








What Constitutes Successful Goal Pursuit? Exploring the Relation Between Subjective and Objective Measures of Goal Progress

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Personality Science, 2023, Vol. 4, Article e12017, <https://doi.org/10.5964/ps.12017>

Received: 2023-06-06 • Accepted: 2023-07-28 • Published (VoR): 2023-08-15

Handling Editor: John F. Rauthmann, Universität Bielefeld, Bielefeld, Germany

Reviewing: This paper has undergone a streamlined process as it has been transferred from another journal including peer reviews. No open reviews are available.

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Supplementary Materials: Data, Materials [see [Index of Supplementary Materials](#)]



Abstract

Despite a rich literature on goals, the notion of successful goal pursuit remains somewhat unclear. Most research on personal goal pursuit relies on subjective measures of goal progress and research that uses objective measures (e.g., grade point average) often ignores individuals' idiosyncratic goals. The present research investigated the relation between diverse measures of goal progress in the context of academic and weight loss goals using four datasets (total sample = 351). Overall, subjective measures were positively related to objective measures. The magnitudes of these associations varied across studies and were generally smaller than would be expected if the measures assessed the same construct ($R^2 = .05-.39$). These findings suggest that subjective and objective measures may reflect related but distinct constructs. The present research draws attention to an important topic in the goals literature and highlights the need for additional research on the conceptualization and operationalization of successful goal pursuit.



Keywords

goal pursuit, goal progress, goal attainment, subjective measures, objective measures

Relevance Statement

This research highlights discrepancies between certain measures of subjective and objective goal progress and calls for additional research on a fundamental topic in the goals literature: the operationalization of successful goal pursuit.

Key Insights

- We investigated the relation between diverse measures of goal progress.
- Subjective and objective measures of goal progress were positively correlated.
- The magnitude of the correlations varied across studies.
- Subjective and objective measures likely reflect related but distinct constructs.
- Multiple indicators of goal progress should be used, when feasible.

Despite a rich literature on goals (for reviews see [Austin & Vancouver, 1996](#) and [Milyavskaya & Werner, 2018](#)), the notion of *successful* goal pursuit remains somewhat unclear as there are multiple approaches to assessing goal progress and attainment. Most research on personal goal pursuit relies on self-report measures of subjective progress (example item: “I have made progress on this goal”; [Milyavskaya & Werner, 2018](#)). Other research, including research on academic performance and weight loss, tends to focus on objective measures (e.g., grades, weight loss; [Powers et al., 2008](#); [Richardson et al., 2012](#)). These different approaches are often identified as operationalizations of “goal progress” but limited research has explored the degree to which they are related. As such, a recent review paper highlighted the need to examine the relation between diverse operationalizations of successful goal pursuit ([Milyavskaya & Werner, 2018](#)). Doing so could offer insight into (1) whether these different approaches can be used interchangeably, (2) the potential advantages and disadvantages of each approach, (3) how to select appropriate measures for one’s research objectives, and (4) how to interpret past (and future) research. Thus, the aim of the present research was to explore the relation between subjective and objective measures of goal progress in the context of academic and weight loss goals to shed light on the conceptualization and operationalization of successful goal pursuit.

Subjective Measures

In personality and social psychology, goal pursuit research typically focuses on self-reported subjective progress as the outcome. Participants respond to items such as “I have made progress on this goal” or “I have had quite a lot of success in pursuing this goal” using a Likert scale (e.g., [Brunstein, 1993](#); [Koestner et al., 2008](#); [Milyavskaya](#)

& Werner, 2018). These approaches allow participants to report their progress on a variety of goals and enable researchers to compare progress across different types of goals using the same instrument (e.g., academic versus social goals). Subjective measures also allow for the use of within-person (goal level) analyses, which is important given that people typically pursue multiple goals simultaneously (Kung & Scholer, 2020). In addition, subjective measures may be sensitive to certain types of progress that are missed with objective measures (e.g., starting to exercise but not yet losing weight) as well as situational factors that diminish or exaggerate objective progress (e.g., attaining one's academic goal because test standards were reduced). Moreover, subjective measures are useful when researchers are specifically interested in *perceptions* of progress. They are also easy to administer, inexpensive, and offer insight in contexts where objective measures are lacking or unfeasible.

Nevertheless, subjective measures possess weaknesses. Participants' responses may be influenced by biases, including those related to social desirability, memory, or self-enhancement (Grimm, 2010; Paulhus & Vazire, 2007; Webb et al., 2013). Another potential issue is that subjective progress is typically measured using only one to three items. Short scales can present reliability issues and have historically been discouraged by the measurement community but may be justifiable for narrowly conceptualized constructs (Flake et al., 2017). Furthermore, many measures of subjective progress do not permit participants to report *exceeding* their goals. An exception to this trend can be observed with Kiresuk et al.'s (2014) goal attainment scaling technique, which involves reporting progress towards idiosyncratic goals using a common scale that captures the possibility of surpassing goals. Some research in personality and social psychology has used variations of this approach (e.g., Williamson & Wilkowski, 2020), but it is still uncommon. It is also worth noting that subjective reports can be influenced by a variety of factors, including other people's goal progress (Reynolds et al., 2019). While this is not inherently problematic, it could be an issue if researchers use or interpret these reports as proxies for objective success.

Objective Measures

Objective measures are typically observable and externally verifiable. They are thought to be less influenced by personal biases compared to other types of measurement, such as self-report. Objective measures are generally used in situations where one specific type of goal (common to all participants) is of interest. For example, research on academic performance frequently uses grade point average (GPA) provided by third parties (Richardson et al., 2012) and research on weight loss often examines changes in weight using a scale (e.g., Knäuper et al., 2018).

Although objective measures circumvent some of the challenges related to self-reported subjective progress, they too possess limitations. There are many personal goals for which there are no obvious objective measures (e.g., "be more accepting of others"). In

addition, objective measures are not immune to subjectivity or measurement error (e.g., weight can fluctuate based on clothing and type of scale), and it can be relatively costly in terms of time and resources to obtain them (e.g., bringing all participants into the lab to weigh them). Furthermore, research that uses objective outcomes, such as research on academic performance, often relies on *general* measures, such as GPA (Richardson et al., 2012), that ignore individuals' idiosyncratic goals. Although this can be expected in research focused on general performance, it may be inappropriate for understanding *personal* goal pursuit. For example, if two students attained a grade of 80%, but Student A had the goal of attaining 80% while Student B had the goal of attaining 90%, only Student A attained their goal. This insight is missed by focusing solely on objective measures of general performance.

