Self-Focused Attention and Negative Affect: A Meta-Analysis

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This meta-analysis synthesized 226 effect sizes reflecting the relation between self-focused attention and negative affect (depression, anxiety, negative mood). The results demonstrate the multifaceted nature of self-focused attention and elucidate major controversies in the field. Overall, self-focus was associated with negative affect. Several moderators qualified this relationship. Self-focus and negative affect were more strongly related in clinical and female-dominated samples. Ruminations yielded stronger effect sizes than nonruminative self-focus. Self-focus on positive self-aspects and following a positive event were related to lower negative affect. Most important, an interaction between foci of self-attention and form of negative affect was found: Private self-focus was more strongly associated with depression and generalized anxiety, whereas public self-focus was more strongly associated with social anxiety.

Cognitive biases have been discussed extensively as contributing to emotional disorders. Depressed and anxious individuals show significant memory impairments and biases, judgmental biases, and attentional biases (for a review, see Mineka, Rafaeli-Mor, & Yovel, in press). Such biases may serve as antecedents, concomitants, and consequences of emotional disorders (cf. Barnett & Gotlib, 1988). For example, anxious and depressed individuals attend selectively to negative information (Mathews & MacLeod, 1994). In addition, in contrast to nondepressed individuals, depressed individuals recall more negative stimuli than positive stimuli (Burt, Zembar, & Niederehe, 1995; Williams, Mathews, & McLeod, 1996). Furthermore, mood-disordered individuals demonstrate a variety of judgmental biases; the most notable is their tendency to overestimate the likelihood of negative events (MacLeod & Byrne, 1996).

Self-focused attention (SFA) is one cognitive bias that has been strongly implicated in the experience of chronic negative affect (NA). SFA has been defined as “an awareness of self-referent, internally generated information that stands in contrast to an awareness of externally generated information derived through sensory receptors” (Ingram, 1990b, p. 156). Over the past 2 decades, the relationship between emotional distress, both chronic and acute on the one hand and chronic and temporary states of self-focus on the other, has garnered much discussion, controversy, and empirical research. Yet, unlike other cognitive factors in emotional disorders mentioned earlier, the wealth of research in SFA has not been reviewed systematically. Recently, Fejfar and Hoyle (2000) reviewed the relationship between SFA and NA and attributions of responsibility to the self. However, their review was not comprehensive and examined only private self-focus. Apart from this recent contribution, the most comprehensive review to date was qualitative and was conducted more than 11 years ago (Ingram, 1990b). Since the time of Ingram’s review, the number of studies available on the topic has at least doubled and their focus has changed. In addition, recent studies have examined a wider range of populations and forms of NA that go beyond those reviewed in 1990.

The purpose of the present meta-analysis is to organize the wealth of evidence in this area and to provide a systematic and quantitative analysis of the conditions and contexts governing the relationship of SFA and NA. We attempt not only to review and summarize existing knowledge but also to provide a conceptual organization of this knowledge. Specifically, this meta-analysis will speak to two fundamental theoretical issues.

Fundamental Issues in the Study of SFA and NA

One fundamental issue in this field is whether self-focus is a single psychological construct. If attention to the self is a broad traitlike construct that characterizes people’s general attention-allocation tendencies, we would expect great consistency in self-focus across situations and contexts. In addition, if self-focus is a unitary construct, we would expect it to have a consistent relationship with NA. On the other hand, if self-focus is conceptualized as a dynamic information processing operation, we would expect self-focus to vary significantly across situations and contexts,
different self-foci to operate differently, and variability in self-focus’s relationship to affect. Consistent with views (e.g., Caprara & Cervone, 2000; Kagan, 1998) that contemporary personality constructs are often too broad and contain qualitatively distinct phenomena, the construct of SFA seems to have suffered from lack of a clear delineation of its various facets. It is often described as a general tendency to be self-reflective (e.g., Carver & Scheier, 2000), and conclusions regarding general self-focus tendencies are often drawn from findings pertaining to a specific form or context of self-focus. Although it is possible that this seemingly unitary nature of the construct of SFA is a by-product of its complexity and of the vast number of studies examining it, it is still the case that the general picture being portrayed is murky. Despite this general oversight, several contextual and situation-specific factors have been proposed to distinguish between different forms of SFA (e.g., J. Greenberg & Pyszczynski, 1986; Wood & Dodgson, 1996). This meta-analysis addresses this fundamental issue through the examination of the various facets or manifestations of self-focus as well as the effect of a variety of contextual and population factors on the relationship between self-focus and NA.

