A Meta-Analysis of the Dark Side of the American Dream: Evidence for the Universal Wellness Costs of Prioritizing Extrinsic over Intrinsic Goals

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Abstract

Self-determination theory holds that the intrinsic and extrinsic content of people's aspirations differentially affect their wellness. An evidence base spanning nearly 30 years indicates that focusing on intrinsic goals (such as for growth, relationships, community giving, and health) promotes well-being, whereas a focus on extrinsic goals (such as for wealth, fame, and beauty) deters well-being. Yet, the evidence base contains exceptions, and some authors have argued that focusing on extrinsic goals may not be universally detrimental. We conducted a systematic review and used multilevel meta-analytic structural equation modeling to evaluate the links between intrinsic and extrinsic aspirations with indices of well-being and ill-being. Across 92 reports (105 studies), 1,808 effects, and a total sample of N = 70,110, we found that intrinsic aspirations linked positively with well-being (r = 0.24 [95% CI 0.22, 0.27]) and negatively with ill-being (r = -0.11 [-0.14, -0.08]). When the variety of extrinsic aspiration scoring methods were combined, the link with well-being was not statistically significant (r = 0.02 [-0.02, 0.06]). However, when extrinsic aspirations were evaluated in terms of their predominance in the overall pattern of aspiring the effect was universally detrimental, linking negatively to well-being (r = -0.22 [-0.32, -0.11]) and positively to ill-being (r = 0.23 [0.17, 0.30]). Meta-analytic conclusions about the associations between goal types and wellness are important because they inform how individuals could shape aspirations to support their own happiness, and how groups and institutions can frame goals such that their pursuit is for the common good.

Keywords: strivings, autonomy, life satisfaction, resolutions, flourishing

The pursuit of valued goals imbues people's lives with a sense of meaning, purpose, and overall wellness (Brunstein, 1993; Emmons, 2003; Pinquart et al., 2009; Wheeler et al., 1990). Goal engagement is conducive to well-being, though *self-determination theory* (SDT; Ryan & Deci, 2017) holds that the specific content of individuals' life goals also contributes meaningfully to their well-being, in addition to the degree of overall striving (Kasser & Ryan, 1993, 1996, 2001). Specifically, *goal contents theory,* one of SDT's six mini-theories, contends that commonly held goals are of either intrinsic or extrinsic quality. Intrinsic goals include those for personal growth, close relationships, community giving, and physical health, and their pursuit is argued to inherently satisfy humans' *basic psychological needs* for autonomy (i.e., volition and agency), competence (i.e., ability and efficacy), and relatedness (i.e., interpersonal closeness), and bolster well-being. Extrinsic aspirations include those for wealth, fame, and image. Focusing on extrinsic goals only indirectly supports basic psychological needs and wellness and can frustrate or crowd out need satisfactions producing ill-being (Niemiec et al., 2009). Financial and material successes can be considered hallmarks of success, but their pursuit may not lead to happiness and indeed may undermine it, thus revealing a so-called "dark side of the American dream" (Kasser & Ryan, 1993, p. 410).

Claims about the benefits of intrinsic aspiring and costs of extrinsic aspiring have received support across a wide variety of countries and cultures (Andronikos et al., 2021; Bradshaw et al., 2021b; Unanue et al., 2014), age groups (Berki & Piko, 2017; Mackenzie et al., 2017), socioeconomic statuses (Stevens et al., 2011; Tuicomepee & Romano, 2005; Wasser, 2011), and special interest groups such as problem drinkers and prison inmates (Bradshaw et al., 2018; Kasser & Ahuvia, 2002). Yet, there have been exceptions. Some studies have reported positive correlations between extrinsic aspiring and wellness (Martos & Konkolÿ Thege, 2012; Pauwlik & Margitics, 2008), which has posed the question of whether the "dark side" (Kasser & Ryan, 1993) of extrinsic aspiring affects all people in all contexts

(Brdar et al., 2009; Frost & Frost, 2000; Żemojtel-Piotrowska et al., 2015). However, results that are ostensibly contrary to goal contents theory may not necessarily undermine its universal applicability. Rather, anomalous results could reflect variations in sample sizes and sampling error, Type I error, or different variable operationalizations or statistical methods. In fact—and as we detail below—the various methods used to calculate extrinsic aspiration scores, in particular, appear to affect the degree to which they are positively or negatively associated with well-being. When calculated as a raw mean score extrinsic aspirations are often positively associated with well-being (Martos & Konkolÿ Thege, 2012; Niemiec et al., 2009; Pauwlik & Margitics, 2008), but when intrinsic aspirations and/or overall aspiring (i.e., the mean across all aspirations regardless of type) are accounted for, these associations tend to become negative (Kasser & Ahuvia, 2002; Kasser et al., 2014).

Given the breadth of evidence, further individual studies may not clarify the theory's claims or their universality. Instead, the goal contents theory literature is sufficiently developed to warrant a systematic review and meta-analytic examination of the links between aspirations and wellness, and an assessment of possible moderators of the effects. The conclusions of a meta-analytic view of goal contents theory are important because they can inform (a) how individuals should orient their own strivings to support personal well-being, and (b) how people, groups, and institutions should frame goals such that their pursuit is for the common good. Thus, the aim of the current study is to apply a meta-analytic lens to goal contents theory's claims, which were first proposed and demonstrated in this journal, almost 30 years ago.

Intrinsic and Extrinsic Aspirations and Wellness

In the first SDT studies of intrinsic and extrinsic aspirations, Kasser and Ryan (1993) proposed that people's aspirations for wealth would be detrimental to well-being if they were emphasized relative to intrinsic goals such as self-development and being helpful towards and

close with others (extrinsic goals for fame and image were added later, as was the intrinsic goal for physical health). Kasser and Ryan's (1993) claims were based on SDT's theory of basic psychological needs: intrinsic goals were argued to readily satisfy humans' needs for autonomy, competence, and relatedness, whereas extrinsic goals do not offer direct need satisfactions.

The need satisfying and wellness enhancing qualities of intrinsic aspirations are arguably self-evident. Aspirations for personal growth (i.e., to learn, develop insight, and choose meaningful pursuits) reflect humans' intrinsic growth orientations. Close relationships and social connectedness are widely evidenced sources of well-being (Jose et al., 2012; Lee et al., 2008; Resnick et al., 1993). Caring for the community and benevolent acts demonstrate humans' innate prosocial natures (Martela & Ryan, 2016), as well as activate neural circuitry in the reward centers of the brain (Harbaugh et al., 2007), and valuing physical health facilitates actualization (Kasser & Ryan, 1996).

The reasons why extrinsic pursuits are thought to frustrate basic psychological needs and deter well-being may be less obvious. At various points in history, a tendency towards acquisitiveness was beneficial to the attainment of shelter, safety, warmth, and food. However, now, for humans in (particularly Western) consumerist economies, extrinsic strivings are arguably disadvantageous (Kasser et al., 2004) due to their inherently comparative nature. A languishing individual may turn to social models for information about ways to 'get' happiness and, in capitalist culture, it could appear that the happiest, most popular people are rich, famous, and beautiful. The belief that people who strive for wealth, fame, and image are happiest could spur others to aspire for these things. However, given extrinsic pursuits are built on social and interpersonal comparisons (Soenens et al., 2015), they essentially become perpetually unattainable because, as people's material values increase they tend to compare themselves to new social models and groups. Csikszentmihalyi

(1999) refers to this phenomenon as the "escalation of expectations" (p. 823), explaining that people adapt quickly to their level of acquisitions. Therefore, even when achieved, extrinsic aspirations are perpetually out of reach because people require an increasing dose of 'the remedy' to keep receiving its ostensible benefit. This cycle frustrates basic psychological needs and impedes wellness (Soenens et al., 2015).

These theoretically-based predictions about intrinsic and extrinsic aspirations and their differential links with need satisfaction and well-being have been broadly demonstrated in studies using the widely-used measure of intrinsic and extrinsic aspirations, the Aspiration Index (Kasser & Ryan, 1993, 1996, 2001). Cross-cultural research using the Aspiration Index consistently finds that intrinsic aspiring predicts one's own basic psychological needs satisfaction (Proctor et al., 2016) and that of others (Nishimura et al., 2021), as well as numerous well-being related outcomes such as, life satisfaction and meaning in life (Martela et al., 2019; Martos & Kopp, 2012; Ryan et al., 1999), subjective vitality (Kasser & Ryan, 1993, 1996, 2001; Yamaguchi & Halberstadt, 2012), mindful attention and awareness (Brown & Kasser, 2005), empathy (Sheldon & Kasser, 1995), healthy lifestyle choices (Bradshaw et al., 2018) including self-reported physical activity (Sebire et al., 2009), and pro-environment and prosocial behaviors (Fu et al., 2018; Unanue et al., 2016). Meanwhile, an extrinsic aspirational focus has been linked with basic psychological need frustration (Bradshaw et al., 2021b) and ill-being and distress symptoms across a variety of cultures (Kasser et al., 2014; Martos & Kopp, 2014; Ryan et al., 1999; Schmuck et al., 2000; Sheldon & Krieger, 2014). The breadth of evidence in support of goal contents theory's central claims grounds our hypotheses that they will be supported meta-analytically.

Hypothesis 1a: Intrinsic Aspirations Link Positively With Well-being

Consistent with theory (Bradshaw, in press; Kasser, 2002; Ryan & Deci, 2017) and evidence (Martela et al., 2019; Martos & Kopp, 2012; Ryan et al., 1999), we expected to find

a positive association between global (i.e., overall intrinsic) and specific (e.g., personal growth, relationships) intrinsic aspirations and well-being.

Hypothesis 1b: Extrinsic Aspirations Link Positively (But Weakly) With Well-being

Also in line with the evidence reviewed above, we predicted that the correlation between global (i.e., overall extrinsic) and specific (e.g., wealth, fame) extrinsic aspirations and well-being would be positive. However, based on evidence, we expected the correlation to be considerably smaller than that between intrinsic aspirations and well-being (Martos & Konkolÿ Thege, 2012; Niemiec et al., 2009; Pauwlik & Margitics, 2008). In addition, and as we explain below in Hypothesis 3b, also consistent with evidence, we maintain that when extrinsic aspirations take priority in the overall pattern of aspiring, the effect will be universally detrimental.

Hypothesis 1c: Intrinsic Aspirations Link Negatively With Ill-being

Also consistent with the evidence base (Brown et al., 2009; Kasser & Ryan, 1993; Schmuck et al., 2000; Xie et al., 2011), we expected to see a negative correlation between global and specific intrinsic aspirations and indices of ill-being.

Hypothesis 1d: Extrinsic Aspirations Link Positively With Ill-being

Consistent with the evidence base (Bradshaw et al., 2021b; Kasser & Ryan, 1993; Unanue et al., 2014; Yamaguchi & Halberstadt, 2012), we expected that global and specific extrinsic aspirations would be positively correlated with indices of ill-being.

Global and Specific Intrinsic and Extrinsic Aspirations

The above hypotheses specify that the predicted correlations should be consistent at the global aspiration level (i.e., intrinsic or extrinsic) as well as at the level of specific aspirations (e.g., fame, relationships, etc.). For example, just as we expect intrinsic aspirations to link positively with well-being, that association should be equivalent for personal growth, relationships, community, and physical health. Of the intrinsic aspirations,

personal growth is assessed as striving for psychological integration, autonomy, and personal insight. Relationship aspirations are reflected in a focus on having good friends and strong familial and intimate bonds. Aspirations for community giving and feeling involve striving to help others and to improve the state of the world for the benefit of all. Physical health, which is demonstrated in valuing physical fitness and being free from sickness, is the most contentious of the intrinsic aspirations, as some factor analyses show that it can load equivalently as an intrinsic *and* an extrinsic aspiration (Schmuck et al., 2000). As a result, some studies opt not to collect data pertaining to physical health aspirations (Spasovski, 2013). It is conceivable that, for some, physical health aspirations represent a form of image management. For example, people may focus on diet and exercise to meet social standards of thinness, rather than to be fit and healthy. Nonetheless, like the other intrinsic aspirations the prioritization of health is inherently valuable (Kasser & Ryan, 1996) and serves self-actualization (Rogers, 1963), which situates it theoretically as an intrinsic aspiration.

Of the extrinsic aspirations, wealth is reflected in the pursuit of riches and expensive possessions. Fame items index people's interest in notoriety and being admired. Image aspirations centre around being thought beautiful by others, being fashionable, and avoiding the physical signs of aging. These specific extrinsic were proposed because they represent goals that depend on external rewards or the contingent approval of others (Kasser & Ryan, 1993). The distinction between goals that do and do not depend on external contingencies is central to the respective definitions of extrinsic and intrinsic goals. The equivalence of the links between specific intrinsic and specific extrinsic aspirations with well-being and ill-being can be assessed by including aspiration type as a moderator of the pooled links.

Hypothesis 2a: Aspiration Type Does Not Moderate the Links Between Intrinsic Aspirations and Well-being and Ill-being

Hypothesis 2b: Aspiration Type Does Not Moderate the Links Between Extrinsic Aspirations and Well-being and Ill-being

Why the Links Between Wellness and Intrinsic and Extrinsic Aspirations Should be Independently Evaluated

To our knowledge, intrinsic and extrinsic aspirations have, to date, only featured in meta-analyses as proxies for conceptually- or theoretically-related variables (Dittmar et al., 2014; Donald et al., 2020). In their assessment of the links between mindfulness and different types of motivation, Donald et al. (2020) argued compellingly that intrinsic and extrinsic aspirations can serve as proxies for identified and introjected motivation, respectively. However, well-being was not included in Donald et al.'s (2020) study, and so meta-analytic conclusions regarding the links between aspirations and wellness could not be deduced. In their assessment of the links between materialism and wellness, Dittmar et al. (2014) included both extrinsic and intrinsic aspirations as proxies for materialism, alongside explicit measures. In order to include intrinsic aspiring as an indicator of materialism, these effects were reversed and the reversed scores were merged with and treated as indicators of extrinsic aspiring. The process of item reversal may be sensible when examining proxies for materialism. However, arguably, the impact of intrinsic and extrinsic goal types is best understood by analyzing them individually, particularly in terms of how they are each situated within the broader pattern of aspirations. Such understanding demands that links with intrinsic goals and wellness and extrinsic goals and wellness be meta-analyzed independently.

Specifically, we contend that the links between intrinsic and extrinsic aspirations and indices of wellness need to be evaluated separately for three key reasons. First, effect size reversal procedures imply a single continuum of aspiring with intrinsic goals at one end and extrinsic goals at the other. In the context of the current meta-analysis, considering aspirations as representing a spectrum would arguably be problematic because many studies

report *positive* zero-order correlations between intrinsic and extrinsic aspirations (e.g., Kasser & Ryan, 1993; Sheldon et al., 2010), indicating they are not unidimensional. Given aspirations appear not to be unidimensional, reversed intrinsic aspirations do not obviously represent extrinsic aspirations. Rather, intrinsic and extrinsic aspirations are related but independent constructs and should be meta-analytically evaluated as such. Second, separate analyses of intrinsic and extrinsic aspirations would permit a meta-analytic view of the 'relative centrality' claim of goal contents theory. The theory does not dictate that extrinsic aspiring is 'bad' per se. Rather the relative centrality claim is that extrinsic aspirations deter wellness insofar as they are prioritized in the broader pattern of aspirations. Studies have tested the relative centrality claim by using extrinsic aspirations to predict well-being whilst controlling for (or subtracting) the degree of overall aspiring (i.e., mean scores across all Aspiration Index items) (Kasser & Ryan, 1993). The pooling of relative centrality effects would allow us to meta-analytically assess the relative centrality claim. In fact, as we discuss next, multiple scoring methods are commonly used in the aspirations literature, which presents the third reason to examine intrinsic and extrinsic aspirations separately: as we alluded above, the effects specifically of extrinsic aspirations depend on how the variable/s is/are scored.