Some exceptions to the tendency to rely on general measures can be observed in studies that compute a person-specific (idiosyncratic) goal attainment score. For example, Koestner et al. (2008) used a "body weight goal-attainment index", subtracting weight loss goals from the amount of weight lost. With this goal-attainment index, if someone wanted to lose 10 pounds and lost 8 pounds, their score would equal -2. This person might differ in important ways (e.g., subjective well-being) from another individual who lost 8 pounds but intended to lose only 5 pounds, even though they both lost the same amount of weight. Other research has used similar approaches that involve calculating the percentage of the goal attained (e.g., Frech et al., 2022). In sum, there are multiple approaches to investigating goal progress, each with advantages and disadvantages, some of which depend on the objectives of the research.

The Relationship Between Subjective and Objective Measures

To date, limited research has investigated the relation between different operationalizations of goal progress, though there are reasons to expect some inconsistency between them. For example, although these measures are often identified as operationalizations of "goal progress", they may reflect distinct constructs or response processes: subjective measures involve an evaluative component and appear to reflect *perceptions* of progress, whereas objective measures may assess progress more directly (Dang et al., 2020). Other research suggests that self-reported subjective progress may not reflect attempts to accurately gauge objective success and might instead function as a self-regulatory mechanism (e.g., downplaying progress to boost motivation; Huang et al., 2012; Koo & Fishbach, 2008). Furthermore, individuals vary in the amount of progress monitoring that they engage in and may avoid or distort objective feedback when it is unpleasant (Webb et al., 2013). This, along with other biases related to memory and social desirability (Paulhus & Vazire, 2007), could contribute to discrepancies.

Correspondingly, previous research suggests that subjective and objective measures of the "same" construct (or at least closely related theoretical constructs) are often less correlated than would be expected if they truly assessed the same construct. For

example, various degrees of inconsistency have been observed between subjective and objective measures of academic performance ($r = .14-.34$; Dumont & Troelstrup, 1980), physical activity ($r = .32-.53$; Gosney et al., 2007; $r = .01-.48$; Liu et al., 2016), work performance ($r = .39$; Bommer et al., 1995; $r = .28-.29$; Pransky et al., 2006), and career success ($r = .41-.47$; Spurk & Abele, 2014; $r = .26-.32$; Spurk et al., 2016). Taken together, measures that ostensibly assess the same construct appear to be correlated, but rarely above $r = .50$ (i.e., 25% shared variance).

Ultimately, the nature of the relationship between the different measures of goal progress remains an open question. In addition, no research to date has distinguished between idiosyncratic and general measures of objective goal progress (i.e., those that consider versus ignore individuals' personal goals) and compared their relationships with subjective progress. Directly exploring these associations would address an important gap in the literature and offer insight into the appropriate use and interpretation of each approach.

The Present Research

The purpose of the present research was to investigate the relation between diverse measures of goal progress in the context of academic (Study 1) and weight loss (Studies 2–3) goals. Specifically, we investigated: how subjective progress relates to idiosyncratic objective progress (Research Question [RQ] 1); how subjective progress relates to general objective progress (RQ 2); whether subjective progress is more strongly related to idiosyncratic versus general objective progress (RQ 3); and whether individuals who objectively attain their goals report greater subjective progress than those who do not (RQ 4). Definitions of each variable are available in Table 1. This project was exploratory in nature. While we hypothesized (preregistered) that subjective and objective measures would be positively related, we were more interested in estimating the magnitudes of these relationships. Study 1 (academic goals) investigated whether subjective progress was related to *future* objective success, whereas Studies 2 and 3 (weight loss goals) investigated the relationships between subjective and objective measures collected at the same time points.

Table 1

Definitions of Study Variables

Measure	Definition
Subjective Measures	
Subjective Goal Progress	Individuals' perceptions of goal progress indicated by their responses to items on self-report questionnaires (e.g., "I have made a lot of progress towards this goal")

Measure	Definition
Objective Measures	
Idiosyncratic Objective Goal Progress	An objective measure of progress that considers individuals' personal goal and reflects the discrepancy between their actual performance and their goal (i.e., the distance to their goal; e.g., GPA goal minus actual GPA)
Percentage of the Goal Attained	A variant of Idiosyncratic Objective Goal Progress that represents objective progress as a percentage by dividing actual performance by one's personal goal and multiplying by 100% (e.g., if someone's GPA goal was 10 (A-), and their GPA was 8.5, their percent attainment would be 85%).
General Objective Goal Progress	A raw score of performance that ignores personal goals (e.g., actual GPA, weight lost)

Transparency, Openness, and Reproducibility

The data used in the present research were collected for other studies on goal pursuit; this entire manuscript uses secondary data analysis. As such, we provide sensitivity power analyses for each study based on our main analyses. We preregistered the planned analyses for our research questions (including background, hypotheses, methods, and materials) after the data was collected, but before conducting the analyses. Deviations from the preregistration are noted in the manuscript. We report all analyses that were run, including a set of exploratory (non-preregistered) analyses with a variant of our idiosyncratic progress outcome: *percentage of the goal attained* (scale = 0–100%). Study materials (e.g., questionnaires, data, syntax with assumptions testing and planned analyses, output) are available on the Open Science Framework (OSF). Project link: <https://osf.io/c94wv>.¹ Approval was obtained from the university research ethics boards for all studies.

1) We conducted an additional study related to dietary goals using a measure of subjective progress and a self-report measure of behavioural progress (i.e., reports of food servings). This study, originally labeled "Study 1" in the preregistration, is reported in the [Supplementary Materials](#) because it did not include a traditional measure of objective progress (<https://osf.io/bkds6>). Consequently, the labels of the studies in the manuscript do not align with the labels in the original preregistration: Study 1 in the manuscript corresponds to Study 2 in the preregistration; Study 2 in the manuscript corresponds to Study 3 in the preregistration, and study 3 in the manuscript corresponds to Study 4 in the preregistration.

Study 1

Study 1 focused on academic goals and explored whether subjective progress reported earlier in the semester was related to future (i.e., end-of-semester) objective progress. Secondary analyses examined whether subjective progress reported towards the end of the semester corresponded more closely to objective measures, compared to earlier subjective reports.

