

A dyadic approach toward the interpersonal consequences of time pressure

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A Dyadic Approach Toward the Interpersonal Consequences of Time Pressure

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Although time pressure can decisively shape employees' behavior, little remains known about the consequences associated with *differing* perceptions of time pressure between cooperating individuals. Hence, this investigation uses two experimental studies (across different cultural contexts) to examine the joint role of a focal individual's (i.e., an actor's) and a dyadic interaction partner's time pressure perceptions for the actor's behavior toward the partner. Results demonstrated that actors' time pressure perceptions were positively related to their time-oriented behavior (i.e., pacing and synchronizing joint activities). In Study 1 (but not Study 2), the partner's time pressure moderated this association, such that the linkage between an actor's time pressure and time-oriented behavior was more pronounced when the partner experienced lower (rather than higher) time pressure. Furthermore, across both studies, the partner's time pressure perceptions moderated the linkage between an actor's time pressure and relationship-oriented behavior (i.e., being friendly and considerate). This linkage was positive when the partner experienced high time pressure, but nonsignificant (Study 1) or even negative (Study 2) when the partner experienced low time pressure. Together, these findings advance new insights into the consequences of time pressure in cooperating dyads, illustrating that conflicting time pressure perceptions may critically influence individuals' interpersonal behavior.

Public Significance Statement

Across two experimental studies, we found that an individual's time pressure leads him or her to push an interaction partner to work faster. Moreover, this research suggests that individuals engage in more friendly and helpful behaviors toward an interaction partner when this partner perceives similar (as opposed to different) levels of time pressure.

Keywords: time pressure, dyads, time-oriented behavior, relationship-oriented behavior, actor-partner interdependence model

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Many employees in modern work environments perceive substantive time pressure, such that they feel there is insufficient time to adequately complete their tasks (Eurofund, 2017; Rudd, 2019). Hence, it is not surprising that a large body of research has developed on the consequences of time pressure (e.g., Maruping et al., 2015; Palada et al., 2018; Stuhlmacher et al., 1998). This

literature has shown an employee's time pressure perceptions to shape his or her work-related attitudes and decisions (Wright, 1974) and to influence important work outcomes, such as individual creativity (Baer & Oldham, 2006) and task performance (Beck & Schmidt, 2013). Extrapolating these findings toward interpersonal contexts, scholars have demonstrated that time pressure can alter individuals' interactions with other persons (Karau & Kelly, 1992; McGrath & Kelly, 1986). In group settings, for example, this stream of research suggests that perceptions of time pressure may trigger two distinct types of interpersonal behavior. On the one hand, time pressure may lead group members to exhibit time-oriented behavior, such as emphasizing deadlines, pushing others toward a faster working speed, and synchronizing joint task accomplishment (Karau & Kelly, 1992; Waller et al., 2002). On the other hand, research has linked time pressure with relationship-oriented, friendly, and cooperative acts, with some studies demonstrating that such perceptions may diminish interpersonal helping and support within groups (Kelly & Loving, 2004; Pearson & Porath, 2004) and others illustrating that time pressure may amplify such behavior (Maruping et al., 2015; Rand et al., 2012).

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Importantly, this research has predominantly assumed that individuals working in the same group or on the same task hold similar perceptions of time pressure, with these shared perceptions shaping behavioral reactions and outcomes (Chong et al., 2011; Isenberg, 1981). In modern work environments, however, even employees working in the same group or task context may often perceive differing degrees of time pressure (Cummings & Haas, 2012). Many employees in today's organizations belong to multiple teams and work on multiple concurrent projects, for example, simultaneously occupying diverse roles across these assignments (Ballard et al., 2018; van de Brake et al., 2018). Hence, even individuals working together on the same task may have nonoverlapping schedules and differing temporal demands, potentially evoking pronounced differences in individuals' perceptions of time pressure for the task at hand (O'Leary et al., 2011). The existing research has not examined the consequences associated with such conflicting time pressure perceptions. As such, little remains known about how a focal individual may react when his or her own time pressure exceeds an interaction partner's respective perceptions or vice versa. Despite the pervasive nature of time pressure, our understanding of this phenomenon therefore remains cursory and incomplete.¹

The present study addresses this issue by investigating the role of time pressure for individuals' interpersonal behavior in cooperative dyadic interactions. We draw from TIP theory (time, interaction, and performance theory; McGrath, 1991) to propose that a focal employee's (i.e., an actor's) own time pressure and his or her dyadic interaction partner's respective perceptions may *jointly* influence the actor's interpersonal behavior toward the partner. Specifically, as depicted in Figure 1, we examine the joint role of actor and partner time pressure for an actor's time-oriented behavior (i.e., structuring the joint pace of work, synchronizing common efforts, monitoring schedules and deadlines; Janicik & Bartel, 2003; Mohammed & Nadkarni, 2011)² and an actor's relationship-oriented behavior (i.e., friendly, considerate, and helpful acts; Brief & Motowidlo, 1986; Mossholder et al., 2011). Our focus on an actor's time-oriented and relationship-oriented behavior is informed by prior research that has highlighted the critical role of such behaviors for key organizational processes and outcomes, such as individuals' interpersonal relations (e.g., trust and coordination; Janicik & Bartel, 2003; McAllister, 1995) and joint goal attainment (e.g., task performance; Mohammed & Nadkarni, 2011; Ng & van Dyne, 2005).

We examine our conceptual model across two independent experimental studies, including an online scenario design and a laboratory investigation. In doing so, our goal is to advance existing theory and research on time pressure in organizations, shedding new light on the important consequences of conflicting time pressure perceptions between individuals working on a joint task. More specifically, we aim to move beyond existing research on individual or group-level time pressure by highlighting the *interplay* between an actor's and a partner's (potentially divergent) time pressure perceptions as a critical factor that shapes an actor's behavior. Our research therefore depicts time pressure as an inherently social phenomenon. It emphasizes the complexity of time pressure's behavioral implications in modern work environments, where individuals' unique job arrangements may induce conflicting perceptions of time pressure even within cooperative interactions. As such, we strive to promote a new, more nuanced perspective on the role of

time pressure that anchors an individual's respective perceptions within his or her work context.

Theory and Hypotheses Development

Time Pressure and Time-Oriented Behavior

We draw from TIP theory (McGrath, 1991) to explain how, within cooperative dyads that work interdependently toward shared goals, an actor's and a partner's time pressure perceptions may jointly influence the actor's interpersonal behavior. In a first step, we suggest that an actor's own perceptions of time pressure will positively relate with his or her time-oriented behavior toward the partner. TIP theory holds that individuals in cooperative settings face "generic temporal problems" (McGrath, 1991, p. 162) that may threaten successful and timely goal attainment (see also Mohammed & Nadkarni, 2011). One key problem, in this regard, results from perceptions of time pressure (i.e., a "scarcity of temporal resources;" McGrath, 1991, p. 162). Such perceptions indicate that successful task achievement is endangered unless all relevant parties work swiftly and in synchrony to jointly meet tight deadlines and stay on schedule (Karau & Kelly, 1992).

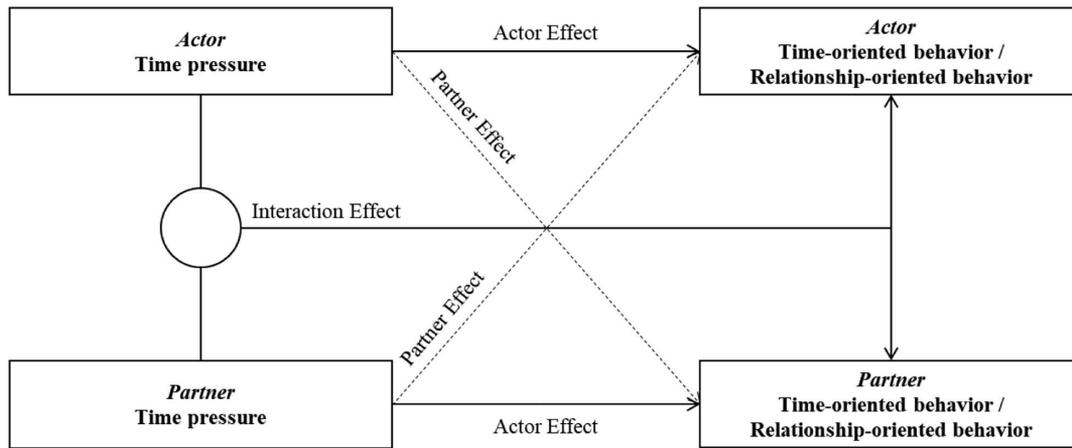
To solve this problem, a TIP perspective suggests that actors experiencing high time pressure will typically respond with time-oriented behavior, urging their interaction partners to work faster and proactively scheduling partners' task activities to meet temporal requirements (McGrath, 1991). In such situations, an actor may believe that quick action is paramount, such there is no time to carefully consider alternative task approaches (Payne et al., 1996). Consequently, time-pressed actors may cut short time-consuming discussions (Carnevale & Conlon, 1988), and they may try to impose their own, hurried working pace upon others, urging a cooperation partner to work as fast as possible and trying to synchronize the partner's work pace with their own (Chen & Nadkarni, 2017).