A second fundamental issue addressed in this analysis is the specificity of the relation between SFA and affective experience. Does self-focus relate to NA in general or only to specific syndromes or disorders? This question was at the center of a pivotal debate in this field in the 1990s. Some have argued that self-focus is a general factor in psychopathology (Ingram, 1990b), whereas others argued that it relates to depression more so than to other pathological conditions (Pyszczynski, Greenberg, Hamilton, & Nix, 1991). Although this debate seems to have abated recently, given the proliferation in the past decade of research that examined the relationship between self-focus and various forms of NA, it seems important to examine the specificity question in this meta-analysis.

A systematic quantitative analysis of the field is needed to provide answers to these fundamental questions. We return to these questions, and present several other meta-analytic hypotheses, following a historical overview of the theoretical conceptions that have guided research in this area.

Theories and Paradigms in the Study of SFA and Affect

Overview of Relevant Theories

The concept of self-focus was introduced by Duval and Wicklund (1972) as part of a model relating self-regulation and affect. According to their model, attention focused on the self leads to a self-evaluative process in which an individual’s current state in a particular self-relevant domain is compared with his or her standard in that domain. Positive affect is experienced if the current standing surpasses the standard, whereas NA is experienced if the current standing falls short of the standard. According to Duval and Wicklund, the experience of NA leads to attempts either to decrease the discrepancy or to avoid self-focus.

Building on Duval and Wicklund’s (1972) theory, Carver and Scheier (e.g., 1986, 1990, 1998) suggested that self-focus plays a role in a self-regulatory cycle that assists individuals in the pursuit of goals. In this self-regulatory process, individuals assess the discrepancy between their current self and a salient standard and engage in discrepancy-reducing behaviors when a negative discrepancy is detected. If the current self matches the desired standard, the individual terminates the regulatory process. If, on the other hand, the current self falls short of the standard, the individual enters a cycle of behaviors and evaluations that lasts until the self matches the standard or until the individual determines that a match is impossible. NA, according to Carver and Scheier, is experienced as a result of individuals’ judgment that the likelihood of attaining the standard is low. In a later revision of their model, Carver and Scheier (1998; Carver, Lawrence, & Scheier, 1996, 1999) proposed that individuals assess not only the discrepancy between their current and desired selves but also the rate of their progress toward reducing this discrepancy. Thus, according to this revised model, NA results from too slow progress toward one’s goals rather than from the discrepancy itself.

Drawing from Duval and Wicklund’s (1972) model and on Carver and Scheier’s (1981) early model, Pyszczynski and Greenberg (1987) described a profile of individuals with a depressive self-focusing style. They posited that depression occurs when one is unable or unwilling to exit the self-regulatory cycle and is “stuck” in trying to reduce an irreducible discrepancy. Individuals stuck in this cycle often develop a depressive self-focusing style; they focus on their self-aspects following negative events but avoid such focus following positive events. A depressive self-focusing style intensifies NA and leads to increased salience of negative aspects of the self. This increased salience, in turn, leads to an increase in internal attributions, self-criticism, performance deficits, and other components of depression. Although they maintained that self-focus is primarily related to depression, Pyszczynski, Hamilton, Greenberg, and Becker (1991) indicated that self-focus can also be related to the experience of anxiety when one focuses on a potential feared loss as opposed to an already existing loss.

Several theorists have addressed the role of rumination in maintaining depression. Early contributions emphasizing cognitive factors in the development and maintenance of depression argued that depressed individuals tend to engage in repetitive and persistent negative automatic thinking, much of which focuses on the self (e.g., Beck, Rush, Shaw, & Emery, 1979; Teasdale, 1983). Subsequently, and more broadly, rumination was defined as “a class of conscious thoughts that revolve around a common instrumental theme and that recur in the absence of immediate environmental demands requiring the thought” (L. L. Martin & Tesser, 1996, p. 7) and as “a manifestation of people’s tendency to persist in goal-directed action until they have either attained their goal or given up the desire for it” (L. L. Martin & Tesser, 1996, p. 11). Nolen-Hoeksema and colleagues (e.g., Lyubomirsky & Nolen-Hoeksema, 1995; Nolen-Hoeksema, 1991; Nolen-Hoeksema & Morrow, 1993) have specifically examined the role of rumination in the increase or maintenance of depressed mood in dysphoric and clinically depressed individuals, and defined ruminative responses as “behaviors or thoughts that focus an individual’s attention on his or her depressed mood, and [on] the possible causes and consequences of that mood” (Nolen-Hoeksema, Morrow, & Fredrickson, 1993, p. 20). According to Nolen-Hoeksema and her colleagues, what characterizes rumination and differentiates it from negative automatic thoughts is it being a style of thought rather than its negative content. It is evident from these various
conceptualizations of rumination that it is a unique form of self-focus (and see also Hamilton & Ingram, 2001, for a review of theoretical perspectives relating rumination and distress). Because the majority of studies that relate rumination to NA used Nolen-Hoeksema’s definition of rumination, we relied on this definition of rumination in this meta-analysis.

