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When Goals Conflict But People Prosper: The Case of Dispositional Optimism

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Abstract

Optimistic persistence in pursuing goals may have beneficial consequences such as protection against negative affect and greater likelihood of goal attainment, but persistence can also result in greater likelihood of goal conflict, which can have negative consequences. Two studies, one cross-sectional ($N = 100$) and one longitudinal ($N = 77$), found that optimism associated with higher goal conflict. However, objectively rated goal conflict did not significantly undermine adjustment, and when balance among goal value, expectancy, and conflict was considered, optimism associated with better balance. In turn, balance accounted for part of optimists' better goal progress over the course of a semester. Although goal conflict may have costs, these costs appear to be offset by accompanying benefits, particularly for optimists.

Keywords

goals; conflict; optimism; expectancy; depression; foraging

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Ample evidence links goals to well-being. Goals can provide structure, meaning, identity, and a sense of purpose, and progress toward goals results in positive affective states such as hope, enthusiasm, and pride (Cantor & Sanderson, 1999; Carver & Scheier, 1990; Deci & Ryan, 2000; Emmons, 1986; Koestner, Lekes, Powers, & Chicoine, 2002). Dispositional optimism – generalized positive outcome expectancies – lead people to pursue their goals more doggedly, especially in the face of difficulty (Carver & Scheier, 1998). In empirical demonstrations of this proposition, more optimistic people persistently pursued difficult performance goals in the laboratory, exerted more daily effort to reach personal social and health goals in the face of pain and fatigue, and were more likely to replace rather than give up goals in the face of physical limitations (Affleck, Tennen, Zautra, Urru, Abeles, & Karoly, 2001; Duke, Leventhal, Brownlee, & Leventhal, 2002; Solberg Nes, Segerstrom, & Sephton, 2005). In one study, goals partially mediated the relationship between optimism and psychological health (Duke et al., 2002). Optimistic expectancies, therefore, can increase the odds that a goal will be engaged, pursued, and attained, with positive implications for psychological health.

On the other hand, goals also have the potential to undermine well-being. Because not all goals can be actively pursued at once, some goals must be engaged at the cost of other goals, so that any time a person holds multiple goals (i.e., virtually all the time), those goals can conflict with each other. For example, at a research conference, a person might pursue knowledge goals by

hearing as many talks as possible or social goals by standing in the hall and gossiping with colleagues. However, because that person can only be in one place at any given time, pursuing one set of goals precludes pursuing the other set. Even worse consequences for well-being may ensue when pursuing one goal *undermines* the other one. For example, pursuing a goal to lose weight undermines a goal to go out for ice cream with one's friends, and vice versa. Goal conflict can lead to ambivalence about progress toward either and concomitant decrements in psychological and physical health (Cantor, Acker, & Cook-Flannagan, 1992; Carver & Scheier, 1990; Emmons, 1986; Emmons & King, 1988; Martin, Tesser, & McIntosh, 1993; Riediger & Freund, 2004).

The optimistic tendency to persist in goal pursuit may increase the likelihood of goal conflict. The obvious way to resolve goal conflict is to give up or at least reduce commitment to one of the conflicting goals (Cantor & Blanton, 1996). However, dispositional optimists are less likely to give up on goals than their more pessimistic counterparts, and they may also be more likely to maintain goals despite conflict among them. In fact, because optimism is particularly associated with goal retention in the face of difficulty or obstacles, its effect on goal persistence may be particularly strong when goals conflict. Optimistic people generally have better psychological adjustment than pessimistic people (see Carver & Scheier, 1999, for a review), so if they also experience higher goal conflict, a model is needed to explain why goal conflict does not undermine optimists. The present studies demonstrate that optimists do have higher conflict among their goals and test two hypotheses regarding the relationship between goal conflict and well-being: first, that discriminating between different types of conflict will reveal that optimism leads to more psychologically benign goal conflict and, second, that greater optimism leads to a more effective trade-off between conflict and beneficial goal qualities.

In general, conflict has been treated as a unitary construct, but we propose two kinds of conflict, one inherent to the goals and one reflecting competition for the same resource. Table 1 gives examples from the present studies of inherent and resource conflict. *Inherent conflict* arises when progress toward one goal implies more difficulty in reaching another goal. In these cases, behavior that brings the person closer to one goal (e.g., be personable) means losing ground on another goal (e.g., don't draw attention to myself). Inherently conflicting goals create opposing standards for self-regulation and therefore ambivalence about the consequences of making progress toward or achieving either goal. *Resource conflict* arises because there are limited amounts of, for example, time, money, and energy available to pursue valued goals. In these cases, if there were infinite resources available, there is no reason why a person could not achieve both goals. However, in reality, money spent getting one's car repaired means that there will be less money to buy Christmas presents, and time spent working a job means less time available to devote to getting straight A's.

Of the two kinds of conflict, resource conflict may impact people less negatively than inherent conflict. First, self-regulatory standards provided by two goals competing for the same resources can still be internally consistent, avoiding ambivalence about one's own self-concept and behavior. Second, progress toward one goal does not define movement away from the other goal. There may be a slowing of progress toward the other goal, but this is less detrimental than reversing that progress. Optimism could lead to resource conflict because positive expectancies about the amount of time, money, or energy available in the future lead to adoption of resource-intensive goals (Zauberman & Lynch, 2005). Optimists may also maintain these conflicting goals longer. When two goals begin to demand the same resource, additional supplies of that resource may be redirected to maintain them. Optimistic expectancies justify such redirection in the interest of maintaining goals; there would be no sense in redirecting additional resources to pursue goals that one did not expect to be realized in the end.

