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Publication Date

2024-10-26

DOI

10.1177/01461672241284028

Peer reviewed

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When Time is the Enemy:

An Initial Test of the Process Model of Patience

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Declarations

This study was funded by University of California, Riverside. The authors have no competing interests to declare. All studies were reviewed and approved by the University of California, Riverside Institutional Review Board. Informed consent was obtained from all individual participants included in the study. No identifying information is included, and thus consent to publish is not relevant. All study materials, data, and analytic code are available on the Open Science Framework (Study 1: https://osf.io/9rnxc/; Study 2: https://osf.io/78k3z/; Study 3: https://osf.io/f7b2z/). All authors contributed directly to the conceptualization and design of the studies and writing the manuscript.

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Abstract

The process model of patience attempts to reconcile disparate approaches to understanding patience. This investigation provides an initial test of the tenets of this new theoretical model, which positions impatience as a discrete emotion and patience as a targeted form of emotion regulation. In three studies with diverse samples (N = 1401; data collected 2022-23), participants responded to hypothetical scenarios designed to tap into familiar experiences of impatience. Regarding impatience, findings support our claim that impatience arises in response to the perception that a delay is unreasonable or unfair, and situational and intrapersonal characteristics emerged as predictors of impatience. Regarding patience, findings were consistent with the conceptualization of patience as driven more by intrapersonal than situational factors and revealed a set of individual differences that predicted patience. This investigation lends support to the process model of patience as a viable approach, generative of testable research questions, with implications for well-being.

Keywords: patience, impatience, emotion, emotion regulation

An Initial Test of the Process Model of Patience

Imagine the following familiar situations: being stuck in traffic, standing in a long line, enduring an endless and boring conversation with a colleague, and awaiting news from your doctor following a medical test. What do these situations have in common? The *process model of patience* (Figure 1; Sweeny, 2024) posits three commonalities: 1) each situation is taking longer to resolve than seems appropriate or desirable; 2) each situation is likely to provoke an emotional response, namely impatience; and 3) each situation poses an opportunity to enact patience. This novel theoretical approach also makes predictions about when each situation is most likely to provoke impatience and who is most likely to respond patiently. In this paper, we present three studies testing key elements of the process model of patience, the first empirical studies to do so. We focus primarily on predictors of patience and impatience, while also refining new measurement tools to capture momentary feelings of impatience and situation-specific efforts toward patience.

Predictors of Impatience

The process model of patience proposes that impatience is a discrete emotion, distinguishable in its appraisal pattern, subjective experience, expression, and action tendency from other negative emotions (Sweeny, 2024). The primary situational trigger (i.e., appraisal) of impatience is the perception of an objectionable delay in pursuit of a goal, broadly defined. We use the term "objectionable" to capture a sense of unfairness or inappropriateness rather than an objective assessment of duration. We also use the term "goal" very broadly, intended to include both concrete goals (e.g., reaching a destination, reaching one's turn in line) and more abstract goals (e.g., escaping an annoying conversation, guiding a child toward less disruptive behavior; see Ratchford & Schnitker, 2023, for a specifically goals-based approach to patience).

In the upper left of Figure 1 are situational and individual factors that may magnify one's appraisal that a delay is objectionable, and thus intensify the subjective experience of impatience. Although we test a number of these factors in the present studies, we do not claim that this list is exhaustive; in principle, any element of the person or situation that heightens one's sense that a delay is unfair, unreasonable, or inappropriate (i.e., objectionable) is a candidate for increased impatience. Here we focus on a set of factors that we identified as good candidates prior to running Study 1; later we address additional potential predictors of impatience that were added in Studies 2 and 3.

The first predictor is two in one: the pleasantness of the current state and that of the future, desired state. The model proposes that waiting in line at an amusement park on a hot and humid day may provoke more impatience than doing so in pleasant temperatures (current state), and waiting for an eagerly-anticipated ride may provoke more impatience than waiting for a boring one (future state).

Second, the model predicts that people will experience more impatience when someone is clearly to blame for the delay, such that being stuck in traffic due to a preventable accident is more impatience-inducing than sitting in predictable rush-hour traffic (see Berkowitz, 1989; Kulik & Brown, 1979; Sonnemans & Frijda, 1995).

Third, the model predicts that people will feel more impatient when the delay is objectively longer and when the delay is longer than expected, consistent with research on expectation disconfirmation in other domains (e.g., Maister, 2005; Mellers et al., 1997). Remaining on the topic of time, people may also feel more impatient when the passage of time is particularly conspicuous, such that efforts to distract oneself from its duration are stymied (see Maister, 2005). Finally, the model proposes that people may feel more impatient when they have

little to no control over bringing the delay to an end, consistent with research on the benefits of an internal locus of control (e.g., Kesavayuth et al., 2022).

The model also identifies two stable individual differences that likely exacerbate one's sense that a delay is objectionable, all other aspects of the situation being equal. Here again, in principle, other individual differences may predict that appraisal, and we test a long list of such potential predictors in our studies. However, a priori we anticipated that two individual factors would be particularly relevant for impatience, namely differences in negative emotionality (i.e., neuroticism; Mader et al., 2023; Tong, 2010) and intolerance for unresolved situations (i.e., need for closure; Kruglanski & Fishman, 2009). Neuroticism definitionally entails more frequent and more intense negative emotions, and thus we anticipated that people high in neuroticism would similarly report greater impatience across a variety of scenarios. Regarding need for closure, recent findings highlight the key role of a desire for goal closure in provoking and intensifying impatience (Roberts et al., 2023; Roberts & Fishbach, 2023).

Predictors of Patience

The process model of patience proposes a concept of patience as a suite of emotion regulation strategies specifically aimed at managing the experience or expression of impatience (Sweeny, 2024). Accordingly, the model's name is a play on Gross's (2015) process model of emotion regulation. In the case of patience, the most relevant forms of emotion regulation are those that respond to an emotion once it arises (i.e., cognitive reappraisal, attentional deployment, expressive suppression, and response modulation) rather than those that circumvent the experience of the emotion (i.e., situation selection or modification). For example, imagine someone who consistently remembers to bring a book when waiting for an appointment, or someone who is particularly deft at averting drawn-out meetings and conversations. Though that

person is likely happier than their forgetful or unskilled counterpart, the term “patient” does not feel particularly relevant to their success. Rather, such a person is planful in a way that avoids or minimizes the need to exert patience.

If successful, patience leads to an experience and demeanor in direct contrast to impatience’s agitation and impulsiveness, namely calm composure, restraint, and perseverance. The process model of patience proposes that intrapersonal factors largely dictate the likelihood that a person will attempt to regulate their impatience, because those factors bolster either one’s ability or one’s motivation to do so. Perhaps surprisingly, the broader literature on emotion regulation has yet to identify consistent situational factors that encourage the use of particular emotion regulation strategies (Kobylińska & Kusev, 2019; Wilms et al., 2020). Thus, our model follows suit and proposes state- and trait-level person variables as predictors of patience; the current investigation focuses on trait-level variables. As with predictors of impatience, we do not suggest that the individual differences listed in Figure 1 are exhaustive; any state or trait characteristic that enhances one’s ability or motivation to regulate impatience (either its subjective experience or public expression) is a potential predictor of patience.

Regarding the ability to regulate impatience, our initial predictions focused on executive function, mindfulness, and emotion regulation skill (Gratz & Roemer, 2004). People with stronger executive functioning (i.e., self-regulation skill) may be more readily able to exert the effort necessary for emotion regulation (for evidence, see Schmeichel & Tang, 2015; Tabibnia et al., 2011), and mindfulness supports self-regulation generally (Teper et al., 2013) and particularly emotion regulation (Hayes & Feldman, 2004; Lutz et al., 2014; Roemer et al., 2015). Regarding the motivation to regulate impatience, our initial predictions focused on potential social consequences of impatience—or conversely, social benefits of patience. Certain interpersonal

tendencies might draw a person's attention to those potential social consequences (i.e., agreeableness, McCrae & Costa, 2008; trait empathy, Davis, 1983).

