Article

When Do Intended Performance Standards Predict Goal-Related Affect? A Motivated-Reasoning Perspective

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Abstract

This research used intensive longitudinal methods to examine a motivated cognition perspective on intention–behavior discrepancies. We propose that under conditions of high performance, people are more inclined to evaluate their efforts in light of their intentions; thus, discrepancies between intentions and performance should have stronger impacts on goal-related affect under conditions of high (vs. low) performance. Secondary data analyses were conducted on two daily-diary studies in which participants reported their exercise, goal-related affect, and next-day intentions across 14 days. Under conditions of low performance, people felt negative about their performance irrespective of whether they typically set low versus high intentions. On days with high performance, average intentions significantly related to affect, such that those with low average intentions experienced the greatest satisfaction. Additionally, we observed that average (between-person) affect, but not within-person fluctuations in affect, predicted daily levels of exercise behavior. Implications for self-regulatory theories of affect are discussed.

Keywords

affect, goal pursuit, intentions

People are adept at revising their attitudes and self-views to arrive at desired conclusions. When motivated to perceive consistency, people overestimate agreement between their past and current attitudes (Bem & McConnell, 1970; Ross & Shulman, 1973) and revise memories of past behaviors to align with new attitudes (Olson & Cal, 1984; Ross, McFarland, Conway, & Zanna, 1983). When motivated to perceive change, people exaggerate improvement by downgrading their initial skill levels (Conway & Ross, 1984). Whether particular cognitions are applied in a situation also may depend on motivational factors (Kunda, 1990). Although people tend to dispositionally view their abilities as malleable or fixed (Dweck, Hong, & Chiu, 1993), they are more likely to endorse incremental beliefs after a failure but to endorse entity beliefs after a success (Leith et al., 2014). Such findings imply that to protect a positive self-view, people strategically apply standards in a given situation. Extending this literature, the present research examines how people respond to another type of self-relevant information, their chronic performance standards, in light of their current performance.

Numerous accounts of behavior change, including the theories of reasoned action (Fishbein, 1980) and of planned behavior (Ajzen, 1991), posit that intentions play a key role in regulating behavior. Intention is central also to theories of goal-striving and self-regulation (Gollwitzer & Moskowitz, 1996; Oettingen & Gollwitzer, 2001). Control theory (Carver & Scheier, 1982, 1998) proposes that self-regulation is an ongoing process in which behavior is adjusted by comparing current performance against a desired standard. Forming an intention or setting a reference point thus is considered a critical determinant of behavior, with direct implications for negative affect, produced when performance falls short of intentions, and for positive affect, produced when performance meets/exceeds intentions (Brockner & Higgins, 2001; Higgins, 1987).

When Do Intention–Behavior Discrepancies Influence Affect?

Behavioral intentions may fluctuate across days as a result of variability in events or schedules. However, the standards people hold within a particular domain can be relatively stable individual differences, as indicated by evidence that degree of physical activity during late childhood significantly predicts

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adolescent levels of physical activity (Malina, 1996; Sallis, Prochaska, & Taylor, 2000) and that adults' previous experience in physical fitness programs predicts their current participation in a physical fitness program (Dishman, Sallis, & Orenstein, 1985) and in leisure-time physical activity (Wichstrøm, Von Soest, & Kvalem, 2013).

Most relevant to this investigation, individuals' chronic standards relate to their affective responses. Holding high standards of an ideal romantic partner, for example, relates negatively to satisfaction with one's current partner (Rusbult, 1980). Furthermore, perfectionism (e.g., holding high standards as measured on the "Striving for Excellence" subscale of the Perfectionism Inventory) positively relates to reporting symptoms of both depression and anxiety (Hill et al., 2004). Such findings accord well with control theory, given that holding higher standards, whether for a romantic partner or for one's own performance, can be expected to yield larger discrepancies between actual and desired states, thereby generating negative affect.

The present research used intensive longitudinal methods to examine a motivated cognition perspective on intention–behavior discrepancies. To the extent that people prefer information that reflects positively on the self and reminds them of their strengths (Brown & Dutton, 1995), we propose that people are more inclined to evaluate their efforts in light of their chronic standards when they perform relatively well. That is, we propose that chronic standards will have a stronger impact on affective evaluations under conditions of high (vs. low) personal performance.

The idea that motivated reasoning impacts how people process intention–behavior discrepancies is supported by research on self-awareness. The theory of self-awareness proposes that objective awareness of oneself increases the salience of the discrepancy between one's ideal and actual self, thereby leading to greater negative self-perceptions (Duval & Wicklund, 1972). Numerous studies have found that an increase in self-awareness, such as by viewing one's reflection in a mirror, promotes greater negative self-feelings (Duval, Duval, & Neely, 1979; Fejfar & Hoyle, 2000). Furthermore, people are more likely to avoid self-awareness after a recent failure than after a recent success. Experiencing social exclusion, for example, leads people to avoid sitting near a mirror (Twenge, Catanese, & Baumeister, 2003). Similarly, after taking a purported intelligence test, participants who received failure feedback spent more time watching television (an activity that reduces self-awareness) than participants who received success feedback (Moskalenko & Heine, 2003).

Consistent with evidence that people avoid self-awareness when faced with failure, we propose that chronic standards should be relatively less impactful on affective evaluations under conditions of low performance (minimizing self-awareness). Conversely, under conditions of high performance, chronic standards should have a stronger impact on affective evaluations (maximizing self-awareness). Extending findings that people dispositionally use personal standards as reference points that impact their affective responses (e.g., Hill et al., 2004; Rusbult, 1980), we propose that individuals' personal standards should relate to their affective responses more strongly when they perform well than when they perform poorly on a particular day.

Present Research

The present research used a daily-diary approach to examine how the intention–behavior relationship impacts people's affective responses toward their effort to meet a daily exercise goal. The present studies examine whether the tendency to respond differentially to intention–behavior discrepancies functions at a between- and/or within-person level. In Studies 1 and 2, participants committed to exercising 4 days per week for 2 weeks, and they provided daily records of their exercise behavior, feelings about their effort to exercise that day, and intentions to exercise the next day. The primary aim of this article is to examine how intention–behavior discrepancies relate to affective responses under conditions of low versus high performance. A secondary aim is to examine whether there is a positive implication of the hypothesized effects on subsequent exercise behavior. To the extent that chronic standards bolster positive affect under condition of high performance, responses to intention–behavior discrepancies may impact future exercise behavior. Drawing on research indicating that positive (vs. negative) affective experiences encourage people to increase their goal-related efforts (Ilies & Judge, 2005) and that positive affect predicts future exercise behavior (Kwan & Bryan, 2010; Williams et al., 2008), we tested whether positive affect about one's exercise efforts would predict greater daily-level exercise behavior. In these studies, we report all measures, manipulations, and exclusions.