On the other hand, optimistic beliefs should not lead people to adopt inherently conflicting goals because inherent conflict arises from choosing goals badly, not from utilizing or over-utilizing resources. Although optimistic people may make additional efforts to maintain inherently conflicting goals because of their general predisposition to persist, the relationship between optimism and inherent conflict should be less than that between optimism and resource conflict (for which optimism could lead to both adoption and retention of conflicting goals). Therefore, the first hypothesis about the coexistence of conflict and well-being in optimists is that optimism is more strongly related to resource conflict than to inherent conflict, and resource conflict is likely to be less detrimental to well-being than is inherent conflict.

A second possibility is that the negative effects of conflict are offset by the positive effects of remaining engaged with important goals. After all, dropping a conflicting goal does not only reduce conflict; it also means the loss of a potentially valued goal, which can itself have negative effects. The question of whether it will be better to maintain a goal despite conflict or drop a goal despite its value depends on the degrees of value and conflict associated with the goal. In traditional expectancy-value models in psychology, the cost of pursuing one goal over another goal has been considered a minor part of the model when it has been considered at all (see Eccles & Wigfield, 2002, for a review).

To more extensively consider opportunity costs arising from goal conflict, we adopted foraging theory from biology (Stephens & Krebs, 1986). Efficient foragers, including carnivores seeking prey and herbivores seeking plant foods, pursue forage in a way that maximizes a function R that includes value (the nutrients that could be obtained from a food source), expectancy (the likelihood of finding that food source), and opportunity cost (the time spent searching for and consuming the food source that could have been spent searching for and consuming other food sources). When value and expectancy are large, R can indicate efficient foraging even when opportunity costs are high. People pursuing goals resemble foragers pursuing food sources in that their goals have value (the consequences of goal attainment), expectancy (the likelihood of attaining the goal), and opportunity cost (conflict, particularly resource conflict), and R may therefore act as a useful index of effective goal strategy and the balance of value and conflict for human goals. If optimism increases R , optimistic individuals are not just tolerating conflict; they are efficiently balancing the benefits and costs of their goals.

In Study 1, we test the prediction that dispositional optimism is associated with goal conflict in a cross-sectional design. We first show that resource and inherent conflict have opposite relationships to goal value, demonstrating divergent validity for the distinction between conflict types. We then test the prediction that optimism will be more closely related to resource than inherent conflict. In Study 2, we replicate the findings of Study 1 in a longitudinal design. We also use goal conflict and the balance between value and conflict as reflected in the foraging function R to predict both well-being and goal outcomes, predicting that (1) resource conflict will be less detrimental to psychological health and goal progress than inherent conflict and (2) when value and conflict are balanced, psychological health and goal progress will be better. We further predict that goal qualities such as R mediate the relationship between optimism and psychological health and goal progress.

Study 1

Method

Participants—Participants were 100 undergraduate psychology students who participated for partial course credit. Demographic data were not collected in Study 1.

Measures

Goals and goal value: Current goals were elicited using a method developed by Emmons (1986). Participants were instructed to “list your current ‘goals’ or ‘personal strivings’, that is, objectives that you are typically trying to accomplish or attain.” They were given examples of both approach goals, defined as “something that you are trying to do”, and avoidance goals, defined as “something that you are trying to avoid”. They were instructed to list goals based on what they were trying to do rather than whether they had been successful and to list as many or as few as they were currently trying to accomplish or attain. Austin and Vancouver (1996) noted that “single goals cannot be understood when isolated from other goals” (p. 338). Therefore, rather than examine one goal or a specified small number of goals, we characterized complete, naturally occurring sets of goals.

Following the goal list, participants rated each of their goals on a 5-point Likert-type scale for four dimensions of goal value (Emmons, 1986): commitment (“How committed are you to this goal?”), importance (“How important is this goal to you in your life?”), anticipated joy (“How much joy or happiness do you or will you feel when you are successful in this goal?”), and anticipated sorrow (“How much sorrow or unhappiness do you or will you feel if you fail to succeed in this goal?”). Because these variables were negatively skewed, analyses (except descriptive statistics) were performed on square-transformed variables to reduce the influence of more extreme cases. Although these dimensions have been used in the aggregate to represent goal value (Emmons, 1986; Novacek & Lazarus, 1990), there is also evidence that they disassociate in meaningful ways. For example, optimism correlated with beliefs about reaching goals but not goal importance among women with fibromyalgia (Affleck et al., 2001). Likewise, anticipated joy and sorrow represent two different motivational influences, approach and avoidance, that have different effects on self-regulation (Carver et al., 2000; Higgins, 1997). Because of these empirical and theoretical distinctions, we chose to examine the four goal dimensions separately.