Nolen-Hoeksema’s response style theory addresses several aspects in the relationship between ruminative self-focus and NA. First, according to the theory (Nolen-Hoeksema, 1987, 1991), ruminative responses prolong depressive states. This is because they enhance the effects of the negative mood on cognitive processes and prevent the individual from taking action and coping with the mood or with its causes in a problem-solving manner. Second, the theory explains gender differences in the prevalence of depression by women’s higher tendency to ruminate (Nolen-Hoeksema, 1987). Finally, the theory suggests that SFA does not necessarily promote depression in non-dysphoric individuals, because they do not focus their attention on NA and on their negative personal attributes.

In his review on self-focus and psychopathology, Ingram (1990b) concluded that SFA contributes to many psychopathological conditions including depression, anxiety, substance abuse, schizophrenia, and psychopathy. In explaining the existence of this broad relation to psychopathology in general, Ingram coined the term self-absorption, which he described as the “dysfunctional quality of maladaptive self-focused attention” (p. 169). Self-absorption is an excessive, sustained, and inflexible attention to internal states. Ingram stated that a chronic SFA style is not necessarily dysfunctional. What renders some self-focus dysfunctional is inflexibility, or an inability to shift to an external focus of attention when the situation warrants. The three features of self-absorption mentioned above (i.e., being excessive, sustained, and inflexible) are common to many disorders. However, according to Ingram, specific kinds of self-relevant information are disorder specific and reflect the particular psychopathological schema of the various disorders. For instance, the SFA of an individual with an eating disorder will make salient information related to body image and physical appearance. Ingram’s (1990b) conclusions regarding the role of self-focus in psychopathology were criticized by Pyszczynski, Greenberg, et al. (1991), who maintained that Ingram overstated the extent of the relationship between self-focus and various pathological conditions, other than depression (see Ingram, 1991, for a response).

Earlier, we presented two fundamental issues that are addressed in this meta-analysis; one is whether self-focus is a single psychological construct and the other is whether the relationship between SFA and NA is general or specific. Ingram (1990b) suggested that the relation between increased SFA and a variety of psychopathological conditions poses a “conceptual dilemma.” The essence of this dilemma, according to Ingram, is that if SFA characterizes a maladaptive self-focused attention form (usually referred to as self-consciousness), and thus allows for causal examination of the relationship between SFA and NA.

Overview of Extant Research Paradigms

The relationship between SFA and emotional disorders has been examined using a variety of methodologies and measurement strategies. Researchers have typically used two broad paradigms. In the first paradigm, SFA is examined in its chronic and traitlike form (usually referred to as self-consciousness), and either chronic negative affectivity or a mood disorder is examined (e.g., Smith & Greenberg, 1981). This paradigm often involves a correlational design, in which selected or unselected groups are examined to determine the association between SFA and NA, or a quasi-experimental design, in which groups with a priori differences in their level of NA (e.g., depressed and nondepressed) are compared on chronic self-focus tendencies. In the second paradigm, the relationship between temporary self-focus and NA is examined, typically manipulating either affect or SFA and examining their effect on each other (e.g., Carr, Teasdale, & Broadbent, 1991; Salovey, 1992). This paradigm involves an experimental design and thus allows for causal examination of the relationship between SFA and NA.

Theoretical Analysis and Moderator Variables

Understanding the relationship between self-focus and NA requires considering several variables that may moderate this relationship. As we noted earlier, identifying these moderators and mapping their effects is one of the primary aims of this meta-analysis. As an initial step, we classified the various moderators into theoretically meaningful groups and identified moderator variables that fall in the following groups: population characteristics, self-focus characteristics, NA characteristics, contextual factors, and measurement-related factors. In this section, we discuss each of these categories and how it was coded in this meta-analysis.

Characteristics of the Population Studied

Does self-focus exert the same effect on affect in all people? There are reasons to believe that the relationship between SFA and
NA is stronger for women than for men. This is because women tend to engage in more maladaptive self-focus, such as rumination (Nolen-Hoeksema, 1987, 1991). In addition, the higher prevalence of depression among women (American Psychiatric Association, 1994) and the tendency of depressed people to focus on negative information (Beck, 1967) make it likely that there will be a stronger relationship between NA and (negative) self-focus among women than among men. Because relatively few studies examine women only or men only in a way that would allow a direct comparison of the magnitude of the effect sizes associated with the sex of participants, we chose to use the percentage of females in the samples for assessing the differential strength of the relationship between self-focus and NA for men and women. Thus, in this meta-analysis we coded the percentage of female participants in each study and predicted larger effect sizes as the percentage of female participants in the sample increased.

