Intergenerational climate and work engagement: The mediating role of age

discrimination in a sample of older workers.

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Summary

Abstract

Due to higher rates of longevity, and to the many benefits involved in working, there has been an increase in the average work life cycle. Given that different generations can be found together in the workplace, research regarding the impact of intergenerational climate and age discrimination on work engagement is of particular relevance, especially amongst older workers, as those most impacted by age discrimination. The objective of this study is to investigate the relationship between intergenerational climate and work engagement, and whether this relationship is mediated by age discrimination. The hypotheses were tested in a sample of 201 Portuguese workers with 45 or more years of age, by means of regression. Findings showed that intergenerational inclusiveness and affect, retention and intergenerational affect and lack of generational stereotypes are negatively related to older workers' perceived age discrimination. Further, older workers' work engagement seems to only be positively impacted by intergenerational inclusiveness and affect. Mediation analyses showed that age discrimination did not act as a mediator between the dimensions of intergenerational climate and work engagement. Theoretical and practical implications of results to human resources management strategies in organizations are discussed.

Keywords: intergenerational climate, workplace age discrimination, work engagement, older workers.

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discrimination in a sample of older workers.

As the average lifespan increases, with improvement in health conditions and reduced mortality (White et al., 2018), it is also expected that the average work life cycle also expands, as older workers remain professionally active for a longer period. There are many individual reasons that drive this behavior: family dynamics, career interests, cognitive health improvement and maintaining (or gaining) better financial possibilities (White et al., 2018). Besides these individual factors that drive older workers to remain in the workforce, there are also social factors. Since early retirement has a high cost to governments, public policies in many countries have removed mandatory retirement clauses, or pushed minimal retirement age further, so that workers can stay active longer (Wainwright et al., 2019). And last, but not least, there are organizational benefits for prolonging workforce participation, as it will generate competitiveness for skilled workers (Davey, 2014), raising the bar for results and best practices, as well as the fact that older workers typically have more time flexibility and more emotional strategies for conflict management (White et al., 2018).

According to projections from the European Commission, labor force participation will increase, and the largest difference will be older workers' participation, with a 10-point raise, from 62% to 72% in participation rate in the labor force projections from 2019 to 2070 (European Commission, 2020). As older workers are staying active in the workforce for a longer period, different generations will work together in the same workspace, as new generations also enter the workplace. This consequently leads to an environment composed of different age groups, and therefore, promote intergroup contact. Pettigrew and Tropp (2006), defined intergroup contact as "actual face-to-face interaction between members of clearly defined and distinguished groups" (p. 754). This contact has been found to be positive in reducing prejudice, but it is dependent on the quality and quantity of present and past

intergroup contacts that the individual has had (Fasbender & Wang, 2017; Lagacé et al., 2019; Pettigrew, 1998). In other words, if past intergroup contact experiences were proven to be positive, the more likely that future experiences are also positive. However, if past and present experiences with intergroup contact are negative, it can lead to increased prejudice, which is the negative attitude towards the outgroup (Amodio & Devine, 2006). Hence, the age diverse environment can also potentially lead to discriminatory behaviors, as age-based negative stereotypes may influence intergroup contacts in a negative way, increasing perceived age discrimination (Kunze et al., 2009).

However, it is not age diversity that drives negative effects in the workplace, since the age-diverse environment also has the potential for positive outcomes in the organizations, as other types of diversity have. Studies have shown that diversity can lead to better decision-making, productivity, and creativity, because of a wider variety of worker skills and backgrounds (van Knippenberg & Schippers, 2007). Therefore, age difference, in itself, is not necessarily prejudicial; rather, an age diverse environment has many potential positive impacts and can be perceived as an "opportunity for growth and inclusiveness" (Lagacé et al., 2019, p. 216).

Many studies have been published on prejudice, stereotyping, and age discrimination, and though there are complexity in these constructs, there is solid evidence supporting that discriminatory behaviors can affect intergroup contacts and impact individual and organizational outcomes (Baltes et al., 2009; Schulte et al., 2006). What is new to literature is the intergenerational climate, as it is a form of intergroup contact, but has only recently begun to be understood in the organizational context, even though it is increasingly relevant due to the ever more age diverse workplace. Not only does the construct itself need further investigation, but also a better understanding as how it impacts organizational outcomes. As an example, Lagacé et al. (2019) concluded that a positive intergenerational climate impacts

job satisfaction and also successful aging at work, as well as having positive effects on knowledge sharing in the workplace. Particularly, no studies were found on its impacts on work engagement, which is an important organizational construct. Therefore, the present study aims to extend the nomological network of intergenerational climate, provide information on how the positive intergenerational climate has positive effects on work engagement, and how this effect is mediated by age discrimination. In this study, this relation is observed in a sample of older workers, since this is the group that suffers more with ageism in the workplace according to previous literature (Davey, 2014; Jelenko, 2020; Snape & Redman, 2003).

Besides the theorical contributions, the present study is expected to contribute to a more supportive workplace culture for workers of all ages (White et al., 2018), impacting human resources management strategies and practice in organizations, as it intends to understand the mutual relations between intergenerational climate, workplace age discrimination and work engagement.