Goal conflict: Goal conflict was assessed with two versions of the Striving Instrumentality Matrix (Emmons, 1986), one that assessed inherent conflict and one that assessed resource conflict. Matrices were constructed with each individual’s goals in the rows and columns, allowing each goal to be assessed with regard to every other goal. Two raters then examined the relationship of each goal to each other goal. Inherent conflict was defined as whether one goal inherently helped, hurt, or had no effect on the other goal (i.e., if there were unlimited resources, what effect would these goals have on each other?) and rated on a 5-point scale where $-2 = \text{very harmful effect}$, $-1 = \text{somewhat harmful effect}$, $0 = \text{no effect}$, $1 = \text{somewhat helpful effect}$, and $2 = \text{very helpful effect}$.¹ Resource conflict was defined as the degree to which two goals used the same resources, such as time, money, or energy, and rated on a 5-point scale where $0 = \text{not at all}$, $1 = \text{a little bit}$, $2 = \text{somewhat}$, $3 = \text{definitely}$, and $4 = \text{extremely}$. The inherent conflict scale was reversed so that higher scores represent greater conflict. All raters were unaware of other questionnaire responses of the participants. Raters showed good agreement on both inherent conflict ($r = .81$ across all goals) and resource conflict ($r = .83$); regular rater meetings were held to prevent rater drift, although ratings were not changed *post hoc*. Other studies have used participant-rated conflict, but we expected that participants might have difficulty in reliably discriminating between inherent and resource conflict without training. We further wished to have conflict ratings that were objective. Participants’ ratings may have been influenced by the traits under investigation (e.g., optimists might be less likely to perceive conflict).

¹Riediger and Freund (2004) discriminated between intergoal facilitation, in which goals help each other, and intergoal conflict, in which goals harm each other. In their studies, facilitation and conflict were only slightly positively correlated ($r = .05 - .32$), suggesting that these are independent dimensions. In the present study, very few goals had positive values on the inherent conflict scale (26/781, or 3%) and so we did not examine the effects of variation in positive scores and effects of variation in negative scores separately.

Because we were primarily interested in the total amount of conflict experienced by a person in the context of their natural goal set, conflict created by each goal was operationalized as the sum of its conflict ratings with all other goals rather than its mean conflict rating. For example, a goal that used a little bit of the same resource as 7 other goals was considered to create more total conflict than a goal that used a little bit of the same resource as 2 other goals, although their mean conflict would be the same.

Dispositional optimism: Optimism was measured with the Life Orientation Test – Revised (LOT-R; Scheier, Carver, & Bridges, 1994), a 10-item measure of generalized positive outcome expectancies. Three items are phrased positively, three negatively, and four are filler items that do not contribute to the total optimism score. In the validation sample, internal consistency was .78 over the six optimism items and test-retest correlations over 4 to 28 months ranged from .56 to .79. Internal consistency in the present sample was .79.

Data analysis—To examine the relationships among dimensions of goal value and conflict, we calculated correlations between dimensions within each person, transformed the correlations to Z scores, and calculated means across people before transforming the results back to correlation coefficients.

To examine between-person variance in goals (i.e., the effects of optimism), we used multi-level modeling and SAS PROC MIXED (Singer, 2002; Singer & Willett, 2003) to retain all goal-level observations, explicitly modeling the covariance and error structures that arise when sets of observations are not independent (i.e., they come from the same people). The multi-level model nested goal-level observations within people as follows.

In the within-person component of the model, each observation Y (e.g., person i 's commitment to goal j) was a function of person i 's mean across goals (i.e., the intercept α_{0i}) plus an error term for goal j (ϵ_{ij}):

$$Y_{ij} = \alpha_{0i} + \epsilon_{ij} \quad (1)$$

In the between-subject component of the model, the collection of individual means (α_{0i}) could be modeled such that each person's mean was the function of the grand mean of all within-subject means (γ_{00}), the effect of a between-subjects predictor such as optimism (γ_{01}), and a between-subjects error term (ζ_{0i}).

$$\alpha_{0i} = \gamma_{00} + \gamma_{01}(\text{optimism}) + \zeta_{0i} \quad (2)$$

Substituting terms from (2) into (1), the entire model was therefore specified as:

$$Y_{ij} = \gamma_{00} + \gamma_{01}(\text{optimism}) + [\zeta_{0i} + \epsilon_{ij}] \quad (3)$$

We report γ_{01} for the effects of optimism with their associated t tests. γ weights are analogous to unstandardized beta weights in regression models. Because the γ weights vary as a function of scaling, a standard expression of the size of the relationship, the effect size η , is also reported. The magnitude of η can be interpreted in the same manner as r : effects of .10 are considered small; .30, medium; and .50, large. Optimism was centered around the scale mean before analysis.

Results

Descriptive qualities of goals—Participants listed, on average, 7.72 goals ($SD = 1.26$). As shown in Table 2, participants generally valued their goals highly, with mean scores

clustering around 4 on the 1–5 scale. The highest mean rating over the 763 rated goals was for anticipated joy on attainment, followed by importance, commitment, and anticipated sorrow on nonattainment. Table 2 also shows the mean within-person correlations. As has been true in other studies (Emmons, 1986; Novacek & Lazarus, 1990), the various dimensions of goal value were interrelated ($r = .41 - .69$), and although there was substantial variation in these correlations across people, examination of the confidence intervals indicates that the means are statistically reliable.

In general, inherent goal conflict was low, although there was substantial variability. Mean inherent conflict was -3.5 ($SD = 3.3$), a rating that could be attained, for example, when a goal was listed with three “somewhat helpful” others. Inherent conflict tended to be inversely related to goal value, such that goals that were inherently less helpful and more harmful to other goals in the list were also ascribed less commitment, importance, anticipated joy on attainment, and anticipated sorrow on nonattainment; however, this relationship was only statistically reliable for importance and anticipated sorrow.

Resource conflict was higher than inherent conflict, with a mean of 3.8 ($SD = 3.5$), which could be attained when a goal was listed with roughly four others that used the same resources (time, money, or energy) “a little bit” or two others that used the same resources “somewhat”. Resource conflict was positively and reliably related to all dimensions of goal value except for anticipated sorrow. Therefore, although inherent and resource conflict were positively related to each other (mean $r = .29$), they were inversely related to measures of goal value, with valued goals characterized by less inherent and more resource conflict.