Method

Data for this study was collected as part of a larger research project on goal pursuit (see <https://osf.io/946fp>). A total of 112 university students took part in the study for course credit (80% women; 51% Caucasian; $M_{\text{age}} = 21.54$ years, $SD = 6.97$). At time one (approximately the beginning of the semester) participants reported their GPA goal for the semester. At time two (T2; one week later; $n = 89$) and time three (T3; one month later; $n = 69$) participants reported subjective progress. At time four (the end of the semester), GPAs were obtained from the registrar's office for participants who provided consent ($n = 94$). All four research questions were investigated with subjective progress reported at T2 and T3. Using R software ("pwr" package; Champely et al., 2017), a sensitivity analysis based on the number of participants used in our main analysis ($n = 61$) and $\alpha = .05$ indicated that we had 80% power to detect an effect size of $f^2 = .13$ ($R^2 = .12$) in a simple linear regression.

Materials

GPA Goal — At the beginning of the study, participants set a GPA goal for the semester based on the university's GPA categories ranging from 1 (50–52%) to 12 (90–100%).

Subjective Goal Progress — At T2 and T3, participants responded to three items (i.e., "I have made a lot of progress towards this goal", "I feel like I am on track with my goal plan", and "I feel like I have achieved this goal") on a scale ranging from 1 (strongly disagree) to 7 (strongly agree). These items were averaged (T2: $\alpha = 0.80$; T3: $\alpha = 0.86$).

Idiosyncratic Objective Goal Progress (i.e., Distance to Goal) — Idiosyncratic objective goal progress was calculated by subtracting GPA goals from actual GPA. Therefore, when participants failed to attain their goals, their scores were negative. When participants surpassed their goals, their positive scores were recoded to 0 to indicate goal attainment.² Scores could range from -12 (aiming for a GPA of 12 and receiving a GPA of 0) to 0 (goal attained).

2) Given that most measures of subjective progress do not permit individuals to report surpassing their goals, we constrained our measures of idiosyncratic objective progress throughout this manuscript (i.e., participants' scores

Percentage of the Goal Attained — See Table 1 for description. The correlation between the two variants of idiosyncratic objective progress was $r = .98$, $p < .001$.

General Objective Goal Progress — End-of-semester GPA, a continuous variable that could range from 0 to 12 was used to represent general objective goal progress.

Goal Attainment — A dichotomous variable was created based on final (objective) grade (attained = 1; not attained = 0).

Results

Descriptive statistics and correlations are provided in Table 2. For our main analyses we used the T3 measure of subjective progress, as it was closer in time to the end of the semester (i.e., approximately five weeks, on average, from the end of the semester; range = 2–8 weeks). Results from T2 are reported in the [Supplementary Materials \(https://osf.io/5zvgh\)](https://osf.io/5zvgh).

To investigate the relationship between subjective progress and idiosyncratic objective progress (RQ1), a simple linear regression was conducted. Subjective progress positively predicted idiosyncratic objective progress, $\beta = .34$, $b = 0.46$, 95% CI [0.13, 0.79], $t(59) = 2.77$, $p = .007$, $R^2 = .12$. An exploratory analysis with percentage of the goal attained as the outcome produced similar results: $\beta = .32$, $b = 4.77$, 95% CI [1.09, 8.45], $t(59) = 2.60$, $p = .012$, $R^2 = .10$.

To investigate the relationship between subjective progress and general objective progress (RQ2), another simple linear regression was conducted. Subjective progress did not predict general objective progress (i.e., GPA), though they were positively albeit non-significantly associated, $\beta = .24$, $b = 0.46$, 95% CI [-0.03, 0.95], $t(59) = 1.87$, $p = .067$, $R^2 = .06$.³

To investigate whether subjective goal progress was more strongly related to idiosyncratic versus general objective goal progress (RQ3), a Steiger's Z test for dependent correlations was conducted. Subjective progress was not more strongly correlated with idiosyncratic, $r(59) = .34$, $p = .007$, than general, $r(59) = .24$, $p = .067$, objective progress, $z = 1.53$, p (two-tailed) = .13, $q = .11$. This analysis had 99% power to detect a medium effect ($q = .30$), but only 29% power to detect a small effect like the one observed ($q = .10$; [Faul et al., 2009](#)).

could not indicate that they had surpassed their goals) so that they would more closely resemble the subjective measures. We also conducted exploratory analyses with the unconstrained measures (<https://osf.io/fe2ax>).

3) One potential statistical outlier was identified: standardized residual of -2.99. Results without outlier: subjective progress positively predicted general objective progress, $\beta = .27$, $b = 0.48$, 95% CI [0.03, 0.93], $t(59) = 2.12$, $p = .039$, $R^2 = .07$.

Table 2*Descriptive Statistics and Correlations*

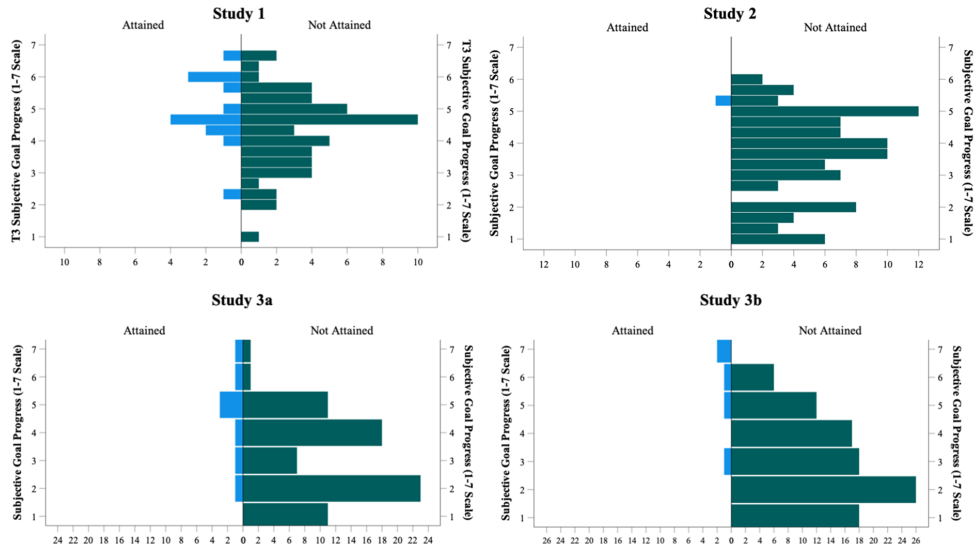
Variable	Scale/Range	<i>M</i>	<i>SD</i>	SGP _{T2} (SGP _{T3})	IOGP
Study 1 (<i>n</i>_{T2} = 76; <i>n</i>_{T3} = 61)					
SGP _{T2} (SGP _{T3})	1–7	4.39 (4.36)	1.11 (1.24)	–	
IOGP	-12–0	-1.82	2.59	.03 [-.20, .25]	–
				(.34 [.10, .55])	
GOGP	0–12	8.28	2.59	.00 [-.22, .23]	.85 [.77, .91]
				(.24 [-.02, .46])	
Study 2 (<i>n</i> = 93)					
SGP	1–7	3.63	1.38	–	
IOGP	-45.49–0	-14.90	10.31	.32 [.12, .49]	–
GOGP	-21.40–23.40	-0.96	6.00	.23 [.03, .41]	.44 [.26, .59]
Study 3a (<i>n</i> = 80)					
SGP	1–7	3.19	1.55	–	
IOGP	-8–0	-2.50	1.75	.57 [.39, .70]	–
GOGP	-2.75–4.45	0.78	1.51	.57 [.40, .70]	.70 [.57, .80]
Study 3b (<i>n</i> = 102)					
SGP	1–7	3.10	1.61	–	
IOGP	-9.70–0	-3.54	2.07	.49 [.32, .62]	–
GOGP	-4.80–4.80	0.55	1.79	.50 [.34, .64]	.62 [.48, .73]