The Importance of Scoring Type. The goal contents theory literature comprises three primary means of calculating the aspiration variables: *simple scores*, *relative centrality*, and *relative intrinsicality*. When intrinsic *and* extrinsic aspiration simple scores (i.e., the mean across all extrinsic or all intrinsic items) are correlated with wellness, the correlations are often positive (Martos & Konkolÿ Thege, 2012; Niemiec et al., 2009; Pauwlik & Margitics, 2008). This is arguably because Aspiration Index items—regardless of their intrinsic or extrinsic quality—capture a 'general striving' that is beneficial. Being engaged with goals is better than not being engaged with goals, regardless of goal type. Therefore, as

intrinsic and extrinsic simple scores go up, the positive links with wellness should also increase.

When extrinsic goals are calculated in terms of their relative centrality (i.e., extrinsic aspiration means minus, or controlling for, the overall mean across all aspirations), the result positions these goals within the broader pattern of aspiring, meaning higher scores indicate an increasing focus on extrinsic goals over the other goals. As the relative centrality of extrinsic aspirations increases, the positive well-being effects previously associated with extrinsic aspiration simple scores should be attenuated, disappear, or possibly reverse.

The calculation of relative centrality differs from the third method of variable operationalization, which is relative intrinsicality. Relative intrinsicality scores are calculated by subtracting the extrinsic aspiring mean from the intrinsic aspiring mean, deriving a single aspirations score with positive scores indicating a relatively intrinsic focus. Important to note that, despite the name of this scoring type, it does capture information about relative *ex*trinsicality, because the variable is a mirror image. Therefore, while the evidence suggests that as relative intrinsicality increases so too should one's well-being, the mirroring conclusion is also true: as one's relative extrinsicality goes up, well-being goes down. While relative intrinsicality allows for theoretically-consistent predictions to be made and tested, it collapses all aspiration-related information into a single variable, which precludes a nuanced evaluation of correlates and moderators for the relative centrality of each aspiration type. In contrast, separate relative centrality scores can be calculated for extrinsic and intrinsic aspirations allowing a thorough analysis of covariation.

To illustrate, imagine a respondent's scores across the seven aspirations are 5 (wealth), 6 (fame), 7 (image), 4 (growth), 3 (relationships), 4 (community), and 3 (health). Together these scores amount to an extrinsic mean of 6, an intrinsic mean of 3.5, and an overall aspiring mean of 4.57. The respondent's relative intrinsicality score (i.e., intrinsic

minus extrinsic) is -2.5 (thus their relative extrinsicality is simply the inverse of the relative intrinsicality score, that is 2.5). Accordingly, we would expect the respondent's lack of relative intrinsicality to detrimentally impact their well-being. However, their relative centrality scores would be 1.43 for extrinsic aspirations and -1.07 for intrinsic aspirations. This tells us that, relative to their overall aspiring average, the respondent focuses on extrinsic aspirations above the average and on intrinsic aspirations below the average. The predictions associated with a relative intrinsicality score and a relative centrality score are similar, though relative centrality permits the calculation of two aspiration variables. The two relative centrality scores are especially essential in the context of a meta-analysis as they allow the evaluation of the correlates and moderators of the effects for each aspiration type.

The effect of scoring methodology on the link between extrinsic aspirations and wellness can be assessed by including the scoring type as a moderator of the pooled effect. Here again, it is important that the role of scoring type be evaluated independently for extrinsic and intrinsic aspirations because the above claims about the relative centrality of extrinsic aspirations should not apply to intrinsic aspirations. In other words, increasing endorsement of intrinsic aspirations (i.e., simple scores) as well as increasing relative intrinsicality and relative centrality of intrinsic aspirations should all be positively linked to well-being. However, as we outline in the below hypotheses, we expect differing effect size magnitudes according to scoring type, because the methods vary in the amount of available variance.

Hypothesis 3a: Intrinsic Aspiring Outcomes Are Moderated by Scoring Type

We hypothesized that scoring type (comprising three levels: simple scores, relative centrality scores, and relative intrinsicality scores) would moderate the positive pooled link between intrinsic aspirations and well-being and the negative link between intrinsic aspirations and ill-being, such that the effect sizes are largest when effects represent simple

scores because they do not account for relative centrality. When studies used intrinsic aspiration relative centrality scores, we expected intrinsic aspirations to still link positively with well-being and negatively with ill-being. However, we expected these effect sizes to be attenuated relative to those derived using simple scores because relative centrality scores subtract or control for general aspiring, which reduces the available variance and corrects for response bias. We did not have a specific hypothesis for the magnitude of relative intrinsicality scores, as we expected the differences in scoring types to be most pronounced between simple scores and relative centrality scores.

Hypothesis 3b. Extrinsic Aspiring Outcomes Are Moderated by Scoring Type

Similar to Hypothesis 2a, we also expected the scoring type (comprising two levels: simple scores and relative centrality scores) to moderate the link between extrinsic aspirations and well-being and ill-being. Specifically, for studies that used simple scores, we expected the links between extrinsic aspirations and both well-being and ill-being to be positive. However, consistent with the relative centrality claim at the heart of goal contents theory, we expected the link between extrinsic relative centrality scores and well-being to be negative and the positive link between extrinsic aspirations and ill-being was predicted to increase (compared to simple scores).

The Role of Attainment Status

As we outlined above, the "escalation of expectations" Csikszentmihalyi (1999, p. 823) dictates that the satisfaction of attaining extrinsic aspirations will likely be ephemeral as it is replaced by an increased desire for more. Therefore, one could argue that extrinsic aspirations may be particularly detrimental because it is harder for people to feel they have attained or will attain wealth, fame, or beauty. In other words, if individuals perceive themselves as likely to achieve their extrinsic goals, or if they already have, the negative effect of extrinsic aspirations might be attenuated. Fortunately, numerous studies using the

Aspiration Index have assessed these propositions (Brown et al., 2009; İlhan & Ozbay, 2010; Kasser & Ryan, 1993, 1996, 2001; Niemiec et al., 2009; Pauwlik & Margitics, 2008; Ryan et al., 1999), with the resulting evidence being a mixed bag.

Often, when people rate their extrinsic aspirations as likely or as already accomplished (as compared to rating them as important), the associations with wellness continue to be negative or very weakly positive (Frost, 1998; Raj & Chettiar, 2012; Stevens et al., 2011), especially when relative centrality indices of extrinsic aspirations are used (Brown et al., 2009; Frost & Frost, 2000; Kasser, 1996; Kasser & Ahuvia, 2002; Kasser & Ryan, 1993, 1996). However, several studies reported small to moderately-sized *positive* effects between likely or already-attained extrinsic goals and wellness (Górnik-Durose & Pyszkowska, 2020; Romero et al., 2012; SabzehAra et al., 2014; Tóth et al., 2018). Perhaps most decisive was Niemiec et al.'s (2009) classic longitudinal finding that intrinsically and extrinsically goal-oriented college students were equally likely to have achieved their goals after two years. However, goal attainment only boosted well-being for those who strove for intrinsic goals. Attainment of extrinsic goals did not result in increased wellness. The variety of effects concerning the future or current attainment of, particularly extrinsic, aspirations further highlights the need for a meta-analytic view of the effects. The inclusion of intrinsic and extrinsic aspiration attainment status as a moderator in the meta-analysis would permit the calculation and comparison of effects for importance, likelihood of attainment, and current attainment.

Hypothesis 4. Aspiration Outcomes Are Moderated by Attainment Status

As per the preceding literature review, the effects concerning likelihood of attainment and current attainment vary widely. Based on the most commonly observed effects (Brown et al., 2009; Frost & Frost, 2000; Kasser, 1996; Kasser & Ahuvia, 2002; Kasser & Ryan, 1993, 1996), we hypothesized that the attainment status of the intrinsic and extrinsic aspirations

(comprising three levels: importance, likelihood, and attainment) would moderate the links between aspirations and well-being and ill-being, such that, when aspirations were rated as likely to be achieved or as already achieved it would boost the positive effects of intrinsic aspirations and reduce the negative impacts of extrinsic aspiring (compared to importance scores).

The Universality of Goal Contents Theory

Previous studies of the links between aspirations and various indices of wellness report considerable unexplained variance, or heterogeneity (Vansteenkiste et al., 2006). Unexplained variance suggests that some demographic variables may be playing a moderating role in the associations between aspirations and outcomes. However, moderation effects from small, cross-sectional samples can be unreliable because smaller samples result in higher standard errors, and the accurate identification of moderators depends on assumptions that can decrease statistical power and increase Type I error (MacKinnon, 2011). Therefore, another advantage of meta-analysis is the ability to assess moderators of pooled (as opposed to single) effect sizes (Hurst et al., 2013) and shed light on meta-level sources of heterogeneity (Higgins et al., 2003). However, goal contents theory—like the rest of SDT—comprises a set of claims that are thought to apply universally. As such, in addition to exploring heterogeneity, meta-analysis allows for the thorough assessment of demographic moderators such as gender, age, region of origin, and socioeconomic status, across all of which the central claims of goal contents theory should consistently apply.

Moderation by Proportion of Females in the Sample and Mean Participant Age

Age and gender are common sources of variance in psychology generally, however, the differential links between intrinsic and extrinsic aspirations and wellness are typically consistent across males and females and across age groups (Davids et al., 2017; Mackenzie et al., 2017). While men tend to more strongly endorse extrinsic aspirations than women, and

women tend to be more intrinsic than men, these differences generally do not alter the differential impact of being more relatively intrinsically or extrinsically oriented (Kasser & Ryan, 1996; Kasser et al., 1995; Rijavec et al., 2011).

Hypothesis 5a: Aspiration Outcomes Will Not be Moderated by Mean Age or Proportion of Females in the Samples

Based on the demonstrated applicability of goal contents theory across age groups and for men and women (Davids et al., 2017; Kasser & Ryan, 1996; Kasser et al., 1995; Mackenzie et al., 2017; Rijavec et al., 2011), mean participant age and the proportion of females in the samples were not expected to be moderators of the links between intrinsic and extrinsic aspirations and well-being and ill-being.

Moderation by Region

Among others, Frost (1998), Żemojtel-Piotrowska et al. (2015), and Brdar et al. (2009) suggested that Eastern and Central European countries—and by implication, other countries with developing economies—may not be negatively impacted by pursuing extrinsic aspirations. For example, Frost (1998) found that a focus on wealth (i.e., extrinsic) goals was detrimental for Americans, but not for Romanians. Other studies have also reported small but nonetheless positive links between extrinsic aspirations and well-being, particularly in Eastern and Central European countries (Brdar et al., 2009; Żemojtel-Piotrowska et al., 2015). However, it is important to note that these studies used extrinsic aspiration simple scores (i.e., the mean across all extrinsic aspirations) rather than extrinsic aspirations relative centrality scores (i.e., the mean across extrinsic aspirations minus, or controlling for, the mean across all aspirations). Effect sizes generated using extrinsic aspiration simple scores are often discussed as if they provide the same information as relative centrality scores. However, a correlation using a simple score contains variance distinct from that using a relative centrality score.

For example, Żemojtel-Piotrowska et al. (2015) found that extrinsic aspiration simple scores correlated positively with hedonic well-being and social well-being in a Polish sample and suggested that Poland's developing economy may negate the detrimental impact of extrinsic aspirations typically observed in more developed economies. However, as we discussed above, correlations between extrinsic aspiration simple scores and wellness outcomes are commonly positive (Bradshaw et al., 2021b). Thus, relative centrality indices are often preferred because they partial out the beneficial general striving component associated with both extrinsic *and* intrinsic aspirations. Using relative centrality scores, Frost and Frost (2000) drew conclusions similar to that of Żemojtel-Piotrowska et al. (2015) when they found that the relative centrality of extrinsic aspirations was not detrimental to well-being in a Romanian sample, but it was in an American sample. Further, Stevens et al. (2011) reported a positive link between the relative centrality of wealth aspirations and life satisfaction, also in a Romanian sample. Such diversity in methods, findings, and claims further points to the utility of pooling the effects, and examining moderation by region. Testing the moderating effect of region will be an important contribution of this study because the results are intended to settle debate about whether the links between aspirations and well-being are universal or vary by region.

Hypothesis 5b: Aspiration Outcomes Will Not be Moderated by Region

There are very few region- or country-level studies reporting evidence that a relative emphasis on extrinsic aspirations may be neutral or even beneficial for wellbeing. As such, when considered meta-analytically, we expected the differential effects of intrinsic and extrinsic aspiring to apply across regions. In other words, we did not expect the regions from which the samples were collected to moderate the effects.

Moderation by Socioeconomic Status

The theorized detrimental impact of extrinsic aspiring may be doubly damaging for those in ongoing or permanent states of economic and existential threat. Kasser et al. (1995) and Cohen and Cohen (2013) demonstrated that the most extrinsically oriented and materialistic adolescents were also the most socioeconomically disadvantaged. Further, Solberg et al. (2004) reported a significant interaction between the importance placed on extrinsic goals and the gap between actual and desired financial states in the prediction of satisfaction with life. The negative impact of extrinsic aspiring was greater for those with the biggest gap between their actual and desired level of material wealth. Socioeconomically disadvantaged individuals may thus have the strongest extrinsic orientation due to existential threat, and also experience the most detrimental impact of extrinsic aspiring because there is likely to be a large discrepancy between actual and desired material wealth. Using socioeconomic status as a moderator would allow these claims related to income and extrinsic aspiring to be meta-analytically assessed.

Hypothesis 5c: Extrinsic Aspiration Outcomes May be Moderated by Socioeconomic Status

It is plausible that the theorized costs of focusing on extrinsic aspirations may be exacerbated for those in low socioeconomic circumstances, because the gap between aspiring and perceived probable attainment could be substantial. Much as we argue in Hypothesis 4, if people feel like they can attain their extrinsic aspirations, the impact of such strivings may be attenuated. Therefore, given people of low socioeconomic status may feel extrinsic goals are particularly out of reach, striving for them could result in pronounced psychological costs. If so, socioeconomic status would emerge as a statistically significant moderator of the associations between extrinsic aspirations and indicators of well-being and ill-being. The link between extrinsic aspiring and ill-being would be stronger in low socioeconomic groups compared to those in higher socioeconomic groups.

Current Study

The evidence reviewed above indicates that intrinsic and extrinsic aspirations can be reported in multiple ways (i.e., importance, likelihood, current attainment), and there are various options for calculating the resulting scores (e.g., simple scores, relative centrality scores). In addition, some demographic variables have been offered as potential moderators of the supposed universal links between intrinsic and extrinsic aspirations and indices of wellness (i.e., region and socioeconomic status). Taken together, theoretical debate, methodological opacity, and the considerable heterogeneity of the observed effects point to the need for a systematic review and meta-analytic assessment of the links between intrinsic and extrinsic aspirations and indices of well-being and ill-being. This meta-analysis will pool the effect sizes linking intrinsic and extrinsic aspirations to indicators of well-being and ill-being, as well as include a thorough assessment of potential moderators of these links. For completeness, and as a validity check, this review will also include a meta-analytic assessment of the links between the predictors (i.e., intrinsic and extrinsic aspirations) as well as between the outcomes (i.e., well-being and ill-being). If the variables are functioning as intended, intrinsic and extrinsic aspirations should be positively correlated and well-being and ill-being should be negatively correlated.