Intergenerational Climate

Climate is a multilevel construct, as it exists in the individual level and the organizational level (Baltes et al., 2009; Schulte et al., 2006). In the individual level, which is the focus of this study, it is usually known by psychological climate, and it refers to the individual's perception of the organizations and their work environment. This construct is known to affect the individual's behavior towards the organization, including satisfaction and commitment (Baltes et al., 2009; Schulte et al., 2006) and has been widely researched in organizational psychology. Its origin is in the late 1930's, with Lewin et al.'s (1939) discussion of `social climates', and gradually gained the idea of psychological climate as understood today by the late 1960's (Baltes, 2001). Therefore, psychological climate is one of

the founding constructs to consider when assessing organizations and their practices, because of its relevance throughout history, and because of its impacts on individual and organizational outcomes (e.g., Baltes et al., 2009; Schulte et al., 2006).

The individual perceptions of the intergenerational dynamics present in a group composed of people in various ages is the intergenerational climate. It can be considered as a type of psychological climate, as it is measured by the individual's perception on the intergenerational dynamics in the workplace. Though it is an important construct in the modern workplace due to age diversity, it has not been a focus of many studies so far (North & Fiske, 2012). There have been previous studies on ageism and age discrimination, and there are studies on intergenerational tension (e.g., North & Fiske, 2013) and intergenerational contact (e.g., Iweins et al., 2013; Lagacé et al., 2022). However, the intergenerational climate is yet to be more meticulously explored by research. It was King and Bryant (2017) that introduced the first scale that proposes to actually measure the intergenerational climate, assessing the "positivity of the workplace climate toward workers of different ages through self-reported inclusiveness and friendliness" (King & Bryant, 2017, p. 126). Their study also shows that the intergenerational climate is a multidimensional construct, composed of five factors: lack of generational stereotypes, positive intergenerational affect, intergenerational contact, workplace generational inclusiveness and workplace intergenerational retention (King & Bryant, 2017).

Lagacé et al. (2019) added to research on intergenerational climate by investigating its effects on ageism. They conclude that: "the perception of a positive intergenerational climate seems to decrease feelings of ageism and increase satisfaction as well as successful aging at work" (p. 211). To further investigate the effects of intergenerational climate and given that one of the most important challenges for organizations is precisely satisfaction, engagement, and well-being (Guglielmi et al., 2016), this study highlights the importance to consider the

intergenerational climate and its impact on one of these important organizational outcomes: work engagement.

Work Engagement

Work engagement has been previously defined by Schaufeli et al. (2002) as a work-related state of mind that is positive and fulfilling, characterized by three elements: vigor, dedication, and absorption. Vigor is identified as high levels of energy and resilience while working. Dedication is the strong involvement and sense of significance. And finally, absorption is the focused and effortless attention and concentration in the work, so much that the person does not feel time going by. Work engagement has been studied by researchers and practitioners, as it is established to have a causal effect on positive organizational and individual outcomes, such as lower absenteeism, higher task and work performance, as well as better self-efficacy (Neuber et al., 2021; Tian et al., 2019). As clearly put by Guglielmi et al. (2016), "workers with high engagement will not only be more satisfied but will also tend to increase their resources over time, becoming more resilient against stress and adverse job conditions" (p. 7).

Thus, observing and measuring work engagement in organizations is of much relevance, as well as increasing knowledge on what can impact work engagement in a positive or negative way. In that sense, literature on age discrimination indicates that perceived ageism has negative effects on work engagement (Bayl-Smith & Griffin, 2014; Lagacé et al, 2019; Macdonald & Levy, 2016), strengthening the importance of studying work engagement in the context of the age diverse workforce, which is more prone to manifestations of age discrimination, precisely due to the diversity of age groups.

What is yet to be found in literature, and is of relevance in the modern workplace, is if and how work engagement is impacted by the intergenerational climate. This study proposes

a direct effect between intergenerational climate and work engagement, and also that one of the mechanisms that interferes in the relationship between intergenerational climate and work engagement is age discrimination.

Age Discrimination in the Workplace

Age discrimination, or ageism, is "grounded in a biased assumption that age (any age) is a determining factor of one's ability, talent, and potential" (Jelenko, 2020, p. 70). Although age discrimination is not limited to older workers, this is the group it predominantly affects (Cebola et al., 2021; Davey, 2014; North & Fiske, 2012), as previous studies have shown that older workers suffer more negative effects of age discrimination than younger workers (e.g., Davey, 2014; Jelenko, 2020; Snape & Redman, 2003). This is emphasized by the fact that modern western society is youth centered (Fasbender & Wang, 2017) and perceives aging as a process of losses and linked to mortality (Lagacé et al., 2019; Nelson, 2011; North & Fiske, 2012), generating many biased affections and behaviors towards older people and ageing in itself. "In its complexity it [age discrimination] includes cognitive (perceptions and images of others based on age), affective (prejudice) and behavioral (discrimination) components, is expressed positively and negatively, can be implicit and explicit, and is present at the micro (intrapersonal), meso (social networks) and macro (institutional/organizational) levels." (Cebola et al., 2021, p. 2).

