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Age Diversity in Teams: Examining the Impact of the Least Agreeable Member

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Abstract

Our research examined how team age diversity can be either detrimental or beneficial for team performance depending on team agreeableness minimum. In age diverse teams, a disagreeable teammate may trigger age-based stereotypes about his/her social group, thereby activating social categorization. This would result in decreased relational team functioning and worsened team performance. When the least agreeable member scores high on agreeableness, negative social categorization processes may not be triggered in age diverse teams. They may focus on informational diversity with beneficial effects for team relational processes and team performance. We tested our model in three samples (Study 1: $k = 81$, $N = 254$; Study 2: $k = 109$, $N = 434$; Study 3: $k = 195$, $N = 1784$) wherein performance was measured both objectively (Studies 1-2) and subjectively (Study 3). In both Studies 1 and 2, team age diversity was positively related to team performance when team agreeableness minimum was high. In Study 2, when the least agreeable person scored low on agreeableness, greater age diversity resulted in lower performance, and this relationship was mediated by higher interpersonal conflict. In Study 3, these interactive effects transpire via reduced team cohesion – another aspect of relational team functioning.

Keywords:

Team age diversity; team personality; team agreeableness minimum; team interpersonal conflict; team cohesion; team performance

Age Diversity in Teams: Examining the Impact of the Least Agreeable Member

Age diversity is rapidly increasing in the modern marketplace with as many as five generations being employed in today's workplace at once (Meister & Willyerd, 2010). The combination of population aging, increasing life expectancies, lengthening careers, and delayed retirement among older workers (Brown & Guttmann, 2017; Statistics, 2014) is increasing age diversity. Because of these social trends, more and more people now work with peers, supervisors, customers, and vendors who are significantly older or younger than themselves. Such increased age diversity is often celebrated because it is believed to bring about diverse perspectives, ideas, and problem solutions that are critical for organization and team performance. Yet, research has not found a consistent relationship between team age diversity and performance, with different studies finding either positive (De Meulenaere et al., 2016; De Meulenaere & Kunze, 2020; Li et al., 2021), negative (Joshi & Roh, 2009; Jukka, 2021; van Dijk et al., 2012), or non-significant relationships (Ali et al., 2014; Bell et al., 2011; Boehm et al., 2014; Schneid et al., 2016).

These inconclusive findings may be better understood from a social categorization perspective (Reicher et al., 2010; Turner et al., 1987), which suggests that diversity on surface-level or readily detectable, salient social attributes such as age can lead to intergroup biases and negative intergroup relations *if* and *when* these differences become salient (van Knippenberg et al., 2004; van Knippenberg & Mell, 2016; van Knippenberg & Schippers, 2007). Supporting this tenet, research has shown that organizational factors such as leadership, diversity climate, and age-inclusive management weaken the salience of age differences, thereby improving team functioning (Boehm et al., 2014; Li et al., 2021; Scheuer

& Loughlin, in press). Despite the informative nature of these studies, they have overlooked the role of team personality in potentially activating or assuaging the salience of age diversity (Guillaume et al., 2017). Yet, the team compilation framework (Kozlowski & Klein, 2000) highlights how teammates' attributes can interact with each other to "create a qualitatively different team-level phenomenon" (Bell et al., 2018, p. 352), and how a single team member can shape the microdynamics in a team (Humphrey & Aime, 2014; van Dijk et al., 2017).

Integrating these perspectives, we propose that the team agreeableness minimum, which captures the lowest scoring teammate on consideration, friendliness, and cooperation (Barrick et al., 1998), may contribute to radically different team processes by triggering categorization and subsequent stereotyping of age diverse teammates. We propose that, in age diverse teams, a single disagreeable teammate or 'bad apple' member, whose negativity "asymmetrically impairs group functioning" (Felps et al., 2006, p. 180), can activate the salience of age differences (van Dijk et al., 2017) and associated negative age stereotypes about youth being disobedient or older people's rigidity in their opinions (Posthuma & Campion, 2009). An activation of in- and out-group distinctions between younger and older teammates by team agreeableness minimum is likely to have a detrimental effect on relational team functioning, which capture interpersonal team conflict and team cohesion (Courtright et al., 2015). In contrast, team age differences are less likely to be activated in teams in which even the most disagreeable team member scores high on agreeableness. These theoretical assertions constitute a mediated moderation model (depicted in Figure 1) wherein a low team agreeableness minimum can trigger social categorization associated with age diversity, which in turn can disrupt team relational functioning, and ultimately team performance.

Our research stands to provide several theoretical contributions. First, it contributes to team compilation research (Bell et al., 2018; Kozlowski & Klein, 2000), which explains how a 'bad apple' on the team can influence the standing of the entire team (Felps et al., 2006). We used the minimum score for team agreeableness (rather than the mean) because of greater theoretical and empirical foundations for "developing a priori hypotheses for group minimums" (Raver et al., 2012, p. 620). Applying insights from the social categorization approach, we propose that, in age diverse teams, a single disagreeable teammate may trigger age-based stereotypes of a social group to which that team member belongs, which will correspond with worsened team processes and team performance. In doing so, we shed light on what "combinations of people tend to work better together than others" (Bell et al., 2018, p. 360). Our research highlights the complex influence of both surface and deep team compilation processes (van Dijk et al., 2017) by showing how the disagreeable tendencies of one person may activate social categorization processes in the entire age diverse team. By unpacking how interpersonal conflict and team cohesion help account for the interactive effects of age diversity and team agreeableness minimum on team performance, our research findings help uncover and explain "meaningful moderators influencing the relationships between age diversity and team outcomes" (Schneid et al., 2016, p. 10).

Second, our research extends scholarship on relational functioning, which represents team microdynamics or dynamics at the individual level in a team (Humphrey & Aime, 2014; van Dijk et al., 2017), by considering multiple mechanisms underlying the proposed interactive effects. Considering that "stereotypes initiate microdynamics" and "cause members of different groups or categories to be approached and treated and to act differently"

(van Dijk et al., 2017, p. 518), we argue that a low team agreeableness minimum will amplify such dysfunctional microdynamics. Conversely, when the minimum team member has high levels of agreeableness, such age diverse teams are less likely to activate age-based stereotypes and thus will listen to diverse perspectives of their older and younger teammates. This should help minimize interpersonal friction and strengthen the sense of closeness and unity among age diverse teammates, thereby improving team performance. By considering multiple explanatory pathways, we respond to the call to examine mediating processes that "further develop our understanding of moderating influences that may speak to ways to manage diversity" (van Knippenberg & Mell, 2016, p. 142).

Theoretical Background and Hypotheses

Team Performance from Social Categorization Perspective

Social categorization theory (Hogg, 2000), which encapsulates the perspectives of social identity (Reicher et al., 2010), self-categorization (Turner et al., 1987), and similarity-attraction (Byrne, 1971), suggests that people tend to categorize others as in-group or out-group members based on their visible, readily accessible, and thus salient characteristics such as sex, age, or race. People tend to identify with similar others more than dissimilar ones, and such in- and out-group distinctions may become problematic *if* they produce intergroup biases wherein others view the in-group more positively than the out-group (Turner et al., 1994; van Knippenberg et al., 2004; van Knippenberg & Schippers, 2007). When demographic differences become salient, people tend to see themselves as part of their social group and identify with their in-group - a process known as depersonalization or social identification (van Prooijen & Van Knippenberg, 2000). Social identification processes

explain how people tend to see their in-group and themselves as sharing a certain degree of prototypicality or having most representative features of their in-group (Haslam et al., 1995). Hence, when age differences are made salient in age diverse teams, all out-group members may be 'depersonalized' or socially identified as out-group and viewed as having the same disagreeable personality if one of 'them' has a low score on agreeableness.

The Moderating Role of Team Agreeableness Minimum in Age Diverse Teams

Age is likely to be a well-learned, salient, and readily accessible social category because people have been socialized to use age as an important category to consider when interacting with others (Fiske, 2017; North & Fiske, 2015). As such, in age diverse teams, social categorization processes have the potential to be disruptive *when* they give rise to intergroup bias, wherein younger teammates may be perceived as lacking patience and wisdom whereas older team members are viewed as inflexible and lacking innovation (North & Fiske, 2015). We argue that the presence of one disagreeable member may leave age diverse teams more motivated to activate (and less inclined to suppress) the negative age stereotypes of their age dissimilar teammates, which in turn will disrupt team relational functioning and subsequent team performance (e.g., Bell, 2007). The depersonalization processes of social identification posit others are assigned characteristics of the group (van Prooijen & Van Knippenberg, 2000). Accordingly, we argue that, in age diverse teams, the presence of one disagreeable teammate will trigger age stereotypes of a social group to which that teammate belongs, which in turn will shape the microdynamics between age dissimilar teammates. This maybe particularly true for teams that work on interdependent tasks because they have to collaborate but, due to the low team agreeableness minimum, may not do so

effectively. Hence, we examine age diverse teams working on interactive tasks and how and why age diverse teams with a low agreeableness minimum can trigger social categorization processes and subsequently disrupt relational team functioning and outcomes.

Age diverse teams will not perform well if the minimum team member has low levels of agreeableness, wherein his/her lack of cooperation may activate negative age stereotypes (Posthuma & Campion, 2009), which likely worsen microdynamics in such a team by intensifying interpersonal conflict and decreasing cohesion. Applying a social categorization perspective, we argue that age diverse teams may be more susceptible to conflicts than homogenous teams *when* age differences become salient by deepening the in- and out-group distinctions and the processes they trigger. Age differences are likely to become salient in age diverse teams if at least one member scores low on agreeableness. This in turn, will trigger depersonalization processes, wherein all other teammates from the same age category will be viewed as similarly low on agreeableness (Ashton & Lee, 2009; Barrick et al., 1998). Such disagreeable team tendencies will likely draw attention to surface-level age differences and associated negative age stereotypes. Yet, similarity-attraction theory posits that younger and older teammates may be committed to each other and experience heightened interpersonal bonds in age diverse teams with a higher team agreeableness minimum, wherein even the most disagreeable teammate still scores highly on agreeableness, indicating kindness and conflict avoidance (Barrick et al., 1998). In such teams, social categorization processes are thus less likely to be triggered. Instead, teammates will focus on the diversity of knowledge, skills, and experiences of their younger or older peers (Li et al., 2021). This in turn should

correspond to heightened information elaboration with beneficial effects on team performance.