Note. SGP = subjective goal progress (higher scores reflect greater progress); IOGP = idiosyncratic objective goal progress (higher scores reflect greater progress; 0 reflects attaining one's goal); GOGP = general objective goal progress (higher scores reflects greater progress). Significant correlations are bolded.

For RQ4, we planned to compare the subjective progress of participants who attained their goal to those who did not, but only 12 participants attained their goal. Consequently, we do not infer from this sample to the population and report inferential statistics in the [Supplementary Materials](https://osf.io/7ya5w) only: <https://osf.io/7ya5w>. Figure 1 shows the distribution of subjective progress between those who attained their goals ($n = 12$; $M = 4.86$, $SD = 1.14$) and those who did not ($n = 49$; $M = 4.24$, $SD = 1.25$), $d = 0.51$.

Figure 1

Distribution of Subjective Goal Progress by Goal Attainment for Studies 1–3b

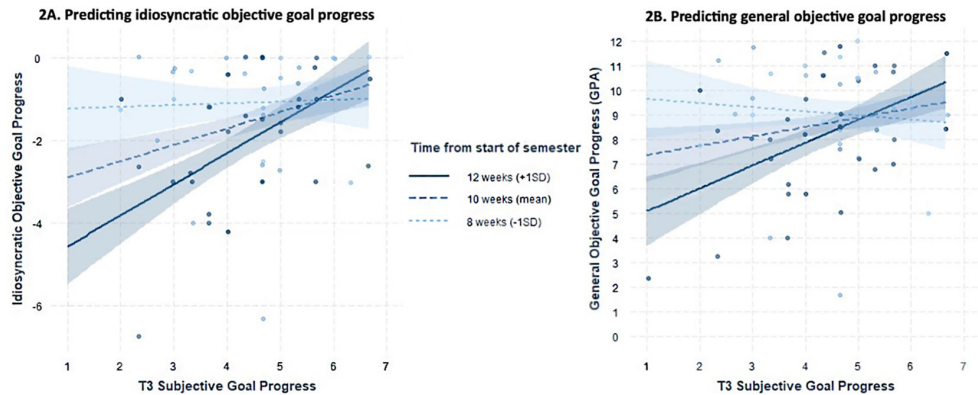


Secondary Analyses

To examine whether subjective progress reported towards the end of the semester was more closely related to end-of-semester objective progress, the number of days from the start of the semester until the T3 survey was entered into the regressions as a moderator. There was a significant interaction between subjective progress and time for both idiosyncratic objective progress, $b = 0.03$, 95% CI [0.005, 0.05], $t(57) = 2.47$, $p = .017$, $R^2 = .27$, and general objective progress, $b = 0.04$, 95% CI [0.01, 0.07], $t(57) = 2.49$, $p = .016$; $R^2 = .18$. When subjective progress was reported closer to the end of the semester, it was more strongly related to measures of objective progress (see Figure 2).

Figure 2

Interaction of Subjective Goal Progress (T3) by Time to Predict Idiosyncratic Objective Progress and General Objective Progress



Note. The total semester duration was 13 weeks, plus 2 weeks of exams. Subjective progress reported near the end of the semester was more strongly related to objective progress (compared to goal progress reported soon after the halfway point of the semester).

Discussion

In Study 1, subjective progress reported earlier in the semester was positively related to end-of-semester idiosyncratic, but not general, objective progress (though see Footnote 3). This association is noteworthy given the approximately five-week time interval between the subjective and objective measures. In addition, subjective progress was not more strongly related to idiosyncratic than general objective progress, though this analysis was underpowered for detecting small effects (but sufficiently powered for detecting medium effects). Furthermore, there were too few participants who objectively attained their goals to run inferential statistics comparing their subjective progress to those who did not attain their goals. Finally, secondary analyses indicated that subjective reports completed later in the semester were more closely related to end-of-semester objective measures, suggesting that larger associations might have been observed if measures were collected at the same time point. In subsequent studies, we focus on the association between subjective and objective progress measured concurrently.

Study 2

In Study 2 we investigated our research questions in the context of weight loss goals pursued over a three-month period.

Method

Data for this study was collected as part of a larger study on goal pursuit (see <https://osf.io/2u4w3>). Out of 316 participants (i.e., university students participated for course credit) who began the study, 112 completed the final follow-up (80% women; 53% Asian; $M_{\text{age}} = 19.28$ years, $SD = 3.08$). At baseline, participants set their weight loss goals and were weighed using a scale. Three months later, participants reported their subjective progress and were weighed again. Participants were excluded if they did not complete the relevant measures ($n = 17$). Using R software (“pwr” package; Champely et al., 2017), a sensitivity power analysis based on our final sample size ($n = 93$) and $\alpha = .05$ indicated that we had 80% power to detect an effect size of $f^2 = .09$ ($R^2 = .08$) in a simple linear regression.

Materials

Weight — Participants were weighed (in pounds) at baseline and at the three-month time point.

Weight Loss Goals — At baseline participants reported the amount of weight that they wanted to lose over the three-month study. All reports were converted to pounds.

