3389/fpubh.2021.589244>
- Benitez, J., Henseler, J., Castillo, A., & Schuberth, F. (2020). How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research. *Information & Management*, 57(2), 103168. <https://doi.org/10.1016/j.im.2019.05.003>
- Berde, É., & Mágó, M. L. (2022). Are older applicants less likely to be invited to a job interview? – an experimental study on ageism. *Employee Relations*. ahead-of-print. <https://doi.org/10.1108/ER-11-2020-0515>
- Bollen, K. A. (1989). *Structural equations with latent variables* (Vol. 210). John Wiley & Sons. <https://doi.org/10.1002/9781118619179>
- Chin, W. W., & Dibbern, J. (2010). An introduction to a permutation based procedure for multi-group PLS analysis: Results of tests of differences on simulated data and a cross cultural analysis of the sourcing of information system services between Germany and the USA. In V. E. Vinzi, W. W. Chin, J. Henseler, & H. Wang (Eds.), *Handbook of partial least squares* (pp. 171–193). Springer. https://doi.org/10.1007/978-3-540-32827-8_8
- Collier, J. E. (2020). *Applied structural equation modeling using AMOS: Basic to advanced techniques*. Routledge. <https://doi.org/10.4324/9781003018414>
- Countries and their culture. (2008). *Culture of Hungary—History, people, traditions, women, beliefs, food, customs, family, social*. Everyculture. <https://www.everyculture.com/Ge-It/Hungary.html#ixzz7SPsLfevw>
- Dijkstra, T. K., & Henseler, J. (2015a). Consistent and asymptotically normal PLS estimators for linear structural equations. *Computational Statistics & Data Analysis*, 81, 10–23. <https://doi.org/10.1016/j.csda.2014.07.008>
- Dijkstra, T. K., & Henseler, J. (2015b). Consistent partial least squares path modeling. *MIS Quarterly*, 39(2), 297–316. <https://doi.org/10.25300/MISQ/2015/39.2.02>
- Dijkstra, T. K., & Schermelleh-Engel, K. (2014). Consistent partial least squares for nonlinear structural equation models. *Psychometrika*, 79(4), 585–604. <https://doi.org/10.1007/s11336-013-9370-0>
- Edwards, J. R., & Bagozzi, R. P. (2000). On the nature and direction of relationships between constructs and measures. *Psychological Methods*, 5(2), 155–174. <https://doi.org/10.1037/1082-989x.5.2.155>
- Fraser, S., Lagacé, M., Bongué, B., Ndeye, N., Guyot, J., Bechard, L., Garcia, L., Taler, V., & Adam, S. (2020). Ageism and COVID-19: What does our society's response say about us? *Age and Ageing*, 49(5), 692–695. <https://doi.org/10.1093/ageing/afaa097>
- Gutterman, A. (2021). Ageism: Where it comes from and what it does. *Ageism Project*, 2021. <https://doi.org/10.2139/ssrn.3849022>
- Hair, J. F., Henseler, J., Dijkstra, T. K., & Sarstedt, M. (2014). Common beliefs and reality about partial least squares: Comments on Rönkkö and Evermann. *Organizational Research Methods*, 17(2), 182–209. <https://doi.org/10.1177/1094428114526928>
- Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling*. Sage Publications.
- Hair, J. F. Jr., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: Updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, 1(2), 107–123. <https://doi.org/10.1504/ijmda.2017.10008574>
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long Range Planning*, 46(1–2), 1–12. <https://doi.org/10.1016/j.lrp.2013.01.001>



- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31, 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Hair, J. F. Jr., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26, 106–121. <https://doi.org/10.1108/eb-10-2013-0128>
- Henseler, J. (2017). *ADANCO 2.0. 1: User manual*.
- Hentati, Y., & Matoussi, K. (2019). *Violence against Older People: Tunisia*. 73. https://tunisia.unfpa.org/sites/default/files/pub-pdf/violences_against_seniors_tunisia_-_en_0.pdf
- Hofmeister-Tóth, Á., Neulinger, Á., & Debreceni, J. (2021). Measuring discrimination against older people applying the Fraboni scale of ageism. *Information*, 12(11), 458. <https://doi.org/10.3390/info12110458>
- Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations*. Sage Publications.
- Hutchins, M., & Sevilya, S. (2021). Gender discrimination in hiring: Evidence from an audit experiment in Uzbekistan. *The World Bank*. <https://doi.org/10.1596/1813-9450-9784>
- Jarvis, C. B., MacKenzie, S. B., & Podsakoff, P. M. (2003). A critical review of construct indicators and measurement model misspecification in marketing and consumer research. *Journal of Consumer Research*, 30(2), 199–218. <https://doi.org/10.1086/376806>
- Karlin, N., Ben Salem, M., & Weil, J. (2018). Aging in Tunisia. *The Gerontologist*, 58, 1004–1008. <https://doi.org/10.1093/geront/gny125>
- Karlin, N. J., Weil, J., & Ben Salem, M. (2019). Social support, retirement resources, and the gendered experiences of aging for Tunisian older adults. *Journal of Gerontological Social Work*, 62(5), 564–577. <https://doi.org/10.1080/01634372.2019.1610132>
- Kolos, K., & Kenesei, Z. (2020). *How to cope with ageism? A comparison of younger and older adults in Hungary*. Proceedings of the European Marketing Academy, 49th (62585).
- KSH. (2013). *Ötven év felettiek a munkaerőpiacon [Employees over 50 on the labor market]*. KSH. <http://www.ksh.hu/docs/hun/xftp/idoszaki/pdf/otvenvefeletti.pdf>
- Labidi, L. (2005). Quand l'exclusion intervient avec la retraite: L'expérience tunisienne. *Reflets [When exclusion intervenes with retirement: The Tunisian experience. Reflections]* *Revue Ontariote d'intervention Sociale et Communautaire*, 11(1), 81–111. <https://doi.org/10.7202/013060AR>
- Lohmöller, J.-B. (1989). Predictive vs. structural modeling: Pls vs. ml. In *Latent variable path modeling with partial least squares* (pp. 199–226). Springer. https://doi.org/10.1007/978-3-642-52512-4_5
- Lovász, A., & Simonovits, B. (2019). Classic labour market discrimination. In K. Fazekas & Á. Szabó-Morvai (Eds.), *The Hungarian labour market Yearbook 2018*. Institute of Economics, Centre for Economic and Regional Studies (pp. 173–177).
- MacKenzie, S. B., Podsakoff, P. M., & Podsakoff, N. P. (2011). Construct measurement and validation procedures in MIS and behavioral research: Integrating new and existing techniques. *MIS Quarterly*, 35, 293–334. <https://doi.org/10.2307/23044045>
- Nia, H. S., She, L., Rasiah, R., Fomani, F. K., Kaveh, O., Sharif, S. P., & Hosseini, L. (2021). Psychometrics of Persian version of the ageism survey among an Iranian older adult population during COVID-19 pandemic. *Frontiers in Public Health*, 9, 683291. <https://doi.org/10.3389/fpubh.2021.683291>
- Peachey, K. (1999). Ageism: A factor in the nutritional vulnerability of older people? *Disasters*, 23(4), 350–358. <https://doi.org/10.1111/1467-7717.00124>
- Pulatova, G., Harun-Or-Rashid, M., Yoshida, Y., & Sakamoto, J. (2012). Elderly health and its correlations among Uzbek population. *Nagoya Journal of Medical Science*, 74(1–2), 71–82.
- Radnitz, S. (2006). Weighing the political and economic motivations for migration in post-soviet space: The case of Uzbekistan. *Europe-Asia Studies*, 58(5), 653–677. <https://doi.org/10.1080/09668130600731003>
- Rigdon, E. E. (2012). Rethinking partial least squares path modeling: In praise of simple methods. *Long Range Planning*, 45(5–6), 341–358. <https://doi.org/10.1016/j.lrp.2012.09.010>
- Rigdon, E. E. (2016). Choosing PLS path modeling as analytical method in European management research: A realist perspective. *European Management Journal*, 34(6), 598–605. <https://doi.org/10.1016/j.emj.2016.05.006>
- Russo, D., & Stol, K.-J. (2021). PLS-SEM for software engineering research: An introduction and survey. *ACM Computing Surveys (CSUR)*, 54(4), 1–38. <https://doi.org/10.1145/3447580>
- Sarstedt, M., Hair, J. F., Ringle, C. M., Thiele, K. O., & Gudergan, S. P. (2016). Estimation issues with PLS and CBSEM: Where the bias lies! *Journal of Business Research*, 69(10), 3998–4010. <https://doi.org/10.1016/j.jbusres.2016.06.007>
- Tenenhaus, M., Vinzi, V. E., Chatelin, Y.-M., & Lauro, C. (2005). PLS path modeling. *Computational Statistics & Data Analysis*, 48(1), 159–205. <https://doi.org/10.1016/j.csda.2004.03.005>
- UNICEF. (2020). *Молодежь Узбекистана: Вызовы и перспективы [Youth of Uzbekistan: challenges and prospects.]*.