Team performance and interpersonal conflict. Age diverse teams are likely to have factions of younger and older teammates and thus, we argue, in such teams people will see all outgroup members as being non-cooperative if one of 'them' has a low agreeableness score. These theoretical stereotypical attributions will likely cause interpersonal conflict, or disagreements over relational matters (Jehn, 1995), resulting in impaired team performance. We focus specifically on relationship, as opposed to task conflict, because the latter captures disagreements over ideas and perspectives, thus its influence on team performance is uncertain (de Wit et al., 2012). In contrast, the former taps into dysfunctional team microdynamics such as avoidance team behaviors, which prevents team identification (O'Neill et al., 2013) - a critical aspect of social categorization processes. This is why the impact of relationship conflict on team performance is negative, as evidenced by several meta-analyses (de Wit et al., 2012; O'Neill et al., 2013).

In age diverse teams, a teammate's lack of cooperation may disrupt the social harmony of the group and activate negative social categorization processes. The presence of at least one disagreeable teammate will be particularly detrimental in age diverse teams that work on interdependent tasks because of the greater need to interact, coordinate, and find workable compromises (Felps et al., 2006). Age diversity may precipitate interpersonal conflict that will not be effectively resolved in teams with lower agreeableness minimums. This is because such teams may stereotypically attribute lower cooperation and warmth to age dissimilar teammates who score lower on agreeableness. These lower warmth attributions

are likely to discourage collaboration, cooperation, and sense of unity, and therefore "provide a recipe for relationship conflicts" (van Dijk et al., 2017, p. 546). Research on microdynamics suggest that "stereotype-based attributions cause stereotype-reinforcing behaviors toward a target" (van Dijk et al., 2017, p. 524). Accordingly, we propose that age diverse teams with lower agreeableness minimums may trigger age-based stereotypes, wherein a younger disagreeable team member may be viewed as lacking social skills and an older disagreeable teammate may be perceived as lacking the abilities required to achieve work goals (North & Fiske, 2015). These stereotype-based impressions of a single disagreeable younger or older teammate will likely be attributed to all age dissimilar teammates. These theorized processes likely intensify interpersonal conflict and hinder team performance in such age diverse teams.

In contrast, age differences are less likely to be salient in age diverse teams with higher agreeableness minimums (wherein even the most disagreeable person is agreeable). The similarity-attraction perspective posits that people tend to assign more positive characteristics and allocate more importance to information about similar others than dissimilar ones, and the salience of this positive information about similar ones explains the attraction effects (Montoya & Horton, 2012, 2013). Accordingly, age diverse teams with higher agreeableness minimums will focus on finding similarities, which are "reinforcing and thus are associated with positive feelings" (Montoya & Horton, 2013, p. 66). This increased attraction will likely encourage such teams to focus on the diversity of thoughts, ideas, and solutions that younger and older teammates may bring to a team. This heighted focus on informational resources (as opposed to in- and out-group categorizations) should correspond with lower interpersonal conflict, which is more negatively related to team performance than

other types of team conflict (i.e., task or process; de Wit et al., 2012; O'Neill et al., 2013). From a social categorization perspective, age diverse teams with higher agreeableness minimums will less likely form stereotype-based impressions of their age dissimilar teammates. Not only will they be able to see past stereotypical portrayals of their age dissimilar teammates, but they will likely notice and consider the intellectual diversity of the perspectives of their younger or older teammates. Such a constructive and stereotype-free approach to disagreements will help to bolster interpersonal facilitation and cohesion, both of which are critical for good team performance (Mathieu et al., 2015). Thus, we hypothesize:

Hypothesis 1: Team agreeableness minimum moderates the relationship between team age diversity and team performance such that this relationship is negative for low team agreeableness minimum and it is positive for high team agreeableness minimum.

Hypothesis 2: Team agreeableness minimum moderates the relationship between team age diversity and interpersonal team conflict such that this relationship is positive for low team agreeableness minimum and it is negative for high team agreeableness minimum.

Team cohesion. Age diverse teams with lower agreeableness minimums will likely experience diminished cohesion, which refers to the shared sense of attraction and commitment to each other (Beal et al., 2003). These shared feelings of bond, unity and belongingness drive team members to stay and work together to achieve team common goals (Mathieu et al., 2015; Salas et al., 2015; Seong et al., 2015). Although over time the influence of surface-level, demographic characteristics such as age should become less salient for team cohesion (Harrison et al., 2002), we argue that the presence of one disagreeable person ('bad apple') may trigger stereotype-based impressions of age diverse teammates even in longer-

lived teams, thereby damaging cohesion. Group identification is critical for developing and maintaining a sense of unity and oneness with the group or team cohesion (e.g., Garcia-Guiu et al., 2016). These processes will be disrupted by a lower team agreeableness minimum because in age diverse teams the age differences become salient, which further deepens the in- and out-group differentiation. Such group polarization will damage teammates' willingness to stay intact to achieve work goals (e.g., Webber & Donahue, 2001). In contrast, age diverse teams with higher agreeableness minimums, wherein even the most disagreeable member is highly agreeable, are unlikely to be predisposed to activate age-based stereotypes. Due to their warmth and sensitivity towards others, age diverse teams with higher agreeableness minimums may smooth over any in- and out-group distinctions. This will strengthen interpersonal bonds between teammates, resulting in better cohesion.

Hypothesis 3: Team agreeableness minimum moderates the relationship between team age diversity and team cohesion such that this relationship is negative for low team agreeableness minimum and it is positive for high team agreeableness minimum.

Interpersonal Conflict and Cohesion as Mediators in the Mediated Moderation Model

Together, the above three hypotheses help form a mediated moderation model such that interpersonal team conflict and team cohesion could mediate the interactive effects of team surface-level characteristics (i.e., age diversity) and team deep-level attributes (i.e., team agreeableness minimum) on team performance, which represents a first-stage and direct effects mediated moderation (see Figure 1). The integration of social categorization and the compilation framework suggests that age diverse teams with lower agreeableness minimums will not see past surface-level characteristics. They will likely engage in stereotype-based

impression formation, which is detrimental for promotion and maintenance of positive social interactions. This in turn will facilitate interpersonal disagreements and misunderstandings stemming from categorizing age dissimilar teammates as out-group members. This thus results in heightened interpersonal conflict, which likely leads to lower team performance based on meta-analytic evidence indicating the negative impact of this type of conflict on team performance (de Wit et al., 2012). Age diverse teams with at least one disagreeable person may find it difficult to overcome in- and out-group distinction and likely experience a diminished sense of unity and willingness to work and pull together. Such reduced team cohesion will lead to negative team performance, as evidenced by a number of meta-analyses (Courtright et al., 2015; Mathieu et al., 2015). Yet, the similarity-attraction perspective of the social categorization predicts that, in age diverse teams, younger and older teammates will overcome age-based stereotypes if the least disagreeable member is highly agreeable. They may focus on the diversity of ideas and solutions of their either younger or older teammates, whose agreeable personality makes it possible to notice this informational diversity. This will help individuals to form positive impressions of age dissimilar teammates, which in turn will help promote a sense of unity and common identity. It will also minimize any interpersonal friction stemming from age differences and may help focus on diversity of ideas of younger and older teammates, resulting in good team performance (Courtright et al., 2015).

Hypothesis 4: The interactive effects of age diversity and team minimum agreeableness on team performance are mediated by interpersonal team conflict, such that these indirect effects are negative (positive) for lower (higher) team agreeableness minimum.

Hypothesis 5: The interactive effects of age diversity and team minimum agreeableness on team performance are mediated by team cohesion, such that these indirect effects are negative (positive) for lower (higher) team agreeableness minimum.

Overview of Studies

We conducted three studies that complement each other theoretically and methodologically. Theoretically, the purpose of Study 1 was to examine the moderating role of team agreeableness minimum in the linkage between team age diversity and team performance. The aim of Studies 2 and 3 was to constructively replicate Study 1's findings by exploring interpersonal team conflict (Study 2) and team cohesion (Study 3) as mediators of these interactive effects. Methodologically, Study 1 was conducted with younger and less experienced team members, the sample of Study 2 was based on older professionals with extensive work experience, and the participants in Study 3 were older and experienced military personnel. Across the three studies, teams engaged in interdependent tasks, wherein teammates had to interact with and rely on each other to accomplish their work. Study 3 also differed from the other studies in duration, which strengthened the robustness of our findings by constructively replicating the proposed model with teams that engage in one task at a singular point in time (Studies 1-2) and teams that collaborate on an on-going basis (Study 3).

Study 1 – Method

Participants and Procedure

We used 81 teams ($N = 254$) of undergraduate students from a university in Australia[1]. We recruited them from a database of undergraduate business students who sign up for research projects in exchange for course credit in their business classes. Upon

accessing the database, they viewed the study description and, if interested, signed up for available timeslots. Before coming to the lab, all participants completed a survey about their personality (as described in the measures) and demographics. Upon arrival, as in prior studies (e.g., Dirks, 1999; Mitchell & Silver, 1990), they were asked to work for 30 minutes in a team of three to six people and build a tower using construction paper, toothpicks, duct tape, and staplers. Their goal was to build the highest tower possible that would freely stand for at least five minutes. Upon completion of this task, a researcher measured tower height in centimeters and assigned a zero to those towers that collapsed during the wait time.

The sample was balanced in terms of gender with 52% of participants being women, whose age ranged from 17 to 48 years old (M = 22.08; SD = 5.05). In terms of employment, 70% of the participants worked: 31% casual (i.e., without paid leave entitlements), 30% part-time, 8% full-time, and 1% were self-employed.