Age discrimination is the effect of negative stereotypes towards an age group. Stereotyping is "anytime one assumes that a group shares a common behavioral or personality characteristic" (Nelson, 2011, p. 37). For older workers, the negative age-related stereotypes include beliefs of underperformance, less engagement, more resistance to change, less interpersonal skills, and lower development potential (Marchiondo et al., 2016). Curiously enough, these negative stereotypes are not supported by previous studies of older

employees at work (Douglas & Roberts, 2020; Kunze et al., 2013; Posthuma & Campion, 2009). One recent study by Varianou-Mikellidou et al. (2020) concluded that, though age is a relevant factor in the work context, the predominant factor that has effect on work ability are employees' characteristics, such as health status, for example. This points out that the individual traits are more relevant than age, which means that the biased beliefs behind ageism are stronger and more prevalent than the facts regarding age and organizational outcomes (Wainwright et al., 2019). Though, as previously noted, age discrimination is not preceded by evidence-based negative organizational outcomes (Douglas & Roberts, 2020; Kunze et al., 2013; Posthuma & Campion, 2009), it does lead to them, as it negatively affects workers' commitment and may have other negative consequences to businesses' overall performance (Bayl-Smith & Griffin, 2014, Douglas & Roberts, 2020; Kunze et al., 2009).

Age-based stereotypes are a social construct and ageism in organizations is a representation of this social phenomenon (Davey, 2014). Therefore, organizations can either help deconstruct or reinforce these age-based stereotypes. This gains relevance, given that ageism is "the one form of bias that is a potentially universal experience" (North & Fiske, 2015, p. 160), since people move along different age groups as they grow and develop. Given the aging population and the diversity of generations present in the workplace, it is important to question the age-based stereotypes that arise, as well as the interactions of the age diverse workforce and how this can generate relevant outcomes at the workplace, such as in positive work engagement.

The present study

The intergenerational climate is a new construct, as it began to be defined and measured in 2017, with King and Bryant's work on the intergenerational climate scale. Before that, it was possible to find other terms, such as intergenerational contact (e.g., Iweins

et al., 2013), but not the intergenerational climate *per se* (King & Bryant, 2017). Therefore, not only does the concept need further definition, but also, more understanding of its effects on organizational constructs.

There are many relevant organizational constructs that could be interesting to analyze in the intergenerational climate context, but this paper aims to shed light on the impact that it has on work engagement. The first reason for this choice is because of improved validity purposes, since work engagement is an individual measure just as intergenerational climate, which facilitates results comparison (Glick, 1985). A second reason is for the known impact of work engagement on individual and organizational outcomes (Guglielmi et al., 2016; Neuber et al., 2021; Snape & Redman, 2003; Tian et al., 2019). The third and final reason is, though there are no prior studies on intergenerational climate and work engagement, there have been previous results on the relation between psychological climate and work engagement (e.g., Kühnel et al., 2011, Chaudhary, 2014). Since intergenerational climate is a form of psychological climate, it is interesting to investigate how it would relate to work engagement.

Therefore, in order to provide further clarity on how the intergenerational climate affects older workers' engagement in a positive way, the following hypothesis is proposed:

H1: Perceptions of positive intergenerational climate in the workplace are positively related with work engagement.

In addition to the proposed direct relationship of these variables, this paper also proposes that workplace age discrimination is a mechanism that explains the expected relationship between intergenerational climate and work engagement.

Age discrimination, as other prejudices, has many negative effects (Douglas & Roberts, 2020; Lagacé et al., 2019; Snape & Redman, 2003), with the added relevance that,

different from other prejudices, this is one that potentially all people may experience, since age and age groups are not static; people get older and move to different age groups as life happens (Macdonald & Levy, 2016; North & Fiske, 2015). And though there are many studies on age discrimination, it is yet to be determined how to reduce or eliminate ageism (Nelson, 2011). Therefore, the present study aims to contribute to this aspect, as its results may show if and how age discrimination might be reduced or eliminated by means of a positive intergenerational climate.

When focusing on the first path of the mediation effect expected, previous research has shown that positive intergenerational climate has proven to reduce perceived age discrimination (e.g., King & Bryant, 2017; Lagacé et al., 2019). So, to further contribute to the studies on this topic and this connection, the following hypothesis is established:

H2: Perceptions of positive intergenerational climate are negatively related to perceived age discrimination at work.

The second path of the mediated effect proposed is the relationship between perceived age discrimination at work and work engagement. Studies have shown that age discrimination has negative impact on work engagement (e.g., Bayl-Smith & Griffin, 2014; Douglas & Roberts, 2020; Jelenko, 2020) and consequently, impacts individual and organizational outcomes (e.g., Douglas & Roberts, 2020; Kunze et al., 2009). Given that the population is ageing, and that the workforce is progressively diverse (Bayl-Smith & Griffin, 2014; Guglielmi et al., 2016), it is important to study the relation between age discrimination and work engagement, since it potentially can have negative effects for the individual and for organizations.