Actors under lower time pressure, by contrast, may perceive little need for time-oriented behaviors toward the partner because they feel there is sufficient time for successful task completion (Kelly & McGrath, 1985; Waller et al., 2002). Hence, from a TIP perspective, these actors are less likely to view temporal scarcity as a substantive problem and, thus, they may perceive it as possible to attain joint goals even if actor and partner work at their own, possibly divergent paces. As such, actors under low time pressure may find it unnecessary to nudge a cooperation partner toward timely task accomplishment or to proactively structure the pace of a partner's work activities (Kelly & Loving, 2004; McGrath, 1991). Supporting these notions, scholars have demonstrated that with lower (rather than

¹ Some studies have examined team diversity in members' time-based personality characteristics (e.g., Mohammed & Nadkarni, 2011, 2014). Although informative, this research has focused on members' stable personality traits rather than acute, situational perceptions of time pressure. Moreover, these studies have adopted a team-level perspective on the consequences of temporal diversity, rather than examining individual employees' reactions toward another person's more or less divergent time perceptions.

² Other scholars have labeled similar types of behavior as "temporal planning" (Janicik & Bartel, 2003, p. 122) or, if conducted in a hierarchical context, as "temporal leadership" (Mohammed & Nadkarni, 2011, p. 492). In line with Waller et al. (1999), we refer to such actions as time-oriented behavior.

Figure 1
Conceptual Model



Note. Solid lines represent hypotheses examined in the present investigation.

higher) time pressure, group members talk less about time and deadlines, steer their attention away from temporal demands, and settle for a relatively modest working speed (Karau & Kelly, 1992; Waller et al., 2002). We therefore hypothesize:

Hypothesis 1: An actor's time pressure is positively associated with his or her time-oriented behavior toward the partner.

Beyond time scarcity as such, TIP theory suggests that conflicting temporal interests and requirements constitute a second key problem for collaborative efforts (McGrath, 1991; Waller et al., 2001). In cooperating dyads, for example, this problem may occur if an actor needs to finish a joint project as quickly as possible, whereas the partner has different priorities and focuses most of his or her efforts on other, concurrent projects. Based on a TIP perspective, it seems likely that the actor will perceive the need to address such temporal misalignment. Hence, we anticipate that the interaction partner's time pressure will moderate the relationship between an actor's own time pressure perceptions and the actor's time-oriented behavior toward the partner.³

In particular, we suggest that an actor's perceptions of time pressure will positively relate with his or her time-oriented behavior when the partner's time pressure is relatively low. The actor may perceive little need for time-oriented interventions, on the one hand, if he or she shares an interaction partner's low time pressure perceptions. In this situation, both actor and partner are likely to exhibit a relatively slow working pace regarding the task at hand, with little concern about schedules and deadlines (Blount & Janicik, 2002). As such, the partner's unhurried work approach should match the actor's own preferences, affirming the actor's view that there is abundant time for goal accomplishment (Waller et al., 2001). Hence, the actor should perceive the interaction partner's working style as adequate for getting the task done, and the actor is therefore unlikely to push the partner toward an increased work pace (Mohammed & Nadkarni, 2011).

On the other hand, an actor that feels pronounced time pressure may find it necessary to exhibit time-oriented behavior when facing

an interaction partner with lower time pressure perceptions. In this scenario, the actor should be highly concerned with efficient and timely task accomplishment, whereas the partner may tend to work more slowly on joint assignments (Blount & Janicik, 2002; Kelly & Loving, 2004). Hence, the partner's working style is likely to contradict the actor's preferences in this situation, and the actor may perceive the partner as causing delays that obstruct successful outcomes (Sheldon et al., 2006). To counter these tangible threats, TIP theory suggests that the actor will try to impose his or her scheduling preferences upon the partner, for example, by defining clear-cut deadlines, issuing temporal reminders, and urging the partner to work faster (McGrath, 1991).

By contrast, we anticipate that the linkage between an actor's time pressure perceptions and time-oriented behavior will be less pronounced when working with a partner who experiences relatively high time pressure. Specifically, we expect an actor to exhibit moderate levels of time-oriented behavior if his or her interaction partner feels highly pressed for time, largely irrespective of the actor's own time pressure perceptions. If an actor, in this situation, experiences relatively low time pressure, he or she will assign little relevance to timely task accomplishment and perceive no heightened urgency (Kelly & Karau, 1999; Wright, 1974). Nevertheless, the partner's strong preference for quick and efficient goal attainment may color the actor's respective behavior, because the partner is likely to assertively emphasize temporal demands and requirements (Waller et al., 2001) and, thus, to potentially increase the actor's awareness of such issues. Moreover, actor and partner may find it difficult to agree on a common working pace in this scenario (Santos et al., 2016; Standifer et al., 2015). Even among actors perceiving relatively low time pressure, we therefore anticipate that such temporal misalignment may evoke an actor's time-oriented

³ We note that we were specifically interested in the joint influence of actor and partner time pressure on an actor's interpersonal behavior. Nevertheless, it is clear that, in examining this interactive relationship, our data analyses also included the main effects of partner time pressure on the actor's behavior.

behavior to some extent, as temporal issues become a focal point in actor–partner interactions.

Likewise, a TIP perspective (McGrath, 1991) suggests that an actor will exhibit moderate levels of time-oriented behavior when experiencing high time pressure and working with a partner who shares this perception. In this scenario, the actor may feel that timely goal attainment is a key problem, thus focusing his or her attention on deadlines, schedules, and efficient task accomplishment (Waller et al., 1999). Importantly, however, the partner’s similar emphasis on a quick and efficient working style may mitigate the actor’s resulting time-oriented behavior toward the partner. Although timing issues may be central to actor–partner interactions in this situation, the actor may not find it necessary to forcefully push the partner toward a faster working pace and to consistently remind the partner of upcoming deadlines, because the partner’s fast-paced actions will already be aligned with the actor’s preferences (Gevers et al., 2016; Mohammed & Harrison, 2013)

Taken together, this rationale suggests that the positive relationship between an actor’s time pressure and his or her time-oriented behavior should be more pronounced when working with a partner who experiences relatively low (rather than high) time pressure. Offering initial support for this notion, research has shown that individuals with a highly time-urgent personality tend to impose strict deadlines upon less time-urgent individuals (Waller et al., 1999). Hence, we hypothesize:

Hypothesis 2: The partner’s time pressure moderates the positive association between an actor’s time pressure and his or her time-oriented behavior toward the partner, such that this linkage is stronger when the partner’s time pressure is lower rather than higher.

Time Pressure and Relationship-Oriented Behavior

Beyond task-related aspects, as discussed before, TIP theory and research suggest that perceptions of time may also shape social aspects of an actor–partner relation, potentially influencing the degree to which an actor views an interaction partner as likable and trustworthy (Jansen & Kristof-Brown, 2005; McGrath, 1991). On this basis, we expect time pressure perceptions within cooperating dyads to shape an actor’s relationship-oriented behavior toward an interaction partner, although we anticipate the pattern of this association to differ substantially from our hypotheses for time-oriented behavior. In fact, empirical findings on the role of an actor’s time pressure for his or her relationship-oriented behavior (or related types of behavior) have been ambiguous and contradictory. Some studies have shown that higher time pressure may decrease interpersonal helping and support, for example, because an actor may feel that he or she does not have sufficient temporal resources to afford such behavior (Pearson & Porath, 2004; Škerlavaj et al., 2018). By contrast, other studies have demonstrated that pronounced time pressure may fuel an actor’s collaboration and interpersonal support to cope with such stressful circumstances (Kinicki & Vecchio, 1994; Rand et al., 2012). Consequently, we see little reason to expect an actor’s time pressure perceptions to directly associate with his or her relationship-oriented behavior toward a partner (i.e., a main effect). Rather, we again draw from TIP theory and related research to propose that the partner’s time pressure will moderate this linkage.

Specifically, we anticipate a negative association between an actor’s perceptions of time pressure and relationship-oriented behavior when the partner’s time pressure is relatively low. When both actor and partner experience little time pressure, on the one hand, we suggest that the actor is likely to demonstrate considerate and helpful behavior toward the partner. Research has shown, accordingly, that individuals value and appreciate it if others’ temporal attitudes and preferences mirror their own (Gevers et al., 2009). An actor with low time pressure may feel comfortable, in particular, if the partner shares the actor’s easy-going work attitudes and modest working speed (Blount & Janicik, 2002). By consequence, the actor may view the partner in a favorable light, experiencing positive attitudes and emotions toward him or her (Waller et al., 2001). We therefore suggest that, in this situation, the actor is likely to approach the partner in a friendly and cooperative manner.