Method

Registration and Open Science Practices

The study design for this systematic review and meta-analysis was registered with PROSPERO on 21 June 2018, under registration number: CRD42018097171. For the purposes of openness and transparency, the R code and raw data underlying these analyses has been made publicly available on the Open Science Framework (https://osf.io/kx9er/).

Eligibility Criteria

To be included in the meta-analysis studies needed to be quantitative in nature and employ the Aspiration Index (Kasser & Ryan, 1993, 1996, 2001) or one of its shortened or language-adapted alternatives (i.e., Martos et al., 2006; Nishimura et al., 2021), or the Aspirations Index (Grouzet et al., 2005). We intended for our claims to apply 'in general', and so included only studies that used the 'general' Aspiration Index, rather than domain-specific measures, such as those exclusively about exercise or the workplace. The Aspiration Index is the only valid, reliable, and widely-used measure of life goals in which aspirations are explicitly classified as intrinsic or extrinsic. The current meta-analysis aimed to clarify the links between general intrinsic aspirations and well-being/ill-being and between general extrinsic aspirations well-being/ill-being, therefore a focus on the Aspiration Index was essential for these purposes.

Studies also needed to use a measure of psychological well-being or ill-being. In the goal contents theory literature, the scope of psychological well-being and ill-being measures is broad, so we used highly inclusive search terms and eligibility criteria. Kasser and Ryan (2001) referred to "optimal functioning" (p. 116) as operationalized using variables such as vitality, self-actualization, depression, anxiety, and affect. Other studies have used composite well-being measures by combining multiple scales (Lekes et al., 2010; Yamaguchi & Halberstadt, 2012) and, in many cases, basic psychological need satisfaction and frustration are included as fundamental indices of well-being and ill-being (Nishimura et al., 2021; Roman et al., 2015; Tao & Fei, 2018). Given the variety of measures present in the available evidence, we opted for a maximally inclusive approach by including all studies that used the Aspiration Index and a psychological variable described as 'well-being', 'ill-being', or applicable synonyms (as per the keywords included below). The well-being measures ended up falling into five general categories: general well-being, need satisfaction, positive affect,

life satisfaction, self-esteem, and purpose and meaning in life. The ill-being measures fell into three broad categories: need frustration, depression and anxiety, and negative affect. A summary of the specific measures is included in Online Supplementary Materials S1 and S2.

Participants were not limited by age, country/region of origin, ethnicity, socioeconomic status, or any other factor. A measure of effect size (e.g., Pearson's *r* or a metric that could be converted to Pearson's *r*) needed to be included in the study. For inclusion, the paper or results were also required to be published, made available in, or translatable to English. Authors were contacted for manuscripts published in languages other than English, to obtain the relevant effect-sizes and/or English manuscripts. Authors were also contacted to obtain effects when they were not reported in the manuscripts. If author/s did not respond, studies were necessarily omitted from the meta-analysis.

Information Sources

The databases searched for eligible papers were: PsycINFO, PsycARTICLES, Psychology and Behavioral Sciences Collection, ERIC, and ProQuest Psychology. Reference lists from the articles obtained and Google Scholar were also used to source additional references.

Keywords

Titles and abstracts were searched using the following search terms to target aspirations: 'aspiration*' (for aspiration and aspirations), 'life goals', 'materialism', 'materialistic', 'materialistic values', and employing the Boolean separator 'OR'. The search terms for psychological well-being included: 'well-being', 'wellbeing', 'happiness', 'life satisfaction', 'quality of life', 'meaning in life', 'optimal functioning', 'positive functioning', 'self-esteem', 'self-actuali*' (for self-actualisation and self-actualization), 'vitality', 'depression', 'anxiety', 'positive affect', 'negative affect', 'need* satisfaction' (for need satisfaction and needs satisfaction), 'mental health', and 'flourish*' (for flourish, flourishing,

and flourished), also separated by ‘OR’. Aspiration search terms and well-being search terms were separated by ‘AND’, meaning papers needed to have at least one term from the aspiration terms, and one from the well-being terms. Given that our analysis depended on use of the Aspiration Index, which was first published in 1993, searches were limited to papers published from 1993 onwards. We conducted the first search in June 2018, and concurrently reached out to fellow goal contents theory researchers via the SDT listserv (https://selfdeterminationtheory.org/listserv/). The SDT listserv is a database of SDT researchers comprising approximately 1500 subscribers from multiple countries including Australia, the USA, and the United Kingdom. These direct liaisons resulted in receipt of three then unpublished studies, all of which met the inclusion criteria. However, all three have since been published, with the published effect sizes matching those in the unpublished reports and are thus included as published studies in our data. Then, to ensure our data comprised the latest research we repeated the search three times prior to submission. We conducted the second search in March 2020, limiting the timeframe to articles published since June 2018, and then we searched again in July 2021 limiting the timeframe to articles published since March 2020. Following peer review we became aware that our search terms had not captured a small subset of relevant articles. As a result we repeated the literature search for a fourth and final time on February 8, 2022, using additional aspirations search terms. The fourth search used the same well-being search terms as mentioned above, but substituted the aspiration search terms with: ‘intrinsic goals’, ‘extrinsic goals’ ‘intrinsic values’, and ‘extrinsic values’ each separated by the OR Boolean operator.

Abstract and Full-Text Screening

Relevant abstracts were imported into an EndNote library and obvious duplicates were removed. Two authors (ELB and JHC) screened 2024 titles and abstracts in the first round of screening, as well as 1835, 977, and 101 (ELB and BAS/KAF) in the second, third,

and fourth rounds, totaling 4937 articles. Abstracts were either included in or excluded from the full-text stage of the review when both screeners agreed on a report's inclusion status. If the screeners did not agree, the article was classified as a disagreement. All disagreements were settled by discussion between the two relevant screeners. Of the 4937 abstracts, two screeners agreed that 238 reports met the criteria for inclusion in the full-text screening round of review. Of the 238 full-texts that were screened, two screeners agreed that 92 reports (comprising a total 105 individual studies) qualified for inclusion in the systematic review and meta-analysis, as shown in Figure 1. As Figure 1 shows, the most frequent reason for exclusion was the paper did not use the Aspiration Index (n = 62), several duplicates also made it through the first rounds of screening and were thus excluded from data extraction (n = 21), and n = 19 papers did not report the relevant effect size/s and did not respond to requests. A full summary of the reports included in the review and meta-analysis is included in Online Supplementary Materials S3, divided according to univariate meta-analysis.

Study Characteristics

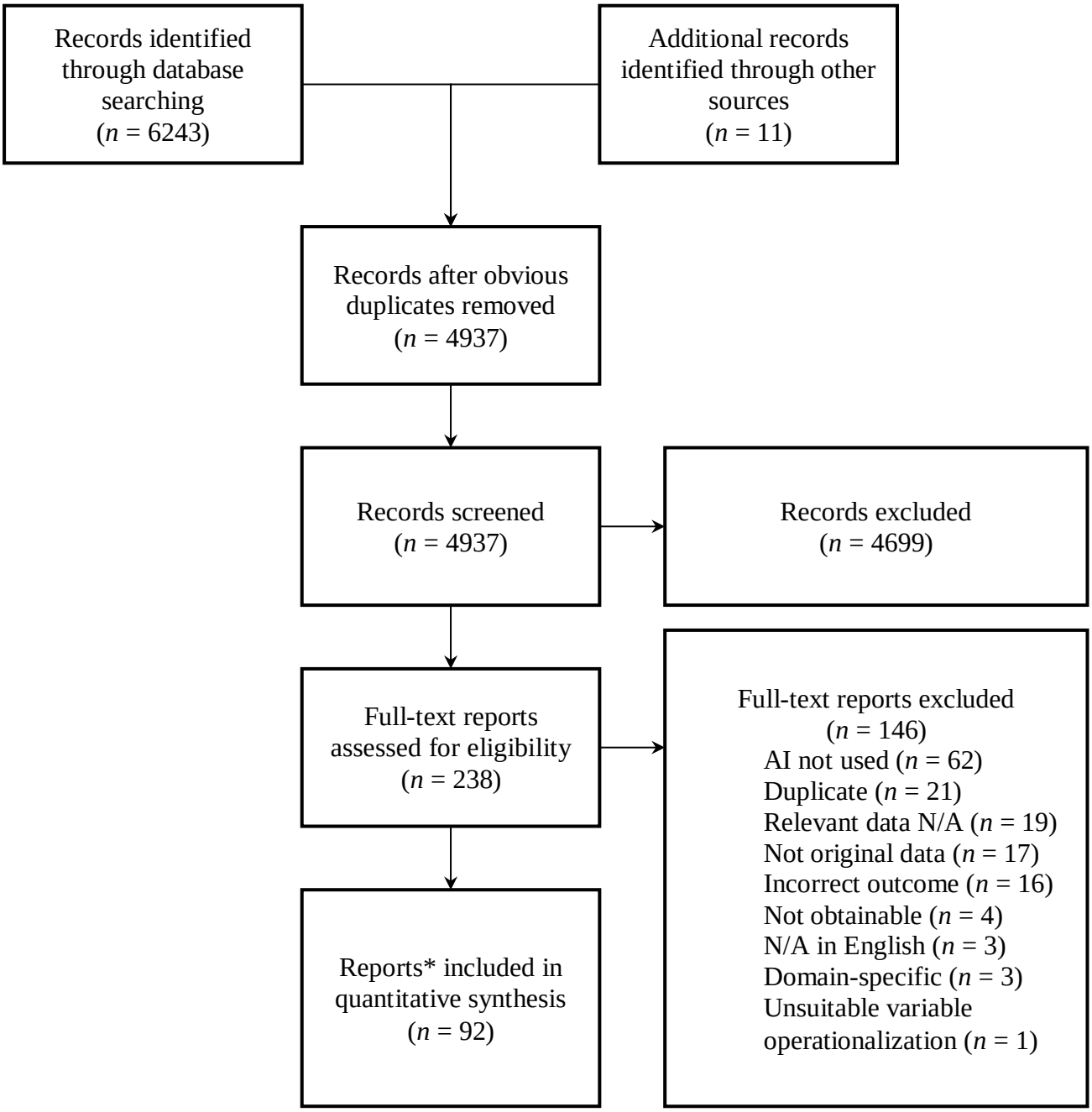

Figure 1. Flow diagram of the studies screened and included in systematic review and meta-analysis. *The 92 reports comprised a total of 105 individual studies. *Note.* AI = Aspiration Index.

Data Extraction

Following full-text screening two co-authors (ELB and BAS) extracted data from the included studies. When the applicable correlation was not reported the author/s was/were

contacted via email. If the authors did not respond after two attempts, the study was necessarily excluded from the review. To ensure data quality, after extraction, we randomly selected 20% of the rows in the data extraction table and had an independent researcher review the data in each cell. Of the total 42,848 cells in the data extraction table, 8,554 cells were reviewed (19.96%). Corrections were required in only 1% of cases reviewed. Those corrections were made where necessary, prior to analysis.

Effect Size Coding

Of the 92 reports in the meta-analysis, six were theses and two were book chapters. The remaining 84 were reports published in peer-reviewed journals. Reports were published or submitted for publication, between 1993 and 2021. To facilitate pooling within global intrinsic and extrinsic aspirations, as well as across the specific aspirations (i.e., wealth, growth, health), each effect size was coded twice.

First, all effect sizes were coded according to their global, or general, intrinsic or extrinsic content. For example, some studies refer only to the aggregated mean across all intrinsic aspirations, while other studies refer to specific intrinsic aspirations such as relationships. Also, some studies use the relative intrinsicality score (i.e., intrinsic simple scores minus the extrinsic simple scores), or the relative centrality of intrinsic aspirations (i.e., intrinsic mean scores minus the mean across all aspirations), all of which were coded as ‘intrinsic’ in this study. Similarly, effect sizes pertaining to the mean across all extrinsic aspirations or to specific extrinsic aspirations such as fame, or to the relative centrality of extrinsic aspirations (i.e., the mean for extrinsic aspirations minus the mean across all aspirations) were coded as ‘extrinsic’.

Second, to pool according to the specific aspiration types, the effects were coded according whether they represented an aggregated score (such as the mean across all extrinsic

aspirations—coded as ‘extrinsic’—or intrinsic aspiration scores minus extrinsic aspiration scores—coded as ‘intrinsic’) or a specific score, such as for growth or health.

Effect Size Magnitudes

Consistent with the emerging consensus in psychological science, we evaluated effect size magnitude according to the thresholds offered by Funder and Ozer (2019) and Gignac and Szodorai (2016). Using systematic review methods (Funder & Ozer, 2019) and meta-analysis (Gignac & Szodorai, 2016), both studies came to markedly similar conclusions regarding the consequences and representativeness of effect size magnitudes. Funder and Ozer (2019) reported that, in terms of the consequences of each effect size, effects approximating .05 are very small, effects around .10 are small, .20 is a medium-sized effect, and .30 is a large effect. Funder and Ozer (2019) further proposed that while correlations above .40 are “very large” they are likely to be a “gross overestimate” (p. 156) that is unlikely to be replicable. Gignac and Szodorai’s (2016) analysis of 708 meta-analytic effects concluded that correlations in the range of .10 are relatively small, .20 are typical, and those approaching .30 are relatively large. Rather than reflecting arbitrary cut-offs, the thresholds offered by Funder and Ozer (2019) and Gignac and Szodorai (2016) are intended to benchmark effects with the typical effects in the field, and to provide information about the possible or probable real-world effects associated with the key variables, which is why we aligned our reporting with them.

Data Analysis

For our meta-analyses we used three-level meta-analytic structural equation modeling (Cheung, 2014, 2019). The studies included in our data often reported multiple effects. These effects reflect the same sample and methods, and therefore violate the assumption of independence core to traditional or classical meta-analyses. However, Cheung’s (2014, 2019) multi-level meta-analytic approach allows the dependencies in non-independent effects to be

modeled, which increases the number of effects that can be included in a study, thus supporting statistical power, as demonstrated in several recent meta-analytic reports (Conigrave et al., 2020; Donald et al., 2020; Donald et al., 2022; Vasconcellos et al., 2020). We used Study ID as the clustering variable in our three-level meta-analytic models. The first level of the models pools effect sizes at the participant level. Levels 2 and 3 model within ($\tau^2_{(2)}$) and between ($\tau^2_{(3)}$) study heterogeneity respectively.

We used R (Version 4.1.0; R Core Team, 2021) and the R packages *data.table* (Version 1.14.0; Dowle & Srinivasan, 2021), *ggplot2* (Version 3.3.5; Wickham, 2016), *metaSEM* (Version 1.2.5.1; Cheung, 2015), *OpenMx* (Version 2.19.6; Hunter, 2018; Neale et al., 2016; Pritikin et al., 2015), *papaja* (Version 0.1.0.9997; Aust & Barth, 2020), and *targets* (Version 0.6.0; Landau, 2021) for all our analyses. Effect sizes and sampling variances were estimated using the *metafor* package (Viechtbauer, 2010). We used Fisher's *r*-to-*z* transformation for effect sizes. Summary statistics were back transformed to enhance interpretability (Fisher, 1921).

Publication Bias

In the presence of publication bias, effect sizes can become correlated with standard errors because authors may fail to publish statistically nonsignificant findings. Given the clustered nature of our data, we used a multi-level meta-analytic Egger's regression test (Egger MLMA; Rodgers & Pustejovsky, 2021) to explore whether selective reporting could be present in these data. In three-level meta-analyses fit using metaSEM (Cheung, 2015) and clustered by study ID, we pooled effect sizes using their respective standard errors as predictors. We tested whether these models improved on their baseline models' fit using likelihood ratio tests. If inclusion of the standard error did significantly improve model fit, then selective reporting was suspected. To supplement these analyses, we also aggregated data to the cluster (i.e., Study ID) level with a series of fixed-effects meta-analyses. We then

performed trim-and-fill (Rodgers & Pustejovsky, 2021) using the R package metafor (Viechtbauer, 2010) and report these results below. From the fixed-effects models, we also produced funnel plots to visually inspect potential asymmetry. The resulting plots are included in Online Supplementary Materials S4-S10.