Measures

Unless indicated otherwise, all measures across Studies 1-3 used a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Team age diversity. We used the same measure of team age diversity across Studies 1-3. We operationalized our measure of team age diversity as the disparity index or coefficient of variation. In operationalizing team age diversity, we followed the recommendations by Harrison and Klein (2007) who suggested that the operationalization of age diversity should be driven by theoretical assumptions. Theoretically, in student project teams (such as those used in our Studies 1 and 2) as well as military teams (Study 3), others may view older members as having higher levels of knowledge and expertise than younger

teammates. In this case, age is likely to be associated with status and thus should be conceptualized as disparity. Using established formulas and consistent with prior research (e.g., Ali et al., 2014), we calculated the coefficient of variation by dividing team age standard deviation (*SD*) by team age mean.

Team agreeableness minimum. We used the same measure of team agreeableness minimum in both Studies 1 and 2. We measured teammates' agreeableness using the 10-item subscale of agreeableness from the Hexaco-60 personality inventory (Ashton & Lee, 2009); e.g., "I am usually quite flexible in my opinions when people disagree with me" ($\alpha = .76$).

Team performance. We operationalized team performance as the height of the tower that all teams had to build; a research assistant who facilitated this session measured it. We assigned '0' to those teams whose towers collapsed upon completion of the task.

Controls. In all our analyses across the three studies, we controlled for the team age mean, following the recommendation "to include the mean in tests of diversity as disparity" (Harrison & Klein, 2007, p. 1214). We also controlled for other team personality traits that have been shown to influence team performance: conscientiousness, extraversion, openness, and emotional stability (Bell, 2007). Specifically, teams with high means on these personality traits have been shown to achieve good team performance, and thus we controlled for the mean^2 of these personality traits to demonstrate that our predictors (team agreeableness minimum and team age diversity) account for variance in team performance above and beyond other traits. We measured these personality traits with the respective 10-item subscales of conscientiousness, extraversion, openness, and emotional stability from the Hexaco-60 inventory (Ashton & Lee, 2009). The conscientiousness subscale measures the

extent to which a person is organized and diligent (e.g., "I plan ahead and organize things, to avoid scrambling at the last minute"; α = .76). The extraversion subscale assesses the extent to which a person is talkative, sociable, and cheerful (e.g., "In social situations, I am usually the one who makes the first move"; α = .79). The openness subscale measures how broad-minded, unconventional, and inquisitive a person is (e.g., "People have often told me that I have a good imagination"; α = .76). Finally, the emotional stability subscale assesses a person's resilience to stress (e.g., "I worry a lot less than most people do"; α = .72). We also controlled for team agreeableness mean given its sizable (yet, smaller than when team agreeableness is operationalized as a minimum score) correlations with team performance (Bell, 2007). We also controlled for team sex diversity, which we computed as Blau's index (Blau, 1977), to show that team age diversity accounts for variance in team performance above and beyond this demographic. Finally, we controlled for team size because the effects of team members' personality may differ in teams of various sizes (Derue et al., 2008).

Study 1 – Results and Discussion

The descriptives and correlations are presented in Table 1. We performed hierarchical moderated regression analyses to test our moderation hypotheses. In Step 1, we entered the control variables, followed by the IVs, including team age diversity and team agreeableness minimum, in Step 2. In Step 3, we added the interaction term of these two IVs. Consistent with Hypothesis 1, team agreeableness minimum moderated the linkage between team age diversity and team performance (B = 782.18, SE = 268.74, t = 2.91, p = .01, ΔR^2 = .09; Table 2). To probe the nature of this interaction, we plotted the simple slope regression lines of team performance regressed on team age diversity for high and low levels (i.e., +1 and -1 SD

from mean) of team agreeableness minimum. Team age diversity was negatively (albeit non-significantly) related to team performance for low team agreeableness minimum (B = -160.35, p = .42; Figure 2); this link was positive and significant for high team agreeableness minimum (B = 529.57, p = .01)[3]. Thus, Hypothesis 1 received partial support.

Supplementary Analyses

Although our use of the team agreeableness minimum is supported both theoretically and empirically (Bell, 2007), we re-tested our hypotheses with other operationalizations of team agreeableness such as mean and standard deviation (*SD*). The results showed that team agreeableness mean did not moderate the relationship between team age diversity and team performance (B = 548.98, SE = 346.24, t = 1.59, p = .12). When operationalized as *SD*, team agreeableness moderated this linkage (B = -798.29, SE = 351.77, t = -2.27, p = .03). The simple slope tests showed that the relationship between team age diversity and team performance was positive and significant for low team agreeableness *SD* (B = 397.15, p = .04); it was non-significant for high team agreeableness *SD* (B = -46.04, p = .80). These findings suggest that age diverse teams achieve good performance when they do not differ from each other on either low or high levels of agreeableness. They further supported our model wherein the presence of one disagreeable teammate may disrupt team functioning.

The results of Study 1 revealed that age diverse teams performed well only when these teams were able to see past this surface-level characteristic, which was possible in teams with higher team agreeableness minimum. We theorized that these moderating effects occurred because of the diminished stereotype-based impressions of age dissimilar others in age diverse teams whose most disagreeable team member was still highly agreeable. We

theorized that, in age diverse teams, a low team agreeableness minimum may activate age differences and associated age stereotypes, which may contribute to diminished relational team functioning in such teams. However, we did not test the mediating role of either team interpersonal conflict or team cohesion directly. Methodologically, we conducted Study 1 with younger participants, 30% of whom were not currently working. As such, we conducted Study 2 to address these shortcomings of Study 1. In Study 2, we directly measure and test interpersonal conflict as a possible mechanism to explain *why* team performance is decreased in age diverse teams with lower levels of team agreeableness minimum. Methodologically, we aim to constructively replicate the moderator effects of Study 1 by using older participants with many years of work experience in managerial and/or professional jobs in Study 2.

Study 2 - Method

Participants and Procedure

For our research, we recruited full-time managers and professionals who were starting their part-time studies in Master of Business Administration (MBA) in a University in Australia. Our data collection took place before and during the orientation day for the new incoming MBA students at that university. Prior to the orientation, all students newly enrolled in the program filled out a survey about their personality and demographics. Then, during the orientation, students were assembled into teams to engage in a two-hour team-building activity. The teams completed the well-known Marshmallow Challenge exercise - to build a tower using 20 pieces of spaghetti, one yard of tape, one yard of string, and one marshmallow (Wujec, 2010). The goal was to build a freestanding tower as high as possible

with a marshmallow on top. The teams had to complete the task in 18 minutes, which is consistent with the requirement of the Marshmallow Challenge.

Given that we required a relatively large sample size at the team level to yield valid results, our entire data collection took place over three years and we repeated the same procedure at the MBA orientation for each semester. A total of 109 teams (N = 434 people) participated in the activity over the three years. Most of the participants were men (65.4%), which is typical for the sex composition of an MBA cohort, and the average age was 34 years old (SD = 7.12), ranging from 22 to 66 years old.

Measures

Team age diversity. We used the same measure as in Study 1.

Team agreeableness minimum. We used the same measure as in Study 1 (α = .73).

Team performance. Similar to Study 1, we assessed team performance objectively by measuring the height of the tower built by the team. At the end of the Marshmallow Challenge exercise, two independent evaluators (i.e., staff from the MBA office who were not part of the research team) measured and recorded the height of each tower. To increase the objectivity of this measure, we averaged the ratings from the two independent assessors (which were highly correlated at r = .85, p < .001) and created an aggregated score. In cases where the teams failed to build a tower that stands (e.g., the tower collapsed after the marshmallow was put on top), the height of the tower was recorded as '0'.

Team interpersonal conflict. We measured team interpersonal conflict with three items from the interpersonal conflict measure developed by Jehn (1995). The original scale has four items, assessing the extent to which team members experience disagreements over

relational matters. Consistent with prior research (Simons & Peterson, 2000), we excluded an original item about emotional conflict because it confounds emotional responses that have been shown to lead to or result from relationship conflict (Jehn et al., 2008). Upon completion of the Marshmallow Challenge, we asked all participants to tell us about their experiences by responding to these three items in a paper-and-pencil survey: "There was a lot of friction among my team members," "There were personality conflicts evident in my team," and "There was tension among my team members," α = .86. The ICC(1) was .25 (σ = .28, p < .001; τ_{00} = .09, p < .001), suggesting that 25% of variance in team interpersonal conflict was explained by team membership. Using established formulas (Bliese, 2000), we calculated ICC(2) to be .57. Aggregation statistics (LeBreton & Senter, 2008) indicated that there was sufficient interrater agreement (mean r_{wg} = .94). Thus, we aggregated the individual scores of interpersonal conflict to the group level.

Controls. We used the same control variables as in Study 1. The personality traits showed sufficient internal consistencies: Conscientiousness (α = .76), extraversion (α = .77), openness (α = .82), and emotional stability (α = .72).

Study 2 - Results

Table 1 summarizes the descriptive statistics and correlations for the Study 2 variables. We conducted hierarchical moderated regression analyses to test Hypotheses 1 and 2. To preserve power, we used pairwise deletion for the missing data in all our regression analyses (Newman, 2014). Consistent with Study 1's results, team agreeableness minimum moderated the relationship between team age diversity and team performance (B = 346.04, SE = 107.52, t = 3.22, p < .01, ΔR^2 = .11; Table 2). As shown in Figure 3, team age diversity

was negatively related to team performance for lower levels of team agreeableness minimum (B = -141.05, p = .03); this linkage was positive for higher levels of team agreeableness minimum (B = 150.25, p = .02). Thus, Hypothesis 1 was supported.

Supporting Hypothesis 2, team agreeableness minimum moderated the link between team age diversity and team interpersonal conflict (B = -3.41, SE = 1.48, t = -2.30, p = .02, ΔR^2 = .05; Table 3). As shown in Figure 4, team age diversity was positively (albeit non-significantly) related to team interpersonal conflict when team agreeableness minimum was lower (B = 1.12, p = .19); this link was negative and significant when team agreeableness minimum was higher (B = -1.74, p = .045). Hence, Hypothesis 2 received partial support.