On the other hand, an actor experiencing relatively high time pressure may be less motivated to exhibit such relationship-oriented behavior toward a partner with lower time pressure perceptions. In this scenario, the partner’s preference for a relatively slow working pace contradicts the actor’s sense of urgency, potentially endangering the actor’s temporal interests and, thus, inducing the actor to view the partner as a disturbance and a cause of annoying delays (Blount & Janicik, 2002). As a consequence, the actor may feel “frustrated and discomforted” (Mohammed & Nadkarni, 2011, p. 493), rendering it less likely that he or she will exhibit friendly and attentive behavior toward the partner. In fact, research suggests that such situations of temporal misfit may even trigger aggressive acts and evoke open conflicts (e.g., Kaufman et al., 1991; Mohammed & Angell, 2004; Santos et al., 2016).

When an actor works with a partner who experiences relatively high time pressure, by contrast, we anticipate the linkage between the actor’s own time pressure and his or her relationship-oriented behavior to be positive. On the one hand, we expect an actor to rarely exhibit relationship-oriented behavior in this situation when his or her own time pressure perceptions are relatively low. In this scenario, the actor’s preference for a modest working speed is in stark contrast with the partner’s fast and deadline-oriented working style and the partner’s tendency to emphasize timing issues (Waller et al., 2001). Hence, the actor may perceive his or her time-pressed partner as demanding and obtrusive, potentially resulting in adverse interpersonal attitudes and negative emotions (Blount & Janicik, 2002). We propose that such unsatisfying experiences will increase the likelihood of arguments and conflicts about temporal issues, impairing the actor’s motivation to act courteously and friendly toward the partner (Mohammed et al., 2017; Santos et al., 2016).

Actors experiencing relatively high time pressure, on the other hand, are more likely to exhibit relationship-oriented behavior when working with a highly time-pressed partner. In this situation, the interaction partner’s fast working pace will mirror the actor’s own preferences for timeliness and speed (Mohammed et al., 2017). Because of such shared temporal interests, it seems likely that the actor will be satisfied with the partner’s attitudes and will view him or her in a favorable light (Mohammed & Harrison, 2013). Even under higher time pressure, an actor may perceive such a situation as relatively enjoyable and as providing a pleasant work atmosphere (Jansen & Kristof-Brown, 2005). Accordingly, the actor may be

motivated to invest efforts into building and maintaining a positive social relationship with the partner.

In sum, we anticipate an actor to frequently exhibit relationship-oriented behavior if actor and partner share similar perceptions of time pressure. By contrast, if the actor experiences greater time pressure than the partner (or vice versa), we expect the actor's relationship-oriented behavior toward the partner to be less pronounced. Providing initial support for this notion, team-level research has demonstrated that similarity among individual members' stable temporal personality traits can reduce team conflicts and smoothen interaction processes (Gevers et al., 2016; Mohammed & Angell, 2004). Hence, we hypothesize:

Hypothesis 3: The partner's time pressure moderates the association between an actor's time pressure and his or her relationship-oriented behavior toward the partner, such that this linkage is positive when the partner's time pressure is relatively high and negative when the partner's time pressure is relatively low.

Overview of the Present Research

We implemented a multistudy design to examine the present hypotheses, using two distinct experimental approaches across different cultural contexts. Specifically, Study 1 used an online scenario design with participants from the U.S. to test our conceptual model. Study 2 used a laboratory experiment with participants from Germany to constructively replicate Study 1's results and examine the hypotheses in an actual dyadic interaction context.

Study 1

Sample and Procedure

Study 1 tested the hypotheses using an experimental scenario design as a first step toward disentangling causal relations. Participants were randomly assigned to one condition in a 2 (actor time pressure: low vs. high) \times 2 (partner time pressure: low vs. high) between-subjects design. Using Amazon's MTurk, we recruited 185 Master Workers (i.e., individuals with a track record of conscientious participation in previous MTurk tasks) located in the U.S. in exchange for a small monetary compensation. Participation was restricted to individuals who indicated that they had prior organizational work experience. Research has shown that data collected through such online methods do not systematically differ in validity and reliability from data collected in laboratory settings (Buhrmester et al., 2011; Peer et al., 2017). Moreover, as outlined below, we used attention checks to safeguard data quality (Meade & Craig, 2012), and we excluded seven participants who did not pass these attention checks from further analyses. The final sample therefore comprised 178 participants. Of these participants, 56% were male and 44% female, and their mean age was 37.57 years ($SD = 10.57$). On average, the participants had 18.04 years of work experience ($SD = 11.82$), and 67% had a college degree or higher.

Experimental Materials and Manipulations

After providing informed consent, all participants read the following excerpt, "*Imagine that you work for a pharmaceutical*

company called Randberg Inc. You started working on a very important project together with a colleague. You have not worked previously with this colleague. While you two normally work in different departments under different supervisors, the results of this project will be meaningful for both of your future careers within Randberg Inc." Then, participants (who all served as actors in the present study) received their own time pressure manipulation. In the high [low] actor time pressure condition, participants read, "*For you, this project is very time sensitive [not time sensitive], so you feel [no] time pressure and a [no] need to hurry. Hence, you will do your best to make the project successful, but you will also try to finish the project as quickly as possible [take your time to finish the project].*" Finally, participants received the manipulation for their (alleged) partner's time pressure. In the high [low] partner time pressure condition, participants read, "*For your colleague, this project is very [not] time sensitive, and he is under a lot of [not under any] time pressure. Therefore, you expect that he will do his best, but he will also try to finish the work as fast as possible [take his time to finish the work].*"

Dependent Variable Measures

After reading the scenario and manipulations, participants were asked to think about the situation and assess how they would behave toward their respective interaction partner. All measures were rated using a 5-point response scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Following common standards and guidelines, we used Cronbach's alpha to assess our measures' internal consistency, with values of .70 and above indicating acceptable reliability (DeVellis, 2017; Nunnally, 1978).

Time-Oriented Behavior

We used three items from Mohammed and Nadkarni (2011) to measure an actor's time-oriented behavior. Consistent with our research focus, these items capture behavior aimed at structuring the collective work pace and reminding others about timely task accomplishment. We slightly adapted the items to refer to participants' likely behavior toward their interaction partner in the scenario (rather than time-oriented leadership behavior toward subordinates). The items were, "I would urge my colleague to finish his tasks on time," "I would remind my colleague of the time left for his tasks," and "I would pace my colleague so that the work is finished on time." Cronbach's alpha was .84.

Relationship-Oriented Behavior

We measured an actor's relationship-oriented behavior using a five-item instrument from Stogdill (1963) that captures friendly, helpful, and considerate behaviors. Again, we slightly modified these items to allow for self-ratings in a hypothetical interaction with a colleague (rather than relationship-oriented leadership behavior toward subordinates). Example items are, "I would be friendly and approachable toward my colleague," "I would look out for the personal welfare of my colleague," and "I would act without consulting my colleague" (reverse coded). Cronbach's alpha was .78.

Attention and Manipulation Checks

Scholars have pointed toward potential problems with careless responding in online research designs (e.g., Bowling et al., 2016). We therefore used two instructed response items (e.g., “This is a control question as an attention check—please select ‘strongly disagree’”) to check whether the participants paid attention when completing the measures. As noted before, we excluded seven participants who did not respond correctly to one or both of these questions from further analyses.

Further, to examine our manipulations’ viability, we asked the participants (after they had completed the dependent variable measures) to describe their own and their partner’s time pressure in the scenario with the following questions: (a) “How time sensitive was this project for you?” and (b) “How time sensitive was this project for your colleague?” Answer options ranged from 1 (“not time sensitive at all”) to 5 (“very time sensitive”). A one-way analysis of variance (ANOVA) indicated that individuals perceived the project to be more time sensitive for themselves in the high (rather than low) actor time pressure condition ($M = 4.82, SD = 0.53$, vs. $M = 1.26, SD = 0.72$), $F(1, 176) = 1415.58, p < .001, \eta^2 = .89$. Similarly, participants perceived the project as more time sensitive for their partner in the high (rather than low) partner time pressure condition ($M = 4.76, SD = 0.82$, vs. $M = 1.41, SD = 1.05$), $F(1, 176) = 553.35, p < .001, \eta^2 = .76$.

Tests of Hypotheses

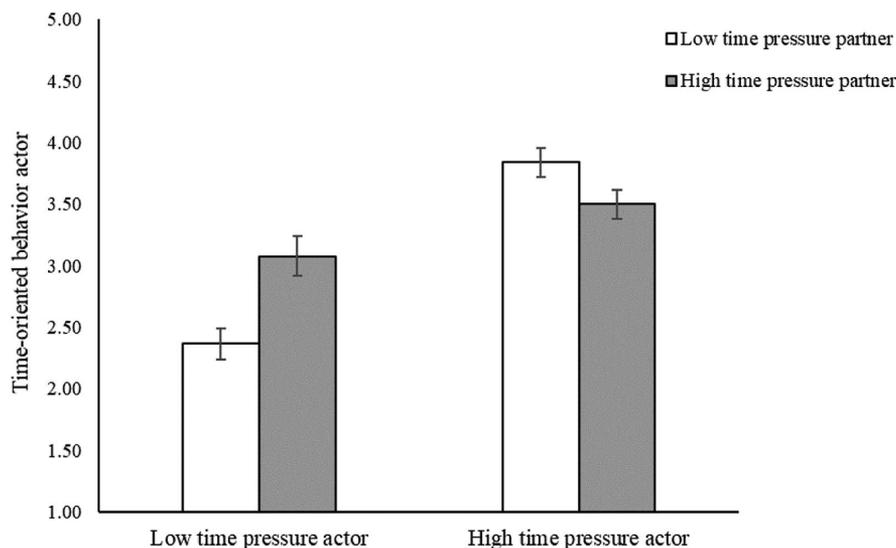
Hypothesis 1 predicted an actor’s time pressure to positively associate with his or her time-oriented behavior. A two-way ANOVA on time-oriented behavior, with actor and partner time pressure as independent factors, revealed a significant main effect

for actor time pressure ($F[1, 174] = 51.47, p < .001, \eta^2 = .23$), but not for partner time pressure ($F[1, 174] = 1.98, p = .162, \eta^2 = .01$). Individuals in the high actor time pressure condition reported significantly higher tendencies to engage in time-oriented behavior toward their partner ($M = 3.67, SD = 0.81$) than individuals in the low actor time pressure condition ($M = 2.67, SD = 1.01$). Thus, Hypothesis 1 was supported.