Optimism and goal conflict—As predicted, in multilevel models, optimism was not significantly associated with inherent conflict ($\gamma = -.09$, $t(96) = -1.62$, $p > .05$, $\eta = .16$), but higher levels of optimism related to significantly higher levels of resource conflict ($\gamma = .12$, $t(96) = 2.36$, $p < .05$, $\eta = .23$). The 95% confidence interval around the effect of resource conflict (.02 – .23) did not overlap with the confidence interval around the effect of inherent conflict (–.19 – .02). Therefore, optimism’s association with goal conflict was more closely related to spreading one’s resources thin or using them more fully than to selection or retention of inherently competing goals. This effect was not due to more optimistic people having larger goal sets, because optimism was unrelated to total number of goals ($R^2 = .01$, $F(3,96) < 1$).

Were optimists more likely to retain conflicting goals because they considered those goals to be more important? Optimism was also related to higher goal value: More optimistic participants were more committed to their goals ($\gamma = .24$, $t(97) = 2.62$, $p < .05$, $\eta = .26$) and anticipated more joy on attaining goals ($\gamma = .18$, $t(97) = 2.07$, $p < .05$, $\eta = .21$), although their goals were not higher in importance or anticipated sorrow ($\eta = .01$ and $.08$, respectively). After controlling for commitment and anticipated joy, optimism continued to predict higher levels of resource conflict ($\gamma = .11$, $t(96) = 2.11$, $p < .05$, $\eta = .21$).

As predicted, optimism was associated with higher resource conflict but not higher inherent conflict among goals. Although optimism was associated with more commitment to and anticipated joy on attainment of goals, controlling for commitment and anticipated joy reduced the optimism effect only very slightly. This suggests that optimists do not tolerate conflict only because they consider their goals to be more important or valuable than do pessimists; rather, holding commitment and affective value constant, optimists’ goals still created more resource conflict than did pessimists’.

Study 2

Study 2 examined the longitudinal effects of optimism and goal conflict on psychological health and goal progress. To resolve the paradox that arises when optimism increases goal conflict, goal conflict negatively affects psychological health, but optimism positively affects psychological health, we proposed two possibilities that were not mutually exclusive. We predicted that goal conflict would not significantly detract from the well-being associated with optimism because (1) optimism is associated with resource conflict, the implications of which are more benign than those for inherent conflict, and (2) optimism will be associated with higher values of the foraging function R , indicating a better balance among expectancy, value, and cost, which in turn will be associated with higher well-being. Three indices of well-being reflected theoretical and empirical consequences of goal conflict: Conflict and other impediments to goals result in negative affect (Carver & Scheier, 1990), rumination about the goal (Martin et al., 1993; Pyszczynski & Greenberg, 1987), and reports of ill health (Emmons & King, 1988). With regard to goal progress, more optimistic people should be less likely to disengage from (e.g., give up on) goals. Furthermore, goals with higher levels of R should be more likely to be retained and pursued, and R may mediate between optimism and goal progress.

Method

Participants—Participants were 77 undergraduate psychology students who participated for partial course credit. Sixty-four (83.1 %) were female and 13 (16.9%) male. Sixty-seven (87 %) participants were White, 7 (9.1 %) were African American, 2 (2.6 %) were Asian, and 1 (1.3 %) was Hispanic. Mean age was 20 years, although there was a substantial range (17 – 71), with approximately 10% of the sample over the age of 21.

Method—All participants attended 6 sessions throughout the semester, except one who attended 5. The first visit was between 2 and 4 weeks following the first day of classes. Follow-up sessions were scheduled 2–3 weeks apart throughout the remainder of the semester. The final session was during the last week of classes. Informed consent was obtained at the first session. Participants completed questionnaires in group sessions.

Measures

Goals, goal value, and goal conflict: These constructs were measured as in Study 1, with the exception that we added a measure of expectancy (“How confident are you that you will be able to accomplish this goal?”). Measuring expectancy allowed us to calculate the foraging theory function $R = (\lambda e - s)/(1 + \lambda h)$, where λ is expectancy, e is caloric value of the forage, s is the opportunity cost of time spent searching, and h is the opportunity cost of time spent consuming the forage. Larger values of R reflect good foraging strategy or, in this case, good goal pursuit strategy (Stephens & Krebs, 1986). Because we did not conceptualize goal attainment to have significant consummatory costs, we set h to 0, making the denominator equal to 1 and the function equal to $R = (\lambda e - s)$. We substituted goal qualities that best matched the theoretical constructs of foraging theory. The term λ equals expectancy for both foragers and goal pursuers. The term e equals consummatory benefit (i.e., calories) for foragers, which is analogous to joy on attainment for goal pursuers. The term s equals opportunity cost for foragers, which is analogous to resource conflict (i.e., the degree to which goal pursuit takes resources away from pursuing other goals) for goal pursuers. Differences in scaling were resolved by transforming these three variables to have standard deviations of 1 before calculating R .

For goal conflict, goals were rated by at least one of two raters with regard to all other goals appearing with them at any time. For each week, goal conflict was calculated as the sum of

conflict with all other goals appearing with the target goal only at that week. As in Study 1, both raters were unaware of other questionnaire responses of the participants. Both raters rated conflict for a subset of 976 goals; across the week-level sums, inter-rater reliability for two raters was $r = .76$ for resource conflict and $.73$ for inherent conflict.