Another population-related question is whether SFA is more strongly associated with NA among people who are predisposed to experience chronic NA or those who already experience NA than among people who do not possess these tendencies. Pyszczynski and Greenberg (1987) suggested that experiencing loss predisposes one to develop a depressive self-focusing style in which one focuses on the self after negative events and avoids self-focus after positive events. Thus, according to Pyszczynski and Greenberg, the uniquely depressive self-focusing style strengthens the relationship between self-focus and depression for people who are already depressed or have experienced a loss of a source of esteem. Nolen-Hoeksema (1987, 1991) reached similar conclusions, namely that people who experience a dysphoric state and engage in ruminative self-focus become depressed. In contrast, she found that among people who were not experiencing dysphoria, rumination did not lead to negative thoughts and affect (Nolen-Hoeksema, 1991). Making these predictions, we coded whether studies examined clinical, subclinical (depressed or anxious individuals), or nonclinical populations. We expected to find a stronger relationship between self-focus and NA in clinical populations compared to nonclinical populations.

Finally, the relation between SFA and NA may vary with age. Through the course of development, individuals’ self-schemata become more elaborate and complex (for reviews, see Damon & Hart, 1988; Harter, 1999). In addition, children’s self-evaluations are known to be positively inflated (Ruble, Eisenberg, & Higgins, 1994). On the basis of these findings, one can assume it is likely that when children engage in self-focus they attend mostly to positive self-aspects and do not experience as much NA as adults do. Therefore, we predicted larger effect sizes for studies that examined the relationship between SFA and NA among adults and adolescents as compared with those that examined the relationship among children.

**Characteristics of Self-Focus**

Current research on the nature of attention indicates that it is carried out by a network of interrelated anatomical areas in the brain, jointly characterized by the dimensions of duration, intensity, selection, and automaticity (e.g., Styles, 1997). It may be important to distinguish between states of self-focus that are of different duration, as well as to differentiate between states of self-focus that represent selection of differing content focus (e.g., involve different valence or involve dwelling on the self as an agent as opposed to an object evaluated by the social world). Variations in self-focus may represent divergent attentional processes (e.g., sustained vs. short-term) as well as various contents or self-aspects and may relate differently to NA. In this meta-analysis we compared several variants of SFA that may represent different attentional processes and content areas. Although we refer to these variants as different “types” of self-focus, it is important to note that in discussing self-focus types, we do not imply different attentional systems with different biological or anatomical underpinnings but rather different aspects of the self that one can attend to.

One example of a subtype of self-focus is rumination. Ruminative self-focus differs from other types of self-focus in both process and content. It is repetitive and unproductive and is thought to interfere with active problem-focused coping. In addition, ruminative thoughts focus on one’s mood and most often on one’s negative mood. Thus, both content and process characteristics of ruminative self-focus lead us to predict that rumination would be more strongly associated with NA than would other types of self-focus. To explore this prediction, we coded whether studies examined ruminative self-focus.

Another distinction frequently made among types of self-focus is between private and public self-focus (Fenigstein, Scheier, & Buss, 1975). Private self-focus “reflects private, autonomous, egocentric goals. These are goals that did not necessarily require one to consider others’ reactions to what one is doing” (Carver & Scheier, 1987, p. 527). Public self-focus pertains to aspects of behavior in which the needs, desires, or reactions of others are acknowledged and taken into account. These goals are colored by a desire for social consensus or by a desire to consider the impact that an action may have on others’ impressions of oneself. (Carver & Scheier, 1987, p. 527)

Although this distinction has been used primarily in reference to the trait form of self-focus—self-consciousness—it can distinguish among temporary states of self-focus as well. In fact, the most widely used measure of self-consciousness is composed of private and public self-consciousness subscales (Self-Consciousness Scale [SCS]; Fenigstein et al., 1975). However, the usefulness of this distinction has been debated. Some (e.g., Wicklund & Gollwitzer, 1987) have maintained that the distinction between these two subtypes is spurious and atheoretical. Others (e.g., Carver & Scheier, 1987) have maintained that the distinction is valid, claiming that the two subtypes represent different self-regulatory processes—one in which individuals evaluate their actions without reference to others and another in which individuals evaluate their actions while taking into account the social context. Findings of different behavioral sequalae for private and public self-focus (cf. Fenigstein, 1979; Froming & Carver, 1981; Froming, Walker, & Lopyan, 1982) provide partial support for the distinction among these subtypes. To further examine the separability of these two putative subtypes of SFA, we coded the studies for private and public SFA.

Finally, focus on positive versus negative aspects of the self may represent two separate types of self-focus, each of which may relate differently to affective experience. Focusing on one’s neg-
ative self-aspects can be assumed to relate to NA, whereas focusing on positive aspects of the self can be assumed to have an opposite effect. This idea is in line with the process of compensation delineated by Wood and Dodgson (1996). Compensation is a process whereby individuals focus on positive aspects of their lives after experiencing a negative event (e.g., a failure). It has been associated with higher self-esteem and better coping (Baumeister, 1982). When possible, we coded studies for the valence of self-focus assessed.