Hypothesis 4 represents mediated moderation in that the conditional effects (i.e., moderated by team agreeableness minimum) of team age diversity on team performance are mediated by team interpersonal conflict. Specifically, we hypothesized this indirect effect to be enhanced by team agreeableness minimum, representing first-stage moderation (team age diversity to team interpersonal conflict). Although we anticipated only first stage moderation, we followed the recommendations of Edwards and Lambert (2007) in testing for potential moderation of all paths connecting the independent (i.e., team age diversity) and dependent (i.e., team performance) variables. Using their recommended procedures, we constructed bias-corrected confidence intervals (CIs) by drawing 5,000 random samples with replacement from the full sample. As shown in Table 4, the mediated moderation model held for low levels of team agreeableness minimum, such that age diversity was positively related to team interpersonal conflict (B = 1.32, p < .01), which in turn was negatively related to team performance (B = -20.16, p < .01). This conditional indirect effect was significant for low (-

26.56, bias-corrected 95% CI = [-84.50, -11.25]) but not for high levels of team agreeableness minimum (2.73, bias-corrected 95% CI = [-7.03, 45.30]). The difference in these conditional indirect effects was statistically significant (29.29, bias-corrected 95% CI = [10.28, 98.35]). These results suggest that age diversity is negatively associated with team performance when team agreeableness minimum is low and this occurs because, in such instances, age diversity is linked to interpersonal team conflict, which in turn is negatively associated with team performance. Hence, Hypothesis 4 received partial support.

Supplementary Analyses

Similar to Study 1, we re-tested our moderation hypotheses with other operationalizations of team agreeableness such as mean and *SD*. In Study 2, team agreeableness mean moderated the relationship between team age diversity and team performance (B = 446.19, SE = 162.52, t = 2.75, p = .01). The simple slope tests showed that for high levels of team agreeableness mean, this link was positive (B = 132.43, p = .05); for low levels it was negative (B = -124.27, p = .05). Team agreeableness mean did not moderate the relationship between team age diversity and team interpersonal conflict (B = -.30, SE = 2.26, t = -.13, p = .90). When operationalized as *SD*, team agreeableness did not moderate the relationship between team age diversity and team performance (B = -188.83, SE = 191.06, t = -.99, p = .33). Team agreeableness *SD* moderated the relationship between team age diversity and team interpersonal conflict (B = 7.16, SE = 2.40, t = 2.99, p = .01). The simple slope test showed that for low team agreeableness *SD*, this link was negative and significant (B = -1.90, p = .02); it was positive and non-significant for high *SD* (B = 1.27, p = .12). The results of these supplementary analyses are consistent with those obtained for team agreeableness

minimum. High team agreeableness mean is beneficial for the performance of age diverse teams, and the conflict in such teams is minimized when the variance in agreeableness is low.

Study 2 – Discussion

The results of Study 2 constructively replicated those of Study 1. In Study 2, age diversity was negatively related to the performance of teams with lower levels of team agreeableness minimum. Notably, in both Studies 1 and 2, the simple slope for high team agreeableness minimum was positive and significant, uncovering when age diversity can be beneficial for team performance. Extending these findings, in Study 2, we also showed that age diversity intensified interpersonal conflict in teams with lower team agreeableness minimums, and this is *why* such teams did not achieve good team performance. Despite the informative nature of these two studies, we conducted them with teams that engaged in one task at a singular point in time. We also only examined one aspect of the theorized relational team functioning, namely, interpersonal conflict. To further support the robustness of our model, we conducted Study 3 wherein we examined military personnel units that collaborated on various tasks on an on-going basis, and directly measured team cohesion as a mediator.

Study 3 - Method

Participants and Procedure

The Defense Equal Opportunity Management Institute (DEOMI), who regularly survey military personnel regarding workplace issues, collected data[1] for our Study 3. Because we were interested in team-level processes, and age diversity is less impactful in larger teams (Schneid et al., 2016), we restricted our analysis to units including between five and twelve members. Data were collected for a total of 195 units (N = 1,784 participants);

81% were men. As part of their standard procedures to maximize anonymity, DEOMI collects age using an ordinal variable with the following response options: 1 (18-21), 2 (22-30), 3 (31-40), 4 (41-50), and 5 (51 or over). The average age response was 2.57 (*SD* = .59).

Measures

Team age diversity. As in Studies 1-2, we used the coefficient of variation as our operationalization of team age diversity.

Team agreeableness minimum. To assess team agreeableness minimum, we used Goldberg's (1999) short-form measure of agreeableness (α = .72).

Team performance. Unlike the first two studies, we assessed team performance subjectively in Study 3. We used team member assessments of unit performance on a four-item measure inquiring about the quantity and quality of group output, relative performance (compared to other groups), and ability to manage work demands (α = .89). To justify aggregating these responses to the group level, we examined the amount of group level variation (ICC1), interrater agreement (r_{wg*j}), and reliability of group level means (ICC2). There was significant group level variation (ICC1 = .10, $F(270, 1513) = 1.87$, $p < .01$) and interrater agreement was acceptable (mean $r_{wg*j} = .75$). The group means were not particularly reliable (ICC2 = .46), but this is commonplace in organizational research (Zhu et al., 2018) and serves to attenuate relationships between constructs, thereby making tests of relationships more conservative.

Team cohesion. We measured team cohesion using team member ratings of four items assessing how well the team works together, how well members pull together, how much members care about each other, and their interpersonal trust (α = .93). Despite low

mean reliability (ICC2 = .38), the other statistics justified aggregating to the team level (ICC1 = .08, $F(270, 1513) = 1.52$, $p < .01$; mean $r_{wg*j} = .71$).

Controls. We used similar controls as the first two studies. We used Goldberg's (1999) short-form measures of conscientiousness (α = .81) and emotional stability (α = .67) to assess teammates' personality. Due to space limitations, we did not collect extraversion or openness – notably, neither exhibited a significant effect in the first two studies.

Study 3 - Results

Table 5 displays the descriptives and correlations for the Study 3 variables. Despite their rather high zero-order correlation ($r = .73$), an exploratory factor analysis (i.e., principal axis) of the responses to the team cohesion and performance items revealed two factors with eigenvalues greater than one, with each item loading on its respective factor. We therefore retained team cohesion and team performance as separate constructs. We conducted hierarchical moderated regression analyses to test whether team agreeableness minimum moderated the age diversity – performance (H1) and team cohesion (H3) relationships and whether team cohesion mediated the interactive effect on team performance (H5). Additionally, we used bootstrapping to compute conditional indirect effects and their differences to test the predicted mediated moderation directly. Though team agreeableness minimum did not moderate the direct relationship between team age diversity and team performance in this study ($B = .49$, $SE = .30$, $t = 1.67$, $p = .10$; Table 6), the direction of the effect was consistent with our predictions. Hence, Hypothesis 1 did not receive support.

One reason the proposed interactive effects of age diversity and team agreeableness minimum may have failed to reach significance could be that it operated more indirectly than

directly. Hypothesis 5 investigates this possibility using team cohesion as a mediator. As predicted by Hypothesis 3, at stage 1, team agreeableness minimum moderated the link between team age diversity and team cohesion (B = .80, SE = .31, t = 2.56, p = .01, ΔR^2 = .02; Table 6). As shown in Figure 5, team age diversity was related negatively to team cohesion when team agreeableness minimum was lower (B = -.71, p = .03) and positive (albeit non-significant) when team agreeableness minimum was higher (B = .59, p = .12). Hence, Hypothesis 3 received partial support. At stage 2, there was not a significant interaction between cohesion and minimum agreeableness (B = -.04, SE = .05, t = -.76, p = .45), but both conditional effects were statistically significant (see Table 7). Thus, the indirect effect of team age diversity on team performance through cohesion was significant when team agreeableness minimum was lower (-.42, 95% CI = [-.86, -.02]), but not when it was higher (.32, 95% CI = [-.08, .85]). The significant difference between these effects (.73, 95% CI = [.12, 1.48]) indicates mediated moderation and partial support for Hypothesis 5.

Supplementary Analyses

Consistent with the approach used in Studies 1 and 2, we re-tested our model with alternative operationalizations of team agreeableness such as mean and *SD*. Team agreeableness mean did not moderate the relationship between team age diversity and team performance (B = .83, SE =.54, t = 1.56, p = .12) or team cohesion (B =1.02, SE =.56, t = 1.81, p = .07). Likewise, team agreeableness *SD* failed to moderate the relationship between team age diversity and team performance (B = -.87, SE =.94, t = -.93, p = .36), but did moderate the effect on team cohesion (B =-2.07, SE =.98, t = 2.11, p = .04). When there is greater agreeableness separation, the age diversity – cohesion relationship is more negative

than when separation is lower (though neither simple slope is significant). These supplementary analyses further supported our operationalization of team agreeableness minimum as theoretically and empirically justified construct.

Study 3 – Discussion

The results of Study 3 complement those of the first two studies. Though the interactive effect of team age diversity and team agreeableness minimum failed to reach conventional levels of significance, the pattern was consistent with our Studies 1-2 and this interaction was subsumed by the hypothesized mediated moderation. Like Study 2, the interactive effect of team age diversity and team agreeableness minimum was indirect, operating through a mediator. Extending that result, we found that team age diversity coincided with diminished team cohesion when the least agreeable team member was more disagreeable, and this is *why* such teams were unable to perform well. These findings, together with Study 2's results about the mediating role of interpersonal conflict, suggest that, in age diverse teams, a low team agreeableness minimum may trigger negative social categorization processes, wherein others may form stereotype-based impressions of age dissimilar others. Such activated intergroup biases appeared to be manifested in worsened relational team functioning, which ultimately results in reduced team performance.