In this setting, the third hypothesis of this study is to investigate the impact of age discrimination in older workers' work engagement.

H3: Perceived age discrimination relates negatively with older workers' work engagement.

As mentioned earlier, and strengthened by the aforementioned arguments, this study proposes that age discrimination is a mediating mechanism that contributes to a negative relationship between intergenerational climate and work engagement. More specifically, it is proposed that age discrimination will play a partial mediator role between the other two variables. Mediation is expected to be partial as there are other organizational factors that may influence work engagement in a negative way, such as lack of organizational support and control (Guglielmi et al., 2016), as well as individual factors, such as aging anxiety (Macdonald & Levy, 2016).

This hypothesis is relevant as it also contributes to literature on intergenerational climate, analyzing this construct in light of other two constructs that withhold more robust research evidence. The theoretical development contributes to practical changes that are needed in the workforce, involving strategies that foster a positive intergenerational climate and, therefore, might mitigate negative age discrimination consequences, as other studies have shown (Davey, 2014; Wainwright et al., 2019).

H4: Age discrimination in the workplace partially mediates the relation between intergenerational climate and work engagement.

Figure 1

Hypothesized mediation model.

H4 (mediation)

Age
Discrimination

H2

H3

Intergenerational
Climate

Work Engagement

H1
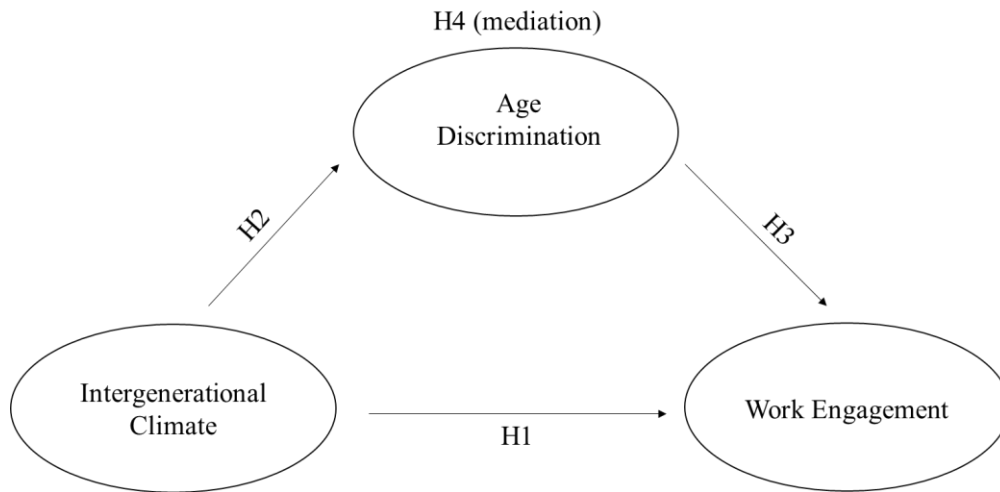
Method

Participants

This study utilized a sample of workers aged 45 years and above, with employment ties of 6 or more months. The participants were 201 workers from multiple organizations in Portugal, mostly from the service sector (51%), with ages varying from 45 to 65, with an average of 51 years ($SD = 4.3$). The sample was composed by 60% female workers (120 female and 81 male), maybe due to the fact the majority of organizations were from the service sector. In terms of education, 83% had basic or secondary education (105 basic education, 61 secondary education and 35 tertiary education). Moreover, 82% of participants were full time employees, totaling 164 participants in this category. Regarding their position, 78% of participants did not have subordinates reporting to them in the organization and, thus, were identified as non-leaders (156 non-leaders, 42 leaders, and three missing answers).

Participants completed a questionnaire that contained three sections, which are further detailed below. The sections refer to each questionnaire used in the study, and were sequential to an initial identification of participants' occupational and personal information (e.g., age, gender, tenure), all the while maintaining anonymity.

Intergenerational Climate

Intergenerational climate was evaluated using the Workplace Intergenerational Climate Scale (WICS; King & Bryant, 2017), which is a 20-item questionnaire that assesses five dimensions of positive intergenerational climate. The five factors assessed by the scale are: lack of generational stereotypes (LGS), positive intergenerational affect (PIA), intergenerational contact (IC), workplace generational inclusiveness (WGI) and workplace generational retention (WGR). The participant was to mark his/her level of agreement rating from 1 (*complete disagreement*) to 5 (*complete agreement*) in all dimensions, except for IC, which answers range from 1 (*Never*) to 5 (*Many times*).

This questionnaire was introduced in 2017 by King and Bryant, with Cronbach's alpha value of .85 (King & Bryant, 2017). There is a validation study of the scale for Portugal by Brochado (2020), considering four dimensions instead of five, since the five-factor model did not present satisfactory goodness-of fit-indices in the confirmatory factorial analysis. In Brochado´s study, the PIA dimension was excluded, and the other four dimensions exhibited the following Cronbach's alpha scores: WGI = .69; IC = .74; WIR = .71; LGS = .66. The scale obtained favorable results in factorial analysis and achieved a satisfactory Cronbach's alpha of .78 (Brochado, 2020).