Beginning at Time 2, after listing their current goals, each participant received a copy of his or her list of goals from the previous session. Goals that were listed previously but were not included on the current list were considered “past goals”. Participants were asked to indicate whether they had achieved, given up on, replaced, or postponed each past goal. For analyses of goal outcomes, we assigned each goal a progress score based on its reported outcome. Goals that were achieved were assigned the highest score (5), followed by goals that were retained but not yet achieved (4), goals that were not retained but were replaced with other goals (3), goals that were “postponed”, that is, the goal was not retained but the person intended to re-engage the goal at a later date (2), and goals that were dropped, that is, the goal was not retained and the person did not intend to re-engage the goal at a later date (1).

Optimism: The Life Orientation Test - Revised was administered at Time 1. Internal consistency for the LOT-R was .86.

Well-being: Well-being measures were administered at all time points. We measured depression with the Beck Depression Inventory (BDI; Beck, Steer, & Garbin, 1988), rumination with the Rumination Scale (Martin et al., 1993), and perceptions of health with a symptom checklist (Stanton, Danoff-Burg, Cameron, & Ellis, 1994; Stanton et al., 2002). The Rumination Scale has two factors, Rehearsal and Lack of Control, of which Lack of Control is more closely linked theoretically and empirically to negative outcomes (Segerstrom, Stanton, Alden, & Shortridge, 2003), and so these two factors were analyzed separately.

Data Analysis—To examine the relationships among dimensions of goal value and conflict, at each wave, we calculated correlations between dimensions within each person, transformed the correlations to Z scores, and calculated means across people before transforming the results back to correlation coefficients. Rather than show the data from all waves, we report a representative correlation by taking the median of the first 5 waves (because an even number of waves – such as 6 – does not yield a definite median).

As in Study 1, we used multilevel modeling (Singer & Willett, 2003) to test many of the hypotheses. The Study 2 model differed in two ways from that used in Study 1. First, we nested goal effects within person effects, so that the model had three levels, with a goal-level equation below the person-level equation (1, above), so that Y_{ij} in equation (1), rather than a single observation of a single goal, was now the within-goal mean from a lower equation; that is, the observation G_{ijk} (e.g., person i 's commitment to goal j at time k) was the mean for all observations of that goal (Y_{ij}) plus an error term:

$$G_{ijk} = Y_{ij} + e_{ijk} \quad (4)$$

Second, we tested the effects of time. Adding time to the model involves the following changes, which we show at the person level but which apply at the goal level as well. First, a time effect is added to equation (1), so that the outcome (e.g., depression) for person i at time j is a function of their own grand mean (the intercept, α_{0i}), change related to time (the slope, α_{1i}), and an error term.

$$Y_{ij} = \alpha_{0i} + \alpha_{1i}(\text{time})e_{ij} \quad (5)$$

The second-level, between-person model now includes two parameters from the within-person model: the intercept and slope. Both are random factors that can be predicted by between-subjects characteristics (e.g., optimism):

$$a_{0i} = \gamma_{00} + \gamma_{01}(\text{optimism}) + \zeta_{0i} \quad (6)$$

$$a_{1i} = \gamma_{10} + \gamma_{11}(\text{optimism}) + \zeta_{1i} \quad (7)$$

As in the Study 1 model, terms can be substituted from (6) and (7) into (5), to specify the model as:

$$Y_{ij} = [\gamma_{00} + \gamma_{01}(\text{optimism})] + [\gamma_{10}(\text{time}) + \gamma_{11}(\text{time} \times \text{optimism})] + [\zeta_{0i} + \zeta_{1i} + \varepsilon_{ij}] \quad (8)$$

Because observations are at the goal level, the model easily accommodates varying numbers of time points for each goal (i.e., varying values of k can contribute to the computation of Y_{ij}). However, time effects are more heavily influenced by goals with more time points.

As in Study 1, we report the appropriate γ weights along with their associated t tests and the effect size η . Time was the data collection wave, centered around 1; optimism was centered around the scale mean.

Results

Goals: Qualities and changes—The 77 participants listed a total of 3,316 active goals over the course of the semester (range = 15 to 58 total goals), which represented 1,550 unique goals. Mean number of goals at any given week ranged from 6.9 ($SD = 2.8$) to 7.5 ($SD = 2.5$; range = 1 to 17). Mean goal duration (days from first appearance to status as “past goal” or the end of the study) was 32.3 days ($SD = 23.5$)²; however, goal duration was not normally distributed. Table 3 shows the number of new goals at each time point and their duration. There were two main types of goal: goals that came and went fairly quickly and goals that persisted over several weeks. The greatest likelihood that a goal would drop from the list was at the subsequent time point (48%), but this probability decreased over time (11% at 2 time points later, 9% at 3, 6% at 4, and 5% at 5). A substantial proportion of goals (28%) were still active at the last wave, including 29% of those first appearing at the first wave.

As in Study 1, participants valued their goals highly, with means ranging from 3.7 for anticipated sorrow to 4.5 for anticipated joy, and there was more evidence for resource conflict ($M = 3.9$, $SD = 4.3$) than for inherent conflict ($M = -2.4$, $SD = 2.5$). Replicating Study 1, correlations between value and conflict demonstrated divergent validity for inherent and resource conflict. Inherent conflict correlated negatively with value dimensions, particularly commitment and importance, whereas resource conflict was generally not significantly correlated with value dimensions. Table 4 shows correlations between conflict and value representative of those obtained over the 6 time points. The representative median correlation between inherent and resource conflict was $r = .20$, which was slightly lower than the .29 correlation found in Study 1.