Studies 1 and 2

The present research presents secondary data analyses from an unpublished doctoral dissertation (Sweeney, 2016).[1] The original studies included a construal-level manipulation (described below), which yielded inconclusive results. For the present investigation, we first tested the proposed research questions in Study 1. Studies 1 and 2 used nearly identical methods; accordingly, Study 2 allowed a confirmatory test of the exploratory questions examined in Study 1. Because the methods for Studies 1 and 2 were nearly identical, we present the methods and results of the two studies together.

Method

Participants

Study 1. Two hundred and ten undergraduate students participated for course credit and for the opportunity to win US$25 in a lottery. Prior to conducting any data analyses, 14 participants were excluded because of technological or experimenter errors ($n = 12$) or because their baseline exercise data and their total minutes of exercise across the 2-week study were more than three *SD*s from the mean ($n = 2$). Additionally,

16 participants completed less than half of the follow-up surveys, yielding insufficient data for analysis. The final sample consisted of 180 participants, (42 male), aged 17—32 (M = 19.63, SD = 2.287). Regarding race/ethnicity, 36.7% (n = 77) described themselves as other or mixed, 23.8% (n = 50) as Black, 15.7% (n = 33) as White, 9.5% (n= 20) as East Asian, 7.6% (n = 16) as South East Asian, and 6.7% (n = 14) as Latino/a.[2]

Study 2. Two hundred and forty-one undergraduate students participated for course credit and the opportunity to win US$25 in a lottery. Prior to conducting any data analyses, two participants were excluded because of technological or experimenter errors. One participant was excluded because he/she spent 0 min exercising across the 2-week period. Additionally, 16 participants completed fewer than eight of the follow-up surveys, yielding insufficient data for analysis. The final sample consisted of 222 participants (86 male), aged 17–47 (M = 20.01, SD = 3.13). Regarding race/ethnicity, 33.8% (n = 75) described themselves as White, 26.1% (n = 58) as East Asian, 14.4% (n= 32) as South East Asian, 12.2% (n = 27) as Other or mixed, 6.8% (n = 15) as Black, and 6.8% (n = 15) as Latino/a.

Procedures

Screening protocol. The screening procedure aimed to identify individuals who were already engaging in some exercise and intended to continue to do so. To be eligible, participants could not indicate that they exercise 0 days per week. Additionally, using 5-point scales, participants responded to the items: "Overall how important is getting more physical activity/exercise to you?" and "How strongly committed are you to getting more physical activity/exercise in the next 4–6 months?" To be eligible, participants had to indicate a score of at least 3 on both items (*moderately important* and *moderately committed*). Finally, to be eligible, participants had to indicate that they were not pregnant and that they did not participate in any university sports teams. Screener surveys were administered through the university's psychology department subject pool website. Screener surveys were typically administered 1 week to 1 month prior to study participation.

Data collection. The experiment consisted of one lab session and 2 weeks of daily online surveys. The lab session proceeded in four stages. After providing informed consent, participants read brief educational materials from the Center for Disease Control, which were included to provide context for the upcoming exercise goal commitment. Next, participants completed a measure of their baseline exercise within the last week. Second, following a script, a research assistant held a brief interview with the participant. As a cover story, participants were informed that "we are interested in understanding how people vary in their goals, behavior, and memory. To be consistent across everyone who participates in this study, we are asking all of our participants to commit to carrying out the same goal." All participants were asked to agree to the goal of exercising moderately to vigorously for at least 30 min, 4 times per week for 2 weeks. Participants agreed verbally to commit to this goal. Additionally, to document their commitment, participants read and signed an "exercise goal document" that provided specific instructions about the exercise goal and the daily online surveys.

Third, participants completed a two-part construal-level manipulation. First, they completed Freitas, Gollwitzer, and Trope's (2004) mind-set manipulation in which they considered how (concrete conditions) or why (abstract condition) to improve and maintain their physical health. Second, participants viewed a series of behaviors from Vallacher and Wegner's (1989) behavioral identification form and reframed these behaviors in terms of how (concrete condition) or why (abstract condition) they are performed (Critcher & Ferguson, 2011). Fourth, participants completed self-reported measures of exercise importance, perceived goal conflict, goal commitment, anticipatory and current emotions about the exercise goal, implicit beliefs about the nature of people, regulatory focus, trait self-control, exercise automaticity, perceived behavior control, exercise motivation, and demographic items.[3]

Starting the day after the lab session, participants completed daily online surveys for 14 days in which they reported their minutes of daily exercise and the exercise intensity (moderate, vigorous), feelings about their effort to meet their exercise goal, and next-day exercise intentions.

Measures and Materials

Educational fliers. The first flier described what kind and how much exercise is needed for a healthy adult and included definitions and examples of moderate and vigorous activities. The second flier provided examples of exercise schedules.

Exercise behavior. Baseline and follow-up exercise behavior were measured with the short version of the International Physical Activity Questionnaire (IPAQ; Craig et al., 2003). At baseline, participants reported their exercise over the last week, including days of vigorous and moderate activity, and the average number of minutes spent daily on each of these types of activity. To compute baseline physical activity scores, the following equation was used: (Days spent on vigorous exercise $\times$ average minutes spent on vigorous exercise) + (Days spent on moderate exercise $\times$ average minutes spent on moderate exercise). In the follow-up questionnaires, these items were adapted to ask about daily minutes of vigorous and moderate activity.

Affect. In the daily questionnaires, participants reported how they felt about their effort to reach their exercise goal on a given day. Daily affect was measured with positive and negative goal-focused affect items adapted from Bagozzi and Pieters (1998; e.g., "satisfied," "regretful"). Additionally, participants indicated their degree of satisfaction and excitement using the valence and arousal subscales from the Self-Assessment Manikin (SAM; Bradley & Lang, 1994).

Table 1. Means, Standard Deviations, and Intraclass Correlation Coefficients for All Model Variables.