Overview

The current investigation seeks to test many of the key tenets of the process model of patience. In three studies, we tested the situational predictors of impatience with hypothetical scenarios, designed to manipulate each of the situational characteristics between participants. Although hypothetical scenarios are far from ideal when testing questions about real experiences, this approach had several distinct advantages in our case. First, it allowed us to test many factors within each study rather than limiting the studies to intensive experimental manipulations of just one or two predictors. Second, it allowed us to test the full array of situational predictors of interest rather than relying on the chance of any given situation arising in participants' real lives (e.g., via an experience sampling study). Third, our use of scenarios that were likely familiar to most participants allowed us to capture people's general sense of how they respond to common impatience-inducing situations rather than capturing potentially-idiosyncratic responses to any given real-time experience.

We also include an array of individual difference measures, those included in Figure 1 as well as others that test the specificity of the model's predictions. As a secondary but necessary aim of the investigation, we created and refined measures to capture the model's novel concepts of impatience and patience.

Study 1

Transparency and Openness

In all studies, we report how we determined our sample size, all data exclusions (N/A, no data excluded), all manipulations, and all measures in the study (additional measures not

addressed in this manuscript are available via studies' Open Science Framework links; Study 1, Study 2, Study 3). All data, analysis code, and research materials are available at the links provided in each study description. Data were analyzed using SAS 9.4. This study's design and its analysis were not pre-registered, although the theoretical model that we test provides a map to our hypotheses.

Method

Participants

A power analysis in G*Power 3.1.9.7 indicated that a sample of 350 participants would provide the power to detect an effect size of $d = .30$ in an independent-samples t-test (power = .80). A sample of 191 participants would be required to detect an effect size $\rho = .20$ for bivariate correlations. We sought a sample larger than required to ensure robustness, given the novelty of the research topic.

Sample 1. Prolific users ($N = 403$; $M_{age} = 27.0$ years; 51% female; 57% White, 20% Black/African Diaspora, 20% Latino/a/x, 2% Asian, <1% Native American/other Native person, <1% more than one race/ethnicity, 1% other) completed the study in exchange for $10. Participants were from 27 countries, with a majority of the participants residing in South Africa (21.89%), Mexico (17.66%), Portugal (14.93%), and Poland (12.94%).

Sample 2. Undergraduate students ($N = 215$; $M_{age} = 20.6$ years; 56% female; 41% Asian, 35% Latino/a/x, 9% White, 4% Black/African Diaspora, <1% Native American/other Native person, 6% multiple, 5% other) completed the study in exchange for partial course credit.

Procedure

This study was conducted in 2022. Following consent, all participants completed an assessment of their baseline emotions before reading six scenarios, each randomly assigned from

a pair that manipulated a predictor of impatience. After each scenario, participants indicated the extent to which they would feel impatient in that scenario, how patiently they would respond to that scenario, and their perception of the scenario. Participants then completed individual differences measures and demographic questions. Full materials and data are available on the Open Science Framework. This study received approval from the Institutional Review Board at the authors' institution.

Measures

Scenarios. The survey included six pairs of scenarios depicting situations people might encounter in everyday life. Both scenarios within each pair described the same situation (e.g., you are watching a movie in a theater and a child nearby is making loud noises) but differed on a situational characteristic of interest. One scenario was intended to provoke high levels of impatience (e.g., the parents are doing nothing to quiet the child); the other was intended to provoke low impatience (e.g., the parents are doing everything they can to quiet the child). Each participant viewed only one of each pair of scenarios.

The six characteristics manipulated by the scenarios were 1) desirability of the goal (stuck in traffic on the way to a desirable or less desirable concert), 2) pleasantness of the current state (waiting in a comfortable or uncomfortable government office), 3) duration of the wait (waiting for a biopsy result either 2 or 12 days into the wait), 4) controllability of the situation (waiting for news of after a job interview with or without the opportunity to call for an update), 5) blameworthiness (the movie theater scenario described earlier), and 6) conspicuousness of time passing (an annoying conversation with a coworker with or without a visible clock).

Post-Scenario Measures. After reading each scenario, participants first indicated how impatient they would feel in that situation with a single item ("impatient"; 1 = *not at all*, 7 =

extremely; $M = 4.94$, $SD = 1.03$; see Allen et al., 2022 for a defense of single-item affective measures).[1]

Participants then indicated the extent to which they would "try to do the following" in response to the scenario with a 7-item measure of state patience (1 = *not at all*, 7 = *extremely*; $M = 4.45$, $SD = .87$, $\alpha = .77$). No measure of state patience existed prior to this study; in fact, we struggled to find even a general measure of state emotion regulation across a variety of strategies. We generated items designed to capture different forms of emotion regulation, such that one item captured patience via cognitive reappraisal ("reframe the situation to see it in a more positive light"), one item via attentional deployment ("distract yourself from thinking about or paying attention to the situation"), three items via expressive suppression ("suppress feelings or thoughts about the situation," "suppress physical reactions to the situation, e.g., foot or finger tapping, sighing," "suppress rude or impatient comments about the situation"), and two items via other forms of response modulation ("remain calm" and "take deep breaths").

Finally, participants rated each scenario on dimensions related to the situational characteristics manipulated in the scenarios as manipulation checks. Goal desirability was assessed with the item, "How badly would you want the situation to resolve?"; pleasantness of the current state was assessed with two items, "How unpleasant is the situation you imagined?" and "How bearable would the situation be?"; duration of the wait was assessed with two items, "To what extent would the situation feel like it was going on forever?" and "To what extent would the situation feel like it was over before you knew it?"; controllability was assessed with the item, "How much control would you have over the situation?"; blameworthiness was

[1]Although we also included 14 additional emotion items that captured emotions related to impatience, on further thought we opted to focus on the single item to maximize construct validity.

assessed with the item, "How much would someone be to blame for the situation?"; and time conspicuousness was assessed with the item, "How aware of time passing would you be during the situation?" (in all cases, 1 = *not at all*, 7 = *very much*).

Individual Differences. Participants next completed measures of individual differences that the model predicts to be associated with patience and/or impatience. For brevity, we include descriptive statistics for these measures on the Open Science Framework page for each study. Of relevance to the process model of patience are the following measures: the 3-Factor Patience Scale (Schnitker, 2012), the Cognitive and Affective Mindfulness Scale–Revised (Feldman et al., 2007), the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), the Interpersonal Reactivity Index (Davis, 1980, 1983), the short version of the Need for Closure Scale (Webster & Kruglanski, 1994; Roets & Van Hiel, 2011) the Abbreviated Impulsiveness Scale (Coutlee et al., 2014), the Big Five Inventory-2-Short Form (Soto & John, 2017), the Behavior Rating Inventory of Executive Function–Adult Version (Roth et al., 2005), the MacArthur Scale of Subjective Social Status (Adler et al., 2000), the Religious Commitment Inventory–10 (Worthington et al., 2003), and the Intrinsic Religious Motivation Scale (Hoge, 1972).

Results

Effects of Scenario Manipulations

Table 1 presents the results of *t*-tests comparing responses on each pair of scenarios. Unless otherwise indicated, the manipulation checks (i.e., relevant situational appraisals) suggest that the scenarios were successful in manipulating the relevant appraisal. Even when the manipulation check indicated an unsuccessful manipulation, we present hypothesis tests for all scenarios in all studies in the interest of thoroughness.

As anticipated, participants reported more impatience in pursuit of a highly desirable goal (concert of a favorite band) than a less desirable goal (concert of a random band); when the current state was unpleasant (boring and uncomfortable government office) than when the current state was relatively pleasant (comfortable office with entertainment options); and in response to a blameworthy scenario (disruptive child with no parental intervention) compared to a scenario low in blameworthiness (parents doing everything they can to quell the disruption). The delay duration scenarios were the only ones to fail the manipulation checks, such that participants did not differ across scenarios in their perception that the delay seemed to take a particularly long or short time. Perhaps unsurprisingly then, participants reported no difference in impatience in response to a long delay compared to a shorter delay, nor did they differ in impatience depending on the controllability of the delay or conspicuousness of time despite their apparent success on the manipulation checks.