The Context for Self-Focus

The theories presented earlier suggest that SFA is often a maladaptive response that is associated with negative mental health consequences. However, each of these theories suggests specific contexts and conditions under which SFA may not be maladaptive. Carver and Scheier (1981, 1990; see also Carver, 1996a, 1996b) and Duval and Wicklund (1972) suggested that SFA is essential for a self-regulatory process to take place. According to these models, SFA is maladaptive only when one detects a negative discrepancy between the current self and a relevant standard and is unable to minimize this discrepancy. One context in which this discrepancy is particularly salient is the experience of negative life events such as failures and losses. It is likely that self-focus relates positively to NA when it follows negative events but not when it follows positive events. In a similar vein, Pyszczynski and Greenberg (1987) contended that over time, depressed individuals engage in self-focus after negative events but not after positive events, whereas nondepressed individuals engage in self-focus after positive events but not after negative events. Stated differently, their theory suggests a positive relationship between self-focus and NA after negative events but not after positive ones. Thus, in this meta-analysis we coded studies for contextual factors such as positive and negative events.

The Specificity of the Relationship Between Self-Focus and NA

One of the major debates in this field involves the specificity of the relationship between SFA and psychopathology. As mentioned earlier, Ingram (1990b) proposed that SFA is a general factor in psychopathology. Pyszczynski, Greenberg, et al. (1991), on the other hand, questioned the ubiquity of self-focus in psychological disorders. In this analysis, we chose to focus on NA and disorders to which NA is central. Thus, our analysis can only afford a partial test of this question.

Generally speaking, there seems to be a consensus regarding the existence of a strong relationship between self-focus and depression (e.g., Ingram, 1990b; Nolen-Hoeksema, 1991; Pyszczynski & Greenberg, 1987). As for anxiety, it has been suggested that threatening situations lead to self-focus and that individuals’ perceptions that they cannot cope with such situations lead to avoidance behavior and to further anxiety (e.g., Carver & Blaney, 1977; Carver, Blaney, & Scheier, 1979; Filipp, Klauer, & Ferring, 1993; Wells, 1985; Wells, 1991). However, research evidence for the relationship between self-focus and anxiety has not been very promising: Relatively few studies examined this relationship, and the existing findings have been mixed (see Ingram, 1990b, Pyszczynski, Greenberg, et al., 1991). In examining NA, we addressed the specificity question by distinguishing among the experiences of temporary negative mood, depressive symptoms, and anxiety symptoms.

Several anxiety conditions may be associated with SFA. These include social anxiety (Woody, 1996), panic disorder (Borden, Lowenbraun, Wolff, & Jones, 1993), generalized anxiety disorder (Wells, 1985), and test anxiety (Deffenbacher, 1978). In addition to comparing overall anxiety with depression and temporary mood states, we also examined differences between these various anxiety conditions.

A Model of Self-Focus Specificity

As mentioned earlier, in this meta-analytic review we examine the specificity question and attempt to provide insight into the debate regarding the generality of the relationship between SFA and various negative affective states. Specifically, we explore whether attention to public and private aspects of the self is differentially related to anxiety and depression. Differential association patterns of private and public self-focus with anxiety and depression are in line with Higgins’s self-discrepancy theory (e.g., Higgins, 1987, 1999), which relates discrepancies among various self-perceptions and NA. According to this theory, a salient discrepancy between the ideal self (i.e., what one would ideally want to be) and the actual self is associated with depression, whereas a salient discrepancy between the ought self (i.e., what one feels he or she should or ought to be) and the actual self is associated with anxiety. Although private self-focus and the ideal-self guide do not refer to identical psychological constructs, they both refer to self-aspects that do not involve other people. Similarly, public self-focus and the ought-self guide both refer to self-aspects in which others are taken into account. In this meta-analysis we examine the interactive effect of type of self-focus (private and public) and type of NA. Specifically, we examine whether attending to one’s goals, thoughts, and feelings (i.e., private SFA) is associated with depression and whether attending to public aspects of the self or to the impression one makes on others (i.e., public SFA) is associated with anxiety.