- Vale, M. T., Stanley, J. T., Houston, M. L., Villalba, A. A., & Turner, J. R. (2020). Ageism and behavior change during a health pandemic: A preregistered study. *Frontiers in Psychology*, *11*, 587911. <https://doi.org/10.3389/fpsyg.2020.587911>
- Werner, P., AboJabel, H., & Tur-Sinai, A. (2021). Ageism towards older and younger people in the wake of the COVID-19 outbreak. *Maturitas*, *157*, 1–6. <https://doi.org/10.1016/j.maturitas.2021.11.002>
- World Development Indicators. (2022). *Population ages 65 and above (% of total population) - Uzbekistan, Hungary, Tunisia*. The World Bank. <https://data.worldbank.org/indicator/SP.POP.65UP.TO.ZS?locations=UZ-HU-TN>
- World Health Organization. (2015). World report on ageing and health. World Health Organization. <https://apps.who.int/iris/handle/10665/186463>

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APPENDIX

The outer model

Tables A1, A2 and A3 are summary tables that show outer model fit measures, which are the goodness of fit criteria suggested by Hair et al. (2019) and Dijkstra and Henseler (2015a). Cronbach's alpha, as well as Dijkstra–Henseler's rho, reach the necessary minimum value (0.7) in the case of all three countries. Moreover, the minimum value (0.5) of average variance extracted (AVE) is achieved by the three countries as well. Weights and loadings, along with their respective *t*-values are also reported. Most indicators are significant and display good reliability and moderate-to-strong relationships to the constructs. In addition, the Fornell–Larcker criteria (not reported) also signal good models. The heterotrait–monotrait ratio of correlations (HTMT) indicates adequate fits as well. The HTMT for Hungary is 0.16, 0.02 for Tunisia and 0.04 for Uzbekistan, which are all much less than the strict maximum cut-off value of 0.85.

The inner model

The inner models' summary tables are Tables A4, A5 and A6. The values of the standardised root mean square residual (SRMR), the unweighted least squares discrepancy (dULS) and the geodesic discrepancy (dG) must be less than the ninety-fifth percentile (HI95), which is fulfilled in all three cases. The effect size (Cohen's f^2) shows how substantial the direct effect is irrespective of sample size. Unfortunately, in the case of all three countries, the effects seem to be weak (below 0.15). The path coefficients of the empirical bootstrap, their confidence intervals (CI 2.5% and 97.5%), as well as the two-sided *p*-values are also displayed. Some of the significant variables have confidence intervals that include 0. This can be problematic as it implies that the direction of the effect is uncertain (can be both positive and negative) and could also mean that these variables do not influence ageism at all (at least on the 5% significance level).



TABLE A 1 Outer model – Hungary

Latent/emergent variable	Indicators	Measurement model	ρ_A , cut-off:0.7	Cronbach AI ρ_A , cut-off:0.7	AVE, cut-off:0.5	VIF	Weight	t-value	Loading, cut-off: 0.7	t-value
Not ageist		Likert scale (1–5), reflective model, mode A consistent, (PLSc)	0.85	0.80	0.57					
	Not_Burden	Dominant indicator				0.41	4.02	0.77	4.19	
	Not_Pandemic_Sacrifice					0.26	2.50	0.48	2.48	
	Not_Normal_Sacrifice					0.51	3.50	0.95	3.71	
Personal characteristics		Composite mode, mode B								
	Gender	Dominant indicator				1.02	0.97	2.11	0.93	1.88
	City_Size					1.02	0.38	0.79	0.25	0.50
Infected		Composite mode, mode B								
	Got_COVID	Dominant indicator				1.00	1.00	1.0000		
Interpersonal relations		Composite mode, mode B								
	Help_Unofficial	Dominant indicator				1.30	0.72	2.39	0.76	2.58
	Receive_Help					1.30	-0.33	-0.64	-0.56	-1.20
	Work_Official					1.05	-0.62	-1.57	-0.42	-1.13