Time had little effect on goal dimensions. Changes in commitment, importance, expectancy, anticipated joy, inherent conflict, and resource conflict were not predicted by the passage of time ($\eta = .00 - .03$, all $p > .05$), although anticipated sorrow did increase slightly over time ($\gamma = .21$, $t(3210) = 2.16$, $p < .05$, $\eta = .04$). Goal change over time, therefore, is captured mainly in whether a goal is active at any given time or not, rather than by substantial changes in value

²Duration data exclude goals listed for the first time at Time 6.

or conflict. This is consistent with other reports that goal qualities are stable over time (Emmons & King, 1988; Kehr, 2003).

Optimism, goal conflict and well-being—In general, well-being appeared to improve over the course of the semester, as reflected in significant decreases over time in depression ($\gamma = -.38, t(383) = -3.17, p < .05, \eta = .16$) and physical symptoms ($\gamma = -1.49, t(383) = -4.99, p < .05, \eta = .25$). Optimism predicted lower depression across the semester³ ($\gamma = -5.05, t(74) = -6.10, p < .05, \eta = .58$) and less ruminative lack of control over thoughts ($\gamma = -.41, t(75) = -4.58, p < .05, \eta = .47$). Although optimism has been associated with lower physical symptom reports (e.g., Smith, Pope, Rhodewalt, & Poulton, 1989), in the present study it was not significantly associated with physical symptoms.

The first proposition regarding optimism and goal conflict stated that resource conflict would be less harmful to well-being than inherent conflict. The hypothesized relationship between optimism and resource conflict found in Study 1 was found again in Study 2 ($\gamma = .80, t(75) = 2.63, p < .05, \eta = .29$). On the other hand, in Study 2 optimism was also significantly related to higher inherent conflict ($\gamma = .51, t(75) = 2.68, p < .05, \eta = .30$). Optimism also related to higher goal commitment ($\gamma = 1.40, t(75) = 2.49, p < .05, \eta = .28$), higher expectancy of success for individual goals ($\gamma = 2.83, t(75) = 5.00, p < .05, \eta = .50$), and less anticipated sorrow on nonattainment ($\gamma = -1.43, t(75) = -2.46, p < .05, \eta = .27$). After controlling for these goal dimensions, however, optimism continued to significantly relate to both resource and inherent conflict (both $\eta = .28$).

The data yielded little evidence that either form of goal conflict was harmful to psychological health. There were small and unexpected inverse relationships between inherent conflict and ruminative planning ($\gamma = -.06, t(380) = -2.58, p < .05, \eta = .14$) and between inherent conflict and physical symptoms ($\gamma = -1.16, t(380) = -2.08, p < .05, \eta = .11$). The strongest relationship between resource conflict and psychological health was a small association between more resource conflict and higher depression that was not statistically significant ($\gamma = .86, t(370) = 1.48, p > .05, \eta = .08$). Therefore, the evidence did not suggest that resource conflict was less harmful to well-being than inherent conflict or that it could potentially mediate the relationship between optimism and well-being.

The second proposition regarding optimism and goal conflict stated that resource conflict would be balanced against expectancy and value to maximize the foraging function R . Optimism was significantly related to higher values of R , indicating that more optimistic people balanced expectancy, value, and cost more efficiently than more pessimistic people ($\gamma = 7.9, t(74) = 3.26, p < .05, \eta = .35$). There was evidence that R was related to well-being: In particular, higher values of R predicted lower depression ($\gamma = -.29, t(369) = -3.01, p < .05, \eta = .15$) and more planning, a relationship that interacted with time such that the relationship between R and planning was stronger at earlier time points ($\gamma = -.01, t(374) = -2.46, p < .05, \eta = .13$). R was therefore a potential mediator between optimism and depression. Entering R in the model resulted in a significant effect of R on depression ($\gamma = -.31, t(371) = -4.29, p < .05, \eta = .22$), but the relationship between optimism and depression was essentially unchanged ($\gamma = -4.6, t(73) = -6.15, p < .05, \eta = .58$).

Optimism, goal conflict, and goal outcomes—Progress toward goals listed for the first time between Time 1 and Time 5 was examined in light of previous conflict and the foraging function R . Goals listed for the first time at Time 6 were not included because they could not be evaluated at a later time point. Active goals were those still listed at Time 6. Most goals

³One participant contributed several extreme values ($Z = 2.9 - 4.7$) on the BDI. The extremity of these scores suggested that this person was not drawn from the same depression distribution as the rest of the sample and should be excluded from depression analyses.

were achieved (37%), followed by active (32%), replaced (7%), postponed (16%), or dropped (8%). Assigning the highest score to achieved goals and the lowest to dropped goals (see Method), optimism was associated with better goal progress during the semester, although not significantly so ($\gamma = .14$, $t(75) = 1.83$, $p > .05$, $\eta = .20$).

Goal progress was not significantly related to inherent ($\gamma = .00$, $t(1352) = 0.00$, $p > .05$, $\eta = .00$) or resource ($\gamma = .018$, $t(1333) = 0.49$, $p > .05$, $\eta = .01$) conflict alone. The foraging function R , however, was a significant predictor of goal progress. Higher values of R significantly predicted better goal progress ($\gamma = .0052$, $t(1326) = 3.74$, $p < .05$, $\eta = .34$). In the case of goal progress, R did account for some of the relationship of optimism to goal outcomes. After controlling for R , the optimism effect dropped to $\gamma = .10$, $t(74) = 1.34$, $p > .05$, $\eta = .15$. This change represented a reduction of approximately half the optimism variance in goal progress (from $\eta^2 = .04$ to $\eta^2 = .02$).