Direction of Causality

A central question in the study of attentional processes and affect is whether self-focus contributes to the experience of NA, NA predisposes people to engage in self-focus, or both. The present meta-analysis allows us to examine the direction of the causal relationship between SFA and NA. Some researchers have demonstrated that NA leads to an increase in self-focus (e.g., Salovey, 1992; Wood, Saltzberg, & Goldsamt, 1990). Others have indicated that a self-focusing tendency primes individuals to experience NA (Ingram, Cruet, Johnson, & Wisnicki, 1988). The relationship between self-focus and NA has also been described as a cyclic process in which dysphoric individuals engage in negative self-focus, which exacerbates their dysphoria and predisposes them to prolonged depression (J. Greenberg & Pyszczynski, 1986; Nolen-Hoeksema & Morrow, 1993). We contrasted studies that manipulated mood or affect with those that manipulated SFA to gain further understanding of the causal precedence of one or the
other. As both data and theory suggest a reciprocal and cyclical relationship between SFA and NA, we expected the mean effect sizes associated with both types of designs would be positive. It is important to note that causal statements regarding the relationship between self-focus and NA would only pertain to negative mood and cannot be applied to depressive and anxious disorders.

**Measurement-Related Questions**

We address several questions regarding the choice of SFA measurement in this review. The most common measure for chronic SFA is the SCS (Fenigstein et al., 1975). This measure has been critiqued for the low validity and reliability of its subscales, and its factor structure has been questioned and alternative factors have been proposed (Burnkrant & Page, 1984; Martin & Debus, 1999). Several alternative measures have been developed to address shortcomings of the SCS (Burnkrant & Page, 1984; Scheier & Carver, 1985). Thus, in this analysis we compared studies that used the SCS and those that used other measures of SFA. Because of the frequent use of the SCS, we were particularly interested in determining the relative merits of this scale compared with existing alternatives.

Several self-focus manipulations have been used over the years. The most common procedure for manipulating self-focus is placing a mirror in front of participants. Despite its common use, most studies in the meta-analysis did not examine the utility of this manipulation in obtaining the desired effect of increased self-focus. Thus, we compared the magnitude of the effect sizes associated with the various self-focus manipulations.

**Summary**

In summary, this review addresses several questions. We first examine the overall relationship between SFA and NA. Then we explore various moderator variables related to population characteristics and aspects of self-focus and of NA. First, we examine specific populations (i.e., males vs. females, clinical vs. nonclinical) to determine whether the relationship between SFA and NA is the same across these populations. Second, we compare effect sizes associated with various types of self-focus, such as private versus public and ruminative versus nonruminative self-focus. Third, we attempt to determine whether specific forms of NA are more strongly associated with SFA than are others. Finally, we compare private and public SFA to determine whether private self-focus is more strongly associated with depression, whereas public self-focus is more strongly associated with anxiety.

**Design of the Meta-Analysis**

**Assessment of NA**

We included three types of NA measures in the study: negative mood, depression, and anxiety. The inclusion of these three types of measures is based on a number of theoretical considerations. In particular, it follows the theories of Carver and Scheier (1981) and of Duval and Wicklund (1972) regarding the relationship between SFA and general NA. It also follows the predictions of self-regulatory perseveration theory (Pyszczynski & Greenberg, 1987) regarding the relationship between SFA and depression. Finally, studies that assessed anxiety were included in the present meta-analysis, as several anxiety conditions have been reported to be associated with SFA. Because anxiety is a superordinate term for several disorders, we included all available studies addressing any of the following subordinate types of anxiety: social anxiety (e.g., Woody, 1996), panic disorder (e.g., Borden et al., 1993), generalized anxiety disorder (e.g., Wells, 1985), and test anxiety (e.g., Deffenbacher, 1978).

Although self-evaluative processes have been associated with self-esteem, which in turn has been found to be strongly associated with depression (e.g., Butler, Hokanson, & Flynn, 1994; Metalsky, Joiner, Hardin, & Abramson, 1993), we view self-esteem as being beyond the scope of this review and thus excluded it from this meta-analysis. Several studies assessed cognitive performance (e.g., Lewis & Linder, 1997) under conditions of high and low SFA. Although task performance is often associated with anxiety, it is not a direct substitute for the affective core of anxiety. Therefore, only studies that measured anxiety directly (either through self-report or observer report) were included in this study.

**Assessment of SFA**

Studies using several types of measurement or manipulation of SFA were included in the meta-analysis. Some studies experimentally manipulated self-focus by placing a mirror in front of participants (e.g., Carver et al., 1979) or by asking the participants to write an essay that included the words I, me, mirror, or alone (e.g., Pyszczynski, Holt, & Greenberg, 1987). Other studies manipulated SFA by instructing the participants to focus on their current physical and emotional feeling, their personality, or their goals (e.g., Lyubomirsky & Nolen-Hoeksema, 1993).

Self-report measures of SFA have been used mostly in correlational designs. The most commonly used self-report measure is the Public and Private Self-Consciousness Scale (Fenigstein et al., 1975). Other common self-report measures are sentence completion tasks (Exner, 1973; Wegner & Giuliano, 1980); the extent to which participants choose to complete sentences with the word I or with other self-related words is assumed to reflect their tendency to self-focus.