Importantly, this main effect was qualified by a two-way interaction of actor and partner time pressure on an actor’s time-oriented behavior ($F[1, 174] = 15.89, p < .001, \eta^2 = .08$), as anticipated in Hypothesis 2. This hypothesis suggested that the association between an actor’s time pressure and his or her time-oriented behavior will be more strongly positive when working with a partner under lower (rather than higher) time pressure. As depicted in Figure 2, actors with high time pressure indicated that they would exhibit more time-oriented behavior than actors with low time pressure in both the low partner time pressure condition ($M = 3.84, SD = 0.79$ vs. $M = 2.37, SD = 0.91$; $t(92) = 8.37, p < .001$) and the high partner time pressure condition ($M = 3.50, SD = 0.81$ vs. $M = 3.08, SD = 1.01$; $t[82] = 2.13, p = .037$). As illustrated by the significant interaction coefficient, however, the respective simple effect of actor time pressure was more pronounced in the low partner time pressure condition ($d = 1.73$) than in the high partner time pressure condition ($d = 0.47$). Hence, Hypothesis 2 was supported.

Hypothesis 3 predicted partner time pressure to moderate the linkage between an actor’s time pressure and his or her relationship-oriented behavior, such that this linkage should be positive with higher partner time pressure and negative with lower partner time pressure. As expected, there was a significant two-way interaction of actor and partner time pressure on the actor’s relationship-oriented

Figure 2
Interaction Between Actors’ and Partners’ Time Pressure on Actors’ Time-Oriented Behavior (Study 1)



Note. Bars depict mean ratings of actors’ time-oriented behavior as a function of actor and partner time pressure (Study 1). Error bars denote standard errors.

behavior ($F[1, 174] = 5.05, p = .026, \eta^2 = .03$). Figure 3 depicts this interactive relationship. When working with a high time pressure partner, actors with high time pressure indicated (marginally) greater tendencies toward relationship-oriented behavior ($M = 4.33, SD = 0.44$) than actors with low time pressure ($M = 4.12, SD = 0.60$), $t(82) = 1.82, p = .073, d = 0.40$. When working with a low time pressure partner, by contrast, participants' tendencies toward relationship-oriented behavior did not differ significantly between the high ($M = 4.12, SD = 0.65$) and low actor time pressure conditions ($M = 4.27, SD = 0.59$), $t(92) = 1.43, p = .157, d = 0.29$. Hence, the significant interaction coefficient and the overall pattern depicted in Figure 3 support the plausibility of our theoretical reasoning. Given that the simple effects for the linkages between an actor's time pressure and relationship-oriented behavior did not reach conventional significance levels across both partner time pressure conditions, however, these findings do not unequivocally support Hypothesis 3.

Discussion of Study 1

As hypothesized, our first study revealed a positive relationship between an actor's time pressure perceptions and his or her time-oriented behavior toward the partner. This positive relationship was qualified by a significant two-way interaction between actor and partner time pressure, such that the role of an actor's time pressure for time-oriented behavior was more pronounced when the partner's time pressure was relatively low (rather than high). Moreover, Study 1 revealed that, as anticipated, the partner's time pressure moderated the linkage between an actor's time pressure and relationship-oriented behavior—although the specific shape of this interaction

differed slightly from our expectations (i.e., because the simple effects of actor time pressure fell short of common significance standards).

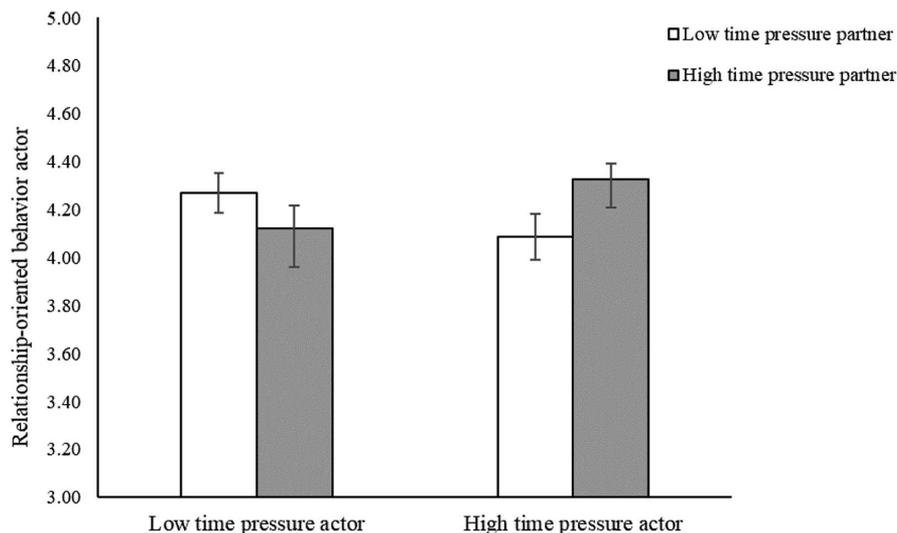
Hence, we believe these initial results attest to the plausibility of our theoretical considerations—but we also acknowledge that the present study has a number of relevant limitations. Study 1's experimental scenario design, in particular, may raise external validity concerns because (a) participants read descriptions about their own and their interaction partner's time pressure perceptions, rather than actually experiencing such time pressure, and (b) we measured actors' self-rated behavioral inclinations in a hypothetical situation, rather than using more objective behavioral ratings. We conducted Study 2 to address these limitations, using a dyadic laboratory experiment in which actors and partners actually interacted and jointly worked on a real-life task.

Study 2

Sample and Procedure

We recruited 120 students at a German university for an experimental study on problem-solving via online and classroom announcements, in exchange for monetary compensation. As in Study 1, the participants were randomly assigned to one condition in a 2 (actor time pressure: low vs. high) \times 2 (partner time pressure: low vs. high) between-subjects design. Participation was voluntary and anonymity guaranteed, and we randomly matched participants to form same-sex actor-partner dyads (to prevent gender differences from biasing interaction processes; cf. Eagly & Karau, 1991). We excluded three dyads because (a) at least one participant did not follow the experimental instructions or (b) at least one participant experienced technical difficulties during the experiment. Hence, the

Figure 3
Interaction Between Actors' and Partners' Time Pressure on Actors' Relationship-Oriented Behavior (Study 1)



Note. Bars depict mean ratings of actors' relationship-oriented behavior as a function of actor and partner time pressure (Study 1). Error bars denote standard errors.

final sample comprised 114 participants (58 female and 56 male) across 57 dyads. The participants' average age was 25.11 years ($SD = 4.01$).⁴

We conducted the study within an on-campus behavioral research laboratory, and the experiment was run with one actor-partner dyad at a time. After they had provided informed consent, we told participants that they were to subsequently complete an individual and a dyadic exercise. We used the first, individual exercise to manipulate participants' perceptions of time pressure in the second, dyadic exercise. To do so, the participants were seated individually in front of a computer in separate cubicles to complete the "Lost on the Moon" task (Hall & Watson, 1970; see also Sheldon et al., 2006). We asked participants to imagine that they were on a space mission that had crash-landed on the moon. Their task was to rank-order 15 pieces of equipment (without explicit time limit) according to their importance for survival and rescue. We depicted this individual exercise as a trial task for the subsequent, highly similar dyadic exercise. In doing so, we emphasized that the computer would assess participants' performance in both exercises based on two criteria, namely (a) how correct their responses were and (b) how fast they had completed the respective exercise. In addition, we informed the participants that the best performing dyad in the second, dyadic exercise could win a € 50 gift certificate. After the individual exercise, bogus feedback was provided to independently manipulate both individuals' time pressure perceptions within each actor-partner dyad.