For the present study, exploratory factor analysis was performed using maximum likelihood as the estimation method, with oblimin rotation. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .82, and the Bartlett test of sphericity was statistically significant ($p < 0.01$), indicating suitability of the data to be analyzed. The results obtained showed a four-factor solution, with 20 items, that together accounted for 52.13% of common variance. Only item 8 had a factor loading lower than .40 (.23), but when this item was

deleted, there were no improvements in the alpha score, which is why the item was maintained.

The first factor - *intergenerational inclusiveness and affect* (IIA) – retained seven items measuring positive perceptions of intergenerational inclusiveness and affect (Cronbach's α = .83; e.g., "I feel comfortable when co-workers outside my generation try to make conversation with me"). This factor was the one with the highest number of items, composed by the 4 items of the WGI dimension, and 3 items of the PIA dimension. There were five items included in the second factor, comprising negative statements related to workers' retention and their interaction with people of different age groups. This factor was named *retention and intergenerational affect* (RIA) (Cronbach's α = .81; e.g., "My co-workers make older workers feel they should retire"). The third factor had four items that expressed the intergenerational contact through statements related to the frequency in which it occurs and was labeled as *intergenerational contact* (IC) (Cronbach's α = .79; e.g., "How often do you have conversations with co-workers outside your generation?"). Finally, the fourth factor – *lack of generational stereotypes* (LGS) – collected four items emphasizing negative perceptions of workers of other generations (Cronbach's α = .77; e.g., "Co-workers outside my generation are not interested in making friends outside their generation").

Workplace Age Discrimination

The Workplace Age Discrimination Scale (WADS; Marchiondo et al., 2016), is a unidimensional, 9-item questionnaire that was used to assess age discrimination in the workplace. Participants were asked to mark their level of agreement from 1 (*completely disagree*) to 5 (*completely agree*) in all questions (e.g., "I have been passed over for a work role/task due to my age"). In the original study, the scale was validated with a .95 Cronbach's alpha (Marchiondo et al., 2016).

In this study, exploratory factor analysis was performed using maximum likelihood as the estimation method, with oblimin rotation. One factor was extracted, with variance of 64.19%. The Kaiser-Meyer-Olkin (KMO) score was of .90, the Bartlett test of sphericity had statistically significant results ($p < .01$). Results indicate suitability. All factor loadings were higher than 0.40 for the 9 items. Cronbach's alpha score was .94.

Work Engagement

Work engagement was assessed using the 9-item Utrecht Work Engagement Scale, (UWES-9; Schaufeli et al., 2006), which is a reduced and validated version of the original 17-item UWES. The scale assesses the three aspects of engagement, distributed in questions on vigor (e.g., "At my work, I feel bursting with energy"), dedication (e.g., "I am enthusiastic about my job"), and absorption (e.g., "I feel happy when I am working intensely"). The participant was instructed to think about his/her professional tasks while answering and rate each question in a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). In the original study of the 9-item scale, Cronbach's alpha was .80 (Schaufeli et al., 2006).

In this study, exploratory factor analysis was performed using maximum likelihood for the extraction method, with oblimin rotation. One factor was extracted, with total variance of 54.68%. The Kaiser-Meyer-Olkin (KMO) score obtained was .88, and statistically significant results ($p < .01$) on Bartlett test of sphericity were obtained. All factor loadings were over .40. The Cronbach's alpha value found was .91.

Procedures

Data collection procedures

Data for the study was collected using a questionnaire, resulting in a sample by convenience, aiming to include more diversity of professional profiles and organization

types. The inclusion criteria were to be 45 years old or older, and to be actively employed for six or more months. Incomplete data on any questionnaires led to the exclusion of the participant. Questionnaires were delivered to the participants in hard copy and delivered back to the research team, without identification of the participant, to ensure anonymity. Data was collected by the end of 2018, in a pre-pandemic context, by psychology students.

Ethical and deontological aspects prescribed by the Order of Portuguese Psychologists Code of Ethics (2011) were considered and preserved, and each participant signed an informed consent prior to answering the questionnaire. All participants were assured of the voluntary nature of their participation, and their right to withdraw participation at any given time. Anonymity and confidentiality were guaranteed. Participants received no compensation upon the completion of the surveys.

Data analysis procedures

Before testing the study's hypotheses, the first important verification was to regard the model's assumptions in terms of independence, homoscedasticity, lack of collinearity and normality. All the assumptions for the model were met. Tolerance levels ranged between .501 and .995, and VIF coefficients between 1.005 and 2.050.

Descriptive and correlational analyses were performed using the software IBM SPSS Statistics (version 25) predictive analytics software. Factor analysis was also executed for validity confirmation and verification of internal consistency. The PROCESS macro tool for SPSS version 3.5 (Hayes, 2013) was used for regression analysis on mediating effects.

Results

Preliminary analysis: Descriptive, correlational and differential analyses

In Table 1, the descriptive statistics and correlation matrix for each scale are presented. Mean values for the scales ranged from 2.02 to 3.75, on a possible total score of 5.