Participants reported more patience in response to the low blameworthiness scenario, compared to the high blameworthiness scenario. No other scenarios affected patience.

Individual Differences

Table 2 presents correlations between individual difference measures and patience and impatience, averaged across scenarios.[2] First, note that the subscales of Schnitker's (2012) patience scale were each significantly associated with greater patience, and two of the three subscales (daily hassles and life hardship) were associated with less impatience in response to the scenarios. Participants reported greater impatience across scenarios when they were higher in

[2]We tested interaction effects between scenario and individual differences measures on patience and impatience to identify any notable variation in these associations across scenarios. Although a few interaction terms were significant, the pattern of associations across scenarios was inconsistent. Thus, we focus on averaged variables here. Results from those tests are available on the Open Science Framework page for each study.

emotional awareness, impulse control difficulties (with regard to emotions specifically, as measured by the DERS), nonacceptance of emotions, empathic concern, need for closure, and neuroticism. Participants also reported greater impatience when they were lower in executive function and age.

Participants reported greater patience across scenarios when they were higher in mindfulness, emotional awareness, empathic concern, perspective taking, openness to experience, conscientiousness, agreeableness, executive function, extrinsic religious motivation, and age. Participants also reported greater patience when they were lower in impulse control difficulties related to emotions, nonacceptance of emotions, and impulsivity.

Discussion

The results from Study 1 supported many but not all of our theory-driven predictions. Among the situational predictors, desirability of the goal, pleasantness of the current state, and blameworthiness clearly predicted impatience; in fact, blameworthiness unexpectedly predicted patience as well. Looking at the effect sizes (recognizing that they could represent a measure of the true effect or the strength of the manipulation, or both), unpleasantness of the current state had the strongest effect on impatience, then desirability of the goal, then blameworthiness. Duration of delay, time conspicuousness, and controllability did not predict impatience as anticipated, nor did they predict patience.

Regarding individual differences, we found many significant associations, but we also ran many statistical tests. We present a mini meta-analysis (Goh et al., 2016) of the individual difference results following the presentation of Study 3, with an eye toward identifying the strongest and most robust predictors of both impatience and patience.

Study 2

The aim of Study 2 was to replicate the findings of Study 1, with some additions and revisions. We retained the three successful scenarios (desirability of the goal, pleasantness of current state, and blameworthiness), created two new scenarios testing duration of delay across varying time scales, and created a new scenario testing the conspicuousness of time. We opted not to include controllability in Study 2. We will return to the potential role of controllability in the general discussion.

In the interim between Studies 1 and 2, an additional potential predictor of impatience emerged from ongoing discussions about the theoretical model: how the delay compares to expectations. Expectations are a powerful predictor of many types of emotional responses, such that people generally feel better when an outcome beats their expectations and worse when it falls short, independent of the desirability of the outcome itself (e.g., Mellers et al., 1997; Shepperd & McNulty, 2002; van Dijk et al., 1999). We suspect that this dynamic is similarly relevant to impatience, such that people perceive a delay to be more unfair or unreasonable, and thus feel more impatient, when a delay stretches longer than they anticipated, regardless of its objective length. We included a trio of scenarios (shorter-than-expected, as expected, and longer-than-expected delay) in Study 2 to test this potential predictor of impatience.

Method

Participants

We conducted the same power analyses as reported in Study 1, along with a power analysis for a one-way ANOVA with 3 groups (relevant to the delay expectation conditions). The latter test indicated a required sample size of 159 to achieve .80 power at an effect size of .25.

Sample 1. Prolific users (N = 203; M_{age} = 36.3 years; 49% female; 61% White, 22% Black/African Diaspora, 9% Latino/a/x, 6% Asian, <1% Pacific Islander, <1% more than one

race/ethnicity, and 1% other) completed the study in exchange for $10. Participants were from 21 countries, with a majority of the participants residing in the United States (37.93%), the United Kingdom (15.76%), and South Africa (14.29%).

Sample 2. Undergraduate students (N = 183; M_{age} = 19.6 years; 67% female; 51% Asian, 27% Latino/a/x, 5% White, 1% Black/African Diaspora, 1% Pacific Islander, 1% Native American/other Native person, 9% more than one race/ethnicity, 6% other) completed the study in exchange for partial course credit.

Procedure

This study was conducted in 2023. Procedures were identical to Study 1, aside from the content of the surveys. All of the materials from this study are publicly available on the Open Science Framework.

Measures

Scenarios. The structure of the scenarios was very similar to those in Study 1, and we included three of the scenario pairs from Study 1 that were most successful: the desirability of the goal, the pleasantness of the current state, and the level of blame assigned to someone in the situation. We included five new scenarios in this study, two addressing duration of the delay, one addressing the conspicuousness of time, and two addressing expectations for the delay.

To more thoroughly test the role of delay duration, we included one pair of scenarios that differed by several days (waiting two days or two weeks thus far for a biopsy result, altered slightly from Study 1) and one pair that differed by several minutes during a particularly stressful part of a delay (i.e., the moment of truth; waiting on the phone for a biopsy result for either a few minutes or 20 minutes). Given our concern about the scenarios we used in Study 1 to test the conspicuousness of time, we revised that pair of scenarios to describe waiting in line at a coffee

shop with a large clock visible or no way to check the time.

Finally, we introduced two scenarios to test the role of delay expectations. Each of those scenario groups included three versions, one depicting a longer-than-expected delay, one a shorter-than-expected delay, and one a delay that was as expected. On reflection, one of the sets confounded expectations with duration of delay, and thus we focus on the other set (waiting at the dentist's office for 30 minutes after being told it would take a few minutes, an hour, or exactly 30 minutes).

Post-Scenario Measures. As in Study 1, participants indicated how impatient they would feel in response to each scenario they read with a single item ($M = 4.33$, $SD = 1.11$). We revised the patience items to balance better across emotion regulation strategies (i.e., 3 items for reappraisal, 2 items for attentional deployment, 3 items for suppression, and 3 items for other forms of response modulation), and revised the patience prompt to remove the reference to "trying" (replaced with "to what extent would you do the following"). The resulting measure of state patience included 11 items (e.g., "I would distract myself by thinking about other things," "I would take some deep breaths," "I would see the positive side of the situation"; $M = 4.13$, $SD = .65$, $\alpha = .74$).[3]

Manipulation checks for goal desirability and blameworthiness were identical to Study 1; unpleasantness of the current state was assessed with a single item ("How unpleasant is the situation?"). Duration of the wait was assessed with one new item, "How long is it taking for the situation to resolve?" and one from Study 1, "Does it feel like the situation is going on forever?" The item for time conspicuousness was revised slightly to "Are you paying attention to the time

[3]We also tested the inclusion of negatively-worded, reverse-scored items as part of a state patience measure (e.g., "I would find it difficult to simply accept the situation"). Upon further consideration, we opted to omit those items due to concerns about construct validity.

passing?" New items assessed delay expectations: "Does it feel like the situation is taking more time to resolve than you expected?" and "Does it feel like the situation is taking less time to resolve than you expected?" (for all, 1 = *not at all*, 7 = *very much*).

Individual Differences. In Study 2, we again included measures of trait patience, mindfulness, difficulties with emotion regulation, trait empathy, need for closure, impulsivity, the Big 5 traits, subjective socioeconomic status, and religious commitment. We dropped executive function due to concerns about assessing that construct with a self-report measure.

Results

Effects of Scenario Manipulations

Tables 3 and 4 present the results of *t*-tests (scenario pairs) or one-way ANOVAs and post-hoc condition comparisons (scenario trio) comparing responses across scenarios. Unless otherwise indicated, the manipulation checks (i.e., relevant situational appraisals) suggest that the scenarios were successful in manipulating the relevant appraisal.