General Discussion

Despite popular beliefs about the prospective benefits of demographic diversity on team performance, comprehensive meta-analytic evidence "has shown no overall advantage for demographically diverse groups, with a small tendency toward disadvantage, especially on subjective measures of performance" (Eagly, 2016, p. 207). We sought to understand

whether there can be positive effects of team age diversity under some conditions, and negative effects under other conditions. Integrating the compilation framework of team processes with the social categorization approach, we unpacked *when* and *why* team age diversity can be either beneficial or detrimental for team performance. Across three demographically and functionally diverse samples, we showed that the impact of team age diversity on team performance is contingent upon the extent to which teams can see past this surface-level characteristic, which is possible depending on team agreeableness minimum. Notably, in Studies 1 and 2, we showed that age diverse teams can perform well if such teams score higher on team agreeableness minimum; these results uncovered that team age diversity can be a source of advantage. Extending Study 1's findings, we also demonstrated that age diversity corresponds with increased interpersonal conflict (Study 2) and decreased cohesion (Study 3) in teams with lower team agreeableness minimums. Such worsened relational team functioning explains *why* these teams do not achieve good team performance, as measured objectively (Study 2) or with team members' assessments (Study 3).

Theoretical Implications

Our findings contributed to scholarship about surface- and deep-level team characteristics by unpacking how these team attributes interact to shape team processes and outcomes (Guillaume et al., 2012; Harrison et al., 2002). We applied insights from the social categorization approach (Hogg, 2000), which encompasses social identity (Reicher et al., 2010), self-categorization (Turner et al., 1987), and similarity-attraction (Byrne, 1971) theories, by examining when team age diversity may be either negatively or positively related to team performance. Using this perspective, scholars have discussed *when* team age diversity

is negatively associated with team performance (van Knippenberg & Schippers, 2007). They emphasized that social categorization becomes problematic *if* and *when* it produces intergroup bias, wherein in-group members are viewed more favorably than out-group members (van Knippenberg et al., 2004). In age diverse teams, when age differences become salient, age dissimilar team members are likely to focus on overcoming negative interpersonal processes associated with categorizing dissimilar others into out-group members, such as lack of trust, low cohesion, and increased interpersonal conflict. The inconsistent findings regarding the relationship between team age diversity and team performance supports the notion that social categorization becomes problematic when age differences are made salient (Ali et al., 2014; Bell et al., 2011; De Meulenaere & Kunze, 2020; Schneid et al., 2016; van Dijk et al., 2012; Wegge & Meyer, 2020). Building on this research and social categorization approach, our research uncovered *when* age differences become more or less salient, thereby shaping when age diversity is either negatively or positively related to team performance. Extending studies that examined contextual factors (e.g., De Meulenaere et al., 2016; Guillaume et al., 2017), we showed that team personality such as lower team agreeableness minimum may activate the salience of age differences in age diverse teams.

In examining the interactive effects between the surface and deep-level attributes of a team, we examined how personality would "moderate workplace diversity effects on social integration, well-being, and performance" (Guillaume et al., 2017, p. 292). Using demographically and functionally diverse samples across three studies, we showed that, in age diverse teams, low team agreeableness minimum was a critical factor for triggering

stereotype-based impressions of age dissimilar teammates and subsequently shaping team performance; yet, the nature of this influence was slightly different across studies. In both Studies 1 and 2, age diversity was positively related to team performance when team agreeableness minimum was higher. This finding suggests that age diverse teams in which most disagreeable person scores high on agreeableness, may be able to see past age differences and the associated age-based stereotypes of younger disagreeable teammates as rebellion and older disagreeable team members as rigid and inflexible (North & Fiske, 2015). Study 2's results also showed that age diverse teams perform worse than more homogenous teams (measured objectively) when there was at least one disagreeable person. It appears that such teams were not able to see past age differences and associated stereotypes. Although in Study 3, the interaction between team age diversity and team agreeableness minimum failed to reach conventional levels of significance, the pattern was consistent with that of Studies 1 and 2. The significant mediated moderation in Study 3 revealed that these effects transpire indirectly, via reduced team cohesion.

Our research also contributes to the compilation framework of team processes (Bell et al., 2018; Mathieu et al., 2014) by uncovering *why* age diverse teams with either low or high scoring team members on certain personality traits achieve substandard performance. Integrating insights from the 'bad apple' scholarship, highlighting how one teammate's personality can shape the entire team's functioning (Felps et al., 2006), we showed that age diversity is negatively related to team performance in teams with lower team agreeableness minimums. It appears that the minimum team member's lack of cooperation and confrontational style may trigger age-based stereotypes, which in turn likely reduce relational

team functioning in the form of interpersonal processes and cohesion (Courtright et al., 2015) and, subsequently, worsens team performance. These mediated moderation results are noteworthy because they might uncover another factor (the minimum compilation model on agreeableness) that may activate the salience of age differences in age diverse teams. Research has unpacked the role of organizational factors that may activate or dampen the salience of team age diversity on team and organizational performance (De Meulenaere et al., 2016; Kearney et al., 2009; Kunze et al., 2011; Scheuer & Loughlin, in press; Seong & Hong, 2018). Building on and extending this scholarship, we showed how a team personality factor - team agreeableness minimum - may activate in- and out-group distinctions corresponding with worsened team processes and performance.

In contrast to other scholarship, which has examined surface- and deep-level effects separately with some notable exceptions (Fisher et al., 2012; Homan et al., 2008; Kearney et al., 2009), our research has examined a combination of the two and shown how well or poorly they work together (Bell et al., 2018). Our research has illuminated how, in age diverse teams, younger and older teammates likely direct their attention to their demographic differences if the minimum team member scores low on agreeableness. In age diverse teams, low team agreeableness minimums can trigger stereotype-based impressions of age dissimilar teammates that are detrimental for team relational functioning. These interpersonal processes are based on building interpersonal bonds, cultivating mutual commitment and trust, and overcoming interpersonal friction (Courtright et al., 2015), which requires teammates to be vulnerable. Yet, this becomes difficult, if not impossible, when, in age diverse teams, stereotype-based impressions are activated by the presence of 'bad apples' who seem to

'spoil the entire barrel', resulting in decreased cohesion and increased interpersonal conflict. Prior research examined moderators (Timmerman, 2000; Wegge et al., 2008) and mediators (Choi & Sy, 2010) of the relationship between age diversity and team performance separately. Our research is one of the few investigations (e.g., Kearney et al., 2009) to integrate these factors into one model and, thus, provides a more fine-grained picture of *how* and *why* age diversity influences team performance.

Notably, our research has contributed to the compilation framework of team processes (Kozlowski & Klein, 2000) by re-testing our model with alternative operationalizations of team agreeableness such as the mean and *SD*. The results of these supplementary analyses were inconsistent and mixed, with some operationalizations showing significant moderation in some of our studies for some of our outcomes. These supplementary analyses, together with the consistent significant results of team agreeableness minimum, support the importance of this particular operationalization of this deep-level team characteristic. They also are consistent with research showing a greater influence of team agreeableness when operationalized as the minimum and not as the mean (e.g., Raver et al., 2012). So, these results are consistent with microdynamics research by highlighting how, in age diverse teams, the presence of a team member scoring low on agreeableness can trigger age-based stereotyping among teammates, suggesting that "lower warmth attributions are likely to reduce collaboration and cohesion" (van Dijk et al., 2017, p. 546).

Practical Implications

Our research provides some practical advice for organizations striving to more effectively manage their age diverse teams. As our findings demonstrate, having just one

disagreeable team member may lead teams that are composed of both younger and older employees to interpersonal conflict, eroded cohesion, and subsequent poor performance. Our findings suggest a couple of ways team performance and team relational functioning can be improved. First, this could be achieved by including a measure of personality into team selection and ensuring that managers more closely monitor age diverse teams with even one disagreeable person. Having this knowledge about the personality profile of their teams, managers could proactively address potential interpersonal disagreements and reduced cohesiveness in such teams. In doing so, managers likely create teams that will approach interpersonal situations based on their dispositional tendencies as opposed to their demographic differences. This, in turn, will lead to stronger interpersonal bonds, reduced interpersonal disagreements, and improved team performance in age diverse teams.

Second, our findings also suggest that organizations may need to devote particular attention to designing and implementing conflict resolution interventions in age diverse groups where one or more members are low in agreeableness. Without this type of assistance, disagreements could trigger dysfunctional interpersonal conflict among group members, particularly those that differ from one another along a key dimension (e.g., age). Not only might such interventions help to buffer against the negative effects of age diversity in groups containing disagreeable members, but also might serve to promote the positive effects of age diversity in groups without disagreeable members. Finally, organizations could also implement steps to increase team relational functioning and cohesion in particular. They could achieve this goal by emphasizing outcome interdependence, wherein rewards and feedback are allocated to the group, and performance expectations are formulated for the

team, not individuals (Courtright et al., 2015). In doing so, managers may not only minimize potential conflicts, but proactively maximize interpersonal bonds in age diverse teams.

Limitations

Despite the strengths of our research, which is based on three demographically and functionally diverse samples, we note several limitations. First, in both Studies 1 and 2, our team task was relatively short and, thus, it is unclear how well those findings may generalize to longer-term team tasks. It is possible that people pay greater attention to age differences in short-lived tasks such as those performed by our teams in Studies 1 and 2, and the effects of age differences might be less pronounced in teams that have worked together and known each other longer. However, the results of Study 3, which are based on military work units, assuage this concern somewhat by constructively replicating the interactive effects of team age diversity and team agreeableness minimum on team cohesion and subsequent team performance. Second, we tested our model with undergraduate (Study 1) and MBA (Study 2) students. Notably, all of the participants in Study 2 and 70% of participants in Study 1 were employed at the time of our data collection. We also conducted Study 3 with military personnel, which attests to the robustness of our model. Future research could further strengthen our results by testing our models in non-military organizations. Third, we collected our data for Studies 1 and 2 in Australia. Although Study 3 was based on an American sample, USA culture is relatively close to Australian cultural values (e.g., Braithwaite et al., 2020). Future research could test our model in other Western and non-Western cultures with differing cultural values and norms about younger and older employees' roles and behaviors in the workplace.