Correlations between the variables are mostly statistically significant, ranging from -.63 to .64, indicating a moderate correlation. The statistically insignificant correlations were between *work engagement* and *retention and intergenerational affect* (.02), *age discrimination* and *intergenerational contact* (-.06), *work engagement* and *lack of generational stereotypes* (-.05). The highest statistically significant correlation was between *work engagement* and *intergenerational inclusiveness and affect* (.64), and the lowest was between *age discrimination* and *retention and intergenerational affect* (-.63).

Table 1

Descriptive statistics and correlations between study variables.

Measure	M (SD)	Skewness	Kurtosis	α	1	2	3	4	5	6
1. Intergenerational Inclusiveness and Affect	3.62 (.84)	-.32	-.70	.83	-	.16*	.47**	-.03	-.39**	.64**
2. Retention and Intergenerational Affect	3.75 (.88)	-.38	-.89	.81		-	-.05	.54**	-.63**	.02
3. Intergenerational Contact	3.19 (.88)	-.09	-.29	.79			-	.07	-.06	.35**
4. Lack of Generational Stereotypes	3.18 (.91)	-.13	-.11	.77				-	-.39**	-.05
5. Age Discrimination	2.02 (.96)	.56	-.77	.94					-	-.19**
6. Work Engagement	3.46 (.78)	.09	-.28	.91						-

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

This study additionally tested if gender caused any difference within the studied sample, using a *t*-test. The *t*-tests results showed no significant differences in female and male's perception of intergenerational climate in all four factors, respectively: $t(199) = .490$, *p*=

.624; t (199) = -.262, p= .793; t (199) = 480, p= .631; t (199) = -.811, p= .418. Therefore, gender was not considered as a covariate for this study.

Mediation results involving workplace intergenerational climate, workplace age discrimination and work engagement

A regression analysis was performed using PROCESS macro tool for SPSS version 3.5 (Hayes, 2013) to determine the relationships between the intergenerational climate factors, age discrimination and work engagement. The global mean score was used for work engagement and age discrimination. For intergenerational climate, each of the four factors also had a mean score. Therefore, to obtain the indirect effects, four sets of analysis were done for this study. For each analysis, the focal climate dimension was introduced as the main predictor and the other three as covariates. The statistical model was the same in all four cases, but one indirect effect at a time was estimated and analyzed for statistical significance. The summary of the results of the regression analysis can be found in Table 2.

Table 2

Summary of regression analysis results per WICS factor.

		Intergenerational Inclusiveness and Affect	Retention and Intergenerational Affect	Intergenerational Contact	Lack of Generational Stereotypes
(a)	β=	-.404*	-.540*	.102	-.145*
	LLCI=	-.539	-.675	-.025	-.274
	ULCI=	-.270	-.405	.229	-.015
(b)	β=	.019	.019	.019	.019
	LLCI=	-,105	-,105	-,105	-,105
	ULCI=	.143	.143	.143	.143
Total effect (c)	β=	.575*	-.057	.057	-.008
	LLCI=	.457	-.175	-.055	-.122
	ULCI=	.693	.062	.168	.106
	R^2=	.417	.417	.417	.417
Direct effect (c')	β=	.583*	-.046	.055	-.005
	LLCI=	.454	-.183	-.058	-.120
	ULCI=	.712	.090	.167	.111

Indirect effect	β=	-.008	-.010	.002	-.003
	LLCI=	-.078	-.083	-.013	-.027
	ULCI=	.055	.054	.022	.021

Note: The table represents the four models, in which the dependent variable (work engagement) and mediating variable (age discrimination) were the same for all. The independent variable for each model was one of the factors of the intergenerational climate. The first line (a) represents the first path of mediation; the second line (b) represents the second path of mediation; the third line is the total effect; the fourth line is the direct effect; the fifth line is the indirect effect.

* Result was statistically significant (p≤ .05).

To test Hypothesis 1, work engagement was analyzed on the four dimensions of climate. Results show that the direct effect (c'), which measured the positive relationship between intergenerational climate and work engagement, was statistically significant for intergenerational inclusiveness and affect (β= .583; p ≤ .05; LLCI = .454; ULCI = .712). No other factors of intergenerational climate were significantly associated to work engagement. Therefore, H1 was only partially supported.

The relation between intergenerational climate and age discrimination, which was the first path of mediation (a) and the H2 of this study, was statistically significant for *intergenerational inclusiveness and affect* (β= -.404; p ≤ .05; LLCI = -.539; ULCI = -.270); *retention and intergenerational affect* (β= -.540; p ≤ .05; LLCI = -.675; ULCI = -.405), and *lack of generational stereotypes* (β= -.145; p ≤ .05; LLCI = -.274; ULCI = -.015). It was not statistically significant for the *intergenerational contact* factor. These results show that intergenerational climate and age discrimination are related with statistical significance for almost all factors that compose the WICS, therefore, partially supporting H2.

The second path of the mediation (b) was the H3 of the model, and represented the negative correlation between age discrimination and work engagement. It did not present

statistically significant results (p > .05; LLCI = -,105; ULCI = .143). Thus, H3 could not be supported, as in the results obtained age discrimination did not have effect on work engagement.