As in Study 1, participants reported more impatience in pursuit of a highly desirable goal than a less desirable goal; when the current state was unpleasant than when the current state was relatively pleasant; and in response to a blameworthy scenario compared to a scenario low in blameworthiness. Once again, participants reported no difference in impatience in response to the time conspicuousness scenarios, nor the two delay duration scenario pairs (the manipulation check was only successful for the days-long duration). New to Study 2, participants reported more impatience when the delay was longer than expected; impatience was equivalent between a delay that was shorter than or as expected.

Here, participants again reported more patience in response to the low blameworthiness scenario (vs. high blameworthiness), but also in response to the less-desirable goal scenario (vs.

more desirable) and in response to the desirable current state scenario (vs. undesirable). Participants further reported the greatest patience in response to a shorter-than-expected delay, more so than a delay that was as expected, and in both cases more than a delay that was longer than expected.

Individual Differences

Table 2 (right half) presents correlations between individual difference measures and patience and impatience, averaged across scenarios. As in Study 1, the subscales of Schnitker's (2012) patience scale were each significantly associated with both patience and impatience in response to the scenarios. Participants reported greater impatience across scenarios when they were higher in impulse control difficulties with regard to emotions, nonacceptance of emotions, need for closure, impulsivity, and neuroticism. Participants reported less impatience when they were higher in trait mindfulness, perspective taking, conscientiousness, extraversion, agreeableness, and age. Participants reported greater patience across scenarios when they were higher in trait mindfulness, emotional awareness, empathic concern, perspective taking, openness to experience, conscientiousness, agreeableness, and intra- and interpersonal religious commitment. Participants reported less patience when they were higher in impulse control difficulties related to emotion, impulsivity, and neuroticism.

Discussion

As in Study 1, the results from Study 2 supported many but not all of our theory-driven predictions. Among the situational predictors, desirability of the goal, pleasantness of the current state, and blameworthiness once again robustly predicted impatience. Replicating Study 1, the pleasantness of the current state had the strongest effect on impatience, with the desirability of the goal and blameworthiness producing similar effects. Despite our efforts to strengthen the

scenarios, duration of delay and time conspicuousness again failed to predict impatience. Study 2 revealed more consistent situational predictors of patience, with each of the scenarios that had an effect on impatience having an inverse effect on reports of patience. We will return to the implications of these findings for the process model of patience in the General Discussion.

Many of the individual difference measures predicted impatience and patience as hypothesized, but we will again reserve final judgment on the pattern of associations until the cross-study meta-analysis.

Study 3

We ran a final study with several goals in mind. First, we used new scenarios testing the effects of desirability of the goal, pleasantness of the current state, and blameworthiness to ensure that the results in Studies 1 and 2 were not specific to the particular scenario content. We also sought to disentangle two ways in which one's current state might be unpleasant: physically (e.g., nowhere comfortable to sit) or mentally (nothing to occupy one's mind).

We also tested two additional potential predictors of impatience.[4] Although Study 2 established that people report that they would feel more impatient when a delay is longer than they expected, we did not test whether simply having an expectation (or not) affects impatience. We also neglected a situational factor that distinguishes between different types of waiting periods, namely whether the outcome at the end of the wait is known or uncertain. For example, waiting in line nearly always resolves by eventually reaching the front of the line. In contrast, waiting for medical test results or the outcome of a job interview could resolve in very different ways, and the outcome remains uncertain until the end of the wait. We did not have strong

[4]Thanks to a reviewer on an earlier version of this paper for these suggestions.

hypotheses about how these potential predictors would affect participants' responses to the scenarios, but we included them in Study 3 in the interest of thoroughness.

We further tested several new individual difference measures that had the potential to affect either perceptions that a delay is particularly objectionable, thus intensifying impatience (affect intolerance, belief in a just world, and entitlement), or one's ability or motivation to engage in emotion regulation, thus affecting patience (emotion regulation flexibility in the case of ability and the self-worth contingencies of virtue and approval in the case of motivation).

Another goal of Study 3 was to test a key claim of the process model of patience that was not addressed by Studies 1 and 2. That is, central to the theory is the claim that impatience arises in response to a perception or appraisal that a situation is taking "too long." In an initial test of that claim, we include a brief and novel measure of delay perception (e.g., "the situation is going on too long," "the situation is taking an inappropriate amount of time to resolve") to provide an initial test of the central role of that perception in prompting feelings of impatience.

Finally, we once again tweaked the prompt that preceded the patience items following each scenario. To ensure that participants were focusing on impatience in particular rather than other emotions that might arise alongside in response to the scenarios (e.g., anger, boredom), we specifically prompted participants to indicate how they would manage any feelings of impatience that might arise.

Method

Participants

The power analyses presented in Study 1 is relevant here, indicating a need for a sample of 350 to achieve .80 power for a $d = .30$ in independent t-tests, and a sample of 64 for an equivalent effect size in a bivariate correlation.

Sample 1. Prolific users (N = 181; M_{age} = 30.5 years; 56% female; 60% White, 22% Black/African Diaspora, 10% Latino/a/x, 4% Asian, 3% more than one race/ethnicity, and 1% other) completed the study in exchange for $7. Participants were from 25 countries, with a majority of the participants residing in South Africa (26%), Poland (18%), and Portugal (8%).

Sample 2. Undergraduate students (N = 223; M_{age} = 19.3 years; 63% female; 39% Asian, 39% Latino/a/x, 8% White, 3% Black/African Diaspora, 8% more than one race/ethnicity, 3% other) completed the study in exchange for partial course credit. Although we did not conduct formal power analyses, we aimed for a sample far larger than required for any of our statistical tests (total N = 402).

Procedure

This study was conducted in 2023. Procedures were identical to Studies 1 and 2, aside from the content of the surveys. All materials from this study are publicly available on the Open Science Framework.

Measures

Scenarios. The survey included six pairs of scenarios, structured like those in Studies 1 and 2. The six characteristics manipulated by the scenarios were 1) desirability of the goal (in a meeting with a colleague going on at length with either fun plans after the meeting or not), 2) physical pleasantness of the current state (waiting in a doctor's office with nowhere or lots of comfortable places to sit), 3) mental pleasantness of the current state (waiting in a doctor's office with nothing or lots to do for entertainment), 4) blameworthiness (waiting for a biopsy result due to typical processing time or a lab tech error), 5) presence of an expectation for the delay (waiting for news of a job application with a clear timeline or no timeline for interviews), and 6) uncertainty of the outcome (waiting to pick up a monetary prize of known or unknown value).

Post-Scenario Measures. As in Studies 1 and 2, participants indicated how impatient they would feel in response to each scenario they read with a single item ($M = 4.59$, $SD = 1.04$). The patience items were very similar to those in Study 2, though we continued to tinker with the wording to align the items as closely as possible with Gross's (2015) elucidation of emotion regulation strategies (namely attentional deployment, cognitive change, and response modulation). We also adjusted the prompt as described above ($M = 4.71$, $SD = .75$, $\alpha = .90$).

Manipulation checks for goal desirability, pleasantness of the current state, and blameworthiness were identical to Studies 1 and 2. Due to an oversight, we did not include manipulation checks for presence of an expectation or uncertainty of the outcome.

New to Study 3 were items assessing participant's perception of an objectionable delay in each scenario, with the aim of capturing the appraisal that most directly leads to impatience. We developed a brief scale for the purpose of this study, including 5 items assessing the objectionableness of the delay (e.g., "The situation is going on too long," "I wish the situation would resolve more quickly," "I would think, 'Why isn't this situation over yet?"; 1 = *not at all*, 7 = *very much*; $M = 4.41$, $SD = .98$, $\alpha = .92$). Objectionableness appraisals were strongly correlated with impatience across scenarios (rs = .49-.69) and associated with patience in only two scenarios (current mental pleasantness, $r = -.14$; blameworthiness, $r = -.27$).

Individual Differences. We again included measures of trait patience, trait mindfulness, difficulties with emotion regulation, trait empathy, need for closure, impulsivity, three of the Big 5 traits (conscientiousness, agreeableness, and neuroticism), subjective socioeconomic status, and religious commitment. We added several new measures to Study 3: the active entitlement subscale of the Entitlement Attitudes Questionnaire (Żemojtel-Piotrowska et al., 2015), the Global Belief in a Just World Scale (Lipkus, 1991), the 30-item Affect Intolerance Scale

(Stapinski et al., 2014), the virtue and approval subscales from the Contingencies of Self-Worth scale (Crocker et al., 2003), and the Flexible Regulation of Emotional Expression scale (Burton & Bonanno, 2016).