Risk of Bias

We used two means of assessing risk of bias. First, each effect was given a binary 'yes' or 'no' code for four indices of study quality: (a) was the participant eligibility criteria clear and specific?, (b) was the sample representative of the population?, (c) did the study use a valid measure of intrinsic and extrinsic aspirations?, and, (d) did the study use a valid measure of well-being and/or ill-being. Risk of bias scores of 1 indicated high risk of bias, 2-3 indicated moderate risk of bias, and 4 indicated low risk of bias. We then included the three-level risk of bias variable as a moderator in all our analyses. In addition, we coded (a) peer-reviewed reports and (b) unpublished reports, and used the resulting two-level moderator in each meta-analytic model.

Results

Reports and Participants

We identified a total of 92 reports with relevant data. From these reports, 105 unique studies were identified containing relevant information. These studies contained 1,808 effect sizes with a total sample size of N = 70,110.

Systematic Review

Figure 2 provides an at-a-glance summary of the results of the systematic review. Specific effect sizes and the effects of important moderators are outlined in the Meta-analysis reporting below, but Figure 2 serves as a visual evidence gap map. Empty cells and empty rows in Figure 2 indicate areas of interest for which there was insufficient data (though please note, that the intrinsic aspiration rows *should* be empty in columns representing extrinsic

aspiration effects). Notably, socioeconomic status was found to be under-reported across these data. There were no effects that specified socioeconomic status for any of the meta-analyses with ill-being as the outcome, and it was not reliably reported for the other models either. In addition, the samples in which extrinsic aspiration relative centrality scores have been calculated was found to be limited in terms of region. Relative centrality scores have been reported in Asia, Eastern Europe, and North America, meaning we were not able to assess relative centrality in regions such as Western Europe, Oceania, or South America, among others. Explicit reporting of socioeconomic status and more consistent reporting of correlations that use relative centrality scores across a variety of regions should be priority areas of focus in future goal contents theory research.

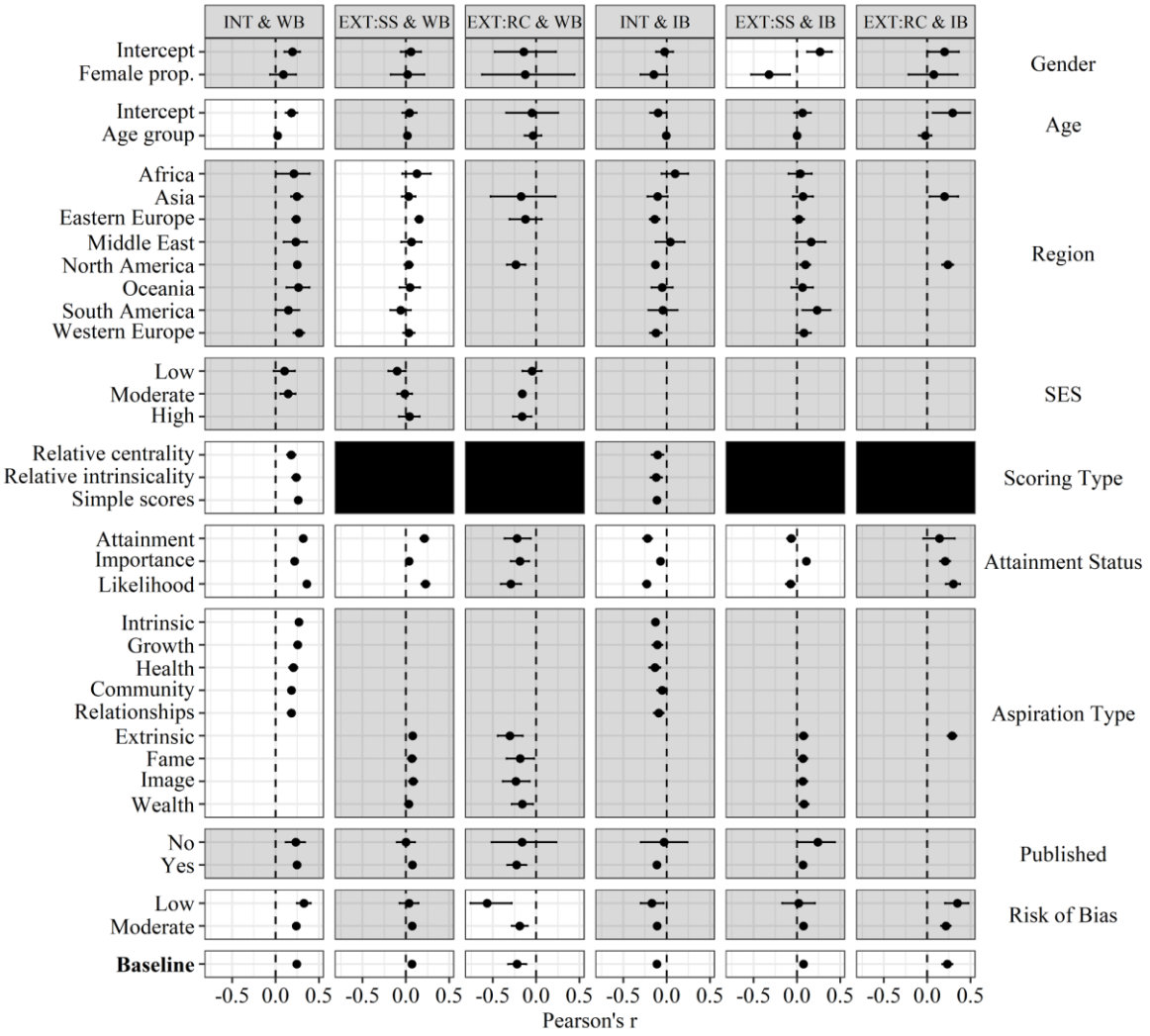

Figure 2. Moderation matrix of the effects of covariates across all meta-analytic models. Empty cells and empty rows represent an absence of sufficient data (please note, that the intrinsic aspiration rows *should* be empty in columns representing extrinsic aspiration effects, and vice versa). Cells with white backgrounds indicate moderators that were statistically significant. Gray backgrounds indicate moderators that were not statistically significant. Black cells are not relevant to the model in that column. *Note.* Intercept (for Gender and Age) = is the baseline model estimated where the covariate (i.e., Gender or Age) is equal to zero. Female prop. = a continuous variable indicating an increasing proportion of females. Age group = mean age of the samples as a continuous variable calculated per decade. Baseline = the model *without* any adjustment for moderating covariates; INT = intrinsic aspirations; WB = well-being; EST:SS = extrinsic aspiration simple scores; EXT:RC = extrinsic aspiration relative centrality scores; IB = ill-being; SES = socioeconomic status.

Meta-analysis

Intrinsic Aspirations and Well-being: Hypothesis 1a

Ninety-five studies (including 653 effect sizes) reported data that could be pooled. The total *N* was 62,359. There was a statistically significant, medium-sized, positive pooled effect of intrinsic aspiring on well-being, $r = 0.24$ [95% CI 0.22, 0.27]. Inspection of the Q statistic revealed statistically significant heterogeneity $Q(652) = 7482.90$, $p < 0.001$. The heterogeneity at level 2 (within-study) was $I^2_{(2)} = 56.58\%$ ($\tau^2_{(2)} = 0.02$). The heterogeneity at level 3 (between-study) was $I^2_{(3)} = 37.59\%$ ($\tau^2_{(3)} = 0.01$). The total heterogeneity was considerable and explained mostly by variance within-study. This pattern of heterogeneity applied across all of our models and indicated that the effects being pooled varied widely. As shown in Table 1 (and illustrated in Figure 2), five covariates statistically significantly moderated the baseline model, they were 'Age' ($R^2_{(2)} = 0.50\%$; $R^2_{(3)} = 4.78\%$), 'Scoring

Type' ($R^2_{(2)}$ = 1.86%; $R^2_{(3)}$ = 2.18%), 'Attainment Status' ($R^2_{(2)}$ = 23.27%; $R^2_{(3)}$ = 0.00%), 'Aspiration Type' ($R^2_{(2)}$ = 7.18%; $R^2_{(3)}$= 0.03%), and 'Risk of Bias' ($R^2_{(2)}$ = 0.03%; $R^2_{(3)}$ = 5.79%).

Statistically significant moderation by 'Age' indicated that, for every ten year increase in age, there is a r = 0.02 [0.00, 0.05] increase in the link between intrinsic aspirations and well-being. While statistically significant, the magnitude of this effect was negligible and therefore unlikely to be of practical utility.

The 'Scoring Type' moderator comprised three levels: (a) the relative centrality of intrinsic aspirations (i.e., the mean for intrinsic aspirations minus the mean across all aspirations), (b) relative intrinsicality (i.e., the intrinsic aspirations mean, minus the extrinsic aspirations mean), and (c) simple scores (i.e., mean scores across all intrinsic aspirations). As predicted, all three intrinsic scoring types were positively linked with well-being. However, the 'Scoring Type' moderation result suggested that the effect size for intrinsic aspiration simple scores was slightly higher than the effect for intrinsic aspirations relative centrality scores.

The 'Attainment Status' moderator also consisted of three levels: (a) intrinsic aspirations rated in terms of importance, (b) intrinsic aspirations rated for likelihood of attainment, and (c) intrinsic aspirations rated for current attainment. The 'Attainment Status' moderation result suggested that when intrinsic aspirations were rated as likely to be achieved, or as already attained, their well-being benefits were strongly positive, as compared to importance ratings which were less strongly (i.e., moderately) positive.

The 'Aspiration Type' moderator tested if the effect sizes associated with specific intrinsic aspirations (i.e., personal growth, relationships, community giving, and physical health) differed from each other in the prediction of well-being, or differed from the link between global intrinsic aspirations and well-being. As expected, the effects between all of

the specific intrinsic aspirations and well-being were statistically significant and positive. However, the 'Aspiration Type' moderation result suggested that the effect of general intrinsic aspirations was stronger than the effects for the specific aspirations of having close relationships and community giving.

Moderation by 'Risk of Bias' suggested that information about degree of bias may have reduced the uncertainty of the model because, despite the statistically significant result, the confidence intervals of the low and moderate levels of the moderator overlapped, indicating they were not different. This result may be a function of there being considerably more studies and effects of moderate risk, compared to studies and effects with low risk of bias. We did not detect evidence of publication bias using the MLMA Egger's test $\chi^2(1) = 0.78$, $p = 0.38$. Data was aggregated to cluster (i.e., Study ID) and trim-and-fill was performed. No missing studies were detected or filled ($L_0 = 0$). A funnel plot demonstrated approximate symmetry (see Online Supplementary Materials S4).

Table 1.

The pooled association between intrinsic aspirations and well-being, and the assessment of nine possible moderators of the pooled effect

Moderation	*k*	*n*	*r* [95% CI]	Estimate	SE	*p*	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Baseline	95	653	0.24 [0.22, 0.27]	0.25	0.01	< 0.001	0.02	0.01			
Gender	89	619					0.02	0.01	0.00	3.41	$\chi^2(1) = 1.30$, $p = 0.26$
Intercept			0.19 [0.10, 0.28]	0.20	0.05	< 0.001					
Female prop.			0.09 [-0.06, 0.23]	0.09	0.08	0.25					
Age	75	484					0.01	0.01	0.50	4.78	$\chi^2(1) = 4.09$, $p = 0.043$
Intercept			0.18 [0.12, 0.25]	0.19	0.03	< 0.001					
Age group			0.02 [0.00, 0.05]	0.02	0.01	0.042					
Region	95	653					0.02	0.01	0.12	4.33	$\chi^2(7) = 3.33$, $p = 0.85$
Africa	2	3	0.21 [0.01, 0.39]	0.21	0.10	0.040					
Asia	13	51	0.25 [0.18, 0.31]	0.25	0.04	< 0.001					
Eastern Europe	24	173	0.24 [0.19, 0.28]	0.24	0.02	< 0.001					

Moderation	k	n	r [95% CI]	Estimate	SE	p	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Middle East	3	12	0.23 [0.09, 0.36]	0.24	0.07	0.001					
North America	38	311	0.25 [0.21, 0.28]	0.25	0.02	< 0.001					
Oceania	3	21	0.26 [0.13, 0.39]	0.27	0.07	< 0.001					
South America	4	11	0.15 [0.02, 0.27]	0.15	0.07	0.026					
Western Europe	14	71	0.27 [0.21, 0.33]	0.28	0.03	< 0.001					
SES	12	62					0.01	0.02	2.20	0.00	$\chi^2(1) = 0.45$, $p = 0.50$
Low	4	12	0.10 [-0.02, 0.22]	0.10	0.06	0.11					
Moderate	9	50	0.14 [0.06, 0.23]	0.15	0.05	0.001					
Scoring Type	95	653					0.01	0.01	1.86	2.18	$\chi^2(2) = 9.45$, $p = 0.009$
Relative centrality	14	107	0.18 [0.13, 0.23]	0.18	0.03	< 0.001					
Relative intrinsicality	22	106	0.24 [0.19, 0.28]	0.24	0.03	< 0.001					
Simple scores	70	440	0.26 [0.23, 0.29]	0.26	0.01	< 0.001					
Attainment Status	95	653					0.01	0.01	23.27	0.00	$\chi^2(2) = 98.36$, $p < 0.001$

Moderation	k	n	r [95% CI]	Estimate	SE	p	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Attainment	15	98	0.32 [0.28, 0.35]	0.33	0.02	< 0.001					
Importance	91	429	0.22 [0.19, 0.24]	0.22	0.01	< 0.001					
Likelihood	22	126	0.36 [0.33, 0.39]	0.37	0.02	< 0.001					
Aspiration Type	95	653					0.01	0.01	7.18	0.03	$\chi^2(4) = 32.97$, $p < 0.001$
Intrinsic	71	245	0.27 [0.24, 0.30]	0.28	0.01	< 0.001					
Growth	26	107	0.25 [0.21, 0.29]	0.26	0.02	< 0.001					
Health	16	63	0.20 [0.16, 0.25]	0.21	0.02	< 0.001					
Community	31	122	0.18 [0.14, 0.22]	0.18	0.02	< 0.001					
Relationships	28	116	0.18 [0.14, 0.22]	0.18	0.02	< 0.001					
Published	95	653					0.02	0.01	0.00	0.11	$\chi^2(1) = 0.05$, $p = 0.83$
No	4	33	0.23 [0.12, 0.34]	0.24	0.06	< 0.001					
Yes	91	620	0.24 [0.22, 0.27]	0.25	0.01	< 0.001					
Risk of Bias	95	653					0.02	0.01	0.03	5.79	$\chi^2(1) = 4.25$, $p = 0.039$

Moderation	k	n	r [95% CI]	Estimate	SE	p	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Low	8	33	0.33 [0.25, 0.40]	0.34	0.05	< 0.001					
Moderate	88	620	0.24 [0.21, 0.26]	0.24	0.01	< 0.001					

Note. The total *N* for this model was 62,359. *K* = number of studies (more than one of which may come from a single report), *n* = number of effect sizes. *R* = Pearson's *r*, which is Fisher's *z* back-transformed for ease of interpretation. Estimate = Fisher's *z*. $R^2_{(2)}$ = % of heterogeneity explained within-studies. $R^2_{(3)}$ = % of heterogeneity explained between-studies. Intercept (for Gender and Age) = is the baseline model estimated where the covariate (i.e., Gender or Age) is equal to zero. % females in samples = a continuous variable indicating an increasing proportion of females. Age group = mean age of the samples as a continuous variable calculated per decade. The three 'Scoring Type' moderator levels refer to: (a) the relative centrality of intrinsic aspirations (i.e., the mean for intrinsic aspirations minus the mean across all aspirations), (b) relative intrinsicality (i.e., the intrinsic aspirations mean, minus the extrinsic aspirations mean), and (c) intrinsic aspirations simple scores (i.e., mean scores across all intrinsic aspirations).