**Types of Studies**

Consistent with the above discussion, studies were included in the meta-analysis if they reported using appropriate measures of emotional disorders and of SFA and conducted an appropriate test of the relationship between these measures. Three types of studies were considered appropriate: (a) experimental designs that manipulated SFA and measured emotional disorders using self-report measures (e.g., Woody, 1996), (b) experimental designs that manipulated mood and measured SFA using self-report measures (e.g., Salovey, 1992), and (c) correlational designs that measured SFA and emotional disorders simultaneously when both were measured using self-report measures (e.g., Anderson, Bohon, & Berrigan, 1996).

**Method**

**Sample of Studies**

We conducted a computerized search using key word terms. These terms were grouped into two sets and combined into a single search that included...
at least one term from each of the two groups. The first group included the following terms (using wild cards, such as focus* for focus, focusing, focused, etc.): self-focus, self-aware, self-referent, self-conscious, preoccupation, rumination, self-regulate, and self-direct. The second group included the following terms: anxiety, depression, mood, affect, emotional adjustment, well-being, phobia, dysphoria, panic, and emotional disorder.

The intersection of the two groups was entered into the following databases from the beginning point of each database through the end of 1998: PsycINFO, Educational Resources Information Center, MEDLINE, and Dissertation Abstracts International. The Social Science Citation Index was also searched for references citing the following seminal articles: Ingram (1990b), Carver and Scheier (1981), Fenigstein et al. (1975), and Pyszczynski and Greenberg (1987). In addition, reference lists of the obtained articles as well as numerous review articles (e.g., Ingram, 1990b; Pyszczynski, Hamilton, et al., 1991; Wood & Dodgson, 1996) were reviewed. Relevant books (e.g., Filipp et al., 1993; Schwarzer & Wicklund, 1991) and chapters were also reviewed but did not contain any data that had not already been reported in individual research reports. Finally, we obtained unpublished data from various researchers in the field via social psychology and clinical psychology e-mail networks.

Inclusion and Exclusion Criteria

Studies were included in the meta-analysis if (a) they included either a manipulation of mood states or at least one affect measure—that is, a measure of mood, depression, or anxiety; (b) they included either a manipulation of attentional focus or a measure of SFA; or (c) they reported significant correlations between the affect and the attentional focus measure or a measure of group differences (such as t or F) in mood, emotional disorder between groups differing in self-focus, or group differences in self-focus in groups differing in mood or affect. Studies were excluded from this meta-analysis if the measurement of SFA was confounded with the measurement of NA. The most common example of studies excluded for this reason is usage of an overall score on the SCS, which includes a Social Anxiety subscale in addition to the Private and Public Self-Consciousness subscales. Studies were also excluded if they reported only that the results were or were not significant but did not provide the necessary statistical information needed for computation of an effect size. Finally, studies that reported only results of regression analyses were excluded from this meta-analysis, as these analyses cannot be used for computation of effect sizes (Hunter & Schmidt, 1990).

Variables Coded From Each Study

A standard coding sheet was completed for each study. The following general information was coded: (a) date of publication, (b) publication form (journal article, chapter, dissertation, or unpublished report), (c) whether the study originated from a larger study for which more than one subsample was used in the meta-analysis, (d) age group of participants (children, adolescents, or adults), (e) population type (nonclinical, subclinical, clinical), and (f) percentage of female participants.

We coded several characteristics of SFA for each study: (a) type (private, public, both), (b) objective (whether it was ruminative), (c) valence (positive, negative, neutral), and (d) whether SFA was manipulated, measured, or both. Self-focus was classified as private when individuals’ attention was turned to personal aspects of the self and as public when it was turned to self-aspects that were relevant to others. Self-focus was defined as rumination when individuals’ attention was aimed at their moods and the reasons for and implications of their moods.

Several characteristics of NA were coded for each study: (a) type (mood, depression, or anxiety); (b) if mood, whether it was manipulated or measured; (c) if depression or anxiety, whether a self-report measure or a clinical diagnosis from a version of the Diagnostic and Statistical Manual of Mental Disorders (DSM; e.g., 4th ed. [DSM–IV], American Psychiatric Association, 1994) was used; (d) if anxiety, the type of anxiety symptoms under study (generalized, social, specific phobia, panic, test anxiety, or other); and (e) relevant situational context during or just prior to measurement of self-focus and/or NA (i.e., the experience of positive or negative events such as success and failure).

Information regarding the reliability of NA and SFA measures was also coded. For each study, we noted whether reliability estimates were reported, could be obtained from norms of the measures, or were not available. In addition, when possible, we coded reliability estimates and the type of reliability estimate (e.g., alpha, kappa, test–retest).