	Study 1			Study 2		
	M	*SD*	ICC	*M*	*SD*	ICC
SAM valence	4.11	2.14	.303	4.05	2.29	.325
SAM arousal	4.70	2.28	.361	4.64	2.44	.371
Positive affect	4.40	1.80	.343	4.44	1.88	.364
Negative affect	1.87	1.33	.340	1.99	1.43	.383
Intentions	4.47	1.47	.590	4.44	1.52	.585
Daily minutes of exercise	43.05	35.47	.263	39.54	35.03	.282

Note. ICC = intraclass correlation coefficients; SAM = Self-Assessment Manikin.

Exercise intentions. In the daily questionnaires, participants reported whether they intended to exercise the next day, the type of exercise they intended to do (moderate/vigorous), the specific activities they intended to do (e.g., cardio), and the number of minutes they intended to spend on vigorous and moderate exercise (using a 5-point scale, where 1 = *0–15 min*, 5 = *more than 60 min*). Participants' total number of intended minutes of exercise was used as a measure of their exercise intentions for the next day.

In the final online survey, participants rated how challenging they found the exercise goal to be and how satisfied they were with their efforts to pursue the goal, using 5-point scales ranging from 1 (*not at all)* to 5 (*extremely*). In Study 2, participants completed this item at the end of Week 1 and Week 2.

Results

Overview of Data Analyses

First, we checked for outliers in the baseline and follow-up exercise scores using the guidelines for the short version of the IPAQ (Sjöström et al., 2005). Using these guidelines, participants who reported more than 180 min of activity per day were considered outliers. Values exceeding 180 were recoded to 180 min. Second, we examined how planning–behavior discrepancies related to affect and whether affect related to next-day exercise behavior. We used the SAS PROC MIXED procedure for multilevel regression analysis (cf. Bolger, Davis, & Rafaeli, 2003). Intraclass correlations coefficients (ICCs) were examined for intentions, exercise behavior, and affect (Table 1). The ICCs indicated that between 30.3–59.0% (Study 1) and 28.2–58.5% (Study 2) of the variance for affect, intentions, and exercise behavior were associated with differences between individuals. In daily-diary studies, an ICC between .20 and .40 is considered typical for multilevel modeling (Bolger & Laurenceau, 2013). Thus, we split affect, intentions, and minutes of exercise into a between-subjects average (i.e., each participant's mean across the 14 days of the study) and a within-subjects deviation score (i.e., a participant's raw daily score—a participant's mean score). High within-person scores indicate that people exceeded their typical level of affect, intentions, or exercise on a given day, whereas low within-person scores indicate that people fell below their typical level of affect, intentions, or exercise on a given day. All possible two-way interactions between exercise intentions and behavior at both the between- and within-person level were examined to test whether discrepancies between intentions and behavior predict next-day affect.

To account for the passage of time, day of the study was included as a continuous predictor and rescaled such that Day 1 = 0, Day 7 = .50, and Day 14 = 1 (Bolger & Laurenceau, 2013). Time, baseline physical activity (grand-mean centered), and sex were included as covariates. Additionally, we included two dummy-coded variables to account for whether participants met the exercise goal in Weeks 1 and 2 of the study in models testing whether intention–behavior discrepancies impact affect. To aid convergence, only the intercept and time were permitted to vary as random effects.

First, to address whether intention–behavior discrepancies predict next-day affect, affect of individual i on the current day t was tested as the criterion variable, with the following variables included as predictors: (a) average intentions scores, (b) within-person intentions score $_{(it\text{-}1)}$, (c) average minutes of exercise, (d) within-person minutes of exercise $_{(it\text{-}1)}$, (e) average intentions scores × average minutes of exercise, (f) average intentions scores × within-person minutes of exercise $_{(it\text{-}1)}$, (g) within-person intentions scores $_{(it\text{-}1)}$ × average minutes of exercise, (h) within-person intentions scores $_{(it\text{-}1)}$ × within-person minutes of exercise $_{(it\text{-}1)}$. Second, to test whether affect predicts next-day exercise behavior, total minutes of exercise of individual i on the current day t was tested as the criterion variable, with the following variables included as predictors: (a) average affect score, (b) within-person affect score $_{(it\text{-}1)}$, (c) average intentions score, (d) within-person intentions score $_{(it\text{-}1)}$.

Intention–Behavior Discrepancies and Affective Responses

Table 1 shows the raw means, *SD*s, and the *ICC*s for affect, intentions, and minutes of exercise. Table 2 shows the results of the multilevel regression model predicting next-day affect scores (SAM valence, SAM arousal, positive affect, and negative affect) from the interaction between exercise intentions and behavior. Across both studies, there was a significant interaction between average intentions and within-person change in daily minutes of exercise when predicting SAM valence, SAM arousal, and positive affect scores. Examining further the interaction between average intentions and within-person changes in daily minutes of exercise when predicting positive affect scores, Figure 1 shows that under conditions of low personal performance (i.e., low or negative within-person change in daily minutes of exercise), people feel equivalently negative regardless of whether they typically set high or low average intentions (S1: Estimate = −.322, SE = .318, p = .313; S2: Estimate = −.133, SE = .262, p = .614). Conversely, under conditions of high personal performance (i.e., positive within-person change in daily minutes of exercise), average

Table 2. Multilevel Regression Analysis Testing Interactions Between Intentions and Minutes of Exercise When Predicting Affect Scores.