Subjective Goal Progress — Three months after baseline, prior to being weighed, participants reported their progress using the items from Study 1 ($\alpha = 0.82$).

Idiosyncratic Objective Goal Progress (i.e., Distance to Goal) — Idiosyncratic objective progress was calculated by subtracting weight loss goals from actual amount of weight lost (Koestner et al., 2008). When participants failed to attain their goals, their scores were negative. When participants surpassed their goals, their positive scores were recoded to 0 to indicate attainment. Lower scores represent less progress and a score of 0 represents attainment.

Percentage of the Goal Attained — Percentage of goal attainment was computed by dividing actual weight loss by weight loss goals and multiplying by 100% to get a percentage (e.g., someone who wanted to lose 10 pounds and lost 5 pounds = 50%). If individuals gained weight, their negative percentage scores were recoded to 0%. If individuals exceeded their goals, their percentage scores above 100% were recoded to 100% so that scores could range from 0–100%. The correlation between the two measures of idiosyncratic progress was $r = 0.49$, $p < .001$.

General Objective Goal Progress — Weight lost at the end of the study (i.e., baseline weight minus final weight) was used to represent general objective progress.

Goal Attainment — A dichotomous variable was created based on objective weight loss (attained = 1; not attained = 0).

Results

Two major outliers were removed due to concerns about a potential data entry error. The final sample consisted of 93 participants. Descriptive statistics and correlations are presented in [Table 2](#).

For RQ1, a simple linear regression indicated that subjective progress positively predicted idiosyncratic objective progress, $\beta = .32$, $b = 2.37$, 95% CI [0.89, 3.85], $t(91) = 3.18$, $p = .002$, $R^2 = .10$. An exploratory analysis with percentage of the goal attained as the outcome produced similar results: $\beta = .34$, $b = 5.73$, 95% CI [2.45, 9.02], $t(91) = 3.47$, $p < .001$, $R^2 = .12$. For RQ2, a simple linear regression indicated that subjective progress positively predicted general objective progress (i.e., weight lost), $\beta = .23$, $b = 1.01$, 95% CI [0.13, 1.90], $t(91) = 2.28$, $p = .025$, $R^2 = .05$. We also conducted exploratory analyses for RQ1 and RQ2 with gender included in the regression models for each weight loss study (Studies 2–3b); gender was unrelated to the outcomes in all studies except for percentage of the goal attained in Study 2 (full results: <https://osf.io/g7v5u>).

For RQ3, a Steiger's Z test for dependent correlations indicated that subjective progress was not more strongly correlated with idiosyncratic, $r(91) = .32$, $p = .002$, than general, $r(91) = .23$, $p = .025$, objective progress, $z = 0.78$, p (two-tailed) = .43, $q = .10$. This analysis only had 14% power to detect such a small effect (Faul et al., 2009). RQ4 could not be investigated because only one participant attained their goal (see [Figure 1](#) for a distribution of subjective progress by goal attainment).

Discussion

In Study 2, subjective progress was positively related to all objective measures of progress. The associations between subjective and idiosyncratic objective measures could be interpreted as relatively small if the different measures are assumed to reflect the same construct. However, if this assumption is not held and the measures are instead assumed to tap into different but related constructs, the magnitude of the association could be considered moderate by conventional standards (Cohen, 1992) or large according to more realistic standards (e.g., Funder & Ozer, 2019). Consistent with Study 1, subjective progress was not more strongly related to idiosyncratic compared to general objective progress, though this analysis was underpowered for detecting small effects (but sufficiently powered for detecting medium effects). We could not address our fourth research question, which involved investigating whether those who objectively attain their goals report greater subjective progress than those who do not, because only one participant attained their goal.

Study 3

Study 3 served as a conceptual replication of Study 2.

Method

Data from two preregistered longitudinal field experiments were used for Studies 3a and 3b (see <https://osf.io/mdkhx> and <https://osf.io/aj78d>); see Frech et al. (2022) for published work and additional details regarding recruitment and compensation. There is no overlap between the analyses in the present research and those in Frech et al. (2022). The focus of these experiments was to examine the effectiveness of setting precise (e.g., 2.923 kg) versus round (e.g., 3.000 kg) goals on weight loss.⁴ The no-goal control conditions were not included in the present research because these participants lacked the relevant data. For present purposes, the resulting sample sizes, comprised mostly of university students, were $n = 80$ (88% female, $M_{\text{age}} = 25.93$ years, $SD = 10.56$) and $n = 103$ (75% female, $M_{\text{age}} = 23.04$ years, $SD = 3.18$) for Studies 3a and 3b, respectively. One participant was excluded from Study 3b for not reporting subjective progress (final $n = 102$). Using R software (“pwr” package; Champely et al., 2017), a sensitivity power analysis based on our final sample size for Study 3a ($n = 80$) and $\alpha = .05$ indicated that we had 80% power to detect an effect size of $f^2 = .10$ ($R^2 = .09$) in a simple linear regression. Based on the final sample size for Study 3b ($n = 102$) and $\alpha = .05$ we had 80% power to detect an effect size of $f^2 = .08$ ($R^2 = .07$) in a simple linear regression.

Procedures and Materials

The procedures were similar for both studies with the exception that Study 3a was six weeks long, whereas Study 3b lasted eight weeks. At baseline, participants were weighed and set a weight loss goal. Six (Study 3a) or eight (Study 3b) weeks later, participants reported subjective progress and were weighed again. Participants were reminded of their participation in the interventions on two additional occasions via text message or email and were asked to respond with their self-set goal. Participants were also asked to write their goals on five stickers and place them in conspicuous locations around their apartments as reminders; in Study 3b participants received an additional text two days into the study reminding them to do this.

The measures used in Study 3 were similar to those used in Study 2, with the exception that (1) participants were instructed to set either precise (e.g., 1.875 kg) or round (e.g., 2 kg) weight loss goals, depending on their condition, and (2) subjective progress was measured with the following item: “What is your impression – how successful have

4) We ran exploratory analyses where we controlled for condition; this did not have a significant impact on results (<https://osf.io/7krpu>).

you been in pursuing your goal over the last six/eight weeks?" on a scale ranging from 1 (not at all successful) to 7 (very successful).