In the following phase of the study (after the time pressure manipulation), both participants in a dyad were seated in front of a single computer to conduct the "Lost at Sea" exercise together (Nemiroff & Pasmore, 1975; see also Kakkar et al., 2020). In this exercise, participants are asked to imagine that they are part of a shipwrecked crew drifting on the ocean in a lifeboat. Their task is to rank-order 15 pieces of equipment on their importance for survival and rescue.⁵ As in the first exercise, participants were to complete the task as correctly and quickly as possible (although we again did not give an explicit time limit). Importantly, however, the instructions in the second exercise emphasized that this was a group task and asked the participants to work together with their partner toward task accomplishment. Moreover, to ensure sufficient collaboration and interaction, the dyads were required to submit a joint solution that had both members' agreement. To avoid demand effects, we did not further specify how exactly dyad members should work with each other, or how they should reach such agreement. Informal observations by the experimenters confirmed, however, that there was a substantive amount of interaction across all dyads, with participants deliberating possible approaches, exchanging ideas, and discussing alternative solutions.

After completing the dyadic exercise, the participants returned to their individual cubicles to complete a post-task questionnaire. This questionnaire captured the dependent variables, asking individuals to assess the other dyad member's time-oriented and relationship-oriented behavior toward them during the dyadic exercise. It is important to note that we employed a dyadic approach to data analysis in the present study (as outlined later; see Kenny et al., 2006). As such, it was possible to treat each individual within a dyad both as an actor (whose behavior was rated by the other member of the dyad) and as a partner (who rated the other member's behavior). Hence, we captured the dependent variables through ratings of participants' observed behavior and, by doing so, we were able

to address some of the methodological concerns regarding Study 1. Finally, we debriefed, thanked, and compensated the participants.

Time Pressure Manipulation

We randomly assigned individual participants to either a high time pressure or a low time pressure condition. Hence, given our dyadic study design, each participant was randomly placed in a dyad in which (a) his or her own time pressure was either high or low and (b) the other participant's time pressure was either high or low. Specifically, all participants received bogus feedback on their performance in the first, individual exercise on their individual computer screens, with two bars allegedly comparing a participant's own performance with other participants' average performance. In reality, all participants were informed that their performance was slightly below average, as compared with other participants.⁶ The high and low time pressure conditions differed, however, in the reasons and recommendations accompanying this evaluation.

In the high time pressure condition, participants were told that the main reason for their substandard evaluation was that they had taken too much time for the task, whereas the correctness of their solution was adequate. Therefore, we induced high time pressure by explicitly recommending that they should try to work much faster in the dyadic task to have a chance at winning the gift certificate. In the low time pressure condition, by contrast, participants received the information that they had worked sufficiently fast, but that they had made too many content errors. Thus, we induced low time pressure by explicitly recommending that participants should take more time during the dyadic task to have a chance at winning the certificate. Participants within a dyad were not informed of each other's respective time pressure manipulations.

Dependent Variable Measures

We translated all measures to German using a double-blind back-translation procedure (Brislin, 1980). All items were assessed using a 5-point response scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

⁴ Controlling for gender did not meaningfully alter the results or conclusions. Moreover, we note that the sample size for Study 2 was smaller than for Study 1. Importantly, however, scholars have argued that, in situations without incomplete dyads (as was the case in the present study), a minimum number of 50 dyads is needed "for obtaining reliable and valid estimates from dyadic data analysis using multilevel models" (Du & Wang, 2016, p. 29; see also Kenny et al., 2006). Hence, the present sample size exceeds this lower bound benchmark.

⁵ We chose two similar tasks across both experimental phases so that participants were more likely to consider the feedback obtained for the first task as relevant to the second task.

⁶ To avoid suspicion, the exact performance feedback differed slightly within each dyad, such that one participant had allegedly achieved 46 points and the other participant 48 points. We note that this slight variation did not affect any of the study variables. Compared to participants who had supposedly achieved 46 points, participants who had allegedly scored 48 points did not significantly differ in either time-oriented behavior ($F[1, 112] = 1.94, p = .167, \eta^2 = .02$) or relationship-oriented behavior ($F[1, 112] = .37, p = .545, \eta^2 = .00$).

Time-Oriented Behavior

We used the same three items as in Study 1 to measure time-oriented behavior (Mohammed & Nadkarni, 2011), slightly adapted to allow for peer-ratings of an actor's behavior toward his or her dyadic interaction partner (rather than self-ratings of one's own hypothetical behavior; e.g., "He/She urged me to finish the task on time"). Coefficient alpha was .77.

Relationship-Oriented Behavior

We used the same five items as in Study 1 to capture relationship-oriented behavior (Stogdill, 1963), again slightly adapted to allow for peer-ratings of an actor's behavior (e.g., "He/She was friendly and approachable"). Coefficient alpha was .70.

Manipulation Checks

After the time pressure manipulation (and before the dyadic task), participants were asked about the feedback they had received regarding the first, individual exercise. Specifically, we asked the participants to indicate how they had been evaluated regarding their overall performance (1 = "well below average," 5 = "well above average") as well as their speed (1 = "far too slow," 5 = "far too fast") and the correctness of their solutions (1 = "well below average," 5 = "well above average"). One-way ANOVAs showed that participants in the high versus low time pressure conditions perceived (a) their overall performance evaluations as virtually identical ($M = 2.09$, $SD = 0.29$ vs. $M = 2.00$, $SD = 0.38$; $F[1, 112] = 2.03$, $p = .157$, $\eta^2 = .02$), (b) their working speed evaluations as slower ($M = 1.96$, $SD = 0.87$ vs. $M = 4.17$, $SD = 0.70$; $F[1, 112] = 228.12$, $p < .001$, $\eta^2 = .67$), and (c) their correctness evaluations as better ($M = 3.75$, $SD = 1.75$ vs. $M = 2.24$, $SD = 0.84$; $F[1, 112] = 34.73$, $p < .001$, $\eta^2 = .24$). Hence, as expected, participants in the high time pressure condition perceived that they had worked too slowly in the first exercise (but had produced sufficiently correct solutions). Participants in the low time pressure condition, by contrast, perceived that they had worked too quickly and, therefore, had made too many content errors.

Analytic Strategy

In the present data, individual participants were nested within dyads, such that each individual appeared as both an actor and a partner. This dyadic data structure violates independence assumptions, potentially producing biased parameter estimates (Cook & Kenny, 2005). Specifically, due to this lack of independence, it is not possible to meaningfully interpret raw cell means across conditions and use regular ANOVA methods for hypotheses testing. In this situation, scholars have recommended the use of dyadic data analysis techniques that explicitly account for such nonindependence (Kenny et al., 2006; Krasikova & LeBreton, 2012). Following these recommendations, we used Kenny et al.'s (2006) actor-partner interdependence model (APIM) to examine our hypotheses (see also Arpin & Mohr, 2019; Bixter & Luhmann, 2020)

Specifically, our data structure reflects a "reciprocal standard design" with indistinguishable dyads (Krasikova & LeBreton, 2012, p. 743), such that (a) every dyad comprises two individuals who are not members of another dyad, (b) all focal variables were gathered

from both members of a dyad, and (c) the members of a dyad could not be ordered in theoretically or empirically meaningful ways (as would be the case, for example, for supervisor-subordinate dyads). Hence, we followed suggestions by Krasikova and LeBreton (2012; see also Cook & Kenny, 2005) to apply a dyadic multilevel modeling approach when estimating our APIM, using the DyadR web program (Kenny, 2015).⁷ Dyadic multilevel modeling retains individual-level (i.e., Level-1) variables but accounts for the fact that these variables are nested within dyads (i.e., Level-2), treating them as repeated measures within dyads and fixing the Level-1 slopes to be equal (Kenny et al., 2006; Krasikova & LeBreton, 2012).

As outlined before, we were specifically interested in actor effects when examining Hypothesis 1, such that we tested the influence of actor time pressure (controlling for partner time pressure) on actor outcomes (i.e., actors' time-oriented and relationship-oriented behavior). Moreover, we used actor-partner interdependence moderation models (APIMoM) to test Hypotheses 2 and 3, with partner time pressure representing a mixed moderator that varies both between and within dyads. Following Kenny and colleagues' recommendations (Garcia et al., 2015; West et al., 2008), we tested these hypotheses by including the interaction term between actor and partner time pressure together with both actor and partner effects to predict an actor's time-oriented and relationship-oriented behavior, respectively. Subsequently, we examined the simple effects of actors' time pressure on these behavioral outcomes under conditions of low versus high partner time pressure, respectively. The specific equations used to examine our hypotheses are depicted in the Appendix.

Tests of Hypotheses

When analyzed using dyadic methods (as described before), results revealed that an actor's perceived time pressure was positively associated with his or her time-oriented behavior ($estimate = .37$, $SE = .17$; $p = .03$), whereas partner time pressure was not associated with an actor's time-oriented behavior ($estimate = -.23$, $SE = .17$; $p = .185$; see Table 1, Model 1a). Thus, Hypothesis 1 was supported.⁸

Moreover, Hypothesis 2 predicted that a partner's time pressure moderates the association between an actor's time pressure and time-oriented behavior. As depicted in Table 1 (Model 1b), however, the interaction term of actor and partner time pressure was not significantly related with an actor's time-oriented behavior ($estimate = -.16$, $SE = .35$; $p = .646$). This linkage is nevertheless plotted in Figure 4 for completeness.⁹ Hence, contrary to Study 1, these findings did not support Hypothesis 2. We will return to this unexpected finding in the General Discussion.