Study 1

Dependent Variable	SAM Valence				SAM Arousal				Positive Affect				Negative Affect			
Predictors	Estimate	*SE*	*p*	95% CI (Lower, Upper)	Estimate	*SE*	*p*	95% CI (Lower, Upper)	Estimate	*SE*	*p*	95% CI (Lower, Upper)	Estimate	*SE*	*p*	95% CI (Lower, Upper)
Fixed effects																
Intercept	5.253	.787	<.001	[3.701, 6.806]	5.857	.938	<.001	[4.006, 7.709]	3.649	.699	<.001	[2.270, 5.028]	2.253	.507	<.001	[1.252, 3.254]
Time	−0.018	.169	.913	[−0.350, 0.314]	−0.277	.178	.119	[−0.626, 0.071]	0.118	.148	.426	[−0.172, 0.407]	−0.342	.137	.013	[−0.611, −0.073]
Gender (0 = male, 1= female)	−0.243	.214	.258	[−0.666. 0.180]	−0.158	.257	.540	[−0.664, 0.349]	0.417	.191	.031	[0.040, 0.794]	0.185	.137	.178	[−0.085, 0.454]
Total Baseline Exercise	0.001	.001	.116	[0.000, 0.002]	0.002	.001	.016	[0.000, 0.003]	−0.001	.001	.096	[−0.002, 0.000]	0.000	.000	.575	[−0.001, 0.001]
Goal success week 1 (1 = exercising at least 30 min × 3 days)	−0.074	.339	.828	[−0.743, 0.595]	−0.292	.401	.468	[−1.082, 0.499]	0.239	.301	.428	[−0.355, 0.833]	−0.070	.219	.749	[−0.504, 0.363]
Goal success week 2 (1 = exercising at least 30 min × 3 days)	−0.238	.272	.382	[−0.776, 0.299]	−0.506	.324	.120	[−1.145, 0.133]	0.282	.241	.243	[−0.193, 0.758]	−0.147	.177	.409	[−0.497, 0.203]
Average Intentions	0.328	.351	.353	[−0.366, 1.021]	0.499	.420	.237	[−0.331, 1.328]	−0.572	.313	.070	[−1.190, 0.046]	0.240	.224	.286	[−0.202, 0.681]
Within-Person Intentions	−0.313	.120	.009	[−0.548, −0.077]	−0.420	.127	.001	[−0.669, −0.171]	0.385	.097	<.001	[0.195, 0.574]	−0.102	.087	.238	[−0.273, 0.068]
Average Minutes of Exercise	−0.085	.036	.021	[−0.156, −0.013]	−0.053	.043	.224	[−0.139, 0.033]	0.046	.032	.154	[−0.018, 0.110]	−0.054	.023	.021	[−0.100, −0.008]
Within-Person Minutes of Exercise	−0.056	.006	<.001	[−0.067, −0.044]	−0.051	.006	<.001	[−0.063, −0.038]	0.052	.005	<.001	[0.042, 0.061]	−0.021	.004	<.001	[−0.029, −0.013]
Average Intentions × Average Minutes of Exercise	0.006	.013	.658	[−0.020, 0.031]	−0.007	.015	.644	[−0.038, 0.023]	0.006	.011	.597	[−0.017, 0.029]	0.009	.008	.301	[−0.008, 0.025]
Average Intentions × Within-Person Minutes of Exercise	0.006	.002	.006	[0.002, 0.011]	0.006	.002	.012	[0.001, 0.011]	−0.009	.002	<.001	[−0.012, −0.005]	0.002	.002	.269	[−0.001, 0.005]
Within-Person Intentions × Average Minutes of Exercise	0.017	.004	<.001	[0.009, 0.026]	0.020	.005	<.0001	[0.011, 0.029]	−0.018	.004	<.001	[−0.025, −0.011]	0.007	.003	.027	[0.001, 0.013]
Within-Person Intentions × Within-Person Minutes of Exercise	0.003	.001	.004	[0.001, 0.005]	0.005	.001	<.001	[0.003, 0.007]	−0.002	.001	.016	[−0.003, 0.000]	0.001	.001	.070	[0.000, 0.003]
Random effects	Estimate	*SE*	*z*	*p*	Estimate	*SE*	*z*	*p*	Estimate	*SE*	*z*	*p*	Estimate	*SE*	*z*	*p*
Level 2																
Intercept	1.212	.258	4.700	<.001	1.703	.324	5.260	<.001	0.833	.166	5.010	<.001	0.873	.162	5.400	<.001
Time	1.379	.573	2.410	.008	1.401	.606	2.310	.010	1.462	.425	3.440	<.001	1.215	.357	3.410	<.001
Intercept × Time	−0.493	.320	−1.540	.123	−0.442	.359	−1.230	.218	−0.227	.219	−1.040	.300	−0.793	.215	−3.690	<.001
Level 1																
Residual	1.650	.083	19.940	<.001	1.857	.092	20.250	<.001	1.040	.051	20.320	<.001	0.864	.046	18.800	<.001
Autocorrelation	0.028	.048	0.580	.560	0.038	.046	0.830	.406	0.002	.047	0.050	.964	0.123	.049	2.490	.013

Study 2

Dependent Variable	SAM Valence				SAM Arousal				Positive Affect				Negative Affect			
Predictors	Estimate	*SE*	*p*	95% CI (Lower, Upper)	Estimate	*SE*	*p*	95% CI (Lower, Upper)	Estimate	*SE*	*p*	95% CI (Lower, Upper)	Estimate	*SE*	*p*	95% CI (Lower, Upper)
Fixed effects																
Intercept	5.998	.641	<0.001	[4.735, 7.262]	6.961	.801	<0.001	[5.383, 8.539]	2.753	.560	<0.001	[1.648, 3.857]	2.399	.457	<0.001	[1.499, 3.299]
Time	−0.383	.141	0.007	[−0.659, −0.106]	−0.635	.147	<0.001	[−0.923, −0.347]	0.554	.114	<0.001	[0.331, 0.777]	−0.411	.096	<0.001	[−0.598, −0.223]
Gender (0 = *male*, 1 = *female*)	−0.326	.166	0.050	[−0.653, 0.000]	−0.435	.209	0.039	[−0.848, −0.023]	0.342	.146	0.020	[0.055, 0.630]	−0.025	.118	0.831	[−0.257, 0.207]
Total Baseline Exercise	0.001	.000	0.184	[0.000, 0.002]	0.001	.001	0.179	[0.000, 0.002]	−0.001	.000	0.092	[−0.001, 0.000]	0.001	.000	0.063	[0.000, 0.001]
Goal success week 1 (1 = exercising at least 30 min × 3 days)	−0.741	.314	0.019	[−1.360, −0.121]	−0.857	.392	0.030	[−1.630, −0.083]	0.492	.276	0.076	[−0.052, 1.035]	−0.336	.222	0.133	[−0.774, 0.103]
Goal success week 2 (1 = exercising at least 30 min × 3 days)	−0.534	.245	0.030	[−1.016, −0.052]	−0.227	.306	0.460	[−0.831, 0.377]	0.465	.214	0.031	[0.043, 0.887]	−0.146	.175	0.402	[−0.490, 0.198]
Average Intentions	0.452	.292	0.123	[−0.123, 1.028]	0.340	.364	0.351	[−0.377, 1.056]	−0.327	.255	0.201	[−0.829, 0.175]	0.410	.208	0.051	[−0.001, 0.820]
Within-Person Intentions	−0.001	.090	0.995	[−0.177, 0.176]	0.033	.095	0.724	[−0.152, 0.219]	0.024	.073	0.746	[−0.119, 0.166]	−0.028	.063	0.652	[−0.151, 0.095]
Average Minutes of Exercise	−0.108	.038	0.004	[−0.182, −0.034]	−0.127	.047	0.008	[−0.219, −0.034]	0.081	.033	0.014	[0.016, 0.146]	−0.042	.027	0.117	[−0.095, 0.011]
Within-Person Minutes of Exercise	−0.059	.005	<0.001	[−0.069, −0.048]	−0.060	.006	<0.001	[−0.071, −0.049]	0.048	.004	<0.001	[0.040, 0.057]	−0.021	.004	<0.001	[−0.029, −0.014]