Extrinsic Aspirations and Well-being: Hypothesis 1b

Seventy-nine studies (including 413 effect sizes) reported data that could be pooled. The total *N* was 43,894. The pooled effect for the link between extrinsic aspiring and well-being was not statistically significant, $r = 0.02$ [95% CI -0.02, 0.06]. As shown in Table 2, we found that 'Scoring Type' statistically significantly moderated the baseline model, ($R^2_{(2)}$ = 3.25%; $R^2_{(3)}$ = 44.47%). For extrinsic aspirations, the 'Scoring Type' variable comprised two levels: (a) the relative centrality of extrinsic aspirations (i.e., the mean for extrinsic aspirations minus the mean across all aspirations), and (b) extrinsic aspirations simple scores (i.e., mean scores across all extrinsic aspirations). The moderation result for 'Scoring Type' found that, when calculated as a simple score, extrinsic aspirations linked weakly and positively with well-being. However, when calculated as a relative centrality score, extrinsic aspirations had a medium-sized, negative effect on well-being. The 'Scoring Type' moderation result indicated that the two scoring methodologies differ not only statistically significantly, but also in terms of the direction and magnitude of their respective effects. Therefore, we opted to split these data into two sub-analyses, one for the link between well-being and extrinsic aspirations as simple scores, and one between well-being and extrinsic aspirations as relative centrality scores.

Table 2.

The pooled association between extrinsic aspirations and well-being, and the assessment of scoring type (relative centrality scores versus simple scores) as a possible moderator of the pooled effect

Moderation	*k*	*n*	*r* [95% CI]	Estimate	SE	*p*	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Baseline	79	413	0.02 [-0.02, 0.06]	0.02	0.02	0.31	0.01	0.03			
Scoring Type	79	413					0.01	0.02	3.25	44.47	$\chi^2(1) = 47.18$, $p < 0.001$
Relative centrality	14	76	-0.21 [-0.28, -0.15]	-0.21	0.04	< 0.001					
Simple scores	67	337	0.07 [0.03, 0.10]	0.07	0.02	< 0.001					

Note. The total *N* for this model was 43,894. *k* = number of studies (more than one of which may come from a single report), *n* = number of effect sizes. *r* = Pearson's *r*, which is Fisher's *z* back-transformed for ease of interpretation. Est. = Fisher's *z*. $R^2_{(2)}$ = % of heterogeneity explained within-studies. $R^2_{(3)}$ = % of heterogeneity explained between-studies. The two 'Scoring Type' moderator levels refer to: (a) the relative centrality of intrinsic aspirations (i.e., the mean for extrinsic aspirations minus the mean across all aspirations), and (b) extrinsic aspirations simple scores (i.e., mean scores across all extrinsic aspirations).

Extrinsic Aspirations (as Simple Scores) and Well-being

Sixty-seven studies (including 337 effect sizes) reported data that could be pooled. The total *N* was 41,994. There was a very small, statistically significant positive pooled effect size of extrinsic aspirations (as simple scores) on well-being, $r = 0.07$ [95% CI 0.04, 0.10]. Inspection of the Q statistic revealed statistically significant heterogeneity $Q(336) = 4442.91$, $p < 0.001$. The heterogeneity at level 2 (within-study) was $I^2_{(2)} = 50.91\%$ ($\tau^2_{(2)} = 0.01$). The heterogeneity at level 3 (between-study) was $I^2_{(3)} = 43.57\%$ ($\tau^2_{(3)} = 0.01$). As shown in Table 3, the covariates that statistically significantly moderated the baseline model were 'Region' ($R^2_{(2)} = 1.46\%$; $R^2_{(3)} = 35.59\%$) and 'Attainment Status' ($R^2_{(2)} = 38.34\%$; $R^2_{(3)} = 0.00\%$).

The 'Region' moderator comprised countries divided approximately by continent, though separating Eastern and Western Europe. Statistically significant moderation by 'Region' suggested that the small, positive effect of extrinsic aspirations (as simple scores) on well-being only applied to effect sizes from Eastern Europe. In all other regions the link between extrinsic aspirations (as simple scores) and well-being was not different from zero. None of the other demographic variables moderated the baseline model.

The 'Attainment Status' moderator comprised three levels: (a) extrinsic aspirations rated in terms of importance, (b) extrinsic aspirations rated for likelihood of attainment, and (c) extrinsic aspirations rated for current attainment. The 'Attainment Status' moderation result suggested that when extrinsic aspirations (as simple scores) were rated as likely to be achieved, or as already attained, the effects on well-being were moderately-sized and positive, as compared to when extrinsic aspirations were rated as important, the effect of which was very weak and positive. We did not detect evidence of publication bias using MLMA Egger's test $\chi^2(1) = 1.69$, $p = 0.19$. Data was aggregated to cluster and trim-and-fill was performed. No missing studies were detected or filled ($L_0 = 0$). A funnel plot demonstrated approximate symmetry (Online Supplementary Materials S5).

Table 3.

The pooled association between extrinsic aspirations simple scores and well-being, and the assessment of eight possible moderators of the pooled effect

Moderation	*k*	*n*	r [95% CI]	Estimate	SE	p	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Baseline	67	337	0.07 [0.04, 0.10]	0.07	0.01	< 0.001	0.01	0.01			
Gender	63	325					0.01	0.01	0.05	0.00	$\chi^2(1) = 0.04$, $p = 0.84$
Intercept			0.06 [-0.06, 0.17]	0.06	0.06	0.34					
Female prop.			0.02 [-0.17, 0.21]	0.02	0.10	0.84					
Age	56	266					0.01	0.01	0.48	0.28	$\chi^2(1) = 1.11$, $p = 0.29$
Intercept			0.04 [-0.04, 0.12]	0.04	0.04	0.33					
Age group			0.02 [-0.01, 0.04]	0.02	0.01	0.29					
Region	67	337					0.01	0.01	1.46	35.59	$\chi^2(7) = 20.86$, $p = 0.004$
Africa	2	3	0.13 [-0.04, 0.29]	0.13	0.09	0.14					
Asia	9	24	0.03 [-0.05, 0.11]	0.03	0.04	0.45					

Moderation	k	n	r [95% CI]	Estimate	SE	p	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Eastern Europe	21	118	0.15 [0.11, 0.19]	0.15	0.02	< 0.001					
Middle East	3	10	0.06 [-0.06, 0.18]	0.06	0.06	0.30					
North America	17	122	0.03 [-0.02, 0.08]	0.03	0.02	0.20					
Oceania	3	17	0.05 [-0.07, 0.16]	0.05	0.06	0.45					
South America	3	9	-0.06 [-0.18, 0.06]	-0.06	0.06	0.31					
Western Europe	11	34	0.03 [-0.03, 0.10]	0.03	0.03	0.31					
SES	5	10					0.00	0.00	39.29	100.00	$\chi^2(2) = 2.92$, $p = 0.23$
Low	2	2	-0.10 [-0.20, 0.00]	-0.10	0.05	0.044					
Moderate	2	4	-0.01 [-0.10, 0.07]	-0.01	0.04	0.74					
High	1	4	0.04 [-0.08, 0.16]	0.04	0.06	0.51					
Attainment Status	67	337					0.01	0.01	38.34	0.00	$\chi^2(2) = 97.77$, $p < 0.001$
Attainment	12	60	0.21 [0.17, 0.26]	0.22	0.02	< 0.001					
Importance	62	236	0.04 [0.01, 0.07]	0.04	0.02	0.020					

Moderation	k	n	r [95% CI]	Estimate	SE	p	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Likelihood	10	41	0.23 [0.18, 0.27]	0.23	0.02	< 0.001					
Aspiration Type	67	337					0.01	0.01	2.83	0.47	$\chi^2(3) = 7.47$, $p = 0.058$
Extrinsic	51	125	0.08 [0.04, 0.11]	0.08	0.02	< 0.001					
Fame	17	63	0.07 [0.02, 0.12]	0.07	0.02	0.004					
Image	16	62	0.08 [0.04, 0.13]	0.08	0.02	< 0.001					
Wealth	22	87	0.03 [-0.01, 0.08]	0.03	0.02	0.16					
Published	67	337					0.01	0.01	0.01	4.08	$\chi^2(1) = 1.78$, $p = 0.18$
No	5	18	0.00 [-0.11, 0.10]	0.00	0.05	0.99					
Yes	62	319	0.07 [0.04, 0.10]	0.07	0.02	< 0.001					
Risk of Bias	67	337					0.01	0.01	0.17	0.00	$\chi^2(1) = 0.40$, $p = 0.53$
Low	5	19	0.04 [-0.07, 0.14]	0.04	0.06	0.52					
Moderate	62	318	0.07 [0.04, 0.10]	0.07	0.02	< 0.001					

Note. The total *N* for this model was 41,994. *k* = number of studies (more than one of which may come from a single report), *n* = number of effect sizes. *r* = Pearson's *r*, which is Fisher's *z* back-transformed for ease of interpretation. Estimate = Fisher's *z*. $R^2_{(2)}$ = % of heterogeneity explained within-studies. $R^2_{(3)}$ = % of heterogeneity explained between-studies. Intercept (for Gender and Age) = is the baseline model estimated where the covariate (i.e., Gender or Age) is equal to zero. % females in samples = a continuous variable indicating an increasing proportion of females. Age group = mean age of the samples as a continuous variable calculated per decade.

Extrinsic Aspirations (as Relative Centrality Scores) and Well-being

Fourteen studies (including 76 effect sizes) reported data that could be pooled. The total *N* was 2,216. There was a statistically significant, moderately sized negative effect of extrinsic aspirations (as relative centrality scores) on well-being, r = -0.22 [95% CI -0.32, -0.11]. Inspection of the Q statistic revealed statistically significant heterogeneity $Q(75)$ = 684.90, $p < 0.001$. The heterogeneity at level 2 (within-study) was $I^2_{(2)}$ = 31.49% ($\tau^2_{(2)}$ = 0.02). The heterogeneity (between-study) at level 3 was $I^2_{(3)}$ = 57.70% ($\tau^2_{(3)}$ = 0.04). As shown in Table 4, no demographic or methodological covariates were found to meaningfully moderate the baseline model, meaning that the moderately-sized negative effect of relative extrinsic aspiring applies roughly equivalently regardless of the proportion of females in the samples, mean participant age, region of origin, level of socioeconomic statuses, specific extrinsic aspiration type, and whether the extrinsic aspirations were rated as important, likely, or as already attained. Including 'Risk of Bias' as a moderator improved baseline model fit ($R^2_{(2)}$ = 0.39%; $R^2_{(3)}$ = 33.72%), and suggested effect sizes are higher for studies of higher quality, compared to lower quality studies. However, the effect was driven by a single study and so should not be considered representative of the field of study. We did not detect evidence of publication bias using MLMA Egger's test $\chi^2(1) = 0.00$, $p = 0.99$. Data was aggregated to cluster and trim-and-fill was performed. Three missing studies were detected and filled (L_0 = 3). A funnel plot demonstrated some asymmetry (Online Supplementary Materials S6). However, due to the small number of clusters, the asymmetry is likely an artifact.

Table 4.

The pooled association between extrinsic aspirations relative centrality scores and well-being, and the assessment of eight possible moderators of the pooled effect

Moderation	*k*	*n*	*r* [95% CI]	Estimate	SE	*p*	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Baseline	14	76	-0.22 [-0.32, -0.11]	-0.23	0.06	< 0.001	0.02	0.04			
Gender	13	75					0.02	0.04	0.00	2.92	$\chi^2(1) = 0.17$, $p = 0.68$
Intercept			-0.14 [-0.48, 0.23]	-0.14	0.19	0.45					
Female prop.			-0.13 [-0.63, 0.44]	-0.13	0.31	0.68					
Age	10	61					0.01	0.02	0.00	13.15	$\chi^2(1) = 0.52$, $p = 0.47$
Intercept			-0.05 [-0.35, 0.25]	-0.05	0.16	0.74					
Age group			-0.04 [-0.13, 0.06]	-0.04	0.05	0.45					
Region	14	76					0.02	0.03	2.11	5.14	$\chi^2(2) = 1.75$, $p = 0.42$
Asia	1	4	-0.18 [-0.52, 0.22]	-0.18	0.21	0.39					
Eastern Europe	2	8	-0.13 [-0.31, 0.06]	-0.13	0.10	0.19					

Moderation	k	n	r [95% CI]	Estimate	SE	p	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
North America	13	64	-0.23 [-0.34, -0.13]	-0.24	0.06	< 0.001					
SES	4	37					0.00	0.00	0.00	100.00	$\chi^2(2) = 2.02$, $p = 0.36$
Low	1	6	-0.05 [-0.16, 0.06]	-0.05	0.06	0.39					
Moderate	3	25	-0.16 [-0.20, -0.12]	-0.16	0.02	< 0.001					
High	1	6	-0.16 [-0.27, -0.06]	-0.17	0.06	0.003					
Attainment Status	14	76					0.02	0.03	8.60	9.26	$\chi^2(2) = 4.84$, $p = 0.089$
Attainment	2	11	-0.22 [-0.37, -0.07]	-0.23	0.08	0.006					
Importance	14	44	-0.19 [-0.29, -0.08]	-0.19	0.06	< 0.001					
Likelihood	8	21	-0.29 [-0.41, -0.17]	-0.30	0.06	< 0.001					
Aspiration Type	14	76					0.02	0.03	1.14	19.56	$\chi^2(3) = 3.04$, $p = 0.39$
Extrinsic	6	22	-0.31 [-0.44, -0.15]	-0.32	0.08	< 0.001					
Fame	3	11	-0.19 [-0.34, -0.02]	-0.19	0.08	0.025					
Image	3	11	-0.24 [-0.39, -0.08]	-0.24	0.08	0.004					

Moderation	*k*	*n*	*r* [95% CI]	Estimate	SE	*p*	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Wealth	9	32	-0.16 [-0.28, -0.04]	-0.16	0.06	0.011					
Published	14	76					0.02	0.04	0.00	0.88	$\chi^2(1) = 0.09$, $p = 0.76$
No	1	6	-0.16 [-0.52, 0.23]	-0.17	0.21	0.42					
Yes	13	70	-0.23 [-0.33, -0.12]	-0.23	0.06	< 0.001					
Risk of Bias	14	76					0.02	0.02	0.39	33.72	$\chi^2(1) = 4.94$, $p = 0.026$
Low	1	4	-0.57 [-0.76, -0.28]	-0.64	0.18	< 0.001					
Moderate	13	72	-0.19 [-0.28, -0.10]	-0.20	0.05	< 0.001					

Note. The total *N* for this model was 2,216. *k* = number of studies (more than one of which may come from a single report), *n* = number of effect sizes. *r* = Pearson's *r*, which is Fisher's *z* back-transformed for ease of interpretation. Estimate = Fisher's z. $R^2_{(2)}$ = % of heterogeneity explained within-studies. $R^2_{(3)}$ = % of heterogeneity explained between-studies. Intercept (for Gender and Age) = is the baseline model estimated where the covariate (i.e., Gender or Age) is equal to zero. % females in samples = a continuous variable indicating an increasing proportion of females. Age group = mean age of the samples as a continuous variable calculated per decade.