The indirect effect, that indicates mediation, and was the H4 of this study, did not present statistically significant results for none of the factors. The *p* values were all above .05 and the confidence intervals were, respectively: LLCI = -.078 and ULCI = .055; LLCI = -.083 and ULCI = .054; LLCI = -.013 and ULCI = .022; LLCI = -.027 and ULCI = .021. The results obtained indicate the absence of the expected mediating effect of age discrimination between the intergenerational climate and work engagement.

Of all WICS factors, the factor *intergenerational contact* presented the least favorable results, as none of the relations tested were statistically significant. This factor was composed of the 4 items of the original IC scale. On the other hand, WICS factor *intergenerational inclusiveness and affect* was the one that presented best outcomes in comparison with the other factors, as it exhibited statistically significant results for the total effect (p ≤ .05; LLCI = .457; ULCI = .693), a (p ≤ .05; LLCI = -.539; ULCI = -.270), and the direct effect (p ≤ .05; LLCI = .454; ULCI = .712).

Discussion

Due to the current extended life expectancy, and the consequent age diverse workplace, intergenerational climate is becoming increasingly important, especially considering the potential context for age discrimination. The goal of the current study was to contribute to this line of research, by investigating associations between intergenerational climate, work engagement and age discrimination, in a sample of Portuguese older workers. Though the mediation model was not fully confirmed, the present study has brought

important insights and contributions, which can add to present and future research and practice.

For the hypothesis 1, there was an expectation that the intergenerational climate would have positive effects on work engagement. This hypothesis had not yet been proven in previous research, and the results obtained in the present study only partially confirms this, as only the relationship between *intergenerational inclusiveness and affect* on work engagement proved to be statistically significant. More specifically, the significant results on this factor shows that the positive interpersonal contacts between people of different age groups – e.g., effective communication with workers of different generations and perceiving co-workers outside ones' generation as interesting and unique – may contribute to an increased sense of work engagement. Such finding supports previous literature showing positive interpersonal contacts as antecedents of work engagement (Breevaart et al., 2015; Kahn, 1990; Liao et al., 2012).

Furthermore, *intergenerational inclusiveness and affect* was the factor with best overall results in the regression analysis and the one with the highest Cronbach's alpha (.83), which may indicate that the items related to a more positive aspect of the contact between people of different age groups may be the ones that measure intergenerational climate more adequately.

Results indicated a statistically significant relationship between intergenerational climate and age discrimination in *intergenerational inclusiveness and affect*, *retention and intergenerational affect* and *lack of generational stereotypes*. This is supported by literature, as positive intergenerational climate has been proven to reduce perceived age discrimination (e.g., King & Bryant, 2017; Lagacé et al., 2019), so the results of the present study corroborate to this postulation, as the second hypothesis is confirmed for almost all factors of intergenerational climate.

The only WICS factor that did not support H2 is also the one with the worse overall results (none of the relations were statistically significant), which is *intergenerational contact*. This factor is composed of 4 items that measures the frequency of contact with people from other generations (e.g., "How often do you eat meals with co-workers outside your generation during the workday?"). It was developed based on Allport's (1954) intergroup contact theory, which postulates that the interaction between people of different groups can reduce prejudice, when it happens under optimal conditions. Fasbender and Wang (2017) in their study, conclude that the quality of the intergroup contact "facilitated the benefits and buffered the detriments of individual categorization reactions toward older people." (p. 220), and the frequency can be a "double-edged sword" (p. 220), as it can reinforce both positive and negative affections toward older workers. This means that the high frequency of contact is insufficient to reduce prejudice, since if it is not positive, it can have negative effects in terms of prejudice, increasing it. Therefore, the *intergenerational contact* scale, as it only considers the frequency, may present issues in its contribution to the measure of intergenerational climate, and could be improved with questions that assess the quality of intergroup contact, rather than just the frequency.

The third hypothesis was to investigate the impact of age discrimination in older workers' engagement, which was not confirmed for any of the factors, since it did not present statistically significant results. One reason for this result may be the difficulty to assess the covert forms of age discrimination. This type of discrimination is not explicit and can be portrayed in apparently unharmful and subtle behaviors, not even detected by anti-discriminatory practices and policies in organizations (Marchiondo et al., 2015). Covert discrimination, though not explicitly aggressive to older workers, can be just as harmful (Marchiondo et al., 2016), as it perpetuates the negative stereotypes related to older workers in more subtle ways, such as ignoring their opinions or having patronizing behaviors towards

them. "As discrimination becomes less socially acceptable and as targets gains greater legal protection, discrimination is less likely to occur in overt forms, instead emerging in insidious ways that skirt legal and public attention" (Marchiondo et al., 2016, p. 509). Moreover, age discrimination can also be difficult to be identified by the individual who suffers discrimination, since concepts related to age and ageing are so rooted in culture, leading to self-ageist beliefs as well (Schuurman et al., 2020).