(continued)

Table 2. (continued)

Study 2

Dependent Variable	SAM Valence				SAM Arousal				Positive Affect				Negative Affect			
Predictors	Estimate	*SE*	*p*	95% CI (Lower, Upper)	Estimate	*SE*	*p*	95% CI (Lower, Upper)	Estimate	*SE*	*p*	95% CI (Lower, Upper)	Estimate	*SE*	*p*	95% CI (Lower, Upper)
Average Intentions × Average Minutes of Exercise	0.013	.013	0.341	[−0.013, 0.038]	0.018	.016	0.263	[−0.014, 0.051]	−0.009	.011	0.457	[−0.031, 0.014]	0.003	.009	0.751	[−0.015, 0.021]
Average Intentions × Within-Person Minutes of Exercise	0.008	.002	<0.001	[0.004, 0.012]	0.009	.002	<0.001	[0.004, 0.013]	−0.007	.002	<0.001	[−0.010, −0.004]	0.002	.001	0.231	[−0.001, 0.005]
Within-Person Intentions × Average Minutes of Exercise	0.000	.003	0.937	[−0.006, 0.007]	−0.002	.003	0.576	[−0.009, 0.005]	−0.001	.003	0.578	[−0.007, 0.004]	0.001	.002	0.551	[−0.003, 0.006]
Within-Person Intentions × Within-Person Minutes of Exercise	0.000	.001	0.743	[−0.002, 0.003]	0.000	.001	0.981	[−0.003, 0.003]	0.001	.001	0.564	[−0.001, 0.003]	0.001	.001	0.412	[−0.001, 0.002]
Random effects	Estimate	*SE*	*Z*	*P*	Estimate	*SE*	*z*	*p*	Estimate	*SE*	*Z*	*p*	Estimate	*SE*	*z*	*p*
Level 2																
Intercept	1.036	.219	4.730	<0.001	1.758	.290	6.070	<.001	0.753	.146	5.150	<.001	0.652	.120	5.450	<.001
Time	0.339	.433	0.780	.217	0.547	.471	1.160	.123	0.311	.269	1.160	.124	0.093	.199	0.460	.321
Intercept × Time	−0.118	.258	−0.460	.647	−0.099	.296	−0.340	.737	0.019	.160	0.120	.906	−0.167	.130	−1.280	.199
Level 1																
Residual	1.872	.085	21.900	<.001	2.012	.090	22.430	<.001	1.196	.053	22.480	<.001	0.913	0.042	21.830	<.001
Autocorrelation	0.099	.043	2.290	.022	0.045	.045	1.010	.310	0.066	.043	1.530	.125	0.090	0.045	2.010	.044

Note. SAM = Self-Assessment Manikin; CI = confidence interval.

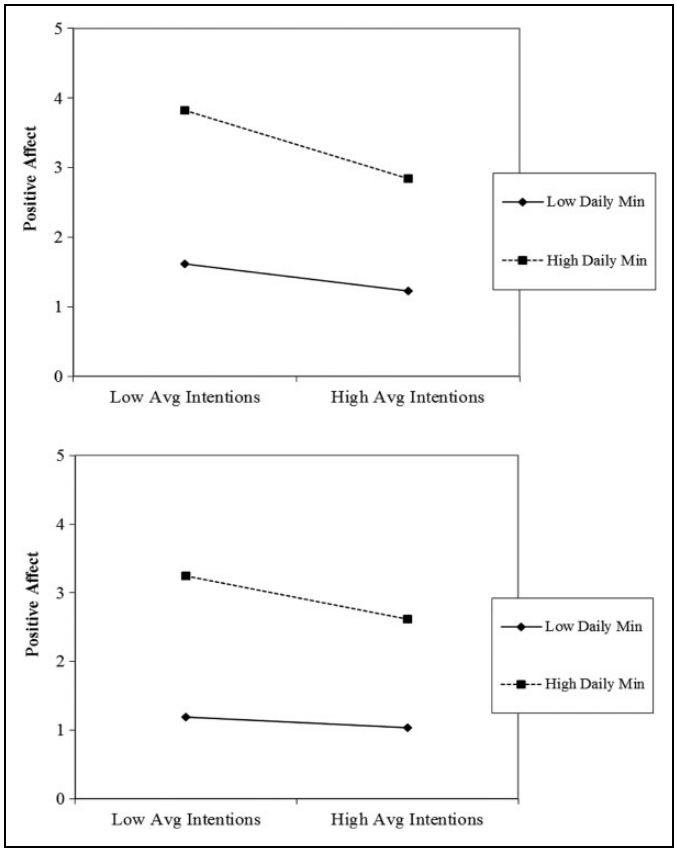

Figure 1. Interaction between average intentions and within-person minutes of exercise predicting next-day positive affect scores in Study 1 (top) and Study 2 (bottom).

intentions had a significant impact on affect, such that those with generally low intentions experienced the greatest level of satisfaction (S1: Estimate $= -.821$, $SE = .317$, $p = .011$; S2: Estimate $= -.521$, $SE = .256$, $p = .043$). Analogous patterns were found across SAM arousal and SAM valence in Studies 1 and 2 (see Figure 2).