TABLE A2 Outer model - Tunisia

Latent/emergent variable	Indicators	Measurement model	ρ_A cut-off:0.7	Cronbach AI ρ_A cut-off: 0.7	AVE, cut-off:0.5	VIF	Weight	t-value	Loading, cut-off: 0.7	t-value
Not ageist		Likert scale (1-5), reflective model, mode A consistent, (PLSc)	0.81	0.72	0.61					
	Not_Normal_Sacrifice	Dominant indicator				0.68	9.18	0.92		6.40
	Similar_Rights	Dominant indicator				0.45	5.89	0.61		5.63
Personal characteristics		Composite mode, mode B								
	City_Size	Dominant indicator			1.08	0.64	2.18	0.71		2.26
	Gender	Dominant indicator			1.16	0.41	0.97	0.01		0.03
	Age	Dominant indicator			1.16	-0.73	-1.29	-0.74		-1.43
Infected		Composite mode, mode B								
	Got_COVID	Dominant indicator			1.00	1.00		1.0000		
General COVID impact		Composite mode, mode B								
	Receive_Help	Dominant indicator			1.02	0.83	4.03	0.72		2.79
	Future_Optimism	Dominant indicator			1.02	-0.71	-1.77	-0.58		-1.54
Work during COVID		Composite mode, mode B								
	Help_Unofficial	Dominant indicator			1.00	0.96	6.15	0.97		6.44
	Earn_Money	Dominant indicator			1.00	0.21	0.63	0.21		0.61
	Work_Official	Dominant indicator			1.00	-0.12	-0.41	-0.19		-0.68



TABLE A3 Outer model - Uzbekistan

Latent/ emergent variable	Indicators	Measurement model	ρ_A , cut-off:0.7	Cronbach AI ρ_A , cut-off: 0.7	AVE, cut-off:0.5	VIF	Weight	t-value	Loading, cut-off: 0.7	t-value
Not ageist		Likert scale (1-5), reflective model, mode A consistent, (PLSc)	0.79	0.79	0.65					
	Not_Pandemic_Sacrifice	Dominant indicator				0.52	4.77	0.77		3.25
	Not_Normal_Sacrifice	Dominant indicator				0.58	5.20	0.85		3.24
Personal characteristics		Composite mode, mode B								
	Age	Dominant indicator				1.00	0.98	0.96		4.31
	Household	Dominant indicator				1.00	-0.27	-0.20		-0.44
Infected		Composite mode, mode B								
	Got_COVID	Dominant indicator				1.00	1.00	1.0000		
Work during COVID		Composite mode, mode B								
	Work_Official	Dominant indicator				1.08	1.02	0.10		3.88
	Earn_Money	Dominant indicator				1.08	0.09	-0.19		-0.35

**TABLE A4** Inner model – Hungary

Direct effect	Path coefficient	Significance	t-value	Bootstrap CI 2.5%	Bootstrap CI 97.5%
Personal characteristics - > not ageist	-0.20	0.32	-1.00	-0.37	0.31
Interpersonal relations - > not ageist	0.26	0.09	1.67	-0.25	0.45
Infected - > not ageist	-0.18	0.09	1.70	-0.37	0.04
Endogenous variable	R2				
Not ageist	0.12	HI95			
SRMR	0.07	0.08			
DULS	0.22	0.31			
Dg	0.14	0.14			
Effect size	F2				
Personal characteristics - > not ageist	0.04				
Interpersonal relations - > not ageist	0.07				
Infected - > not ageist	0.04				

TABLE A5 Inner model – Tunisia

Direct effect	Path coefficient	Significance	t-value	Bootstrap CI 2.5%	Bootstrap CI 97.5%
Personal characteristics - > not ageist	-0.21	0.26	-1.13	-0.46	0.30
General COVID impact - > not ageist	-0.34	0.06	-1.88	-0.62	0.25
Infected - > not ageist	0.06	0.44	-0.77	-0.10	0.18
Work during COVID - > not ageist	0.22	0.04	2.09	0.06	0.46
Endogenous variable	R2				
Not ageist	0.28	HI95			
SRMR	0.07	0.08			
DULS	0.34	0.47			
Dg	0.08	0.12			
Effect size	F2				
Personal characteristics - > not ageist	0.06				
General COVID impact - > not ageist	0.14				
Infected - > not ageist	0.00				
Work during COVID - > not ageist	0.06				

**TABLE A6** Inner model – Uzbekistan

Direct effect	Path coefficient	Significance	t-value	Bootstrap CI 2.5%	Bootstrap CI 97.5%
Personal characteristics - > not ageist	-0.20	0.07	-1.84	-0.41	0.07
Work during COVID - > not ageist	-0.16	0.08	-1.76	-0.32	0.07
Infected - > not ageist	0.06	0.41	0.83	-0.10	0.18
Endogenous variable	R2				
Not ageist	0.06	HI95			
SRMR	0.02	0.06			
DULS	0.01	0.09			
Dg	0.00	0.02			
Effect size	F2				
Personal characteristics - > not ageist	0.04				
Work during COVID - > not ageist	0.03				
Infected - > not ageist	0.00				