Intrinsic Aspirations and Ill-being: Hypothesis 1c

Forty-four studies (including 210 effect sizes) reported data that could be pooled. The total *N* was 35,471. There was a small, statistically significant negative pooled association between intrinsic aspirations and ill-being, r = -0.11 [95% CI -0.14, -0.08]. Inspection of the Q statistic revealed statistically significant heterogeneity $Q(209) = 2046.83$, $p < 0.001$. The heterogeneity at level 2 (within-study) was $I^2_{(2)} = 63.50\%$ ($\tau^2_{(2)} = 0.01$). The heterogeneity at level 3 (between-study) was $I^2_{(3)} = 29.39\%$ ($\tau^2_{(3)} = 0.01$). As shown in Table 5, the covariate that statistically significantly moderated the baseline model was 'Attainment Status' ($R^2_{(2)} = 37.28\%$; $R^2_{(3)} = 32.16\%$).

Moderation by 'Attainment Status' suggested that when intrinsic aspirations were rated as likely to be achieved, or as already attained, the effects were strongly negative (i.e., they strongly predicted decreased ill-being), as compared to intrinsic aspirations rated as important, for which the negative link with ill-being was weaker. None of the other moderators improved the baseline model. In this model, we detected potential publication bias using MLMA Egger's test $\chi^2(1) = 4.38$, $p = 0.036$. Data were aggregated to cluster (i.e., Study ID) and trim-and fill-was performed. No missing studies were detected or filled ($L_0 = 0$). A funnel plot demonstrated approximate symmetry (Online Supplementary Materials S7).

Table 5.

The pooled association between intrinsic aspirations ill-being, and the assessment of eight possible moderators of the pooled effect

Moderation	*k*	*n*	r [95% CI]	Est.	SE	p	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Baseline	44	210	-0.11 [-0.14, -0.08]	-0.11	0.02	< 0.001	0.01	0.01			
Gender	41	197					0.01	0.00	0.00	20.07	$\chi^2(1) = 3.09$, $p = 0.079$
Intercept			-0.02 [-0.12, 0.08]	-0.02	0.05	0.65					
Female prop.			-0.15 [-0.30, 0.01]	-0.15	0.08	0.067					
Age	34	156					0.01	0.01	0.07	0.17	$\chi^2(1) = 0.14$, $p = 0.71$
Intercept			-0.10 [-0.19, -0.01]	-0.10	0.05	0.035					
Age group			-0.01 [-0.04, 0.02]	-0.01	0.02	0.71					
Region	44	210					0.01	0.00	2.85	34.47	$\chi^2(7) = 12.24$, $p = 0.093$
Africa	2	3	0.10 [-0.06, 0.25]	0.10	0.08	0.22					
Asia	3	7	-0.10 [-0.22, 0.01]	-0.11	0.06	0.078					
Eastern Europe	10	42	-0.14 [-0.19, -0.08]	-0.14	0.03	< 0.001					

Moderation	k	n	r [95% CI]	Est.	SE	p	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Middle East	1	4	0.04 [-0.12, 0.21]	0.04	0.09	0.62					
North America	18	120	-0.13 [-0.17, -0.09]	-0.13	0.02	< 0.001					
Oceania	2	8	-0.05 [-0.17, 0.07]	-0.05	0.06	0.40					
South America	1	4	-0.04 [-0.21, 0.13]	-0.04	0.09	0.62					
Western Europe	9	22	-0.12 [-0.19, -0.06]	-0.12	0.03	< 0.001					
Scoring Type	44	210					0.01	0.01	0.38	0.00	$\chi^2(2) = 0.11$, $p = 0.95$
Relative centrality	6	45	-0.10 [-0.17, -0.04]	-0.11	0.03	0.002					
Relative intrinsicality	11	29	-0.12 [-0.18, -0.05]	-0.12	0.03	< 0.001					
Simple scores	31	136	-0.11 [-0.15, -0.08]	-0.11	0.02	< 0.001					
Attainment Status	44	210					0.01	0.00	37.28	32.16	$\chi^2(2) = 57.69$, $p < 0.001$
Attainment	9	28	-0.22 [-0.27, -0.17]	-0.22	0.03	< 0.001					
Importance	40	141	-0.07 [-0.10, -0.04]	-0.07	0.01	< 0.001					
Likelihood	12	41	-0.23 [-0.27, -0.19]	-0.23	0.02	< 0.001					

Moderation	k	n	r [95% CI]	Est.	SE	p	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Aspiration Type	44	210					0.01	0.01	6.95	0.00	$\chi^2(4) = 8.61$, $p = 0.072$
Intrinsic	30	78	-0.13 [-0.17, -0.09]	-0.13	0.02	< 0.001					
Growth	13	33	-0.11 [-0.16, -0.05]	-0.11	0.03	< 0.001					
Health	11	24	-0.14 [-0.20, -0.07]	-0.14	0.03	< 0.001					
Community	16	38	-0.05 [-0.11, 0.00]	-0.05	0.03	0.063					
Relationships	15	37	-0.09 [-0.15, -0.04]	-0.09	0.03	0.001					
Published	44	210					0.01	0.01	0.16	0.60	$\chi^2(1) = 0.34$, $p = 0.56$
No	1	1	-0.03 [-0.30, 0.24]	-0.03	0.14	0.83					
Yes	43	209	-0.11 [-0.14, -0.08]	-0.11	0.02	< 0.001					
Risk of Bias	44	210					0.01	0.01	0.08	1.49	$\chi^2(1) = 0.77$, $p = 0.38$
Low	2	8	-0.17 [-0.30, -0.04]	-0.17	0.07	0.013					
Moderate	42	202	-0.11 [-0.14, -0.08]	-0.11	0.02	< 0.001					

Note. The total *N* for this model was 35,471. *K* = number of studies (more than one of which may come from a single report), *n* = number of effect sizes. *R* = Pearson's *r*, which is Fisher's *z* back-transformed for ease of interpretation. Est. = Fisher's *z*. $R^2_{(2)}$ = % of heterogeneity explained within-studies. $R^2_{(3)}$ = % of heterogeneity explained between-studies. Intercept (for Gender and Age) = is the baseline model estimated where the covariate (i.e., Gender or Age) is equal to zero. % females in samples = a continuous variable indicating an increasing proportion of females. Age group = mean age of the samples as a continuous variable calculated per decade. There was no variation in socioeconomic status for studies in which the association between intrinsic aspirations and ill-being was reported, so socioeconomic status has been omitted from this table. The three 'Scoring Type' moderator levels refer to: (a) the relative centrality of intrinsic aspirations (i.e., the mean for intrinsic aspirations minus the mean across all aspirations), (b) relative intrinsicality (i.e., the intrinsic aspirations mean, minus the extrinsic aspirations mean), and (c) intrinsic aspirations simple scores (i.e., mean scores across all intrinsic aspirations).

Extrinsic Aspirations and Ill-being: Hypothesis 1d

Thirty-seven studies (including 150 effect sizes) reported data that could be pooled. The total *N* was 23,140. There was a small, statistically significant positive effect of extrinsic aspirations on ill-being, $r = 0.10$ [95% CI 0.07, 0.14]. As shown in Table 6, 'Scoring Type' statistically significantly moderated the baseline model, ($R^2_{(2)} = 13.49\%$; $R^2_{(3)} = 26.59\%$).

Here again, the 'Scoring Type' variable comprised two levels: (a) the relative centrality of extrinsic aspirations, and (b) simple scores. The moderation result for 'Scoring Type' indicated that, when calculated as simple scores, extrinsic aspirations linked very weakly and positively with ill-being. However, when calculated as a relative centrality score, extrinsic aspirations had a moderately sized, positive effect on well-being. Again, the 'Scoring Type' moderation result suggests that the two scoring methodologies differ not only statistically significantly, but also in terms of the magnitude of their respective effects. Therefore, we opted to split these data into two sub-analyses, one for the link between ill-being and extrinsic aspirations as simple scores, and one between ill-being and extrinsic aspirations as relative centrality scores.

Table 6.

The pooled association between extrinsic aspirations and ill-being, and the assessment of scoring type (relative centrality scores versus simple scores) as a possible moderator of the pooled effect

Moderation	*k*	*n*	*r* [95% CI]	Estimate	SE	*p*	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Baseline	37	150	0.10 [0.07, 0.14]	0.10	0.02	< 0.001	0.00	0.01			
Scoring Type	37	150					0.00	0.01	13.49	26.59	$\chi^2(1) = 22.03$, $p < 0.001$
Relative centrality	7	30	0.25 [0.18, 0.31]	0.25	0.04	< 0.001					
Simple scores	31	120	0.07 [0.04, 0.11]	0.07	0.02	< 0.001					

Note. The total *N* for this model was 23,140. *k* = number of studies (more than one of which may come from a single report), *n* = number of effect sizes. *r* = Pearson's *r*, which is Fisher's *z* back-transformed for ease of interpretation. Estimate = Fisher's *z*. $R^2_{(2)}$ = % of heterogeneity explained within-studies. $R^2_{(3)}$ = % of heterogeneity explained between-studies. The two 'Scoring Type' moderator levels refer to: (a) the relative centrality of extrinsic aspirations (i.e., the mean for extrinsic aspirations minus the mean across all aspirations), and (b) extrinsic simple scores (i.e., mean scores across all extrinsic aspirations).

Extrinsic Aspirations (as Simple Scores) and Ill-being

Thirty-one studies (including 120 effect sizes) reported data that could be pooled. The total *N* was 22,372. There was a very weak, statistically significant, positive pooled association between extrinsic aspirations (as simple scores) and ill-being, $r = 0.07$ [95% CI 0.04, 0.11]. Inspection of the Q statistic revealed statistically significant heterogeneity $Q(119) = 1739.11$, $p < 0.001$. The heterogeneity at level 2 (within-study) was $I^2_{(2)} = 25.18\%$ ($\tau^2_{(2)} = 0.00$). The heterogeneity at level 3 (between-study) was $I^2_{(3)} = 65.93\%$ ($\tau^2_{(3)} = 0.01$). As shown in Table 7, the covariates that statistically significantly moderated the baseline model were 'Gender' ($R^2_{(2)} = 2.39\%$; $R^2_{(3)} = 21.98\%$) and 'Attainment Status' ($R^2_{(2)} = 70.82\%$; $R^2_{(3)} = 27.75\%$).

While the average effect of extrinsic aspirations (as simple scores) on ill-being was weakly positive, the 'Gender' moderation result indicated that the effect may become negative in samples comprising a high proportion of females, although the confidence intervals associated with the effect indicated a high degree of uncertainty.

Moderation by 'Attainment Status' indicated that when extrinsic aspirations (as simple scores) were rated in terms of likely or current attainment, the effect was weakly negative, as compared to when extrinsic aspirations (as simple scores) were rated as important, for which the effect was very small and positive. We did not detect publication bias with MLMA Egger's test $\chi^2(1) = 0.06$, $p = 0.81$. Data was aggregated to cluster (i.e., Study ID) and trim-and-fill was performed. Several missing studies were detected and filled ($L_0 = 9$). A funnel plot demonstrated left-asymmetry at the cluster-level (Online Supplementary Materials S8).

Table 7.

The pooled association between extrinsic aspirations simple scores and ill-being, and the assessment of seven possible moderators of the pooled effect

Moderation	*k*	*n*	*r* [95% CI]	Estimate	SE	*p*	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Baseline	31	120	0.07 [0.04, 0.11]	0.07	0.02	< 0.001	0.00	0.01			
Gender	28	111					0.00	0.01	2.39	21.98	$\chi^2(1) = 5.99$, $p = 0.014$
Intercept			0.27 [0.12, 0.40]	0.27	0.08	< 0.001					
Female prop.			-0.32 [-0.53, -0.08]	-0.33	0.13	0.010					
Age	26	87					0.00	0.01	0.02	0.08	$\chi^2(1) = 0.01$, $p = 0.91$
Intercept			0.06 [-0.03, 0.16]	0.06	0.05	0.20					
Age group			0.00 [-0.03, 0.03]	0.00	0.02	0.91					
Region	31	120					0.00	0.01	0.00	28.38	$\chi^2(7) = 6.89$, $p = 0.44$
Africa	2	3	0.04 [-0.10, 0.17]	0.04	0.07	0.57					
Asia	2	12	0.07 [-0.05, 0.19]	0.07	0.06	0.24					

Moderation	k	n	r [95% CI]	Estimate	SE	p	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Eastern Europe	9	29	0.02 [-0.04, 0.08]	0.02	0.03	0.49					
Middle East	1	3	0.16 [-0.01, 0.33]	0.16	0.09	0.069					
North America	9	49	0.10 [0.04, 0.15]	0.10	0.03	< 0.001					
Oceania	2	7	0.06 [-0.06, 0.19]	0.06	0.06	0.32					
South America	1	4	0.23 [0.07, 0.39]	0.24	0.09	0.007					
Western Europe	5	13	0.08 [0.00, 0.16]	0.08	0.04	0.061					
Attainment Status	31	120					0.00	0.01	70.82	27.75	$\chi^2(2) = 66.17$, $p < 0.001$
Attainment	7	17	-0.07 [-0.11, -0.02]	-0.07	0.02	0.008					
Importance	28	92	0.11 [0.08, 0.14]	0.11	0.02	< 0.001					
Likelihood	5	11	-0.08 [-0.13, -0.02]	-0.08	0.03	0.004					
Aspiration Type	31	120					0.00	0.01	0.34	0.09	$\chi^2(3) = 0.62$, $p = 0.89$
Extrinsic	18	38	0.08 [0.03, 0.12]	0.08	0.02	0.001					
Fame	13	26	0.07 [0.02, 0.12]	0.07	0.03	0.011					

Moderation	*k*	*n*	*r* [95% CI]	Estimate	SE	*p*	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Image	13	26	0.07 [0.01, 0.12]	0.07	0.03	0.014					
Wealth	14	30	0.08 [0.03, 0.13]	0.08	0.03	0.002					
Published	31	120					0.00	0.01	1.10	6.01	$\chi^2(1) = 2.14$, $p = 0.14$
No	1	1	0.24 [0.02, 0.44]	0.24	0.12	0.036					
Yes	30	119	0.07 [0.03, 0.11]	0.07	0.02	< 0.001					
Risk of Bias	31	120					0.00	0.01	0.03	1.28	$\chi^2(1) = 0.32$, $p = 0.57$
Low	1	3	0.02 [-0.17, 0.21]	0.02	0.10	0.84					
Moderate	30	117	0.08 [0.04, 0.11]	0.08	0.02	< 0.001					

Note. The total *N* for this model was 22,372. *k* = number of studies (more than one of which may come from a single report), *n* = number of effect sizes. *r* = Pearson's *r*, which is Fisher's *z* back-transformed for ease of interpretation. Estimate = Fisher's *z*. $R^2_{(2)}$ = % of heterogeneity explained within-studies. $R^2_{(3)}$ = % of heterogeneity explained between-studies. Intercept (for Gender and Age) = is the baseline model estimated where the covariate (i.e., Gender or Age) is equal to zero. % females in samples = a continuous variable indicating an increasing proportion of females. Age group = mean age of the samples as a continuous variable calculated per decade. There was no variation in socioeconomic status

for studies in which the association between extrinsic aspirations and ill-being was reported, so socioeconomic status has been omitted from this table.