Affective Responses and Next-Day Exercise Behavior

Table 3 shows the results of the multilevel regression model predicting next-day minutes of exercise from affect. Given the strong association between intentions and behavior, intention scores (average and within-person change scores) were included in the model to test whether affect impacts next-day behavior when accounting for intentions. There was a significant main effect of average intentions and within-person change in intentions, such that the tendency to set relatively high intentions was associated with greater next-day exercise and a positive increase in intentions (relative to one's personal mean) was associated with greater next-day exercise behavior. In both studies, across all measures of affect, average affect was associated with next-day exercise behavior, such that people with greater positive affect on average tended to engage in greater next-day exercise. Conversely, there was little evidence that a within-person change in affect was associated with next-day exercise behavior.

General Discussion

This research examined how intention–behavior discrepancies impact affective responses during high versus low personal performance, as a function of between-person differences in intentions. Results from two studies showed a Person (average level of intentions) $\times$ Situation (amount exercised on a particular day, relative to each particular participant's mean) interaction. During low personal performance, people felt equivalently unsatisfied regardless of whether they typically set high or low intentions. Conversely, during high personal performance, average intentions had a significant impact on goal-related affect, such that those with generally low intentions experienced the greatest satisfaction. Thus, we observed that the tendency to respond strategically to discrepancies between general intentions and performance is apparent only during high performance. We attribute these results to people's tendency to prefer information that reflects well on the self, such that chronic performance standards are used to bolster affective evaluations under conditions of high personal performance but are relatively unimportant during low personal performance.

There are several implications of these findings. Most basically, our results indicate that self-regulatory theories of affect, including control theory (Carver & Scheier, 1982) and self-discrepancy theory (Higgins, 1987), make predictions whose accuracy varies as a function of daily fluctuations in performance. Those theories' most fundamental prediction, the claim that discrepancies between personal standards and behavior relate to affect, was more accurate on days when participants performed relatively well than when they performed relatively poorly. We reached this conclusion by collecting longitudinal data that allowed isolating between-person variables (e.g., relatively stable performance standards) and within-person variables (e.g., changes in performance levels across days within persons).

Previous self-regulation research typically has not drawn these distinctions, which could help explain some previously inconclusive findings. For example, although Higgins, Klein, and Strauman (1985) found that discrepancies based on ideals/aspirations related to experiencing different emotions than did discrepancies based on oughts/duties, a later replication attempt did not observe that pattern (Tangney, Niedenthal, Covert, & Barlow, 1998). Because personal ideals and duties likely represent relatively stable aspects of people's self-concepts, our findings indicate that discrepancies based on these self-standards should predict affect most strongly on days when one perceives oneself to perform relatively well than relatively poorly. Accordingly, if the different overall batteries of measures completed by participants in the studies by Higgins and colleagues (1985) and Tangney and colleagues (1998) differentially impacted participants' self-perceived performance levels, this difference could help to explain the studies'

Table 3. Multilevel Regression Analysis Testing Within- and Between-Person Variability in Affect When Predicting Next-Day Minutes of Exercise.

Study 1

Dependent Variable	Next-Day Minutes of Exercise				Next-Day Minutes of Exercise				Next-Day Minutes of Exercise				Next-Day Minutes of Exercise			
Independent Variable	SAM Valence				SAM Arousal				Positive Affect				Negative Affect			
Predictors	Estimate	*SE*	*p*	95% CI (Lower, Upper)	Estimate	*SE*	*p*	95% CI (Lower, Upper)	Estimate	*SE*	*p*	95% CI (Lower, Upper)	Estimate	*SE*	*p*	95% CI (Lower, Upper)
Fixed effects																
Intercept	31.178	6.581	<.001	[18.188, 44.168]	26.624	6.984	<.001	[12.838, 40.409]	−13.338	6.618	.045	[−26.401, −0.275]	13.755	5.747	.018	[2.412, 25.099]
Time	0.702	3.141	.823	[−5.462, 6.865]	1.112	3.098	.720	[−4.967, 7.191]	0.788	3.116	.800	[−5.326, 6.902]	0.938	3.133	.765	[−5.208, 7.085]
Gender (0 = *male*, 1 = *female*)	−2.081	2.552	.416	[−7.118, 2.955]	−1.296	2.678	.629	[−6.581, 3.990]	−2.213	2.663	.407	[−7.469, 3.044]	1.620	2.683	.547	[−3.677, 6.916]
Total Baseline Exercise	0.031	0.007	<.001	[0.017, 0.045]	0.033	0.007	<.001	[0.018, 0.047]	0.030	0.007	<.001	[0.016, 0.044]	0.029	0.007	<.001	[0.014, 0.044]
Average Intentions	17.441	1.987	<.001	[13.520, 21.362]	17.251	2.104	<.001	[13.098, 21.404]	17.889	2.067	<.001	[13.809, 21.970]	19.946	2.079	<.001	[15.842, 24.050]
Within-Person Intentions	8.674	0.850	<.001	[7.006, 10.343]	8.665	0.851	<.001	[6.996, 10.334]	8.626	0.849	<.001	[6.961, 10.292]	8.667	0.849	<.001	[7.002, 10.332]
Average Effect	−5.252	0.811	<.001	[−6.852, −3.651]	−3.695	0.742	<.001	[−5.159, −2.230]	5.004	0.954	<.001	[3.121, 6.887]	−6.665	1.288	<.001	[−9.207, −4.122]
Within-Person Affect	0.444	0.449	.323	[−0.437, 1.326]	0.138	0.443	.756	[−0.731, 1.007]	−1.195	0.547	.029	[−2.269, −0.122]	1.459	0.745	.051	[−0.003, 2.920]
Random effects	Estimate	*SE*	*z*	*p*	Estimate	*SE*	*z*	*p*	Estimate	*SE*	*z*	*p*	Estimate	*SE*	*z*	*p*
Level 2																
Intercept	0.392	59.266	0.010	.497	35.800	61.426	0.580	.280	19.263	63.192	0.300	.380	5.543	59.928	0.090	.463
Time	125.160	206.240	0.610	.272	106.760	199.330	0.540	.296	65.118	204.510	0.320	.375	97.035	203.030	0.480	.316
Level 1																
Residual	736.810	39.166	18.810	<.001	731.750	38.253	19.130	<.001	743.010	40.214	18.480	<.001	737.970	39.127	18.860	<.001
Autocorrelation	0.141	0.051	2.730	.006	0.126	0.050	2.520	.012	0.161	0.050	3.190	.001	0.148	0.049	3.010	.003