Discussion

Indices of psychological health that accompany dispositional optimism, such as lower depression and less rumination, have been attributed to optimism's effects on persistence in goal pursuit (Duke et al., 2002). However, persistence can also increase the risk of retaining conflicting goals, and goal conflict has been linked to decrements in psychological health (e.g., Emmons & King, 1988). In the present studies, optimism was associated with higher levels of goal conflict but also higher indices of psychological health. We proposed two models for understanding how optimistic people could simultaneously maintain well-being and goal conflict: first, optimism predisposes to resource conflict in particular, which may be less detrimental than inherent conflict; second, optimism predisposes to a more beneficial balance between goal value and conflict.

The distinction between inherent and resource conflict was supported by divergent validity with regard to goal value: more inherently conflicting goals were less valued, whereas goals competing for resources were either more valued or equally valued as goals not competing for resources. Furthermore, there was not a high correlation between inherent and resource conflict ($r = .20 - .29$). The relationship between inherent and resource conflict was less than that obtained by Riediger and Freund (2004), who found higher correlation between inherent and resource conflict ($r = .61$). One difference between the two studies is that the present studies used independent raters, whereas Riediger and Freund allowed participants to characterize conflict between their own goals. Participant-rated conflict may be influenced by individual differences that affect the threshold for perceiving conflict, inflating the correlation between inherent and resource conflict. Theoretically, inherent and resource conflict can be orthogonal to each other. For example, studying for a math exam may inherently help one's astronomy grade (because the two disciplines employ some of the same basic skills) but may take time and energy away from studying specific chapters that will be on the next astronomy exam, creating resource conflict. Conversely, crushing the competition in the classroom and making friends among one's classmates outside the classroom⁴ do not necessarily use the same resources, but those who have been crushed may be unwilling to offer friendship later, creating inherent conflict. An alternative possibility for the lower correlation in this study arises from the fact that the inherent conflict variable primarily reflected facilitation rather than conflict. Most goals had inherently facilitative effects rather than conflicting effects on their fellow goals (see Note 1). Both resource and inherent conflict correlate only modestly with facilitation ($r = .05 - .32$; Riediger & Freund, 2004).

⁴Actual goals listed by a law student in another of our studies.

In both studies, resource conflict was significantly higher among the goals of more optimistic participants; inherent conflict was significantly higher for more optimistic participants only in Study 2. As predicted, therefore, optimistic participants were more likely to adopt and retain conflicting goals. On the other hand, optimistic participants also had lower levels of depression and less rumination, which are potential sequelae of conflicting goals. Unlike previous findings (Cantor et al., 1992; Emmons, 1986; Emmons & King, 1988), goal conflict was not strongly related to psychological health in the present studies. Only higher resource conflict was associated with slightly higher levels of depression; more inherent conflict was associated with less ruminative planning⁵ and fewer physical symptoms. Again, this difference may be due to the difference between conflict as perceived by an individual and as rated by an independent observer. One possibility is that the subjective perception of conflict is more psychologically detrimental than objective conflict, and this may be particularly true of inherent conflict. The perception of inherent conflict could lead to ambivalence about one's own behavior and undermine psychological health, but some people may be blissfully ignorant of the possibility that building a bar at home might not help them cut down on their drinking. The objective presence of inherent conflict may not harm people unless they are explicitly aware of it.

Another possibility is that detrimental effects of subjective goal conflict arise not from the demands of the goals themselves but from the resources (or lack thereof) of the person holding those goals. Goals were rated in this study with regard to their demand for the same resources, but people were not evaluated with regard to their available resources. More available resources can attenuate potential negative effects of resource conflict; for example, if you have a lot of money, resource conflict between getting the car repaired and buying Christmas gifts is minimized (c.f., Hobfoll, 1998). Resource conflict may therefore undermine psychological health only in those with few resources to spend. Individual differences such as depression and physical illness can limit energetic resources, creating the possibility that the relationship between subjectively perceived goal conflict and depression or physical symptoms is caused by the latter rather than the former. Future investigations will need to adopt longitudinal designs in order to disentangle causes of resource reduction from consequences of resource conflict.

A final important point with regard to objective ratings of resource conflict is that the participants in these studies were undergraduate students. The raters were familiar with this context, all of them being or recently having been undergraduate students themselves. To assess objective goal conflict in a different context, it may be necessary to train expert raters who are familiar with the implications and demands of the kinds of goals held by people in that context. For example, new parents are vulnerable to goal conflict while they adjust to the time, energy, and financial demands of a baby, and undergraduate students would likely not be good judges of the degree of conflict experienced by new parents.

Although objective goal conflict was not a good predictor of psychological health and goal progress, the balance between value and conflict, as reflected in the foraging function R , was. R associated with lower depression and better goal progress and partially mediated the relationship between optimism and better goal progress (although not that between optimism and depression). Using R to balance conflict against potential reward, the benefit of assigning high value to goals offset the cost of increased resource conflict. Optimism and goal conflict cannot be completely exonerated of any suspicion of harm, however. Optimistic people may not disengage from a goal in order to decrease conflict and conserve resources; on the contrary, they may sacrifice resources such as energy in order to continue pursuing conflicting goals (Cantor & Blanton, 1996; Emmons & King, 1988, Study 2; Hockey, 1997; Segerstrom, 2001). Converging evidence indicates physiological costs to such a strategy. In circumstances

⁵An intriguing possibility is that the adoption of inherently conflicting goals reflects a lack of planfulness or consideration of the implications of simultaneously holding those goals.

that called for increased or prolonged allocation of resources to meet a demand, cope with a stressor, or manage resource conflict, optimism associated with higher cortisol, a stress hormone, and lower indices of cellular immune function (Cohen et al., 1999; Segerstrom, 2001, in press; Sieber et al., 1992; Solberg Nes, Segerstrom, & Sephton, 2005). Future research should explore whether the short-term physiological costs of resource conflict or overuse are later rewarded with long-term benefit that could arise from continued goal pursuit and accomplishment.