Results

Effects of Scenario Manipulations

Table 5 presents the results of *t*-tests comparing responses across scenarios. Once again, participants reported more impatience in pursuit of a highly desirable goal than a less desirable goal; when the current state was unpleasant (both physically and mentally) than when the current state was relatively pleasant; and in response to a blameworthy scenario compared to a scenario low in blameworthiness. Participants also perceived the delay to be more objectionable in those conditions, though the effect fell short of statistical significance regarding the desirability of the goal.

Although we did not have an a priori hypothesis regarding the presence or absence of an expectation for the length of the anticipated delay, participants in fact reported more impatience and perceived the delay as more objectionable in the condition where they lacked an expectation than in the condition with a clear timeline for the delay. They also reported greater impatience and appraised the delay as more objectionable when the outcome was known than when the outcome was uncertain.

Participants reported more patience in response to the low blameworthiness scenario, compared to the high blameworthiness scenario, and in the scenario depicting a mentally comfortable delay compared to an uncomfortable delay. No other scenarios affected patience.

Individual Differences

Table 6 (left half) presents correlations between individual difference measures and

patience, impatience, and objectionableness appraisals, averaged across scenarios. First, note that the subscales of Schnitker's (2012) patience scale were each significantly associated with both patience and impatience in response to the scenarios, though only the daily hassles subscale was associated (negatively) with objectionableness appraisals. Participants reported greater impatience across scenarios when they were higher in impulse control difficulties related to emotions, affect intolerance, need for closure, neuroticism, and entitlement. Participants reported greater patience across scenarios when they were higher in trait mindfulness, emotional awareness, emotion regulation flexibility, empathic concern, perspective taking, conscientiousness, agreeableness, and intra- and interpersonal religious commitment. Participants reported less patience when they were higher in impulsivity and age. Participants appraised the delays in each scenario as more objectionable when they were higher in emotional awareness, impulse control difficulties related to emotions, affect intolerance, need for closure, entitlement, belief in a just world, and intra- and interpersonal religious commitment.

Discussion

The results of Study 3 provide evidence for the generalizability of some earlier findings, while also suggesting avenues to extend the process model of patience to other situational and individual predictors. Desirability of the goal, pleasantness of the current state, and blameworthiness once again robustly predicted impatience, despite using entirely different scenarios from Studies 1 and 2. The effects of the pleasantness of the current state extended to both physical and mental pleasantness, with similar effect sizes, though participants only rated the unpleasant physical state as more unpleasant on the manipulation check.

We tested two novel situational predictors—and though we did not have directional hypotheses a priori, both scenario pairs had effects on impatience. Participants indicated that they

would be more impatient when they were forced to wait following submission of a job application with no stated timeline for interview decisions, compared to a scenario in which the timeline was clear. Participants also indicated that they would be more impatient while they awaited a prize of known value compared to a prize of unknown value.

As in Studies 1 and 2, the effects of the scenarios on patience were inconsistent but generally aligned with the results for impatience. In this study, the only significant effects on patience resulted from the manipulations of mental discomfort and blameworthiness. All but one of our appraisal measures also predicted patience (and impatience, as anticipated).

New to Study 3 was the measure of objectionableness of the delay, intended to capture the appraisal that uniquely provokes the emotion of impatience. The results point to a strong link between the appraisal that a delay is objectionable and reports of impatience. Those variables were strongly associated in the multilevel models, and objectionableness of the delay "behaved" much like impatience in terms of the effects of the scenario manipulations and associations with situational appraisals.

Mini Meta-Analyses

Individual Differences

Given the large number of individual difference measures included across the three studies, we opted to conduct internal (mini) meta-analyses of each individual difference that was included in at least two studies to better capture the true association between those individual factors and patience and impatience. Analyses used a sample-size weighted method like the fixed-effects approach described by Goh et al. (2016) in their paper on internal meta-analyses. This meta-analysis is weighted by sample size, including all possible participants from each study, such that each participant in each study equally informs the estimate.

To identify robust individual difference predictors of patience and impatience, we sorted those effects by magnitude and visually inspected the distribution to identify a natural point of separation between the strongest and less strong predictors. Regarding impatience, the predictors with the largest magnitude were daily hassles patience (r = -.27, N = 1401), need for closure (r = .24, N = 1401), and neuroticism (r = .23, N = 1401). Other relatively robust predictors of impatience were executive function (albeit assessed only in Study 1; r = -.21, N = 618), impulse control difficulties in the context of emotions (r = .19, N = 1401), life hardship patience (r = -.18, N = 1401), affect intolerance (only assessed in Study 3; r = .19, N = 399), entitlement (only assessed in Study 3; r = .16, N = 399), and interpersonal patience (r = -.15, N = 1401).

Regarding patience, the predictors with the largest magnitude were perspective taking (r = .30, N = 1401), interpersonal patience (r = .26, N = 1401), emotion regulation flexibility (only assessed in Study 3; r = .24, N = 399), empathic concern (r = .24, N = 1401), trait mindfulness (r = .23, N = 1401), agreeableness (r = .23, N = 1401), life hardship patience (r = .22, N = 1401), daily hassles patience (r = .20, N = 1401), emotional awareness (assessed as the lack thereof; r = -.20, N = 1401), and impulsivity (r = -.17, N = 1401).

General Discussion

The primary aim of the current investigation was to test key tenets of the new process model of patience. We focused here on initial tests of the proposed predictors of impatience and patience, as well as a preliminary test of the role of appraisals of a delay's objectionableness as a trigger for impatience. The evidence largely supports the theory's predictions, with some notable exceptions.

Starting with the most foundational aspect of the model, the process model of patience proposes that impatience is a discrete emotion, evoked by the appraisal that a situation is taking

longer than is reasonable, fair, or appropriate (i.e., an objectionable delay). We tested that question directly, if not causally, in Study 3 with a novel measure addressing that appraisal for each scenario. We found a strong association between objectionableness appraisals and impatience and thus preliminary evidence for the link between the appraisal of an objectionable delay and the subjective experience of impatience.

Situational Factors

Turning to predictors of impatience, we proposed a set of situational factors that would be likely to intensify one's appraisal of a delay as objectionable. The set was not intended to be comprehensive, though we sought to test every predictor that came to our minds as likely to have that effect. The findings strongly support three predictors of impatience: the pleasantness of the current state (physically and mentally), the desirability of the goal, and the blameworthiness of the situation. That is, people in our studies said they would feel more impatient when they were stuck in a particularly unpleasant state, when they particularly wanted to reach their intended goal, and when someone was clearly to blame for the delay in between. These findings were robust to changes in the specific scenario context. In Study 3, perceptions of those situational characteristics were also strongly associated with the objectionableness of the delay, providing tentative evidence for our proposed pathway from people's perception of situational characteristics to their appraisal of an objectionable delay, and then to the emotional experience of impatience.

Several other situational predictors of impatience remain good candidates for retention in the process model of patience. How the length of a delay compared to the sufferer's expectations predicted impatience, such that people said they would feel particularly impatient when a delay dragged on longer than expected, whereas a surprisingly short delay was no better than an

expected delay. Studies are currently underway to replicate this pattern and further test the role of expectations for the length of a delay in experiences of impatience.

We tested one additional situational factor of relevance to expectations in Study 3, namely whether a reasonable expectation was available (i.e., whether a job posting provided a timeline for review). We did not have an a priori hypothesis regarding the effect of this situational characteristic, as it seemed possible that having a clear expectation might magnify or minimize impatience. Using the relevant scenario for illustration, a person who knows that they will not receive news about their job application for 30 days might perceive that delay as unfair or unreasonable and thus feel quite impatient in the interim. Alternatively, that person might readily put the situation out of their mind until the big day arrives, and thus feel quite serene in the interim. We only tested those possibilities in Study 3, and we did not have an appropriate manipulation check in place—but the initial evidence points to the latter possibility, such that people reported less impatience when they had a clear expectation regarding their likely wait time. This finding merits replication and tests of generalizability before making a determination about its value as a robust predictor of impatience.