⁷ Our dataset was organized using a pairwise structure, such that every row represented one participant, but both individuals' scores within a dyad occurred on each record (see Kenny et al., 2006).

⁸ As noted before, Study 2's nested structure precludes interpretation of raw cell means. Hence, this information is not reported here. For completeness, however, these descriptive statistics are available in Table S1 in the online supplemental material.

⁹ Whereas Study 1's interaction plots are based on raw cell means, Study 2's interaction plots are based on estimated values from APIM analyses. Following prior APIM research, we therefore used line graphs (rather than bar graphs) to visualize Study 2's respective findings (see e.g., Bakker & Xanthopoulou, 2009; Garcia et al., 2015).

Table 1*Dyadic Multilevel Modeling Results for Actors' Time-Oriented and Relationship-Oriented Behavior (Study 2)*

Independent Variables	Outcome Variables											
	Time-oriented behavior actor						Relationship-oriented behavior actor					
	Model 1a			Model 1b			Model 2a			Model 2b		
	Estimate	SE	95% CI	Estimate	SE	95% CI	Estimate	SE	95% CI	Estimate	SE	95% CI
Time Pressure Actor ^a	.37*	.17	[.04; .71]	.45 [#]	.24	[-.02; .93]	-.11	.10	[-.31; .08]	-.41**	.14	[-.69; -.14]
Time Pressure Partner ^a	-.23	.17	[-.56; .11]	-.15	.24	[-.79; .17]	.02	.10	[-.18; .21]	-.28*	.14	[-.56; -.01]
Time Pressure Actor × Time Pressure Partner				-.16	.35	[-.84; .52]				.61**	.21	[.20; 1.03]
ΔR^2		.04*			.00			.00			.07**	

Note. $N = 114$.

^a Experimentally manipulated (0 = low time pressure; 1 = high time pressure).

[#] $p < .10$. * $p < .05$. ** $p < .01$ (two-tailed).

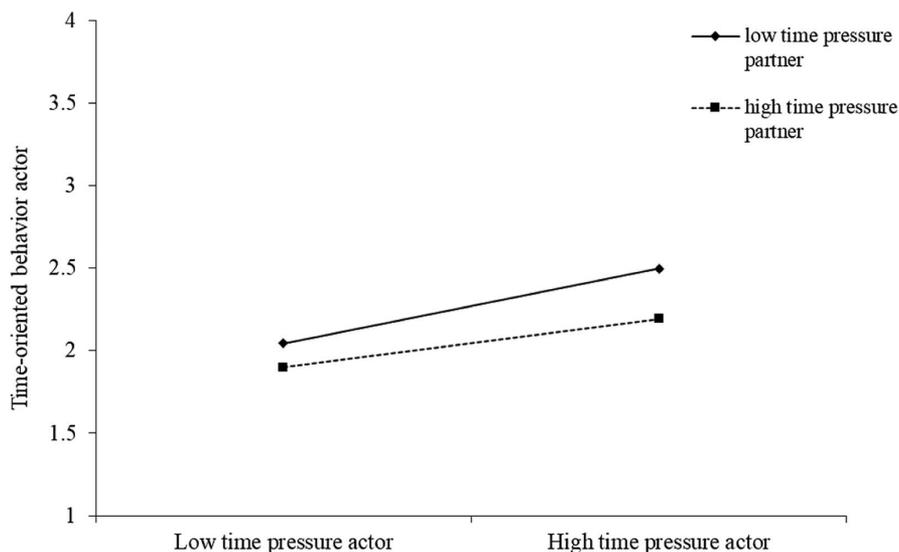
Hypothesis 3 argued that a partner's time pressure moderates the association between an actor's time pressure and relationship-oriented behavior. As shown in Table 1 (Model 2a), neither actor ($estimate = -.11$, $SE = .10$; $p = .252$) nor partner time pressure ($estimate = .02$, $SE = .10$; $p = .847$) had a significant main effect on an actor's relationship-oriented behavior. Importantly, however, Table 1 (Model 2b) demonstrates that the interaction coefficient for actor and partner time pressure was significantly related with an actor's relationship-oriented behavior ($estimate = .61$, $SE = .21$; $p = .004$). As illustrated in Figure 5, the simple relationship between an actor's time pressure and relationship-oriented behavior was positive under conditions of high partner time pressure ($estimate = .33$, $SE = .14$; $p = .021$; 95% CI [.05, .61]), whereas this relationship was negative under conditions of low partner time

pressure ($estimate = -.28$, $SE = .14$; $p = .045$; 95% CI [-.55, -.01]). Hence, these results supported Hypothesis 3.

Supplementary Analyses

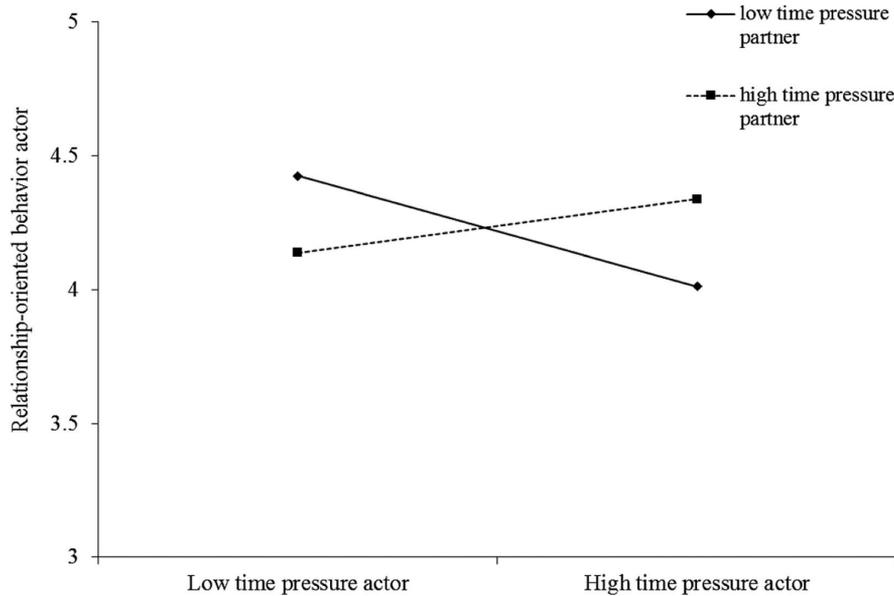
Beyond our primary hypotheses, it seems interesting to examine the extent to which the current time pressure manipulations and/or dependent variables (i.e., time-oriented and relationship-oriented behavior) relate with tangible outcomes. Following recent recommendations (e.g., Chen, 2018), we therefore conducted a number of exploratory post-hoc analyses. First, it is plausible to assume that dyads experiencing higher time pressure may exhibit higher working speed. To test this notion, we conducted a one-way ANOVA on dyadic working speed (i.e., time required for task completion in

Figure 4
Interaction Between Actors' and Partners' Time Pressure on Actors' Time-Oriented Behavior (Study 2)



Note. Actor-partner interdependence model results, representing an actor's time-oriented behavior as a function of actor and partner time pressure (Study 2).

Figure 5
Interaction Between Actors' and Partners' Time Pressure on Actors' Relationship-Oriented Behavior (Study 2)



Note. Actor-partner interdependence model results, representing an actor's relationship-oriented behavior as a function of actor and partner time pressure (Study 2).

minutes), with dyadic time pressure condition as the independent variable.¹⁰ As depicted in Figure 6, this analysis revealed a significant effect of a dyad's time pressure condition on its working speed, $F(2, 54) = 14.88, p < .001, \eta^2 = .36$. As expected, post-hoc tests showed that dyads worked slower when both members experienced relatively low time pressure ($M = 8.87, SD = 4.77$), as compared with dyads including one ($M = 4.16, SD = 2.48; t[16] = 3.49, p = .003, d = 1.40$) or two highly time-pressed members ($M = 3.04, SD = 1.74; t[17] = 4.28, p = .001, d = 1.60$). By contrast, there was no difference in working speed between dyads with one versus two time-pressed members ($t[41] = 1.48, p = .148, d = 0.49$), although this finding might represent a floor effect and, thus, should not be overinterpreted.

Furthermore, to reiterate the importance of our dependent variables, we examined the bottom-up linkages between a dyad member's time-oriented and relationship-oriented behavior, on the one hand, and a dyad's working speed, on the other. We used multilevel path analysis (Preacher et al., 2010) in Mplus 8.4 to conduct these analyses. The findings revealed a negative bottom-up linkage between time-oriented behavior and dyadic task completion time ($estimate = -4.51, SE = 1.20, p < .001; 95\% CI [-6.86, -2.17]$), whereas the bottom-up association between relationship-oriented behavior and dyadic task completion time was positive ($estimate = 2.88, SE = 1.17, p = .014; 95\% CI [.59, 5.17]$), after controlling for the experimental conditions. In other words, dyads worked faster the more a member showed time-oriented behavior, but they worked slower the more a member demonstrated relationship-oriented behavior.