These studies show the interactions among optimism, goal value, goal conflict, psychological health, and goal outcomes. As is true of any research, however, there are still pieces of the picture missing. Most important, even though Study 2 followed students over the course of a semester, there was a subset of goals that was present at the first time point and continued through the last time point, so that the present study affords only a snapshot of their history. Longer-term studies will be needed to characterize this subset, which comprised only 14% of all unique goals but 34% of all goal citations.

Second, our study population involved undergraduate students, as is true of almost all studies of goals. Although a minority (10%) of the population of Study 2 would be considered “nontraditional” or older students, undergraduates in general are in a period of identity flux that one might expect to be reflected in greater goal instability (Sears, 1986). Studying a group with more unstable goals is beneficial when seeking to predict goal change over a relatively short period of time, but threatens generalizability. However, one study that involved women with fibromyalgia found similar results, suggesting that these relationships may generalize beyond young, healthy adults (Affleck et al., 2001).

Finally, we used some single-item measures (e.g., goal expectancy, anticipated joy), particularly in the calculation of the foraging function. Although this function was a good predictor in the present investigation, future studies may wish to use multi-item measures that offer better reliability as well as an broader operational definition of foraging elements such as consummatory benefit.

These studies show that although goals may conflict, people can still prosper. In particular, use of foraging theory offers a useful way to operationalize a balance between goal expectancy, value, and conflict that is associated with better goal progress. Optimists, who have higher values of the foraging function R , provide an excellent study of how this balance can yield better outcomes even to people whose goals conflict the most.

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Table 1

Examples of pairs of goals with high or low inherent or resource conflict

<i>High inherent conflict</i> Be open to dating – Avoid rejection Be personable – Don't draw attention to myself Stop drinking so much – Build bar in house	<i>High resource conflict</i> Go to more parties – Get a second job Work out 4 times a week – Spend more time with family Get car repaired – Buy Christmas gifts
<i>Low inherent conflict</i> Allow study time – Get an 'A' in chemistry Get in shape physically – Eat right Be more outgoing – Meet guys	<i>Low resource conflict</i> Spend less money – Get along with my roommate Keep dorm room clean – Decide on a major Stop smoking – Make good grades

Table 2
Mean Values and Mean Within-Person Correlations Among Goal Dimensions: Study 1

	<i>M (SD)</i>	1	2	3	4	5	6
1. Commitment	3.9 (1.0)	-					
2. Importance	4.1 (1.0)						
Mean <i>r (SD)</i>		.68 (.50)	-				
95% CI		.63 – .72					
3. Anticipated joy	4.4 (0.8)						
Mean <i>r (SD)</i>		.48 (.48)	.66 (.97)	-			
95% CI		.41 – .54	.61 – .71				
4. Anticipated sorrow	3.5 (1.2)						
Mean <i>r (SD)</i>		.51 (.56)	.69 (.53)	.41 (.57)	-		
95% CI		.45 – .58	.64 – .73	.34 – .48			
5. Inherent conflict	–3.5 (3.3)						
Mean <i>r (SD)</i>		–.07 (.53)	–.21 (.44)	–.08 (.43)	–.22 (.55)	-	
95% CI		–.16 – .01	–.29 – –.12	–.17 – .00	–.30 – –.14		
6. Resource conflict	3.8 (3.5)						
Mean <i>r (SD)</i>		.18 (.52)	.12 (.46)	.17 (.43)	.04 (.62)	.29 (.58)	-
95% CI		.09 – .26	.03 – .20	.08 – .26	–.05 – .13	.20 – .37	

Table 3
Number of Goals First Appearing On Lists and Disappearing From Lists at Each Time Point

Wave at first appearance	Wave at disappearance					Still active	Total
	2	3	4	5	6		
1	268 42%	60 9%	56 9%	37 6%	35 5%	187 29%	643
2		122 44%	36 13%	24 9%	22 8%	74 27%	278
3			121 57%	24 11%	21 10%	48 22%	214
4				89 57%	25 16%	42 27%	156
5					81 61%	51 39%	132

Note. Goals first appearing at Wave 6 are not included because their outcomes are unknown.

Table 4
Means of and Representative Mean Within-Person Correlations Between Goal Value and Goal Conflict

	<i>M (SD)</i>	Commitment	Importance	Expectancy	Joy	Sorrow
Inherent conflict	−2.4 (2.5)					
Mean <i>r</i> (<i>SD</i>)		−.20 (.68)	−.18 (.50)	.01 (.64)	−.13 (.50)	−.08 (.59)
95% CI		−.29 – −.09	−.27 – −.07	−.09 – .11	−.22 – .02	−.19 – .02
Resource conflict	3.9 (4.3)					
Mean <i>r</i> (<i>SD</i>)		−.10 (.49)	.00 (.59)	.08 (.62)	.01 (.52)	.00 (.52)
95% CI		−.21 – .00	−.10 – .11	−.02 – .19	−.09 – .11	−.10 – .10

Note. Calculating confidence intervals and standard deviations required use of a single representative mean from one of the 6 waves; the median score from the first 5 waves was selected as representative.