Fourth, although we tested multiple mediators for the proposed interactive effects, we did not examine these processes simultaneously. Future research could explore which of these aspects of relational team functioning – interpersonal conflict or team cohesion – better explains the model. Further, although we hypothesized both positive and negative conditional effects of team age diversity on team performance, our mediators only allowed us to explain the negative conditional effects. Future research could extend our findings by explicitly measuring information elaboration as a mechanism, explaining why age diverse teams achieve good team performance when even the most disagreeable teammate scores high on agreeableness. Fifth, although we included a number of control variables when testing our model across Studies 1-3, in Study 3, we did not control for team tenure, which can be an important variable given its positive correlation with team performance (Gonzalez-Mule et al., 2020). Further, the effects of team tenure on team motivational-affective states including team cohesion are non-significant irrespective of whether team tenure is operationalized as additive, collective or dispersion tenure (Gonzalez-Mule et al., 2020). Despite the non-significance of the main effects, various operationalizations of team tenure may act as moderators that could shape the interactive effects of team age diversity and team agreeableness on team cohesion. This may be particularly true for collective team tenure, which captures "team members' shared knowledge and experiences" (Gonzalez-Mule et al., 2020, p. 154), and which influenced team performance via motivational-affective team states. It is possible that collective team tenure can buffer the negative effects of team agreeableness minimum in the relationship between team age diversity and team performance. Notably, collective team tenure had a negative effect on team performance via behavioral team

processes such as team coordination, information sharing, and role sharing (Gonzalez-Mule et al., 2020). Future research could unpack the precise role of collective team tenure on both behavioral and motivational team processes of age diverse teams with different team agreeableness minimum configurations.

Finally, we did not use an experimental design in any of our studies, wherein we would manipulate either age or agreeableness composition or compilation. In using an experimental design, future research could address another limitation of our research – a relative age range restriction, particularly in Study 1. Future research could experimentally increase the age variation in such teams by assembling teams with various combinations of older and younger teammates (e.g., multiple older teammates with one younger team member and vice versa). This could allow researchers to examine which compilation of the surface- and deep-level characteristics result in the best relational processes and team outcomes.

Future Research

Based on our findings, we offer several avenues for future research. First, other processes may explain the proposed interactive effects of team age and team agreeableness minimum. In particular, subsequent inquiry could include interpersonal conflict and team cohesion (which we examined) with other theoretically viable mediators such as team identification and attraction. Researchers could tease apart which of these processes better explain the observed interactive effects between team age and team agreeableness minimum on team performance. Second, our model could be replicated for another social marker such as team members' race. As with team age diversity, the results for the linkages between team race diversity and team performance are inconclusive, with some meta-analyses showing a

small negative effect (Bell et al., 2011; van Dijk et al., 2012) and others failing to detect any relationships (Joshi & Roh, 2009). This mixed evidence seems to suggest that our model may be replicable for team race diversity. Finally, our model may be differentially applicable in cultures with different age norms and representation (e.g., countries with predominantly younger or older population such as South Asia and North America, respectively; Peiro et al., 2012). Perhaps in these cultures the effects of age diversity on team processes and outcomes are more pronounced than in Australia or the USA because those societies and their workplaces are relatively homogenous in terms of age (either predominantly older or younger). Because of the increased visibility of age dissimilar people in such societies, it may be more difficult to overcome the negative consequences of social categorization, and thus the consequences for team effectiveness may be more pronounced.

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Footnotes

1 - Additional research from these data in both Studies 1 and 3 have been published elsewhere, although to maintain peer-review anonymity we will provide information on these articles after the review. No data used here have previously been published.

2 – Across all our Studies 1-3, we re-analyzed our data while controlling for other personality traits as minimums. Notably, the results stayed the same irrespective whether we control for other personality traits minimums or means.

3 - Notably, as team performance was scored as the height of the tower, teams whose towers collapsed after they were built received a score of '0' for their team performance. To test whether there may be any differences in the results for teams, whose performance was recoded as '0', we re-analyzed our data without teams whose performance was recorded as '0'. Notably, the results stayed the same irrespective of whether teams whose performance was recoded as '0' were included or excluded from our analyses.

Table 1
Descriptive Statistics and Correlations for Studies 1-2

Variables	Study 1		Study 2		1	2	3	4	5	6	7	8	9	10	11	12
	Mean	*SD*	*Mean*	*SD*												
1. Team age mean	22.08	3.93	34.09	3.51	--	.28*	.08	.17	-.25*	.09	-.00	.17	.68**	.13	-.33**	--
2. Team conscientiousness mean	3.47	.30	3.80	.30	.01	--	-.11	.13	.10	-.04	.07	-.04	.19	-.12	-.06	--
3. Team openness mean	3.09	.17	3.60	.23	-.11	.23*	--	.10	.20	-.09	-.04	.04	.11	-.11	.08	--
4. Team extraversion mean	3.40	.34	3.68	.25	-.11	-.02	-.10	--	-.19	.20	.04	.03	.23*	.04	-.15	--
5. Team emotional stability mean	3.21	.33	2.81	.35	.07	-.03	-.18	-.11	--	-.22	-.13	-.09	-.17	-.06	.08	--
6. Team agreeableness mean	3.21	.35	3.30	.29	-.21*	.06	.20*	.23*	-.22*	--	.07	.01	.15	.75**	-.01	--
7. Team size	3.14	.93	3.98	.72	-.13	-.13	-.08	.06	.00	.11	--	.34**	.13	-.20	.04	--
8. Team gender diversity	.32	.21	.34	.17	.19*	.07	-.07	.07	.12	-.09	.06	--	.16	.07	-.13	--
9. Team age diversity	.12	.10	.19	.08	.46**	-.01	-.08	-.07	-.02	-.15	.04	.21*	--	.02	-.11	--
10. Team agreeableness minimum	2.74	.44	2.83	.42	-.15	-.02	.11	.21*	-.24*	.75**	.01	.02	-.08	--	-.14	--

11. Team performance	113.21	99.58	27.41	28.76	-.02	.00	.07	.14	-.18	.13	-.06	.11	.01	.09	--	--
12. Team interpersonal conflict	--	--	1.59	.42	-.08	-.22*	-.03	.00	.04	-.16	.07	-.11	-.08	-.12	-.19	--

Note. Correlations for Study 1 ($N = 81$) are above the diagonal and correlations for Study 2 ($N = 109$) are below the diagonal. In both Studies 1-2, team performance is measured as height of a tower (in cm). Team interpersonal conflict is measured only in Study 2. $^{*}p < .05$; $^{**}p < .01$.

Table 2

Hierarchical Regression Analysis Predicting Team Performance (Studies 1-2)

Variables	**Study 1 (*N* = 81)**			**Study 2 (*N* = 109)**		
	Step 1	***Step 2***	***Step 3***	***Step 1***	***Step 2***	***Step 3***
Team age mean	-8.36**	-10.96*	-11.52**	-.05	-.12	.36
	(3.13)	(4.19)	(3.99)	(.95)	(1.06)	(1.01)
Team conscientiousness	20.59	14.02	23.04	-3.70	-4.51	-5.11
mean	(39.36)	(39.70)	(37.86)	(10.97)	(11.15)	(10.52)
Team openness mean	85.53	67.79	71.47	6.11	5.51	3.67
	(69.53)	(69.82)	(66.38)	(14.55)	(14.74)	(13.91)
Team extraversion mean	-39.46	-49.93	-53.39	11.64	11.85	12.94
	(33.59)	(33.78)	(32.13)	(13.44)	(13.59)	(12.82)
Team emotional stability	-15.23	-8.45	6.12	-13.21	-14.02	-14.69
mean	(37.45)	(38.06)	(36.53)	(9.49)	(9.73)	(9.18)
Team agreeableness	13.65	57.14	72.20	8.43	17.09	15.47
mean	(32.00)	(54.90)	(52.44)	(11.97)	(17.92)	(16.91)
Team size	7.51	-1.38	.60	-3.51	-4.03	-3.61
	(12.61)	(13.80)	(13.14)	(4.51)	(4.63)	(4.37)
Team gender diversity	-50.17	-34.48	-44.44	24.07	26.00	25.12
	(57.29)	(58.57)	(55.78)	(19.22)	(19.88)	(18.75)
Team age diversity		184.61	168.75		4.60	5.40
		(152.21)	(144.78)		(45.15)	(42.57)
Team agreeableness		-47.67	-54.84		-7.74	1.06
minimum (min)		(44.77)	(42.63)		(11.90)	(11.55)
Team age diversity x			728.18**			346.04**
Team agreeableness min			(268.74)			(107.52)
R^2	.15	.19	.28**	.08	.08	.20**
ΔR^2		.04	.09**		.01	.11**

Note. $^{*}p < .05$; $^{**}p < .01$. Coefficients are unstandardized and standard error values are in parentheses.

Table 3

Hierarchical Regression Analysis Predicting Team Interpersonal Conflict (Study 2)

	Step 1	***Step 2***	***Step 3***
Team age mean	-.01 (.01)	-.01 (.01)	-.01 (.01)
Team conscientiousness mean	-.28 (.15)	-.28 (.15)	-.28 (.15)
Team openness mean	.09 (.19)	.09 (.20)	.11 (.19)
Team extraversion mean	.08 (.18)	.07 (.18)	.06 (.18)
Team emotional stability mean	.03 (.13)	.03 (.13)	.03 (.13)
Team agreeableness mean	-.28 (.16)	-.29 (.24)	-.27 (.23)
Team size	.04 (.06)	.04 (.06)	.04 (.06)
Team gender diversity	-.26 (.26)	-.25 (.26)	-.24 (.26)
Team age diversity		-.31 (.60)	-.32 (.59)
Team agreeableness minimum		.00 (.16)	-.09 (.16)
Team age diversity x Team agreeableness minimum			-3.41* (1.48)
R^2	.09	.10	.15*
ΔR^2		.00	.05*

Note. $N = 100$. $^{*}p < .05$; $^{**}p < .01$. Coefficients are unstandardized and standard error values are in parentheses.