In contrast to perceptions of a delay in comparison to prior expectations, altering the objective duration of a delay had little effect on impatience in our studies. We tested three sets of scenarios; none affected reports of impatience. Of course, time is quite subjective when it comes to one's perception of a delay. Is 30 minutes a long delay? A week? A year? Each of those durations could feel like a flash or an eternity depending on the context, so we tentatively conclude that duration per se does not intensify impatience despite its intuitive relevance.

We also tested how the conspicuousness of time (e.g., the availability of a visible clock) might affect impatience, with mixed results. Our scenarios failed to produce effects on

impatience—but on further reflection, we wonder if time conspicuousness may be more nuanced and perhaps exerting competing effects on impatience. On one hand, when the passage of time is entirely opaque, people might more readily lose track of the "ticks" of time in their minds (and perhaps literally their brains; Droit-Volet, 2018) and thus feel like time is moving more quickly, presumably reducing the intensity of impatience. On the other hand, if in the absence of a way to objectively track time, people become fixated and ruminate on how much time has passed, impatience may be magnified rather than reduced. Further studies will test the role of time conspicuousness in an effort to disentangle these possibilities and determine whether that situational factor earns a place in the theoretical model.

We tested two other situational predictors of impatience in our studies. In Study 1, we included scenarios that tested the role of control over the delay, namely whether a person had the option to nudge the delay to an end. Those scenarios were successful in altering perceptions of control over the situation but did not affect reports of impatience. We suspect that control plays more of an "on/off" role in impatience (impatience is "on" until control is exercised, then "off" once the person takes control and ends the delay) rather than intensifying or minimizing impatience while the delay persists. Thus, we conclude that controllability of a delay does not belong in our theoretical model as currently articulated, instead serving as an offramp from the model entirely.

Finally, we explored the role of uncertainty about the outcome or resolution of the delay in Study 3. Research on uncertain waiting periods documents the role of uncertainty in the experience of waiting, particularly in intensifying worry (see Sweeny, 2018 or Sweeny & Howell, 2023 for a review). However, its role in producing impatience was less clear to us, given that one's appraisal that a delay is unfair or unreasonable is somewhat separate from their

appraisal of how that delay is likely to resolve. In fact, people reported greater impatience when an outcome was already known compared to when the outcome or resolution was uncertain (a prize of known or unknown value). We hesitate to speculate on possible interpretations of this finding, given the absence of an a priori hypothesis and the limited nature of any single set of scenarios. It may be particularly important to test the role of uncertainty when the outcome could be good or bad (e.g., awaiting a medical test result or the outcome of a job interview), not just some version of good as was true in our scenarios.

Unexpectedly, some of the situational factors we tested affected reports of patience as well as impatience. Blameworthiness in particular predicted patience across all studies, such that people indicated that they would be less patient when they perceived a delay to be someone's fault. One possibility is that, although emotion regulation research to date has largely ignored characteristics of the situation, perhaps that pattern reflects an absence of attention rather than an absence of effects. Alternatively, it may simply be difficult to disentangle patience and impatience in self-reports, and perhaps even in observational or physiological measures. The interplay between emotion generation and emotion regulation is quick, iterative, and often below the level of consciousness (Gyurak et al., 2011; Moors, 2020), rendering it difficult to pinpoint their separate associations at any given moment. The pattern of effects across scenarios, measures, and studies clearly points to the stronger role of situational factors in predicting impatience compared to patience, but the possibilities just discussed merit further investigation.

Intrapersonal Factors

We proposed a non-comprehensive set of individual differences that were good candidates for inclusion in the theoretical model. In the case of impatience, we considered which intrapersonal factors would be most likely to heighten a person's perception of delays as

objectionable, all other things equal. We identified two particularly likely candidates in advance, namely need for closure and neuroticism, though we tested numerous other potential candidates (e.g., entitlement, belief in a just world, affect intolerance). In the case of patience, we considered which intrapersonal factors would be most likely to heighten either a person's ability or motivation to regulate the experience or expression of impatience (i.e., to exert patience). Here too we identified a number of candidates in advance, given our theoretical prediction that intrapersonal factors would be particularly important in predicting patience.

The evidence supported many of our predictions, though not all. Need for closure and neuroticism stood out as uniquely strong predictors of impatience across scenarios and studies. Affect intolerance and entitlement were also relatively strong predictors, though limited to a single study. Turning to patience, our findings generally lined up with our predictions, with some exceptions. Most consistent were the findings for executive function (via a measure of impulsivity), mindfulness, emotion regulation skill (specifically emotional awareness) and flexibility, and agreeableness. Self-worth contingencies did not predict patience, though we only assessed them in Study 3. Taken together, these findings support our hypotheses regarding individual differences in patience and impatience and also provide insight into other potential candidates for inclusion in the process model of patience.

Constraints on Generality

Although the samples used in these studies were quite diverse in terms of nation of origin, age, socioeconomic status, and other demographic characteristics, they ultimately represent a limited set of the world population: those who have ready access to internet and speak fluent English (in the Prolific samples) and college students from one (albeit unusually diverse) campus in the US. Patience is a topic of interest to broad populations, including

adherents to all major world religions, and thus a key next step in this area of research will be deep engagement with international collaborators to test the generality of the findings presented here.

Conclusions and Future Directions

Where do these findings leave the process model of patience? As an initial test of an entirely novel theoretical model, the results are quite consistent with the model's predictions, while also revealing opportunities for further study. Of course, our studies were not designed to test some core claims of the model, namely that impatience is a discrete emotion and patience a form of emotion regulation, nor could our studies test the role of state-level intrapersonal factors.

Studies that test the model's questions in controlled lab studies or in the real world, using more than self-report measures, will be critical next steps toward solidifying the model's tenets. Sweeny (2024, Table 1) lays out a roadmap for next steps in testing the process model of patience, including experimental inductions of objectionable delays (e.g., a long wait for the study session to start, a computer issue that repeatedly delays progress), inductions of patience via various emotion regulation strategies or manipulations of ability and motivation to regulate, manipulations of situational factors in controlled lab studies, and manipulations of relevant intrapersonal states (e.g., executive function, mindfulness) in the context of impatience inductions. Such studies will also include behavioral observation and physiological measures to validate the novel self-report measures used in the current studies—one notable contribution of the current investigation—and to establish a comprehensive profile of patience and impatience.

Beyond lab-based experimental designs, intensive longitudinal methods (e.g., experience sampling, daily diaries) can capture experiences of impatience and both successful and unsuccessful efforts toward patience in real life. Compared to the hypothetical scenarios in the

current studies, these approaches (lab-based and intensive longitudinal) are better-suited to address idiosyncratic experiences of impatience, specific to the lab paradigm or peculiarities of a given day, respectively—but collectively, a variety of approaches will reveal broad and deep insights into when and for whom impatience arises and how, when, and for whom patience meets that challenge. The current investigation is the first step in that journey and lends support to the process model of patience as a viable approach, highly generative of testable research questions, with implications for improving well-being.