Study 3a Results

Descriptive statistics and correlations are presented in Table 2. For RQ1, a simple linear regression indicated that subjective progress positively predicted idiosyncratic objective progress, $\beta = .57$, $b = 0.64$, 95% CI [0.42, 0.85], $t(78) = 6.04$, $p < .001$, $R^2 = .32$. An exploratory analysis with percentage of the goal attained as the outcome produced similar results: $\beta = .63$, $b = 14.16$, 95% CI [10.18, 18.15], $t(78) = 7.08$, $p < .001$, $R^2 = .39$. The correlation between the two measures of idiosyncratic objective progress was $r = 0.80$, $p < .001$. For RQ2, a simple linear regression indicated that subjective progress positively predicted general objective progress (i.e., weight lost), $\beta = .57$, $b = 0.56$, 95% CI [0.38, 0.74], $t(78) = 6.18$, $p < .001$, $R^2 = .33$. For RQ3, a Steiger's Z test for dependent correlations indicated that subjective progress was not more strongly correlated with idiosyncratic, $r(78) = .57$, $p < .001$, than general, $r(78) = .57$, $p < .001$, objective progress, $z = -0.12$, p (two-tailed) = .90, $q = .01$. This analysis had 84% power to detect a medium effect ($q = .30$) and only 15% power to detect a small effect ($q = .10$; Faul et al., 2009). For RQ4, Figure 1 shows the distribution of subjective progress between those who attained their goals ($n = 8$; $M = 4.63$, $SD = 1.60$) and those who did not ($n = 72$; $M = 3.03$, $SD = 1.47$), $d = 1.04$ (for inferential statistics, see <https://osf.io/7ya5w>).

Study 3b Results

Descriptive statistics and correlations are presented in Table 2. For RQ1, subjective progress positively predicted idiosyncratic objective progress, $\beta = .49$, $b = 0.63$, 95% CI [0.41, 0.85], $t(100) = 5.59$, $p < .001$, $R^2 = .24$. Exploratory analyses with percentage of the goal attained as the outcome produced similar results: $\beta = .54$, $b = 10.14$, 95% CI [6.99, 13.30], $t(100) = 6.38$, $p < .001$, $R^2 = .29$. The correlation between the two measures of idiosyncratic objective progress was $r = 0.69$, $p < .001$. For RQ2, subjective progress positively predicted general objective progress (i.e., weight lost), $\beta = .50$, $b = 0.56$, 95% CI [0.37, 0.76], $t(100) = 5.82$, $p < .001$, $R^2 = .25$. For RQ3, a Steiger's Z test for dependent correlations indicated that subjective progress was not more strongly correlated with idiosyncratic, $r(100) = .49$, $p < .001$, than general, $r(100) = .50$, $p < .001$, objective progress, $z = -0.20$, p (two-tailed) = .84, $q = .01$; this analysis had 88% power to detect a medium effect ($q = .30$) and only 17% power to detect a small effect ($q = .10$; Faul et al., 2009). For RQ4, Figure 1 shows the distribution of subjective progress for those who attained their goals ($n = 5$; $M = 5.60$, $SD = 1.67$) and those who did not ($n = 97$; $M = 2.97$, $SD = 1.50$), $d = 1.65$ (for inferential statistics, see <https://osf.io/7ya5w>).⁵

Discussion

In Studies 3a and 3b, subjective progress was positively related to all objective measures of progress, with larger associations than those observed in Study 2 (24–39% of shared variance, corresponding to $r_s = .49$ to $.62$). These differences may relate to the different items used to assess subjective progress, the durations of the studies (i.e., Study 2 = 12 weeks; Study 3a = six weeks; Study 3b = eight weeks), and/or the goal reminders in Studies 3a and 3b (i.e., goal stickers, messages from the researchers), which might have prompted more frequent or systematic progress monitoring. Although the associations were larger in Study 3, they may still be considered relatively moderate if one assumes the different measures reflect the same construct. Conversely, if one does not hold this assumption, they may be considered substantial. In addition, consistent with Studies 1 and 2, subjective progress was not more strongly related to idiosyncratic than general objective progress, with visibly equivalent correlation coefficients. Finally, in Studies 3a and 3b there were once again too few participants who objectively attained their goals to run inferential statistics comparing their subjective progress to those who did not attain their goals. Taken together, the results of Study 3 were mostly consistent with Studies 1 and 2, though the associations between subjective and objective measures were larger.

General Discussion

The present research investigated the relation between subjective and objective measures of goal progress in the context of academic and weight loss goals. More specifically, we examined the relationship between subjective progress and idiosyncratic objective progress (RQ1) as well as the relationship between subjective progress and general objective progress (RQ2). In all four datasets, subjective progress tended to be positively related to both idiosyncratic (RQ1) and general (RQ2) measures of objective progress. The magnitude of these associations can be differentially interpreted based on whether one assumes the measures reflect the same underlying construct; this will be discussed further below. In Study 1 (academic goals), the association between subjective progress and idiosyncratic objective progress is noteworthy given the five-week time interval and our secondary analyses suggest that this association would be stronger if measures were collected at the same time point. The associations between subjective and objective measures were largest in Studies 3a and 3b, where participants were frequently reminded of their weight loss goals, which could have elicited more deliberate progress monitoring than might have occurred without such reminders, as was the case in Study 2.

5) Given the small number of participants who attained their goals, we aggregated the data from the weight loss studies (Studies 2–3b) to further investigate RQ4. Across studies, only 14 participants attained their weight loss goals. Therefore, we report the results of our exploratory analyses in the [Supplementary Materials](https://osf.io/7ya5w) only (<https://osf.io/7ya5w>).

With regards to RQ3, which involved examining whether subjective progress was more strongly related to idiosyncratic versus general objective progress, results across all studies indicated that subjective progress was not more strongly related to idiosyncratic compared to general objective progress. These analyses were generally adequately powered for detecting medium (or stronger) effects, but underpowered for detecting small effects. It is possible that results would differ with larger samples or in domains with greater goal variability (e.g., financial goals). Finally, we attempted to explore RQ4 (i.e., whether individuals who objectively attain their goals report more subjective progress than those who do not); however, there were consistently too few participants who attained their goals to run inferential statistics.

Overall, the present findings are generally consistent with previous research that reports weaker associations than might be expected between different operationalizations of the “same” construct (or at least closely related theoretical constructs; e.g., Bommer et al., 1995; Dang et al., 2020; Gosney et al., 2007; Wennerhold & Friese, 2020). Nonetheless, interpreting the magnitude of the observed relationships depends, in part, on whether one assumes that the measures used in the present research are different operationalizations of goal progress that should reflect the same underlying construct. The associations ranged from 5–39% of variance shared (corresponding to r s = .22 to .62). On the one hand, these associations could be construed as disappointingly low under the assumption that the measures should reflect the same construct. On the other hand, if one does not hold this assumption, and instead appreciates the differences between each measure, these associations could be considered moderate to large according to more conventional (Cohen, 1992) and realistic (Funder & Ozer, 2019) standards. Ultimately, our results appear to suggest that, at least in the context of weight loss (and perhaps academic) goals, subjective and objective measures may not assess the same thing and should probably not be used interchangeably or interpreted as proxies for one another.