Study 2

Dependent Variable	Next-Day Minutes of Exercise				Next-Day Minutes of Exercise				Next-Day Minutes of Exercise				Next-Day Minutes of Exercise			
Independent Variable	SAM Valence				SAM Arousal				Positive Affect				Negative Affect			
Predictors	Estimate	*SE*	*p*	95% CI (Lower, Upper)	Estimate	*SE*	*p*	95% CI (Lower, Upper)	Estimate	*SE*	*p*	95% CI (Lower, Upper)	Estimate	*SE*	*p*	95% CI (Lower, Upper)
Fixed effects																
Intercept	25.723	5.129	<.001	[15.613, 35.833]	19.541	5.500	.001	[8.699, 30.383]	−27.086	5.433	<.001	[−37.794, −16.377]	9.454	5.015	.061	[−0.432, 19.340]
Time	−2.317	2.525	.359	[−7.270, 2.636]	−2.036	2.522	.420	[−6.982, 2.911]	−2.177	2.510	.386	[−7.101, 2.747]	−2.091	2.509	.405	[−7.013, 2.831]
Gender (0 = *male*, 1 = *female*)	−2.816	1.901	.140	[−6.564, 0.932]	−3.303	2.057	.110	[−7.357, 0.752]	−3.339	1.975	.092	[−7.231, 0.553]	−1.228	2.104	.560	[−5.375, 2.920]
Total Baseline Exercise	0.017	0.005	.001	[0.007, 0.027]	0.017	0.005	.002	[0.006, 0.028]	0.018	0.005	.001	[0.008, 0.028]	0.021	0.006	<.001	[0.010, 0.032]
Average Intentions	21.141	1.609	<.001	[17.969, 24.314]	21.508	1.730	<.001	[18.098, 24.919]	21.192	1.667	<.001	[17.907, 24.477]	22.495	1.784	<.001	[18.979, 26.011]
Within-Person Intentions	4.816	0.750	<.001	[3.346, 6.287]	4.834	0.751	<.001	[3.361, 6.307]	4.822	0.750	<.001	[3.350, 6.293]	4.774	0.751	<.001	[3.301, 6.247]
Average Affect	−6.089	0.662	<.001	[−7.395, −4.784]	−4.071	0.622	<.001	[−5.297, −2.845]	6.386	0.798	<.001	[4.814, 7.958]	−6.057	1.105	<.001	[−8.235, −3.880]
Within-Person Affect	0.508	0.382	.183	[−0.240, 1.257]	0.476	0.373	.202	[−0.256, 1.208]	−0.522	0.477	.274	[−1.458, 0.414]	0.150	0.641	.816	[−1.108, 1.407]
Random effects	Estimate	*SE*	*z*	*p*	Estimate	*SE*	*z*	*p*	Estimate	*SE*	*z*	*p*	Estimate	*SE*	*z*	*p*
Level 2																
Intercept	61.801	50.447	1.230	.110	112.880	40.080	2.820	.002	87.013	36.958	2.350	.009	125.790	41.418	3.040	0.001
Time	3.063	147.800	0.020	.492	0.000				0.000				0.000			
Level 1																
Residual	724.010	31.523	22.970	<.001	724.750	28.421	25.500	<.001	723.090	28.229	25.620	<.001	722.840	28.161	25.670	<.001
Autocorrelation	0.057	0.041	1.370	.171	0.052	0.038	1.370	.171	0.046	0.037	1.240	0.213	0.041	0.036	1.130	0.258

Note. SAM = self-assessment manikin; CI = confidence interval.

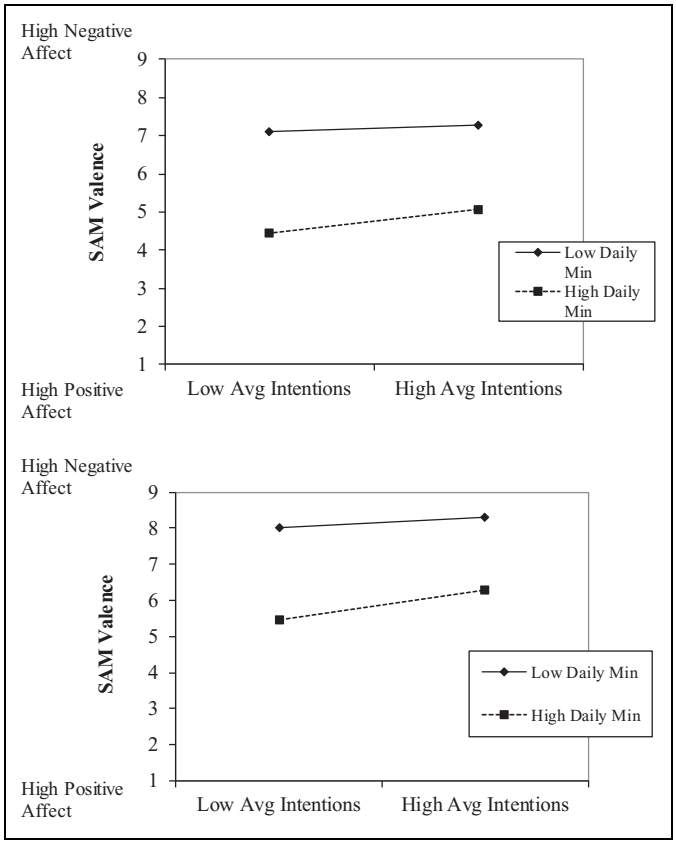

Figure 2. Interaction between average intentions and within-person minutes of exercise predicting next-day Self-Assessment Manikin valence scores in Study 1 (top) and Study 2 (bottom).

different conclusions regarding the predictive utilities of ideal- and ought-based discrepancies. Future work is needed to examine this possibility as well as our more basic assumption that current performance levels impact the accessibility of one's relatively stable self-standards.

The present findings also may have implications for research on intention–behavior gaps. Although previous studies have shown that intentions and behavior are moderately correlated (Sheeran, 2002), high intentions do not engender large changes in behavior (Webb & Sheeran, 2006). The intention–behavior gap may exist, in part, due to people's tendency to differentially respond to their chronic intentions depending on the situation (high vs. low performance). The inconsistent amounts of attention applied to one's chronic intentions across days could help to explain evidence that intentions, in turn, inconsistently relate to behavior across time (Webb & Sheeran, 2006). Moreover, if low performance continues across time, people may begin to lose sight of their chronic standards (in part, to protect a positive self-view). Several studies have indicated that planning prompts and cue-based reminders help people to follow-through with their intentions (Rogers & Milkman, 2016; Rogers, Milkman, John, & Norton, 2015). Thus, reminders may be especially helpful when people are struggling to reach a goal because they help to mitigate people's tendency to pay relatively less attention to chronic standards.