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Table 1

Study 1 Scenario Comparisons

	Desirability of goal		Pleasantness of current state		Duration of delay		Controllability		Blameworthiness		Time conspicuousness	
	M (*SD*)	*t* (*d*)	*M* (*SD*)	*t* (*d*)	*M* (*SD*)	*t* (*d*)	*M* (*SD*)	*t* (*d*)	*M* (*SD*)	*t* (*d*)	*M* (*SD*)	*t* (*d*)
Manipulation check												
High impatience condition	6.38 (1.06)	7.45 (.60)	4.64 (1.66)	10.44 (.84)	5.21 (1.76)	-.27 (.02)	2.18 (1.57)	-9.45 (.76)	5.61 (1.71)	8.80 (.71)	5.77 (1.42)	10.62 (.87)
Low impatience condition	5.63 (1.43)	$p < .0001$	3.33 (1.47)	$p < .0001$	5.25 (1.88)	$p = .786$	3.46 (1.80)	$p < .0001$	4.28 (2.02)	$p < .0001$	4.30 (1.92)	$p < .0001$
Manipulation check #2												
High impatience condition			4.42 (1.60)	-4.53 (.37)	3.37 (1.83)	-.02 (<.01)						
Low impatience condition			3.83 (1.62)	$p < .0001$	3.37 (1.90)	$p = .985$						
Impatience												
High impatience condition	6.16 (1.13)	7.81 (.63)	5.16 (1.62)	12.23 (.98)	4.94 (1.87)	.48 (.04)	5.19 (1.64)	1.23 (.10)	4.49 (1.99)	4.25 (.34)	5.43 (1.44)	1.41 (.11)
Low impatience condition	5.30 (1.57)	$p < .0001$	3.62 (1.51)	$p < .0001$	4.87 (1.96)	$p = .634$	5.03 (1.64)	$p = .218$	3.82 (1.98)	$p < .0001$	5.26 (1.59)	$p = .159$
Patience												
High impatience condition	4.13 (1.06)	-.86 (.07)	4.48 (1.15)	-.90 (.07)	4.74 (1.19)	.68 (.05)	4.53 (1.27)	1.07 (.09)	4.03 (1.41)	-3.62 (.29)	4.65 (1.24)	.62 (.08)
Low impatience condition	4.20 (1.03)	$p = .390$	4.56 (1.16)	$p = .370$	4.67 (1.24)	$p = .496$	4.42 (1.14)	$p = .285$	4.44 (1.39)	$p = .0003$	4.58 (1.27)	$p = .538$

Note: For pleasantness of the current state, manipulation check is "How unpleasant is the situation you imagined?" and manipulation check #2 is "How unbearable is the situation?" For duration of delay, manipulation check is "To what extent would the situation feel like it was going on forever?" and manipulation check #2 is "…feel like it was over before you knew it?"

Table 2

Studies 1 & 2 Associations between Individual Differences and Average Scenario Responses

	Study 1		Study 2	
	Average impatience	Average patience	Average impatience	Average patience
	r (*p*)	*r* (*p*)	*r* (*p*)	*r* (*p*)
Trait patience				
Daily hassles patience	-.19 (<.0001)	.15 (.0002)	-.42 (<.0001)	.36 (<.0001)
Life hardship patience	-.09 (.018)	.15 (.0001)	-.36 (<.0001)	.36 (<.0001)
Interpersonal patience	-.06 (.134)	.24 (<.0001)	-.33 (<.0001)	.33 (<.0001)
Mindfulness	-.04 (.369)	.12 (.004)	-.27 (<.0001)	.32 (<.0001)
Difficulties in emotion regulation				
Lack of emotional awareness	-.18 (<.0001)	-.19 (<.0001)	.01 (.845)	-.22 (<.0001)
Impulse control difficulties	.17 (<.0001)	-.08 (.040)	.30 (<.0001)	-.12 (.023)
Nonacceptance of emotions	.11 (.009)	.03 (.519)	.23 (<.0001)	.05 (.337)
Trait empathy				
Empathic concern	.09 (.023)	.28 (<.0001)	-.03 (.620)	.19 (<.0001)
Perspective taking	.003 (.940)	.29 (<.0001)	-.16 (.003)	.31 (<.0001)
Need for closure	.25 (<.0001)	.05 (.245)	.23 (<.0001)	-.02 (.700)
Impulsivity	.01 (.010)	-.18 (<.0001)	.19 (.0002)	-.15 (.003)
Big 5 personality traits				
Openness to experience	-.02 (.691)	.10 (.016)	-.09 (.074)	.10 (.040)
Conscientiousness	-.01 (.713)	.18 (<.0001)	-.18 (.0003)	.11 (.032)
Extraversion	.02 (.640)	.06 (.117)	-.17 (.001)	.04 (.424)
Agreeableness	-.01 (.721)	.26 (<.0001)	-.18 (.0005)	.20 (<.0001)
Neuroticism	.22 (<.0001)	-.03 (.509)	.36 (<.0001)	-.17 (.0007)
Executive function	-.21 (<.0001)	.08 (.058)		
Religious commitment				
Intrapersonal	.07 (.093)	.07 (.078)	.02 (.770)	.12 (.015)
Interpersonal	.05 (.187)	.06 (.131)	-.004 (.940)	.14 (.007)
Religious motivation				
Intrinsic	.06 (.131)	.08 (.044)		
Extrinsic	.005 (.898)	.08 (.048)		
Age	-.08 (.047)	.06 (.107)	-.13 (.012)	-.04 (.444)
Subjective socioeconomic status	.04 (.329)	.05 (.254)	.02 (.638)	.01 (.869)

Table 3

Study 2 Scenario Comparisons: Scenario Pairs

	Desirability of goal		Pleasantness of current state		Blameworthiness		Duration of delay (days)		Duration of delay (minutes)		Time conspicuousness	
	M (*SD*)	*t* (*d*)	*M* (*SD*)	*t* (*d*)	*M* (*SD*)	*t* (*d*)	*M* (*SD*)	*t* (*d*)	*M* (*SD*)	*t* (*d*)	*M* (*SD*)	*t* (*d*)
Manipulation check												
High impatience condition	6.24 (1.20)	6.10 (.62)	5.70 (1.44)	7.66 (.78)	5.38 (1.84)	6.37 (.65)	5.57 (1.52)	4.04 (.41)	5.77 (1.51)	1.02 (.11)	5.04 (1.60)	3.06** (.31)
Low impatience condition	5.41 (1.45)	$p < .0001$	4.47 (1.69)	$p < .0001$	4.11 (2.07)	$p < .0001$	4.94 (1.54)	$p < .0001$	5.60 (1.63)	$p = .309$	4.50 (1.85)	$p = .002$
Manipulation check #2												
High impatience condition							5.32 (1.75)	3.47** (.35)	5.60 (1.58)	1.19 (.12)		
Low impatience condition							4.69 (1.83)	$p = .0006$	5.39 (1.82)	$p = .235$		
Impatience												
High impatience condition	5.48 (1.72)	4.65 (.48)	4.80 (1.78)	10.62 (1.09)	4.26 (1.84)	3.48** (.36)	5.20 (1.83)	-1.10 (.11)	5.46 (1.68)	1.74 (.18)	3.59 (1.83)	-.22 (.02)
Low impatience condition	4.65 (1.80)	$p < .0001$	2.97 (1.58)	$p < .0001$	3.60 (1.86)	$p = .0006$	5.39 (1.65)	$p = .271$	5.14 (1.90)	$p = .083$	3.63 (1.86)	$p = .826$
Patience												
High impatience condition	3.34 (1.03)	-4.44 (.45)	4.02 (.97)	-6.49 (.66)	3.58 (1.05)	-4.04 (.41)	4.11 (.92)	-.63 (.06)	3.81 (.92)	-1.34 (.14)	4.49 (.85)	.81 (.08)
Low impatience condition	3.82 (1.05)	$p < .0001$	4.65 (.95)	$p < .0001$	4.02 (1.09)	$p < .0001$	4.16 (.81)	$p = .528$	3.94 (1.02)	$p = .182$	4.42 (.83)	$p = .418$

Note: For duration of delay, manipulation check is “How long is it taking for the situation to resolve?” and manipulation check #2 is “Does it feel like the situation is going on forever?”

Table 4

Study 2 Scenario Comparisons: Expectation for Delay

	Expectation for delay	
	M (*SD*)	*F* (partial η^2)
Manipulation check (longer)		
Shorter than expected	4.06[a] (1.80)	16.27 (.08)
As expected	4.66[b] (1.64)	p <.0001
Longer than expected	5.23[c] (1.47)	
Manipulation check #2 (shorter)		
Shorter than expected	5.69[a] (1.47)	.62 (.003)
As expected	5.51[a] (1.63)	p = .537
Longer than expected	5.71[a] (1.58)	
Impatience		
Shorter than expected	3.58[a] (1.66)	8.39 (.04)
As expected	3.63[a] (1.75)	p = .0003
Longer than expected	4.37[b] (1.79)	
Patience		
Shorter than expected	4.56[a] (.80)	8.73** (.04)
As expected	4.32[b] (.90)	p = .0002
Longer than expected	4.32[c] (.90)	

Note: Subscripts that differ within variables differ significantly from each other at p < .05.