Why the Discrepancy?

Although the present research offers preliminary evidence that discrepancies can exist between subjective and objective measures of goal progress, the underlying reasons for such discrepancies remain unclear. One potential explanation is that subjective and objective measures reflect distinct response processes or constructs. Subjective progress, which includes an evaluative component, appears to reflect *perceptions* of progress, whereas objective measures arguably reflect progress itself (Dang et al., 2020). In addition, subjective measures may be sensitive to certain circumstances or kinds of progress that are not detected by objective measures. Furthermore, subjective reports may function as a self-regulatory mechanism (e.g., exaggerating progress to boost subsequent effort; Nunes & Dreze, 2006), rather than attempts to estimate objective progress (Fishbach & Zhang, 2009).

Difficulties with progress monitoring also could have contributed to the discrepancies. If participants' subjective reports truly reflected attempts to estimate their objective performance, previous research highlights several factors that could have skewed their appraisals. For example, participants could have monitored behaviours (e.g., exercise), rather than objective indicators (e.g., weight), which may only partially correspond with objective metrics. Other research suggests that even when presented with objective feedback, individuals may avoid or distort this information if it is negative (Webb et al., 2013). Similarly, individuals' moods and feelings can colour their perceptions of progress (Carver & Scheier, 1990; Fishbach et al., 2010) as can observations of others' progress (Reynolds et al., 2019). Taken together, there are several reasons to believe that individuals could have difficulty estimating their objective progress and it remains unclear whether they actually attempt to do this when asked for subjective progress.

Measurement Limitations

The discrepancies may also relate to measurement limitations. Although the three-item measure of subjective progress used in Studies 1 and 2 is employed extensively in the goals literature, it possesses one item that focuses on attainment rather than progress (i.e., "I feel like I have achieved this goal"). This may not be an issue when progress is assessed at the end of the goal pursuit process, as was the case in Study 2; however, it could be problematic when progress is assessed in the middle of the process, as was the case in Study 1. Namely, individuals may not be able to strongly endorse this item even if they have made excellent progress. To examine this potential issue, we removed this item and re-ran the analyses for Studies 1 and 2 using a two-item measure of subjective progress and results remained essentially the same. Nevertheless, future research may benefit from revising this item so that it more closely reflects progress rather than attainment.

In addition, the items used to measure subjective progress across all four studies did not allow individuals to report *surpassing* their goals. We attempted to mitigate this potential issue by constraining our idiosyncratic measures so that both measures would preclude indications of exceeding goals. This approach is vulnerable to ceiling effects and ignores variability in progress when individuals surpass their goals. Moreover, our original operationalization of idiosyncratic objective progress does not distinguish between individuals with different goals, so long as their difference scores are the same. For example, if Person A had the goal of losing 10 pounds and lost 5 pounds, and Person B had the goal of losing 15 pounds and lost 10 pounds, both individuals would receive the same score (-5), even though Person B arguably made more progress. Our percentage of the goal attained variable would distinguish Person A (50%) from Person B (67%), but this measure is prone to another limitation: it would not distinguish between Person A who wanted to lose 10 pounds and lost 5 pounds and Person C who wanted to lose 100 pounds and lost 50 pounds—both would score 50%. Nonetheless, the similar results

observed across both idiosyncratic measures increases our confidence in the present findings since each measure helps to address the limitation of the other. It is worth noting that apart from Study 1, analyses with the percentage of the goal attained variable yielded slightly greater R^2 values than our original operationalization of idiosyncratic objective progress. It is possible that percentages more closely reflect the way that individuals conceptualize their subjective progress, at least in the context of weight loss goals.

Implications

Future research should expand on the present findings by investigating psychological processes, contextual factors, measurement features, and personality traits that may contribute to discrepancies between subjective and objective measures of goal progress. For example, with regards to personality, individuals high in neuroticism, who experience heightened negative emotionality, may attribute their negative moods to a lack of goal progress (Fishbach et al., 2010) and systematically report lower subjective progress than might be expected based on their objective performance. Conversely, individuals who are good self-regulators, such as those high in conscientiousness or trait self-control (Tangney et al., 2004), may be more apt to appraise their subjective progress in a manner that facilitates subsequent goal pursuit, regardless of their objective performance (e.g., by exaggerating or downplaying progress to boost subsequent effort; Huang et al., 2012). This notion might help to explain the relatively small correlations observed between these traits and subjective goal progress (e.g., Holding et al., 2017; Milyavskaya et al., 2022; Saunders et al., 2022). Thus, investigating different operationalizations of goal progress and their discrepancies may help us to better understand these personality traits, which are conceptually linked to successful goal pursuit.

Given the observed inconsistencies between subjective and objective measures, it could be tempting to conclude that objective measures represent a superior indicator of goal progress whereas subjective measures merely serve as a second-rate proxy. However, in some circumstances, subjective reports may be just as interesting and important as objective indicators. For example, a person who appraises their progress as low, despite high objective success, might experience negative emotions, low motivation, and may even disengage from pursuing their goal. Conversely, a person who endorses high subjective progress, despite low objective performance, may experience positive emotions and heightened motivation. Both scenarios are interesting from a psychological perspective and highlight the importance of subjective appraisals of goal progress. Correspondingly, extensive research demonstrates that subjective perceptions of progress, however “objectively inaccurate,” have profound effects on self-regulation (e.g., Fishbach & Dhar, 2005; Huang et al., 2012) and reliably predict well-being (e.g., Klug & Maier, 2015). Furthermore, as outlined in the introduction, there are numerous advantages of subjective measures, including the ability to compare progress across different types of

goals and conduct within-person (goal level) analyses (Milyavskaya & Werner, 2018). Ultimately, the relative suitability of subjective and objective measures will depend on the research question being investigated.