The indirect effect, the H4 of this model, was not significant in any of the factors, so age discrimination does not mediate the effects of the intergenerational climate on work engagement for this sample. The most likely explanation of the absence in mediation is that the second path of mediation – the relationship between age discrimination and engagement – was not confirmed. Therefore, it is less probable for a mediating relationship to exist, as the two variables do not relate directly to one another. As previously stated, this lack of relationship has plausible explanations, as age discrimination can present itself in subtle ways, that are harder to assess.

Strengths, limitations, and suggestions for future research

This study has a number of strengths. First, the fact that it is a novel in research on intergenerational climate, as it evidences that intergenerational climate has a positive impact on work engagement, considering the aspects related to positive perceptions of intergenerational affect and inclusiveness. This confirmation indicates that there are aspects related to intergenerational climate that need more attention, when regarding engagement, and may contribute to the further development of assessing and measuring intergenerational climate and when studying older workers' engagement. Second, the confirmation of previous studies on the negative impact that age discrimination has on the intergenerational climate (e.g., King & Bryant, 2017; Lagacé et al., 2019). This confirmation emphasizes the need to

shed more light on age discrimination in the workplace. Though there are already laws in place, policies and regulations have been insufficient on eliminating age discrimination, as evidenced by this and previous studies (Davey, 2014).

Third, this study further contributes to research on intergenerational climate and the WICS. Given the relevance that intergenerational climate plays in the current workspace, it is critical to have adequate measures for assessing it, and more work published on it. This study corroborates to this need in organizational psychology research.

Fourth, results of the present study carry important practical implications. The main one is to raise awareness of the covert forms of ageism in the workplace, which is more difficult to identify and is not directly measured in the WADS (Marchiondo et al., 2016). Covert age discrimination can be just as prejudicial as explicit forms of discrimination, but it is harder to assess by policies or laws, therefore posing as a challenge for practitioners to identify and develop measures against it. Organizations are not the only place where age discrimination happens, as it reflects the systemic ageism present in modern societies (Cebola et al., 2021; Davey, 2014), which adds more weight to the importance of tackling discrimination for a more wholesome workplace for workers of all ages.

Notwithstanding its strengths, this study also presents some limitations. First, its cross-sectional design does not allow to examine changes over time in perceived age discrimination, intergenerational relationships in the workplace and work engagement. Therefore, future studies could longitudinally map how workplace age discrimination varies as workers grow older, and how this age discrimination is influenced by possible variations in intergenerational climate and its influences in work engagement. Second, the fact that the Workplace Intergenerational Climate Scale (WICS) is a relatively new instrument which has not been thoroughly explored may have presented limitations to the present study. The fact that WICS, when used in different cultural contexts – e.g., United States of America (King &

Bryant, 2017), Canada (Lagacé et al., 2019), Portugal (Brochado, 2020) – presents different factor structures and a different number of items per subscale, suggests that it still needs further development and study for a more consistent construct validity to be established.

Third, another possible limitation could be sample size. Though 200 is a sufficiently good number to evaluate test quality (Lloret-Segura et al., 2014), maybe a larger sample could provide more stable results.

Future studies should include the further development of the WICS, as it is the only scale existent so far to measure intergenerational climate in the workplace. It would also be important for future studies to develop more sensitive measures of age discrimination, considering the predominance of covert discrimination in modern workplaces.

Conclusion

The current study contributed to the literature by addressing the relations between intergenerational climate, workplace age discrimination and work engagement, in a sample of Portuguese older workers. Findings showed that intergenerational inclusiveness and affect, retention and intergenerational affect and lack of generational stereotypes are negatively related to older workers' perceived age discrimination. Further, older workers' engagement seems to only be positively impacted by intergenerational inclusiveness and affect. Mediation analyses showed that age discrimination did not act as a mediator between the dimensions of intergenerational climate and work engagement. Given the scarcity of studies addressing such topics within such a specific sample and cultural context, the present study is a relevant empirical advancement in the study of intergenerational climate in organizations, and how it related to age discrimination and engagement. Results highlight the need to conduct further research to gain insights on how to improve the long-term well-being of all generations in the workplace, especially the most affected ones.

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Appendix A
Feedback received from the Research Work

Feedback received in the Research Work	Actions taken
More summarized arguments on the abstract.	The abstract was reviewed and re-written so that the arguments are clearer and more summarized.
Present the alpha for each scale of the original WICS (King & Bryant, 2017).	This information is not available in the article by King & Bryant (2017), therefore, was not added. But the scales' alpha scores from the Portuguese validation (Brochado, 2020) was added.
Label and name each of the factors in WICS.	Each factor was explained and labeled, as per suggested.
Improve writing in the Results section, making it clearer.	Results section revised.
Improve Figure 3, in the Results section, so that the paths are more visible.	The figure was removed, as it was not needed.
Consider a subsection of "Limitations and suggestions for future research".	The original Conclusion section was divided to incorporate this specific section for limitations and suggestions for future research.
Consider an additional section for "Conclusions and implications".	The original Conclusion section was divided to incorporate this specific section for theoretical and practical relevance.
Use structural equation model instead of regression.	Though it is also an interesting technique, it was opted to keep the regression analysis.