Extrinsic Aspirations (as Relative Centrality Scores) and Ill-being

Seven studies (including 30 effect sizes) reported data that could be pooled. The total *N* was 966. There was a moderately-sized statistically significant positive effect of extrinsic aspirations (as relative centrality scores) and ill-being, $r = 0.23$ [95% CI 0.17, 0.29]. Inspection of the Q statistic revealed statistically significant heterogeneity $Q(29) = 77.44$, $p < 0.001$. The heterogeneity at level 2 (within-study) was $I^2_{(2)} = 42.01\%$ ($\tau^2_{(2)} = 0.01$). The heterogeneity at level 3 (between-study) was $I^2_{(3)} = 18.25\%$ ($\tau^2_{(3)} = 0.00$). No covariate was found to be a statistically significant moderator of the baseline model, meaning the moderately-sized, positive effect of extrinsic aspirations (as relative centrality scores) on ill-being applies roughly equivalently regardless of the proportion of females in the samples, mean participant age, region of origin, specific extrinsic aspiration type, and whether the extrinsic aspirations were rated as important, likely, or as already attained. We did not detect publication bias with MLMA Egger's test $\chi^2(1) = 0.00$, $p = 0.98$. There were insufficient clusters to meaningfully assess funnel plot asymmetry.

Table 8.

The pooled association between extrinsic aspirations relative centrality scores and ill-being, and the assessment of six possible moderators of the pooled effect

Moderation	k	n	r [95% CI]	Estimate	SE	p	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Baseline	7	30	0.23 [0.17, 0.29]	0.24	0.03	< 0.001	0.01	0.00			
Gender	6	28					0.01	0.00	0.56	2.44	$\chi^2(1) = 0.24$, $p = 0.62$
Intercept			0.20 [0.02, 0.37]	0.20	0.09	0.031					
Female prop.			0.07 [-0.22, 0.35]	0.07	0.15	0.62					
Age	5	22					0.00	0.00	0.00	18.05	$\chi^2(1) = 0.36$, $p = 0.55$
Intercept			0.29 [0.06, 0.49]	0.30	0.12	0.013					
Age group			-0.02 [-0.10, 0.05]	-0.02	0.04	0.53					
Region	7	30					0.01	0.00	0.23	4.20	$\chi^2(1) = 0.21$, $p = 0.65$
Asia	1	4	0.20 [0.03, 0.36]	0.20	0.09	0.023					
North America	6	26	0.24 [0.18, 0.30]	0.24	0.03	< 0.001					

Moderation	k	n	r [95% CI]	Estimate	SE	p	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Attainment Status	7	30					0.01	0.00	1.76	100.00	$\chi^2(2) = 4.02$, $p = 0.13$
Attainment	1	3	0.14 [-0.05, 0.32]	0.14	0.10	0.14					
Importance	7	16	0.21 [0.15, 0.26]	0.21	0.03	< 0.001					
Likelihood	5	11	0.30 [0.22, 0.38]	0.31	0.05	< 0.001					
Aspiration Type	7	30					0.01	0.00	0.00	100.00	$\chi^2(3) = 4.34$, $p = 0.23$
Extrinsic	3	14	0.29 [0.24, 0.34]	0.30	0.03	< 0.001					
Fame	1	2	0.12	0.12	-						
Image	1	2	0.18	0.18	-						
Wealth	4	12	0.20	0.20	-						
Risk of Bias	7	30					0.01	0.00	3.51	45.28	$\chi^2(1) = 2.73$, $p = 0.098$
Low	1	4	0.35 [0.21, 0.48]	0.36	0.08	< 0.001					
Moderate	6	26	0.22 [0.16, 0.27]	0.22	0.03	< 0.001					

Note. The total *N* for this model was 966. *k* = number of studies (more than one of which may come from a single report), *n* = number of effect sizes. *r* = Pearson's *r*, which is Fisher's *z* back-transformed for ease of interpretation. Estimate = Fisher's *z*. $R^2_{(2)}$ = % of heterogeneity explained within-studies. $R^2_{(3)}$ = % of heterogeneity explained between-studies. Intercept (for Gender and Age) = is the baseline model estimated where the covariate (i.e., Gender or Age) is equal to zero. % females in samples = a continuous variable indicating an increasing proportion of females. Age group = mean age of the samples as a continuous variable calculated per decade. There was no variation in socioeconomic status for studies in which the association between extrinsic aspirations and ill-being was reported, so socioeconomic status has been omitted from this table. No unpublished studies reported the association between extrinsic aspirations and ill-being so the publication moderator is not included in this table. Standard errors could not be estimated for all predictors in the 'Aspiration Type' model. This was likely caused by small τ^2 values and many effect sizes being omitted due to missing data within the predictor matrix.

Intrinsic and Extrinsic Aspirations

For completeness, we meta-analyzed the link between intrinsic and extrinsic aspirations. Fifty-nine studies (including 277 effect sizes) reported data that could be pooled. The total *N* was 38,456. There was a moderately-sized, statistically significant positive pooled link between intrinsic and extrinsic aspirations, $r = 0.24$ [95% CI 0.18, 0.29]. Inspection of the Q statistic revealed statistically significant heterogeneity $Q(276) = 8853.54$, $p < 0.001$. The heterogeneity at level 2 (within-study) was $I^2_{(2)} = 41.78\%$ ($\tau^2_{(2)} = 0.03$). The heterogeneity at level 3 (between-study) was $I^2_{(3)} = 56.61\%$ ($\tau^2_{(3)} = 0.04$). As shown in Table 9, the 'Region' covariate statistically significantly moderated the baseline model, ($R^2_{(2)} = 0.34\%$; $R^2_{(3)} = 31.75\%$). The 'Region' moderator result indicated that the strength of the positive link between intrinsic and extrinsic aspirations varied across regions. Generally, the association was positive with effect sizes ranging from moderate (e.g., in Eastern and Western Europe) to large (e.g., in Africa and Asia). However, the confidence intervals include zero for Oceania, as well as in North and South America, indicating the two goal types are not meaningfully associated in those regions. We did not find evidence of publication bias $\chi^2(1) = 0.09$, $p = 0.76$. Data was aggregated to cluster and trim-and-fill was performed. Nine missing studies were detected and filled ($L_0 = 9$). A funnel plot demonstrated right-side asymmetry which could indicate a reluctance to publish effects demonstrating a positive link between intrinsic aspirations and extrinsic aspirations (Online Supplementary Materials S9).

Table 9.

The pooled association between intrinsic and extrinsic aspirations, and the assessment of six possible moderators of the pooled effect

Moderation	*k*	*n*	*r* [95% CI]	Estimate	SE	*p*	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Baseline	59	277	0.24 [0.18, 0.29]	0.24	0.03	< 0.001	0.03	0.04			
Gender	55	264					0.03	0.04	0.00	3.89	$\chi^2(1) = 0.77$, $p = 0.38$
Intercept			0.34 [0.10, 0.55]	0.36	0.13	0.007					
Female prop.			-0.19 [-0.55, 0.23]	-0.19	0.22	0.38					
Age	47	183					0.04	0.04	0.00	2.27	$\chi^2(1) = 0.64$, $p = 0.42$
Intercept			0.20 [0.04, 0.36]	0.20	0.09	0.017					
Age group			0.02 [-0.04, 0.08]	0.02	0.03	0.42					
Region	59	277					0.03	0.03	0.34	31.75	$\chi^2(7) = 15.42$, $p = 0.031$
Africa	2	2	0.50 [0.20, 0.71]	0.55	0.18	0.002					
Asia	10	25	0.34 [0.21, 0.46]	0.35	0.07	< 0.001					
Eastern Europe	14	93	0.26 [0.16, 0.36]	0.26	0.06	< 0.001					

Moderation	k	n	r [95% CI]	Estimate	SE	p	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Middle East	2	15	0.35 [0.10, 0.56]	0.36	0.13	0.006					
North America	19	98	0.09 [-0.01, 0.19]	0.09	0.05	0.071					
Oceania	2	13	0.22 [-0.06, 0.47]	0.22	0.15	0.13					
South America	2	14	0.30 [0.03, 0.53]	0.31	0.14	0.033					
Western Europe	10	17	0.28 [0.14, 0.41]	0.29	0.08	< 0.001					
SES	7	15					0.00	0.20	0.00	21.53	$\chi^2(2) = 3.04$, $p = 0.22$
Low	3	4	0.23 [-0.15, 0.55]	0.23	0.20	0.24					
Moderate	4	10	0.02 [-0.34, 0.37]	0.02	0.19	0.93					
High	1	1	0.08 [-0.68, 0.76]	0.08	0.46	0.86					
Published	59	277					0.03	0.04	0.00	4.64	$\chi^2(1) = 1.52$, $p = 0.22$
No	4	9	0.09 [-0.17, 0.33]	0.09	0.13	0.51					
Yes	55	268	0.25 [0.18, 0.30]	0.25	0.03	< 0.001					
Risk of Bias	59	277					0.03	0.04	0.42	0.01	$\chi^2(1) = 0.82$, $p = 0.36$

Moderation	*k*	*n*	*r* [95% CI]	Estimate	SE	*p*	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Low	5	21	0.32 [0.12, 0.50]	0.34	0.11	0.002					
Moderate	54	256	0.23 [0.16, 0.29]	0.23	0.03	< 0.001					

Note. The total *N* for this model was 38,456. *k* = number of studies (more than one of which may come from a single report), *n* = number of effect sizes. *r* = Pearson's *r*, which is Fisher's *z* back-transformed for ease of interpretation. Estimate = Fisher's *z*. $R^2_{(2)}$ = % of heterogeneity explained within-studies. $R^2_{(3)}$ = % of heterogeneity explained between-studies. Intercept (for Gender and Age) = is the baseline model estimated where the covariate (i.e., Gender or Age) is equal to zero. % females in samples = a continuous variable indicating an increasing proportion of females. Age group = mean age of the samples as a continuous variable calculated per decade.

Well-being and Ill-being

Also for completeness, we meta-analyzed the association between ill-being and well-being. Twenty studies (including 105 effect sizes) reported data that could be pooled. The total *N* was 21,040. There was a moderately-sized, statistically significant negative pooled link between indices of well-being and indices of ill-being, r = -0.25 [95% CI -0.34, -0.16]. Inspection of the Q statistic revealed statistically significant heterogeneity $Q(104) = 6176.85$, $p < 0.001$. The heterogeneity at level 2 (within-study) was $I^2_{(2)} = 45.03\%$ ($\tau^2_{(2)} = 0.03$). The heterogeneity at level 3 (between-study) was $I^2_{(3)} = 54.15\%$ ($\tau^2_{(3)} = 0.04$). Of the covariates surveyed, the only one that statistically significantly moderated the baseline model was 'Region' ($R^2_{(2)} = 3.14\%$; $R^2_{(3)} = 64.33\%$). The link between well-being and ill-being was moderate-to-large and negative for all regions, except for Africa and the Middle East, for which the two were not linked. However, the non-significant effects were based on very few studies, and so should be treated with caution. We did not detect evidence of publication bias using MLMA Egger's test $\chi^2(1) = 0.01$, $p = 0.91$. Data was aggregated to cluster and trim-and-fill was performed. No missing studies were detected or filled ($L_0 = 0$). A funnel plot demonstrated approximate symmetry (Online Supplementary Materials S10).

Table 10.

The pooled association between well-being and ill-being, and the assessment of five possible moderators of the pooled effect

Moderation	*k*	*n*	*r* [95% CI]	Estimate	SE	*p*	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
Baseline	20	105	-0.25 [-0.34, -0.16]	-0.26	0.05	< 0.001	0.03	0.04			
Gender	18	97					0.03	0.04	0.00	5.59	$\chi^2(1) = 0.42$, $p = 0.52$
Intercept			-0.10 [-0.48, 0.31]	-0.10	0.22	0.64					
Female prop.			-0.24 [-0.75, 0.45]	-0.25	0.37	0.51					
Age	16	90					0.03	0.03	0.00	12.68	$\chi^2(1) = 1.36$, $p = 0.24$
Intercept			-0.15 [-0.34, 0.04]	-0.15	0.10	0.12					
Age group			-0.04 [-0.09, 0.02]	-0.04	0.03	0.23					
Region	20	105					0.03	0.01	3.14	64.33	$\chi^2(6) = 16.54$, $p = 0.011$
Africa	2	5	0.07 [-0.17, 0.31]	0.07	0.13	0.56					
Eastern Europe	3	7	-0.33 [-0.49, -0.14]	-0.34	0.10	< 0.001					
Middle East	1	2	0.25 [-0.09, 0.54]	0.25	0.18	0.15					

Moderation	*k*	*n*	*r* [95% CI]	Estimate	SE	*p*	$\tau^2_{(2)}$	$\tau^2_{(3)}$	$R^2_{(2)}$	$R^2_{(3)}$	Likelihood Ratio Test
North America	5	36	-0.31 [-0.42, -0.18]	-0.32	0.07	< 0.001					
Oceania	1	4	-0.49 [-0.68, -0.24]	-0.54	0.15	< 0.001					
South America	1	16	-0.38 [-0.57, -0.15]	-0.40	0.13	0.001					
Western Europe	7	35	-0.27 [-0.38, -0.16]	-0.28	0.06	< 0.001					
Published	20	105					0.03	0.04	0.00	0.06	$\chi^2(1) = 0.00$, $p = 0.97$
No	1	2	-0.24 [-0.61, 0.22]	-0.25	0.24	0.30					
Yes	19	103	-0.25 [-0.35, -0.15]	-0.26	0.05	< 0.001					
Risk of Bias	20	105					0.03	0.03	0.00	13.57	$\chi^2(1) = 1.85$, $p = 0.17$
Low	1	4	-0.49 [-0.74, -0.14]	-0.54	0.21	0.009					
Moderate	19	101	-0.24 [-0.33, -0.15]	-0.24	0.05	< 0.001					

Note. The total *N* for this model was 21,040. *k* = number of studies (more than one of which may come from a single report), *n* = number of effect sizes. *r* = Pearson's *r*, which is Fisher's *z* back-transformed for ease of interpretation. Estimate = Fisher's *z*. $R^2_{(2)}$ = % of heterogeneity explained within-studies. $R^2_{(3)}$ = % of heterogeneity explained between-studies. Intercept (for Gender and Age) = is the baseline model estimated where the covariate (i.e., Gender or Age) is equal to zero. % females in samples = a continuous variable indicating an increasing

proportion of females. Age group = mean age of the samples as a continuous variable calculated per decade. There was no variation in socioeconomic status for studies reporting the association between well-being and ill-being, so it has been omitted from this table.

Discussion

The aim of this systematic review and meta-analysis was to reach consensus regarding the links between different types of life goals and wellness. Of particular interest was the question of whether extrinsic aspirations predict languishing across various contexts. Few doubt the positive benefits of striving to learn, love, help, and be healthy, but the universal applicability of the theorized costs of striving for money, notoriety, and beauty has been questioned (Brdar et al., 2009; Frost & Frost, 2000). To examine this question, we calculated four separate meta-analytic pathways: intrinsic aspirations to well-being, extrinsic aspirations to well-being, intrinsic aspirations to ill-being, and extrinsic aspirations to ill-being. Through the pooling of nearly two-thousand effect sizes, we found support for SDT's goal contents theory-based predictions that intrinsic aspiring would be positively linked to well-being (Hypothesis 1a) and have a negative link with ill-being (Hypothesis 1c). Meanwhile, extrinsic aspirations were unrelated to well-being (contrary to Hypothesis 1b, which predicted a relatively small, positive link) and had a positive association with ill-being (Hypothesis 1d). Partially consistent with Hypotheses 2a and 2b, we also found that these links were relatively consistent at the higher-order intrinsic or extrinsic aspiration level, as well as at the specific aspiration level (e.g., wealth, growth, etc.). Although, higher-order intrinsic aspirations were a stronger predictor of well-being than community involvement or relationships aspirations.