Nevertheless, to the extent that the present findings generalize to other types of goals and measures, this research could have implications for interpreting previous findings based solely or predominantly on subjective reports. For example, previous research that conceptualizes goals or similar constructs, such as personal strivings (Emmons, 1986) and personal projects (Little, 1989), as units of analysis for studying personality, relies almost exclusively on subjective measures of progress, highlighting the possibility that different results and conclusions might be generated with objective measures. Similarly, previous research consistently finds that most of the variability in subjective goal progress exists at the within-person level (80–95%; see Milyavskaya & Werner, 2018 for a review), suggesting that personality may play only a minor role in explaining goal progress. However, given the link between personality and positive life outcomes (e.g., Duckworth et al., 2012), it is possible that the limited between-person variability in progress reflects an artifact of measuring goal progress with subjective reports. Investigating the link between personality and objective progress across multiple goals could offer additional insight into the relation between personality and successful goal pursuit (though standardizing measures of objective progress across different types of goals may be challenging). In short, the present findings reinforce the notion that caution may be warranted when it comes to inferring objective success from subjective reports and highlight the need for more research that includes both subjective and objective measures of goal progress.

Limitations and Future Directions

Although the present research offers insight into an important topic, there are several limitations that highlight the necessity for additional research. First, this research was conducted primarily with university students and therefore may not generalize to other populations. In addition, this research focused on academic (Study 1) and weight loss (Studies 2–3b) goals only and it is worth reiterating that Study 1 did not investigate the association between subjective and objective measures obtained at the same time point. Accordingly, additional research is needed to determine whether the present findings generalize to other types of goals. Similarly, while our measures of subjective progress are generally face valid and used extensively, they were comprised of only one (Studies 3a–3b) or three (Studies 1–2) items, which could present potential reliability issues (although items used in Studies 1 and 2 had high inter-item reliability). Such brief measures are commonly used in research with multiple measurements (over time or across many goals) to reduce undue burden to participants. Nonetheless, other measures of subjective progress also exist and may exhibit different relationships with objective progress. For instance, it is conceivable that subjective measures with a percentage scale (e.g., 0% to 100% success) might correlate more strongly with the objective percentage of the goal

attained variable than those with the seven-point scales used in the present research. Future research should investigate measures of subjective progress that include more items (including negatively phrased items) and allow individuals to report exceeding their goals (e.g., the goal attainment scaling technique; Kiresuk et al., 2014). Including multiple different measures that assess different aspects of progress may also permit the use of factor analysis to better understand commonalities and distinctions across different measures, and to see whether a common factor of general goal progress may exist. Furthermore, scenario-based experiments could help determine what information individuals attend to when reporting subjective progress in the presence or absence of objective feedback.

Conclusion

The present research draws attention to a fundamental but overlooked topic in the goals literature: the conceptualization and operationalization of successful goal pursuit. Results offer preliminary evidence that subjective and objective measures of goal progress may reflect related but distinct constructs, at least in the context of weight loss goals. To the extent that the present findings generalize to other types of goals and measures, researchers may want to exercise caution before using or interpreting subjective measures as proxies for objective success. The observed inconsistencies in the present research, as well as the advantages and disadvantages of each approach, suggest that future research would benefit from the inclusion of multiple indicators of goal progress and attainment when feasible. After all, the generation of knowledge that facilitates goal striving depends on the underlying operationalization of successful goal pursuit—strategies that promote subjective progress may not translate to objective success. While the present research offers insight into an essential topic in goal pursuit, the generalizability of the present findings remains to be seen, highlighting the need for additional research.

Funding: This research was supported by grants from the Social Science and Humanities Research Council of Canada (SSHRC) to M. Milyavskaya.

Acknowledgments: The authors have no additional (i.e., non-financial) support to report.

Competing Interests: The authors have declared that no competing interests exist.

Author Contributions: *Aidan Smyth*—Idea, conceptualization | Design planning | Data management (storage, curation, processing, etc.) | Visualization (data presentation, figures, etc.) | Data analysis | Validation, reproduction, checking | Writing | Project coordination, administration. *Marina Milyavskaya*—Idea, conceptualization | Design planning | Resource provision (materials, participants, etc.) | Data collection | Data management (storage, curation, processing, etc.) | Visualization (data presentation, figures, etc.) | Data analysis | Validation, reproduction, checking | Writing | Feedback, revisions | Supervision, mentoring | Project coordination, administration | Funding to conduct the work. *Malte Friese*—Idea, conceptualization | Design planning | Resource provision (materials, participants, etc.) | Data collection | Data management (storage, curation, processing, etc.) | Feedback, revisions. *Kaitlyn Werner*—Idea, conceptualization | Design planning | Resource provision (materials, participants, etc.) | Data collection | Data management (storage, curation, processing, etc.) | Feedback, revisions. *Marie-Lena Frech*—Resource provision (materials, participants, etc.) | Data collection | Data management (storage, curation, processing, etc.) | Feedback, revisions. *David Loschelder*—Resource provision (materials, participants, etc.) | Data collection | Data management (storage, curation, processing, etc.) | Feedback, revisions. *Joanne Anderson*—Resource provision (materials, participants, etc.) | Data collection | Data management (storage, curation, processing, etc.) | Feedback, revisions. *Michael Inzlicht*—Resource provision (materials, participants, etc.) | Data collection | Data management (storage, curation, processing, etc.) | Feedback, revisions. *Marta Kolbuszewska*—Resource provision (materials, participants, etc.) | Data collection | Data management (storage, curation, processing, etc.) | Feedback, revisions. *Kelly Wang*—Resource provision (materials, participants, etc.) | Data collection | Data management (storage, curation, processing, etc.) | Feedback, revisions.

Ethics Statement: Approval was obtained from the relevant university research ethics boards for all studies.

Data Availability: For this article, data is freely available ([Smyth et al, 2021](#)).

Supplementary Materials

For this article, the following Supplementary Materials are available (for access see [Index of Supplementary Materials](#) below):

- Pre-registration
- Data for all studies
- Codebooks for all studies
- Syntax for all studies
- Output for all studies
- Survey questionnaires for all studies

- Write-up for dietary goals study
- Exploratory analyses with unconstrained measure of idiosyncratic objective goal progress
- Research Question 4 inferential statistics
- Study 1 time 2 results
- Gender analyses for Studies 2 and 3
- Study 3 results controlling for condition

Index of Supplementary Materials

Smyth, A., Milyavskaya, M., Werner, K., Wang, K., Inzlicht, M., Friese, M., Franics, Z. L., & Kolbuszewska, M. (2021). *Subjective and objective goal progress* [All supplements]. OSF. <https://osf.io/c94wv/>

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