Taken together, these supplementary findings underscore the importance of time pressure (or time pressure differences) for a

dyad's objective, tangible outcomes (i.e., working speed), and they speak to the relevance of the present study's core dependent variables (i.e., individuals' time-oriented and relationship-oriented behavior). We acknowledge the exploratory nature of these analyses, however, and one should therefore view these results with caution. Thus, we encourage future research to further investigate and replicate the respective findings. Details on all supplementary analyses and findings are available from the first author.

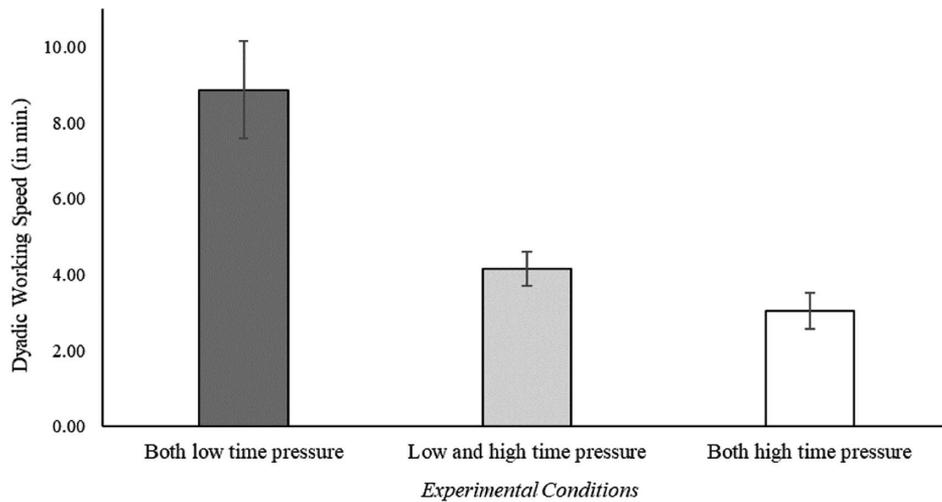
General Discussion

This research examined the joint role of actor and partner time pressure perceptions for individuals' interpersonal behavior in cooperating dyads. Across two independent studies, results showed that an actor's perceived time pressure is positively related to his or her time-oriented behavior. Moreover, Study 1 illustrated this positive association to be more pronounced when the partner experienced low (rather than high) time pressure, although the respective interaction did not reach significance in Study 2. Hence, this investigation provides initial evidence that an interaction partner's time pressure may moderate the role of an actor's own time pressure perceptions for time-oriented behavior, although our inconsistent findings clearly call for further research in this regard. Furthermore, across both studies, an interaction partner's time

¹⁰ Given that the "actor time pressure high/partner time pressure low" and "actor time pressure low/partner time pressure high" conditions are functionally equivalent on a dyadic level, the present ANOVA is based on three conditions, namely (a) "time pressure low for both members," (b) "time pressure high for one member and low for the other," and (c) "time pressure high for both members."

Figure 6

Exploratory Analyses for the Effects of Dyadic Time Pressure on Dyadic Working Speed (Study 2)



Note. Bars depict mean dyadic working speed defined as the time for task completion in the dyadic task (in minutes; Study 2). Error bars denote standard errors.

pressure moderated the linkage between an actor's own time pressure perceptions and his or her relationship-oriented behavior. The respective interaction patterns were similar, such that an actor's time pressure was positively associated with relationship-oriented behavior in both studies when the partner's time pressure was relatively high, whereas the respective linkage was nonsignificant (Study 1) or even negative (Study 2) when the partner's time pressure was relatively low.

Theoretical Implications

The present findings offer important theoretical implications for our understanding of the behavioral consequences associated with time pressure in organizations. Existing research on the role of time pressure in collaborative contexts has typically depicted this construct either as an individual phenomenon (e.g., Baer & Oldham, 2006; Beck & Schmidt, 2013) or as a collective, shared feature of the work environment (e.g., Kelly & Loving, 2004; Maruping et al., 2015). In modern work settings, however, cooperating employees often have differing perceptions of time pressure regarding their common tasks (Cummings & Haas, 2012). Our research illustrates how such divergent time pressure perceptions may shape interpersonal interactions. As such, our findings provide a novel perspective on the role of time pressure for interpersonal work behaviors. We illustrate that joint consideration of all interaction parties' (potentially diverse) time pressure perceptions is required for a more complete understanding of how this common phenomenon shapes individuals' behavior toward each other.

In doing so, this study advances the emerging literature that has examined how group-level diversity in stable temporal personality traits (e.g., time urgency, temporal focus, or polychronicity) may influence group outcomes (Mohammed et al., 2017; Mohammed & Nadkarni, 2014). Moving beyond this prior focus on stable characteristics, the present findings demonstrate how differences between cooperating individuals' *situational, task-specific* time

pressure perceptions can influence important interpersonal behaviors. With employees' schedules and timetables being fluid and often changing on a daily basis (Blount & Janicik, 2001), it seems necessary to consider both time-related personality traits and individuals' momentary temporal experiences at work to understand the consequences of temporal diversity.

Further, this investigation sheds new light on a long-standing debate regarding the role of time pressure for individuals' helpful, cooperative, and friendly behavior. As outlined before, previous findings on this issue have been inconsistent and controversial, with some studies demonstrating that time pressure may increase interpersonal support and collaboration (e.g., Kinicki & Vecchio, 1994; Rand, 2016) and others illustrating that time-pressed individuals may act less civil and neglect others' needs (e.g., Darley & Batson, 1973; Pearson & Porath, 2004). Our results offer a possible explanation for these seeming contradictions by emphasizing the *joint* consequences of both interaction parties' time pressure perceptions in dyadic settings. It appears that the role of an actor's time pressure for his or her relationship-oriented behavior toward a partner critically hinges on the partner's perceived time pressure. An actor is most likely to exhibit this type of behavior when both parties' time pressure perceptions are aligned (rather than misaligned). Integrating previous results, in particular, an actor's perceptions of time pressure may increase his or her friendly and considerate acts when the interaction partner perceives relatively high time pressure as well. When the partner perceives little time pressure, by contrast, an actor's own time pressure perceptions are unlikely to benefit—and may even deteriorate—his or her relationship-oriented behavior.

More generally, our findings provide relevant insights on TIP theory (McGrath, 1991). On the one hand, both studies clearly corroborate a central tenet of this theoretical perspective, illustrating that an actor's perceptions of time scarcity increase his or her time-oriented behavior. On the other hand, our results offer a more nuanced picture for another tenet of TIP theory, namely, the role of *differing* time pressure perceptions within a dyad or group

(McGrath, 1991; Santos et al., 2016). As noted before, our findings for time-oriented behavior are somewhat ambiguous in this regard, such that differences between an actor's and a partner's time pressure-shaped such behavior in Study 1, but not in Study 2. For relationship-oriented behavior, by contrast, the present results more clearly support a TIP perspective, with both studies illustrating that actors engage in more friendly and helpful acts when working with a partner that experiences similar (as opposed to dissimilar) time pressure (see also Jansen & Kristof-Brown, 2005). In sum, this investigation highlights the general usefulness of TIP theory for explicating the consequences of time pressure in dyads, but it also illustrates that more research is needed to fully understand how members' divergent time pressure perceptions may relate with different (behavioral) outcomes.

Strengths and Limitations

We believe our multistudy approach is an important strength of this research, enabling us to counterbalance many of the individual studies' specific limitations and, thus, to draw more robust conclusions. Additionally, the experimental research design provides insights into the causal relationships between time pressure and its interpersonal consequences. At the same time, we acknowledge some limitations that pertain to our research as a whole and that should be considered when interpreting its outcomes. Although our studies covered two different national contexts (i.e., the United States and Germany), they were both conducted in Western cultures. Scholars have argued that individuals' assessments of time pressure may differ across cultures (Fulmer et al., 2014), such that high time pressure may be an implicit status symbol in Western societies (Keinan et al., 2019), whereas some Eastern cultures may assign greater value to patient and well-wrought actions (Brislin & Kim, 2003; Salmon et al., 2016). Hence, although our theoretical rationale is not bound to a specific cultural setting, the pattern of results we observed might differ in other cultures. Furthermore, Study 2's sample size was relatively small (i.e., 114 individuals across 57 dyads), only slightly surpassing recommended minimum benchmarks (Du & Wang, 2016; Kenny et al., 2006)—although we note that this is consistent with the sample sizes reported in other current APIM studies in the field of applied psychology (e.g., Peeters et al., 2016; Schlegel et al., 2018; Tian et al., 2017). Thus, we cannot rule out that some of our divergent findings between Studies 1 and 2 may originate from sample size differences, particularly considering the inconsistent support for Hypothesis 2. Constructive replication in alternative cultural contexts and with larger sample sizes would be worthwhile to strengthen the generalizability and robustness of our conclusions.