Using sub-analyses, we demonstrated that the extent to which extrinsic aspirations are prioritized in the overall pattern of aspiring yielded a moderately- or typically-sized negative impact on well-being and a moderate or typically-sized positive impact on ill-being (Hypothesis 3b). Central to existing debate, we also showed that both of these relative centrality effects applied regardless of whether the extrinsic goals were rated as important, likely to be attained, or as already achieved (Hypothesis 4), and were consistent across males and females, age groups, socioeconomic statuses, and importantly, regions (Hypotheses 5a-

5c). These results support the universality of goal contents theory's central tenets (Kasser & Ryan, 1993, 1996, 2001). No matter who or where one is, focusing on extrinsic life goals is linked both to decreased flourishing and increased floundering.

The Equivalence of the Specific Aspirations

Prototypical specific intrinsic aspirations (i.e., personal growth, relationships, community involvement, and physical health) were first selected because they are aspirations with inherent worth (Kasser & Ryan, 1996). Wealth, fame, and image were considered prototypical extrinsic aspirations because they all rely on external rewards and/or contingent approval from others (Kasser & Ryan, 1993, 1996). The theoretical and statistical commonalities within the higher-order intrinsic and extrinsic categories led us to predict that aspiration type would not moderate any of our key pathways. We found that the links between extrinsic aspirations (simple scores and relative centrality scores) and well-being and ill-being and between intrinsic aspirations and ill-being did not vary as a function of aspiration type. The link between intrinsic aspirations was, however, moderated by the specific aspirations with higher-order intrinsic aspirations linking more strongly to well-being than community and relationship aspirations. Interestingly, despite debate about its relevance as an intrinsic aspiration, the association between physical health aspirations and well-being and ill-being was equivalent to the other intrinsic aspirations. All the associations were positive, which is consistent with our expectations, thus moderation by aspiration type likely suggests that when more information about a variety of intrinsic aspirations is available it increases predictive power.

While the three extrinsic and four intrinsic aspirations are considered prototypical, they are by no means exhaustive. Indeed, recent evidence suggests that "the map" of intrinsic aspirations could be meaningfully expanded to include other extrinsic aspirations such as power, and other intrinsic aspirations such as self-expression (Martela et al., 2019, p. 1).

These newly considered aspirations have thus far been studied minimally. Goal contents theory would be meaningfully expanded if future research were to assess other potential intrinsic and extrinsic aspirations, the extent to which they fit within the existing higher-order categories, and their links with well-being and ill-being.

Methods Matter

Our assessment of moderation by scoring type was perhaps most central to our ability to clarify the generalizability of aspiration effects on wellness. There are three main scoring types used to calculate aspirations: (a) simple scores reflect the mean across all extrinsic aspirations, (b) relative centrality scores are the mean across intrinsic or extrinsic aspirations minus, or controlling for, the mean across all aspirations, regardless of their intrinsic or extrinsic content, and (c) relative centrality scores collapse all aspiration-related information into one variable by subtracting the extrinsic mean from the intrinsic mean. Three of the key pooled effects were moderated by scoring type. First, the positive association between intrinsic aspirations and well-being was smaller when relative centrality scores were used compared to simple scores. Second, when extrinsic aspiration simple scores *and* relative centrality scores were included in the pooled effect, the effect was null, but the null effect was moderated by scoring type such that simple scores and relative centrality scores differed in their prediction of well-being. Third, the positive association between extrinsic aspirations and ill-being was small and positive when simple scores were used but was moderate and positive when relative centrality scores were used.

Because scoring type moderated the links between extrinsic aspirations and well-being and ill-being, we opted to conduct sub-analyses based on scoring type. When the effects were divided by scoring type, it became clear that there are relatively far fewer studies reporting relative centrality scores than simple scores. The strength of the conclusions drawn about the relative centrality of extrinsic aspirations is therefore limited because the relevant

results were derived from a smaller number of studies and effects. We elaborate upon what we can conclude from the available data, with the proviso that further studies of relative centrality are needed to reinforce these claims. With this caveat in mind, extrinsic aspiration simple scores predicted well-being and ill-being positively but weakly. Meanwhile, extrinsic aspirations relative centrality scores predicted well-being moderately and negatively and predicted ill-being moderately and positively.

Taken together, the relative centrality results are consistent with Kasser and Ryan's (1993) initial framing of extrinsic goals; they are not in and of themselves costly. A healthy pattern of aspiring could, as examples, feature wealth goals because they support stability and security, or image goals because they bolster feelings of confidence. Our results suggest that such strivings are very weakly linked to wellness outcomes. Indeed, Kasser and Ryan (2001) proposed that extrinsic goals may be "neutrally related to well-being" (p. 116). Statistically, the inclusion of the word "neutrally" may seem unintuitive; variables are arguably either related or not. However, the results of this meta-analysis provide unique evidence that extrinsic aspirations (as simple scores) may indeed have a neutral impact on well-being. The link between extrinsic aspiration simple scores and well-being is very small and positive, and the link between extrinsic aspiration simple scores and ill-being is also very small and positive, it seems that the weak benefit of extrinsic aspiring is matched by equally weak detriment. Kasser and Ryan (1993) proposed that any cost associated with extrinsic aspiring would likely emerge if these strivings were allowed to crowd-out intrinsic goals. Our meta-analysis supports this contention.

The Universal Cost of Relative Extrinsic Aspiring

The negative consequences of prioritizing extrinsic aspirations in the broader pattern of aspirations were consistent no matter how we examined these data. Of the models tested, none were meaningfully moderated by the mean age of participants or by the proportion of

females in the sample. We also did not find varying effects in different regions nor across low, moderate, or high levels of socioeconomic status. However, the systematic review of evidence gaps found that extrinsic aspiration relative centrality scores—essential for evaluating the costs associated with prioritizing extrinsic goals in the overall pattern of aspiring—were not used across a wide variety of regions or socioeconomic statuses. Extrinsic aspiration relative centrality scores have been used in studies conducted in Asia, Eastern Europe, and North America and in studies comprising low and high socioeconomic status groups, across these three regions and two socioeconomic levels, the cost of focusing on extrinsic aspirations was consistent. While these results support goal contents theory's universal claims, they are based on relatively few effects and so we recommend that future studies reliably report the socioeconomic status of their samples and include effects using relative centrality scores, such that the field might achieve representativeness on these metrics.

Importance Versus Likelihood Versus Attainment

The attainment status (i.e., aspirations rated as important versus likely to be attained versus currently attained) of intrinsic and extrinsic aspirations (the latter as simple scores only) moderated the effects on wellness. Intrinsic aspirations are positively linked to well-being and negatively linked to ill-being regardless of their attainment status. However, the beneficial (i.e., well-being boosting) and protective (i.e., ill-being reducing) effects of intrinsic aspirations were enhanced when people expected to or had already achieved them. The results were similar for extrinsic aspirations (as simple scores, only). When rated as likely to be or as already attained, extrinsic aspirations (as simple scores) were moderately, positively linked with well-being, whereas importance scores were very weakly, positively linked with well-being. In terms of ill-being, when extrinsic aspirations (as simple scores) were rated as likely or as attained, there was no link with ill-being, whereas importance

scores were weakly positively linked with ill-being. Taken together, these results suggest that when you expect to or already have reached your goals it boosts the benefits of striving intrinsically and attenuates the cost of extrinsic aspirations. However, and importantly, when extrinsic aspiration relative centrality scores were linked with well-being and ill-being, there was no moderation by attainment status. It appears not to matter if one perceives themselves as likely to achieve or as having already achieved their extrinsic aspirations, if these goals predominate over intrinsic ones, the effect is detrimental. However, the effects for likely (k = 8, n = 21) and current attainment (k = 2, n = 11) were far fewer than those for importance, so more studies of relative centrality and stages of attainment status are needed to bolster these results.

Strengths

In addition to the important conclusions drawn from the key meta-analytic pathways in this review, this study has several additional strengths. First, we used multiple methods (i.e.. MLMA Egger's tests, trim-and-fill, and assessments of funnel plot symmetry) to assess the degree of publication bias across the multiple models. Using MLMA Egger's tests we found evidence of publication bias in just one of the eight models. The one exception was the link between intrinsic aspirations and ill-being, for which there was some evidence of biased reporting. The presence of publication bias can be evidence of the so-called "file drawer problem" (Rosenthal, 1979, p. 638), which refers to the practice of conducting studies and analyses but not reporting them. Therefore, the small negative association detected between intrinsic aspirations and ill-being may be inflated as a result of under-reporting, though the degree of inflation—particularly for an effect that is already small—is unknown.

For the rest of the models, the MLMA Egger's tests did not detect publication bias, though missing studies and funnel plot asymmetries were identified for the links between (a) extrinsic aspiration simple scores and ill-being and between (b) intrinsic and extrinsic

aspirations. These asymmetries suggested a possible reluctance to report negative correlations for the former link and positive correlations for the latter. In other words, cases in which extrinsic aspirations were protective appear under-reported as were cases in which intrinsic and extrinsic aspirations were positively associated. Obviously we recommend complete effect size reporting, but especially so in these two cases because negative correlations between extrinsic aspiration simple scores and ill-being as well as positive correlations between extrinsic and intrinsic aspirations are both theoretically consistent. Extrinsic and intrinsic aspirations are commonly positively correlated because they both capture a general striving that is good for people, that general striving is also reflected in extrinsic aspirations simple scores, which is why they could be beneficial (i.e., protect against ill-being) in some cases.

Missing studies and funnel plot asymmetry were also identified for the link between (a) extrinsic aspiration relative centrality scores and well-being. However, in this model the asymmetry was minimal and may be an artifact resulting from the relatively small number of clusters (i.e., Study IDs). It seems that within the peer reviewed literature we can be confident that publication practices have minimally biased the main effects, though we acknowledge the comparably small number of non-peer-reviewed studies (i.e., six theses and two book chapters), and cannot be sure what role this dearth has played.

This meta-analysis also demonstrates the robustness of the goal contents theory literature via the derivation of effect sizes that are likely to be meaningfully significant to people. Most of the primary effects demonstrated by this meta-analysis were consistent with the average effect size in psychology (i.e., $r = 0.21$, Richard et al., 2003). The link between intrinsic aspirations and well-being ($r = 0.24$ [95% CI 0.22, 0.27]), between extrinsic relative centrality scores and well-being ($r = -0.22$ [95% CI -0.32, -0.11]) and ill-being ($r = 0.24$ [95% CI 0.17, 0.30]), and between intrinsic and extrinsic aspirations ($r = 0.24$ [95% CI 0.18,

0.29]), and between well-being and ill-being (r = -0.25 [95% CI -0.34, -0.16]) were all medium or "typical" effects in the field (Gignac & Szodorai, 2016, p. 74). Typically-sized effects tend to signify associations that have explanatory and practical utility in both the near- and longer-term (Funder & Ozer, 2019). As Funder and Ozer (2019) also explain, in addition to being consequential for individuals, groups and institutions should also consider the multiplicative effect of the impact of intrinsic and extrinsic associations. The effect/s might be moderate for one person, but when considered across many people, the impacts could become increasingly important.

The magnitudes of associations between intrinsic aspirations and ill-being (r = -0.11 [-0.14, -0.08]) and extrinsic aspiration simple scores and well-being (r = 0.07 [95% CI 0.04, 0.10] were smaller. These small effects are consistent with increasing evidence in favor of SDT's *dual-process model* (Bradshaw et al., 2022; Donald et al., 2022; Haerens et al., 2015; Jang et al., 2016). The dual-process model holds that positive forms of motivation—as manifest in intrinsic aspiring—link most strongly to positive outcomes (e.g., need satisfaction and well-being). Meanwhile, indicators of more controlled forms of motivation—such as extrinsic aspiring—link most strongly to negative outcomes (e.g., need frustration and ill-being). Cross-paths between these variables (i.e., from intrinsic aspirations to ill-being and from extrinsic aspirations to well-being) are usually weaker (e.g., Bradshaw et al., 2021b), as this meta-analysis demonstrates.

The current review also closely followed recent recommendations designed to enhance the reproducibility of meta-analyses (Lakens et al., 2016). The review was pre-registered with PROSPERO and we have made all of the data, code, and supplementary materials publicly available. These efforts not only serve the culture of openness and transparency within psychological science; they also allow the conclusions from this meta-analysis to be easily and routinely updated as additional data comes to hand. As more studies

fill the reported evidence gaps by calculating relative centrality indices, accurately measuring and reporting socioeconomic status, and by conducting experimental and longitudinal studies, the database can be readily expanded and the results updated.

Limitations

The limitations of meta-analytic reports are indelibly tied to the limitations of the evidence bases they summarize. Ultimately, meta-analyses can only model and make conclusions based on the available data. To this end, the current meta-analysis is limited by its inability to summarize evidence pertaining to the causal ordering of intrinsic and extrinsic aspirations and wellness. The evidence base does not comprise sufficient longitudinal studies intervening on aspiration orientations to bolster individual wellness. Of the 92 reports (105 studies) included in this review, 11 reports (12 studies) were longitudinal in nature. Several important deductions can be made from the longitudinal studies. For example, extrinsic goal attainment does not predict gains in well-being over-time (Niemiec et al., 2009). In addition, the prioritization of intrinsic aspirations boosts well-being across time via gains in basic psychological need satisfaction (Hope et al., 2018). And, while intrinsic aspirations develop in children as a result of their own experiences of need satisfaction, extrinsic aspirations develop as a function of parental modeling (Ahn & Reeve, 2020). Yet, of the 12 longitudinal studies, just one included an experimental manipulation of aspirations with the aim to affect individuals' wellness (Lekes et al., 2012). Lekes et al. (2012) taught participants in the treatment group about the distinction between intrinsic and extrinsic aspirations and had them reflect on their own intrinsic aspirations weekly across four weeks. Compared to active control participants, those in the treatment group experienced immediate and longer-term gains in well-being. We would encourage the field to direct energies into testing goal contents theory's claims experimentally to better test causation.

While the relative lack of longitudinal studies should arguably be remedied, it is probable that life goals and wellness are linked reciprocally, rather than unidirectionally. As our literature review outlined, striving for extrinsic goals promotes ill-being, but experiences of need thwarting and ill-being are the conditions that support extrinsic aspiring. Floundering leads to unhealthy striving, but unhealthy striving is frustrating and thus leads to floundering, and the cycle continues. The direction of causation is not crucial to the utility of our results, because the associations suggest that if you improve the quality of aspirations wellness will likely increase, just as if you enhance people's wellness their aspirations will likely become more positive, and goal content is simply a more tangible target compared to wellness in general.

As we allude above, our review may also be limited by a low representation of gray literature. We contacted fellow goal contents theory researchers via the SDT listserv during our initial search of the literature and were provided with three then unpublished studies. However, these studies have since all been published (though with the published correlations matching the unpublished ones), so the unpublished literature in the database comprises six theses (and two book chapters for which the peer-reviewed status is unclear). Given the substantial amount of studies and effect sizes in this meta-analysis our main effects are likely stable and robust to the inclusion of additional data. That said, we cannot discount the role that including more unpublished data would have had on the results.

Conclusion

An unspecified conclusion of the current systematic review and meta-analysis is that being motivated towards goals—in general—appears to be positively linked with well-being. Striving is better than amotivation, which is intuitive. However, these results further demonstrate that, if one is interested in reaching for goals that will result in an enduring sense of personal wellness, the *what* of the goals matters. When setting goals for oneself, or indeed

for others, a focus on money, beauty, and influence at the cost of growing and caring is psychologically detrimental. Individuals, groups, and institutions should consider framing goals in intrinsic terms if their pursuit is to serve the common good. When it comes to goals, happiness appears to be of the heart strings, not the purse strings.

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