Moreover, to the extent that people are motivated to attend to their successes and minimize their failures, these findings may help to clarify why people often view themselves as above average (self-enhancing effects). Given that the present studies found evidence that people's average intentions (rather than within-person fluctuations) predict affective responses, these findings suggest that this tendency is grounded in relatively stable between-person differences. Another implication of this finding is that brief periods of goal-directed success may be insufficient for developing goal-directed engagement; rather, it may be through repeated experiences that people derive satisfaction from meeting their chronic standards. Increasingly, there is evidence that relating a behavior to one's self-concept is a critical predictor of longitudinal behavioral outcomes (Sweeney, Wilson, & Van Horn, 2017). Future research may consider examining how daily experiences of success (vs. failure) and the development of chronic personal standards relate to enduring changes in the self-concept.

A secondary aim of the present research was to examine whether there is a positive implication of the hypothesized tendency to differentially respond to intention–behavior discrepancies. Results from Studies 1 and 2 showed that greater positive affect on average was associated with sustained goal-related effort, as reflected in daily-level exercise behavior. Recent longitudinal research suggests that day-to-day affect is relatively stable, with one third to one half of the variance in people's daily affect being explained by trait-like dynamics rather than state-level processes (Hudson, Lucas, & Donnellan, 2017). We found that between-person differences rather than within-person daily fluctuations in affect were more strongly associated with exercise behavior across time. To the extent that average positive affect promotes sustained goal pursuit, strategically responding to intention–behavior discrepancies may serve an adaptive function.

By assessing relations between current goal-related affect and subsequent goal-directed efforts, the present research is also relevant to the broader literature on affect and goal pursuit. Optimization-of-interest accounts of motivation suggest that positive affect should increase goal-related efforts, whereas negative affect should decrease goal-related efforts (Hulleman & Harackiewicz, 2009; Ilies & Judge, 2005). Alternatively, assuming that affect tracks the effectiveness of ongoing action, control theory proposes that negative affect signals insufficient goal-related progress, thus motivating increased goal-related efforts (Carver, 2003). From this standpoint, positive affect signals satisfactory goal-directed progress, indicating that one is free to decrease goal-related efforts (i.e., "coast") and reallocate efforts elsewhere. There have been few empirical tests of the coasting prediction. One exception is Louro, Pieters, and Zeelenberg (2007) who observed that positive goal-related affect related to a decrease in goal-related effort when goal attainment was perceived as near but to an increase in goal-related effort when goal attainment was perceived as distant.

Our study's intensive longitudinal design allowed examining the interest optimization and coasting predictions with analyses that differentiated within-person effects (e.g., does one's current goal-related affect—relative to one's average goal-related affect—correlate with one's next-day goal-directed efforts?) and between-person effects (e.g., relative to others, does one's average level of goal-related affect correlate with one's daily goal-directed efforts?). The within-person effect, by assessing fluctuations within a person across time, corresponds most closely to control theory's assumption that affect fluctuates in response to dynamic changes in the amount of discrepancy between current and desired states. However, in neither of the two studies did the within-person analyses support the coasting prediction. Although null effects can be difficult to interpret, we did observe large effects of daily goal progress on daily goal-related affect, which attests to the sensitivity of the daily measure of goal-related affect to daily fluctuations in goal progress. Both studies included repeated observations for relatively large samples, indicating that statistical power does not appear a likely explanation for the lack of an inhibitory effect of goal-related positive affect on subsequent goal-directed behavior.

Although the null within-person effects of current-day's goal-directed affect on next-day's goal-directed behavior also did not support interest optimization accounts, the between-person analyses indicated that feeling more positive on average about one's effort to exercise was associated with sustained goal-related effort, as reflected in daily exercise behavior. Because goal-related affect likely reflects not only daily fluctuating factors (e.g., performance) but also relatively stable factors (e.g., general interest), a positive relation between average goal-related affect and daily goal-directed efforts is consistent with optimization-of-interest accounts of motivation suggesting that positive affect should encourage people to increase their goal-related efforts, whereas negative affect should encourage people to decrease their goal-related efforts.

However, an important limitation to an interest optimization interpretation of our findings is that the between-person analyses cannot establish causality. Further work is needed that distinguishes between fluctuating and stable aspects of goal-related affect, which could help to elucidate divergent pathways through which positive affect experienced during an activity impacts subsequent behavior. By showing that people's average levels of affect predict daily fluctuations in their performance, a preliminary interpretation of the present results is that affect's role in guiding goal pursuit functions more at a trait-level than a dynamic state-level process. This interpretation appears consistent with evidence from studies indicating that experiencing positive affect during or immediately after engaging in exercise is associated positively with exercise intentions and future behavior (Kwan & Bryan, 2010; Williams et al., 2008).

A limitation of the present research is that exercise was self-reported. Past research has found moderate levels of agreement between the IPAQ and accelerometry-estimated physical activity (.65–.88; Craig et al., 2003). Although efforts were taken to minimize self-report bias (e.g., participants were instructed to complete the daily surveys regardless of their exercise performance), future research would benefit from using more objective measures of physical activity. Furthermore, although the present study design allows examining how goal-related processes unfold in a relatively naturalistic manner across time, future experimental research is needed to confirm whether manipulated experiences of low versus high performance cause strategic affective responses.

The present research expands on past research by providing evidence that intention–behavior discrepancies have a stronger impact on affective evaluations during high (rather than low) personal performance. Future research aiming to strengthen behavioral intentions and goal-directed performance may explore how to minimize people's naturalistic tendency to avoid focusing on chronic standards under conditions of failure and how to maximize people's tendency to focus on chronic standard conditions of success.

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Supplemental Material

The supplemental material is available in the online version of the article.

Notes

1. See https://osf.io/tjsev/ for all measures, original data analysis plan, and exclusion criteria.
2. Studies 1 and 2 were designed originally to detect a mean difference between two experimental groups. For the purpose of the present analyses, we reasoned that the relatively large sample sizes and repeated-measures designs would yield sufficient power for testing these secondary research questions.
3. See supplemental material for further details about the construal-level manipulation and additional measures not relevant to the current analyses.

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