Moreover, we note that our findings pertain to dyadic settings, limiting their generalizability toward larger groups. Majority and minority influence processes (Levine & Russo, 1987; Nemeth, 1986) might alter the present relationships, such that a time-pressed actor may be reluctant to engage in time-oriented behavior if several other group members perceive little time pressure (Blount & Janicik, 2002). At the same time, scholars have emphasized that "the dyad is arguably the fundamental unit of interpersonal interaction and interpersonal relations" (Kenny et al., 2006, p. 1; see also Krasikova & LeBreton, 2012). Hence, we believe our dyadic focus is justified as a first step toward understanding the role of individuals' divergent time pressure perceptions. Nonetheless, we

encourage future research to extend our theoretical model and empirical investigation toward larger groups to more comprehensively understand the behavioral consequences of time pressure in cooperating work units.

We further acknowledge that, despite creating *subjective* perceptions of time pressure, the manipulations in Study 2 did not impose actual time limits (i.e., participants could freely decide how much time they would take for task completion in the dyadic exercise). Although our approach is consistent with other research on experiences of time pressure (e.g., Kelly & Karau, 1999; Kelly & Loving, 2004), this may have impacted the consequences associated with our manipulations, such that more tangible time pressure manipulations (i.e., with actual time limits) might have resulted in even stronger behavioral reactions. Hence, future research may benefit from replicating the present findings using manipulations of participants' objective time pressure.

Finally, important similarities notwithstanding, some inconsistencies between our studies' results deserve mention. Study 1 revealed an interaction effect of actor and partner time pressure on an actor's time-oriented behavior, whereas the respective interaction was not significant in Study 2. A possible explanation may be that Study 1 used a hypothetical scenario to manipulate partner time pressure as unambiguously high or low. Study 2's participants, by contrast, did not receive explicit information in this regard but, rather, had to infer their partner's time pressure during the experimental interaction. It therefore seems possible that their partner's time pressure was less clear and salient for actors in Study 2. Moreover, although both studies revealed a similar interaction effect of actor and partner time pressure on an actor's relationship-oriented behavior, the patterns of these interactions differed slightly. Under conditions of high partner time pressure, actor time pressure was positively associated with relationship-oriented behavior in both studies. With low partner time pressure, by contrast, this association was negative in Study 2 but nonsignificant in Study 1. Possibly, the hypothetical self-ratings in Study 1 may have introduced self-serving biases or socially desirable responding tendencies (such that participants were reluctant to indicate very low tendencies toward relationship-oriented behavior) that were not present in Study 2's real-life interactions. Clearly, these inconsistencies call for further investigation. It may be fruitful, for example, to examine our model in longer social interactions that offer more opportunities for individuals to recognize each other's time pressure and, thus, to react accordingly. Moreover, future studies could supplement our behavioral self-ratings and partner-ratings with independent observer assessments (e.g., by coding videotaped interactions; Gerpott et al., 2019) to further explore our findings' robustness and generalizability.

Directions for Future Research

Beyond addressing limitations, future research could extend the present model to advance a broader understanding of the behavioral consequences associated with actors' and partners' time pressure. As noted before, scholars have suggested that conflicting time pressure perceptions may induce feelings of anger and irritation (Blount & Janicik, 2002). Hence, such temporal misalignment might trigger distinctly negative, counterproductive interpersonal behaviors characterized by aggression and hostility. Studies examining

such additional behavioral outcomes could advance a wider perspective on the role of time pressure in collaborative contexts.

Moreover, future research could adopt a dynamic perspective to examine the present conceptual model. Punctuated equilibrium theory (Gersick, 1988), for example, suggests that time-related issues become more salient after the temporal midpoint of a joint task or project. Hence, scholars could investigate whether the role of actors' and partners' time pressure perceptions may be more pronounced after a dyad has reached the midpoint of its assignments. By integrating "objective" time into our considerations, such research could promote a "completely temporal" perspective (Shipp & Cole, 2015, p. 250), investigating subjective perceptions of time pressure over the course of objective time to more deeply understand the interpersonal consequences of conflicting time pressure perceptions. Beyond typical approaches toward longitudinal data collection and analysis, computational models may offer a useful tool for examining these notions (Ballard et al., 2021). Such simulation-based methods are well-suited to investigating complex, dynamic processes across multiple levels of analysis (Harrison et al., 2007; Vancouver & Weinhardt, 2012), and scholars have pointed toward the particular utility of such tools for depicting dyadic phenomena (Kozlowski et al., 2016).

Another fruitful direction for future research would be to extend our study's focus on peer interactions toward hierarchical relations. Chen et al. (2004, p. 129) suggested that "with status, comes the control of time," such that individuals with higher status are more likely to impose their temporal preferences upon others (see also Blount & Leroy, 2007). Similarly, formal supervisors may be particularly likely to follow their temporal inclinations when interacting with subordinates (Chen & Nadkarni, 2017). Hence, it seems possible that hierarchical differentiation alters the degree to which actors' and partners' time pressure perceptions shape their behavior. Examining this notion may enable future research to provide a more context-specific understanding of the behavioral consequences associated with perceived time pressure.

Finally, as our study's focus was on collaborative contexts, researchers could extrapolate our notions to competitive situations. Scholars have long acknowledged, for instance, that time pressure may shape negotiation processes and outcomes (De Dreu, 2003; Stuhlmacher et al., 1998). Similar to existing research within collaborative contexts, however, the negotiation literature has not empirically investigated the role of conflicting time pressure perceptions. It would be interesting to examine, for example, whether misaligned time pressure perceptions may limit cooperation and friendliness among negotiators, thus possibly reducing the chance of integrative agreements.

Practical Implications

Our findings yield relevant implications for managers and employees in organizations, demonstrating that time pressure perceptions can shape individuals' time-oriented and relationship-oriented behavior in cooperating dyads. Hence, our research alerts organizational practitioners to the relevance of actively considering their employees' respective perceptions in organizing and monitoring joint task efforts. Specifically, both of the present studies have shown that an individual's perceptions of time pressure can promote his or her time-oriented behavior. Corroborating research that has depicted time pressure as an activating challenge stressor

(e.g., Baer & Oldham, 2006; Maruping et al., 2015), our results therefore suggest that projects requiring fast results and strict adherence to deadlines could benefit from including a highly time-pressed employee who synchronizes the joint work pace and monitors temporal milestones.

Moreover, our studies have shown that within cooperating dyads, both parties' time pressure perceptions jointly influence an actor's relationship-oriented behavior, with such friendly and supportive acts being more pronounced if both parties' respective perceptions are aligned rather than misaligned. Hence, managers and employees should be aware of the potentially detrimental consequences of conflicting time pressure perceptions for a harmonious work environment. In such situations, managers could strive to proactively align employees' respective perceptions. Temporal leadership behaviors (Mohammed & Nadkarni, 2011) may be useful in this regard, such that managers explicitly and consistently communicate temporal priorities, joint deadlines, and common scheduling requirements toward all employees working on a joint project (Santos et al., 2016). Moreover, managers could encourage employees to openly discuss their pacing preferences. By doing so, employees may be able to identify and resolve conflicting temporal demands and expectations (Bluedorn & Jaussi, 2007), thus increasing the likelihood of interpersonally supportive and considerate behaviors.

Conclusion

Our studies provide new insights into the consequences of time pressure, illustrating that an actor's and his or her interaction partner's time pressure perceptions may jointly shape the focal actor's behavior toward the partner in dyadic task settings. Hence, this research extends current knowledge on the relevance of time pressure for interpersonal behavior. We hope this study will stimulate further research on this important topic that will advance an improved, deeper understanding of this common phenomenon in modern work environments.

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Appendix

We used the following equations to test Hypotheses 1 and 2:

Level 1 (individual level):

$$TOB_{ij} = \beta_{0j} + \beta_{1j} * ATP_{ij} + \beta_{2j} * PTP_{ij} + e_{ij}, \quad (1a)$$

$$TOB_{ij} = \beta_{0j} + \beta_{1j} * ATP_{ij} + \beta_{2j} * PTP_{ij} + \beta_{3j} * ATP_{ij} * PTP_{ij} + e_{ij}, \quad (1b)$$

Level-2 (dyadic level):

$$\beta_{0j} = \gamma_{00} + u_{0j} \quad (2)$$

In Equation 1a and 1b, TOB_{ij} refers to time-oriented behavior for member i in dyad j , while ATP and PTP represent actor and partner time pressure, respectively. Moreover, β_{0j} reflects the average time-oriented behavior for dyad j , while β_{1j} and β_{2j} represent main effects for actor and partner time pressure, and β_{3j} represents the respective actor \times partner time pressure interaction. Finally, in Equation 2, γ_{00}

denotes a fixed regression coefficient, whereas u_{0j} represents a dyad-level residual.

Similarly, we use the following equations to test Hypothesis 3: Level 1 (individual level):

$$ROB_{ij} = \beta_{0j} + \beta_{1j} * ATP_{ij} + \beta_{2j} * PTP_{ij} + \beta_{3j} * ATP_{ij} * PTP_{ij} + e_{ij}, \quad (3)$$

Level-2 (dyadic level):

$$\beta_{0j} = \gamma_{00} + u_{0j} \quad (4)$$

In Equation 3, ROB_{ij} refers to relationship-oriented behavior for member i in dyad j , while the meaning of all other parameters corresponds to the previous explanations for Equations 1a/1b and 2.

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