Table 5

Study 3 Scenario Comparisons

	Desirability of goal		Pleasantness of current state: Physical		Pleasantness of current state: Mental		Blameworthiness		Presence of expectation[a]		Certainty of outcome[a]	
	M (*SD*)	*t* *(d)*	*M* (*SD*)	*t* *(d)*	*M* (*SD*)	*t* *(d)*	*M* (*SD*)	*t* *(d)*	*M* (*SD*)	*t* *(d)*	*M* (*SD*)	*t* *(d)*
Manipulation check												
High impatience condition	5.89 (1.14)	2.90 (.29)	4.83 (1.59)	7.78 (.78)	4.13 (1.60)	1.13 (.11)	5.29 (1.71)	15.14 (1.51)	N/A	N/A	N/A	N/A
Low impatience condition	5.55 (1.24)	$p = .004$	3.61 (1.56)	$p < .0001$	4.32 (1.76)	$p = .260$	2.59 (1.86)	$p < .0001$	N/A		N/A	
Impatience												
High impatience condition	5.81 (1.18)	4.24 (.42)	4.90 (1.61)	7.07 (.71)	4.93 (1.58)	8.42 (.84)	5.30 (1.88)	3.26 (.33)	4.45 (1.79)	4.18 (.42)	4.67 (1.79)	3.30 (.33)
Low impatience condition	5.25 (1.44)	$p < .0001$	3.75 (1.65)	$p < .0001$	3.53 (1.74)	$p < .0001$	4.73 (1.88)	$p = .001$	3.69 (1.88)	$p < .0001$	4.05 (1.98)	$p = .001$
Patience												
High impatience condition	4.39 (.82)	-1.90 (.19)	4.74 (.95)	-1.07 (.11)	4.60 (.91)	-3.74 (.37)	4.27 (1.23)	-3.42 (.34)	5.05 (.96)	-.23 (.02)	5.02 (.96)	.65 (.07)
Low impatience condition	4.55 (.87)	$p = .058$	4.84 (.95)	$p = .284$	4.97 (1.01)	$p = .0002$	4.68 (1.13)	$p = .0007$	5.08 (1.08)	$p = .821$	4.95 (1.16)	$p = .515$
Delay objectionableness												
High impatience condition	5.68 (1.09)	1.50 (.15)	4.77 (1.54)	3.71 (.37)	5.05 (1.56)	7.30 (.73)	5.42 (1.42)	6.97 (.70)	4.23 (1.54)	6.51 (.65)	3.47 (1.67)	2.03 (.20)
Low impatience condition	5.51 (1.14)	$p = .136$	4.21 (1.51)	$p = .0002$	3.88 (1.67)	$p < .0001$	4.33 (1.72)	$p < .0001$	3.19 (1.63)	$p < .0001$	3.13 (1.63)	$p = .043$

Note: Though we did not have a priori hypotheses about which condition would produce more impatience, if either, here we code the "no expectation" and "certain outcome" as the high impatience conditions, given the findings.

Table 6

Study 3 Associations between Individual Differences and Average Scenario Responses and Mini Meta-Analysis Across Studies

	Study 3			Mini meta-analysis		
	r (*p*)			*r [95% CI]*		
	Avg. impatience	Avg. patience	Avg. delay object.	Avg. impatience	Avg. patience	*N; k*
Trait patience						
Daily hassles patience	-.25 (<.0001)	.13 (.014)	-.24 (<.0001)	-.27 [-.32, -.22]	.20 [.15, .25]	1401; 3
Life hardship patience	-.12 (.032)	.22 (<.0001)	-.04 (.505)	-.18 [-.23, -.12]	.22 [.18, .28]	1401; 3
Interpersonal patience	-.11 (.036)	.22 (<.0001)	-.09 (.080)	-.15 [-.20, -.10]	.26 [.21, .31]	1401; 3
Mindfulness	-.09 (.102)	.31 (<.0001)	.03 (.522)	-.12 [-.17, -.07]	.23 [.18, .28]	1401; 3
Difficulties in emotion regulation						
Lack of emotional awareness	-.04 (.434)	-.21 (<.0001)	-.13 (.017)	-.09 [-.14, -.04]	-.20 [-.25, -.15]	1401; 3
Impulse control difficulties	.14 (.007)	.05 (.384)	.17 (.002)	.19 [.15, .25]	-.05 [-.11, -.001]	1401; 3
Nonacceptance of emotions	.09 (.100)	.14 (.011)	.10 (.076)	.13 [.08, .19]	.02 [-.03, .08]	1401; 3
Emotion regulation flexibility	-.003 (.948)	.24 (<.0001)	-.08 (.120)	*-.003*	*.24*	399; 1
Affect intolerance	.18 (.0009)	.06 (.280)	.27 (<.0001)	*.18*	*.06*	399; 1
Trait empathy						
Empathic concern	.05 (.351)	.24 (<.0001)	.01 (.785)	.05 [-.01, .10]	.24 [.19, .29]	1401; 3
Perspective taking	-.03 (.625)	.30 (<.0001)	.05 (.386)	-.05 [-.10, .001]	.30 [.25, .35]	1401; 3
Need for closure	.23 (<.0001)	.09 (.087)	.29 (<.0001)	.24 [.19, .29]	.06 [-.01, .09]	1401; 3
Impulsivity	-.02 (.675)	-.17 (.002)	-.05 (.387)	.05 [-.001, .10]	-.17 [-.22, -.12]	1401; 3
Executive function				*-.21*	*.08*	618; 1
Big 5 personality traits						
Openness to experience				-.04 [-.11, .02]	.10 [.04, .16]	1002; 2
Conscientiousness	-.03 (.639)	.12 (.028)	-.02 (.734)	-.06 [-.11, -.01]	.14 [.09, .19]	1401; 3
Extraversion				-.08 [-.14, -.02]	.05 [-.01, .11]	1002; 2
Agreeableness	-.02 (.645)	.21 (<.0001)	-.09 (.078)	-.06 [-.11, -.007]	.23 [.18, .28]	1401; 3
Neuroticism	.14 (.012)	-.05 (.316)	.04 (.458)	.23 [.19, .29]	-.07 [-.13, -.02]	1401; 3
Entitlement	.16 (.003)	.006 (.908)	.17 (.001)	*.16*	*.006*	399; 1
Belief in a just world	.08 (.128)	.04 (.459)	.17 (.001)	*.08*	*.04*	399; 1
Contingencies of self-worth						
Virtue	-.03 (.612)	.04 (.427)	.03 (.026)	*-.03*	*.04*	399; 1
Approval	.08 (.165)	-.09 (.115)	.01 (.913)	*.08*	*-.09*	399; 1
Religious commitment						
Intrapersonal	.03 (.617)	.24 (<.0001)	.12 (.014)	.04 [-.01, .10]	.13 [.08, .18]	1401; 3
Interpersonal	.02 (.655)	.23 (<.0001)	.12 (.017)	.02 [-.03, .08]	.13 [.08, .18]	1401; 3
Religious motivation						
Intrinsic				*.06*	*.08*	618; 1
Extrinsic				*.005*	*.08*	618; 1
Age	-.001 (.982)	-.13 (.010)	.03 (.597)	-.07 [-.12, -.02]	-.02 [-.07, .03]	1401; 3
Subjective socioeconomic status	.03 (.531)	.01 (.766)	.05 (.340)	.03 [-.02, .08]	.03 [-.02, .08]	1401; 3

Note: Meta-analytic effects in italics represent a single study's effect.

Figure 1

The Process Model of Patience ***(adapted from Sweeny, 2024)***