Table 4

Summary of Mediated Moderation Analysis Predicting Team Performance via Team Interpersonal Conflict (Study 2)

Moderator variable	Stage		Effect		
	First	Second	Direct	Indirect	Total
Team Agreeableness Minimum					
Low	**1.32**	**-20.16**	**-164.76**	**-26.56**	**-191.32**
	[.39, 2.59]	**[-40.30, -10.44]**	**[-298.69, -133.39]**	**[-84.50, -11.25]**	**[-360.75, -159.19]**
High	**-1.32**	-2.07	101.07	2.73	103.80
	[-2.38, -.13]	[-23.28, 7.79]	[-12.81, 184.63]	[-7.03, 45.30]	[-4.21, 188.97]
Difference	**-2.64**	18.09	**265.83**	**29.29**	**295.12**
	[-4.39, -1.06]	[-5.02, 35.28]	**[165.90, 406.62]**	**[10.28, 98.35]**	**[213.13, 464.28]**

Note. $N = 100$. Bias-corrected 95% confidence intervals are in brackets, values in boldface do not overlap with zero. Conditional indirect effects are presented at range of values of team agreeableness minimum from Low (-1*SD*) to High (+1*SD*).

Table 5

Means, Standard Deviations, and Correlations for All Variables (Study 3)

Variable	***M***	***SD***	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1. Team size	7.64	2.32	--									
2. Team age mean	2.57	.59	.06	--								
3. Team agreeableness mean	3.67	.46	-.00	.35**	--							
4. Team conscientiousness mean	4.09	.35	-.11	.28**	.46**	--						
5. Team emotional stability mean	3.11	.40	.02	.20**	.45**	.33**	--					
6. Team gender diversity	.29	.22	-.01	.21**	.08	.01	-.08	--				
7. Team age diversity	.32	.12	.08	-.16*	-.06	-.04	.04	.03	--			
8. Team agreeableness minimum	2.25	.81	-.17**	.12	.70**	.20**	.36**	.04	.06	--		
9. Team performance	4.05	.47	-.18**	.31**	.44**	.54**	.23**	.08	-.07	.26**	--	
10. Team cohesion	3.86	.49	-.11	.29**	.51**	.46**	.36**	-.01	-.08	.37**	.73**	--

Note. $N = 195$. * $p < .05$, ** $p < .01$.

Table 6

Summary of Moderated Multiple Regression Predicting Team Performance and Team Cohesion (Study 3)

	Team Performance		Team Cohesion	
Variable	***Step 1***	***Step 2***	***Step 1***	***Step 2***
Team size	-.03* (.01)	-.03* (.01)	-.02 (.01)	-.02 (.01)
Team age mean	.10 (.05)	.10 (.05)	.09* (.06)	.09 (.05)
Team agreeableness mean	.24* (.10)	.23* (.10)	.28* (.11)	.28* (.11)
Team conscientiousness mean	.53** (.09)	.53** (.09)	.35** (.10)	.35** (.10)
Team emotional stability mean	-.03 (.08)	-.03 (.08)	.14 (.08)	.15 (.08)
Team gender diversity	.06 (.13)	.07 (.13)	-.10 (.14)	-.09 (.13)
Team age diversity	-.05 (.23)	-.01 (.23)	-.13 (.25)	-.06 (.25)
Team agreeableness minimum	-.01 (.05)	-.02 (.05)	.05 (.05)	.03 (.05)
Team age diversity x Team agreeableness minimum		.49 (.30)		.80* (.31)
R^2	.37**	.38**	.36**	.38**
ΔR^2		.01		.02*

Note. $N = 195$. $^{*}p < .05$, $^{**}p < .01$. Coefficients are unstandardized and standard error values are in parentheses.

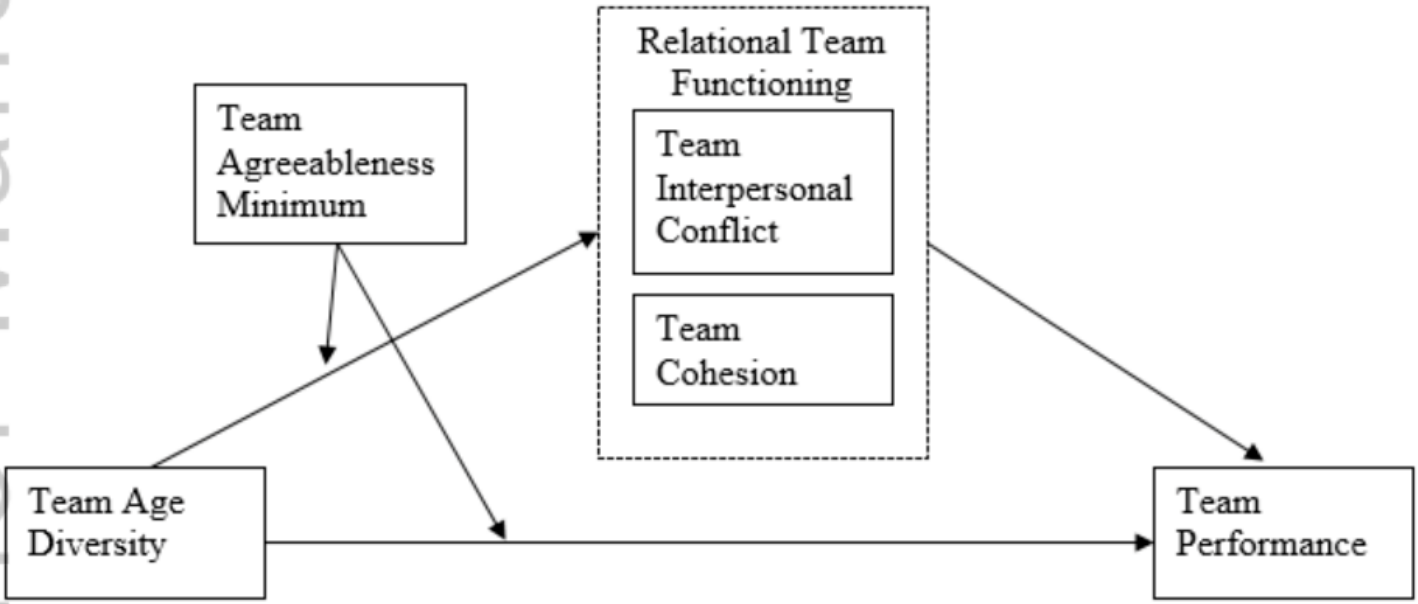
Table 7

Summary of Mediated Moderation Analysis Predicting Team Performance via Team Cohesion (Study 3)

	Stage		Effect		
Moderator variable	First	Second	Direct	Indirect	Total
Team Agreeableness Minimum					
Low	**-.70 [-1.31, -.002]**	**.59 [.41, .74]**	-.08 [-.72, .51]	**-.42 [-.86, -.02]**	-.50 [-1.25, .20]
High	.58 [-.19, 1.37]	**.54 [.36, .71]**	.12 [-.34 .75]	.32 [-.08, .85]	.43 [-.20, 1.27]
Differences	**1.28 [.17, 2.37]**	-.05 [-.22, .17]	.20 [-.57, 1.19]	**.73 [.12, 1.48]**	.93 [-.11, 2.29]

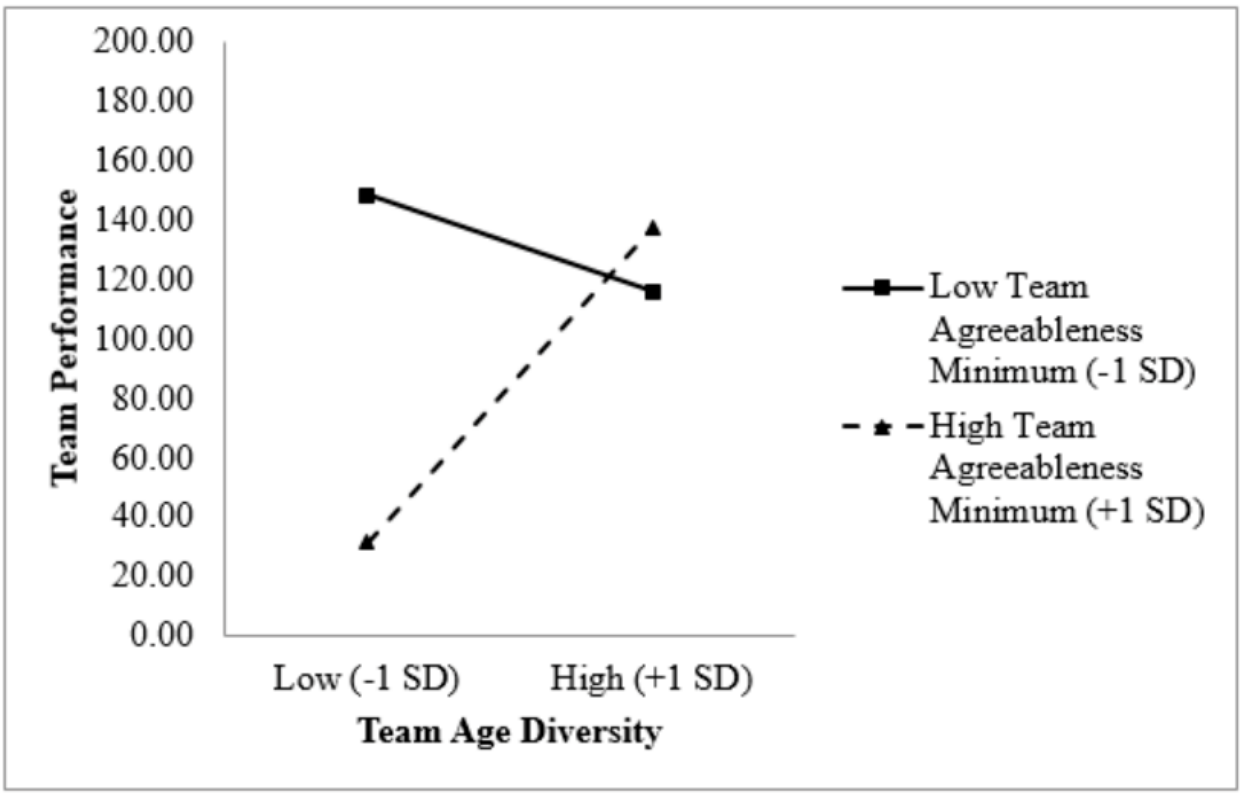
Note. $N = 195$. Bias-corrected 95% confidence intervals are in brackets, values in boldface do not overlap with zero. Conditional indirect effects are presented at range of values of team agreeableness minimum from Low (-1*SD*) to High (+1*SD*).

Figure 1. The proposed conceptual model.



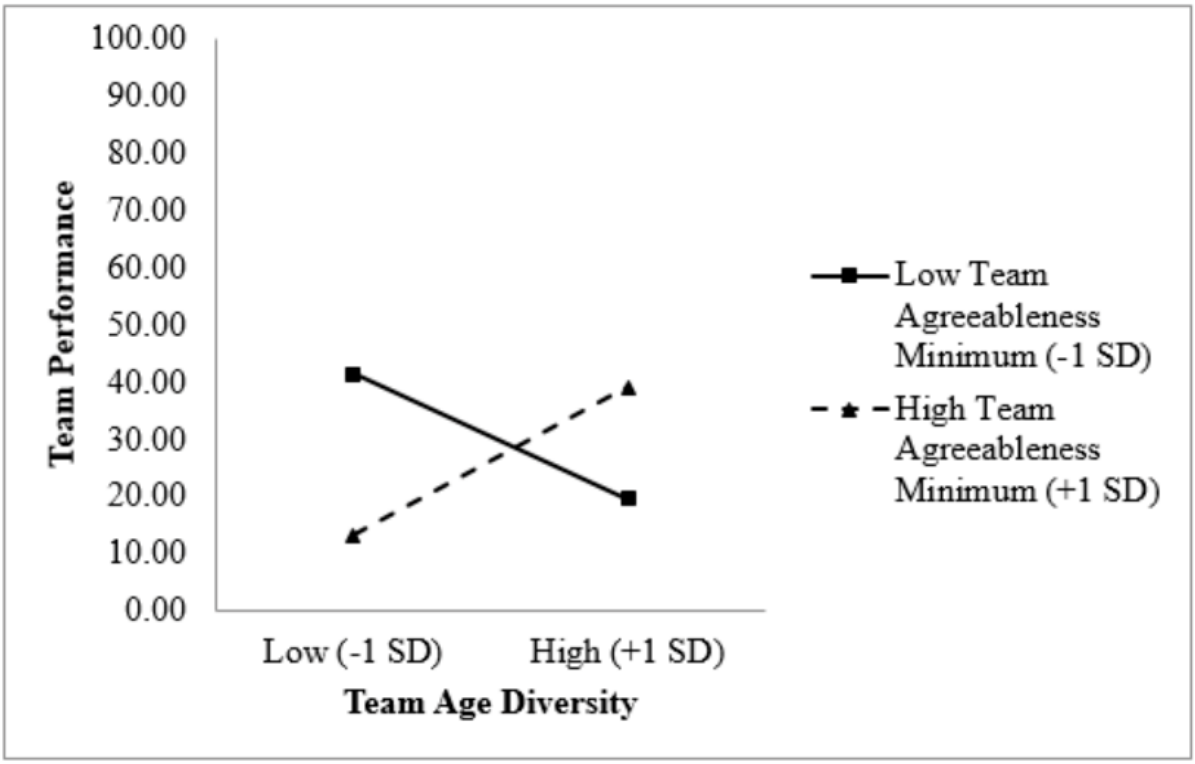
JOB_2570_JOBRR2_Fig1.png

Figure 2. Interaction effects of team age diversity and team agreeableness minimum on team performance (Study 1).



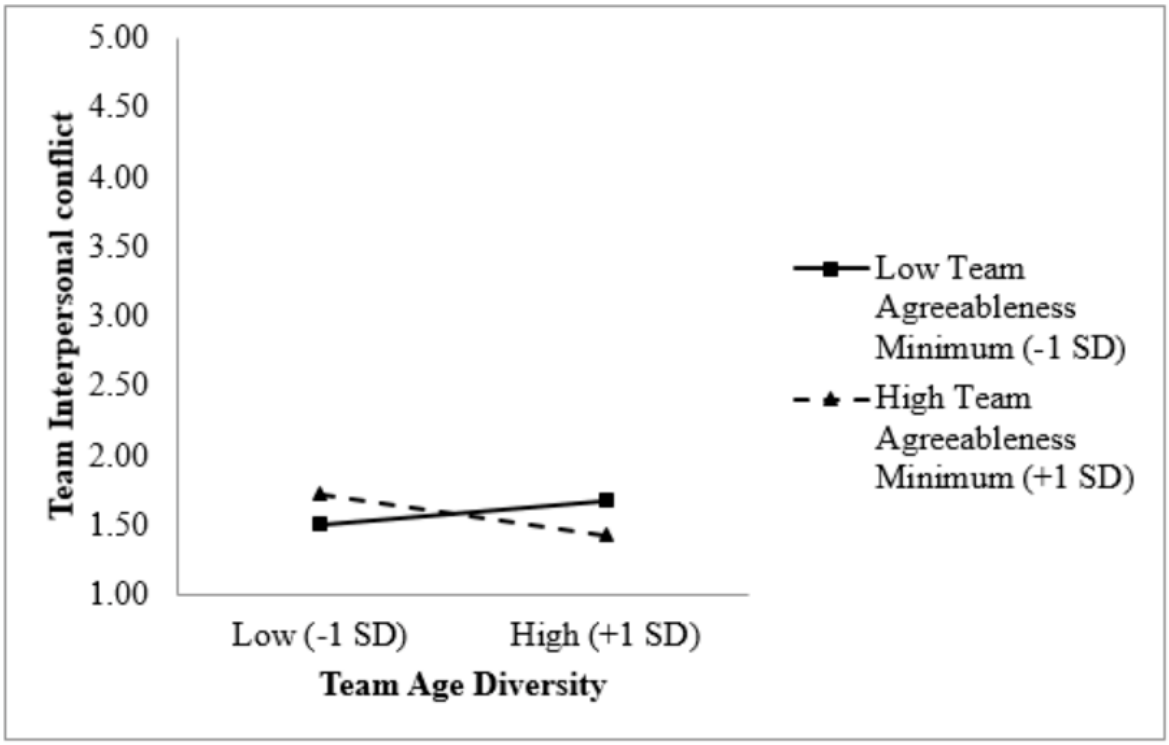
JOB_2570_JOBRR2_Figure 2.png

Figure 3. Interaction effects of team age diversity and team agreeableness minimum on team performance (Study 2).



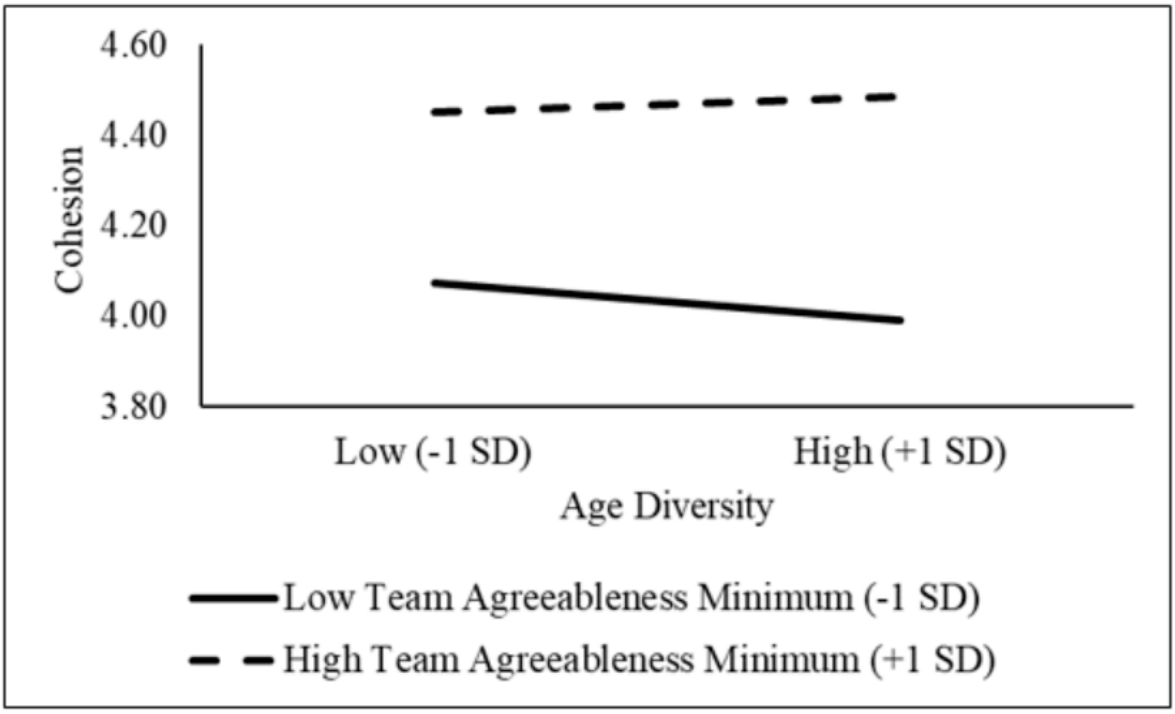
JOB_2570_JOBRR2_Figure 3.png

Figure 4. Interaction effects of team age diversity and team agreeableness minimum on team interpersonal conflict (Study 2).



JOB_2570_JOBRR2_Figure 4.png

Figure 5. Interaction effects of team age diversity and team agreeableness minimum on team cohesion (Study 3).



JOB_2570_JOBRR2_Figure 5.png