Finally, we coded each study for the direction of causal inference it allowed. Studies were coded as relevant to the hypothesis that SFA leads to NA if they included a controlled manipulation of SFA and measured NA postmanipulation. Studies were coded as relevant to the hypothesis that NA leads to SFA if they included a controlled manipulation of NA and measured SFA postmanipulation. Otherwise, studies were coded as not providing sufficient information for causal inference.

Both authors coded all studies, and we computed kappas to determine interrater reliability. Kappa coefficients ranged from .80 to .99 with a mean of .92 and a median of .94. All discrepancies were discussed until full agreement was reached.

Computation and Analysis of Effect Sizes

The effect size index we used in this meta-analysis was d, the difference between the means of the two groups (either two groups of self-focus or two groups of NA) divided by the pooled standard deviation (see Hedges & Olkin, 1985). This effect size was weighted by the reciprocal of its variance to give more weight to studies with more reliable estimates. A positive sign of the effect size indicates that higher levels of SFA were associated with higher levels of NA.

Several studies presented data on the relationship between SFA and NA separately for subgroups within the overall sample (e.g., males vs. females). In these studies, each subsample was treated as a separate study. In addition, studies that included more than one situational context (e.g., both failure and success conditions) were treated as separate reports, such that each type of situational context served as a separate study. Although the resulting partition of some of the studies produced some nonindependence between the studies, this partition was necessary for the testing of the hypotheses posed in this meta-analysis. In addition, the nonindependence was never due to overlap in participants.

We computed effect sizes with the aid of a computer program (DSTAT Version 1.10, B. T. Johnson, 1993). These computations were based on reports of means and standard deviations, r values, t tests, and F ratios.

Results

Description of the Database

Because we examined several independent variables (i.e., different types of self-focus) and several dependent variables (i.e., different types of NA), many studies yielded more than one relevant effect size. Overall, 408 effect sizes were computed from all available studies. However, as noted by H. Cooper and Hedges (1994), using more than one effect size per sample violates the independence assumptions of meta-analysis. Thus, we created a data set that included only one effect size per sample. When more than one effect size was available, effect sizes were combined using one of the following two procedures. If intercorrelations among the various independent or dependent variables to be aggregated were available, we computed a combined effect size...
using statistical procedures outlined by Gleser and Olkin (1994). If these intercorrelations were not available, we computed the mean effect size for the sample.

As correlational studies examined predictors of the variance in self-focus and NA measures, whereas experimental studies examined the strength of a manipulation, we conducted separate analyses for the two types of design. Thus, the overall data set included a total of 226 independent effect sizes ($N = 30,763$). The correlational studies data set included a total of a 149 effect sizes ($N = 28,095$). The majority of the effect sizes that were obtained from experimental designs examined self-focus manipulations, whereas only five studies examined mood manipulations ($N = 224$). We explored studies that manipulated mood separately. Thus, the experimental studies data set included 72 effect sizes in which self-focus was manipulated ($N = 2,444$).

**Characteristics of the Studies**

In outlining the characteristics of the sample, we describe the characteristics of the overall sample and then describe the characteristics of each of the subsamples. The characteristics of the included studies are presented in Table 1. The majority of the studies included in this review were relatively recent and consisted of published data. Most often, the sample was of a nonclinical population. Samples typically included more female participants than male participants. Most of the studies used a correlational design in which SFA and NA were measured with self-report scales. The most common self-focus measure used was the SCS. Temporary negative mood was usually assessed using a variety of mood adjective Likert scales. The Beck Depression Inventory (BDI; Beck, 1967) was the modal depression measure, and the Social Anxiety subscale of the SCS was the modal anxiety measure. The most common self-focus manipulation procedures included instructing participants to focus on themselves and placing a mirror in front of the participants.

**Summary of Study-Level Effect Sizes**

The summary of the study-level effect sizes presented in Table 2 allows one to examine whether, on the whole, heightened SFA is associated with higher levels of NA. The weighted mean effect size averaged across the 149 correlational studies yielding study-level effect sizes was 0.51, and the weighted mean effect size averaged across the 72 experimental studies yielding study-level effect sizes was 0.44. The weighted mean effect size for studies that manipulated NA was 0.55. All three mean effect sizes differed significantly from zero. Thus, higher self-focus is associated with higher levels of NA. These effect sizes represent a medium magnitude effect size according to Cohen’s (1988) effect size classification. A mean effect size of this magnitude is considered by Cohen to be large enough to be visible to the naked eye. The mean effect size for the correlational studies is equivalent to a correlation of .25, and that of the experimental studies is equivalent to a correlation of .20. The mean effect size for studies that manipulated NA is equivalent to a correlation of .26. These findings suggest that overall SFA accounts for about 4–6% of the variance in NA.

The proportion of study-level comparisons supporting a positive relationship between self-focus and NA (140 of 149 for the correlational studies and 56 of the 72 experimental studies, or .93 and .77 of the studies, respectively) was significantly different from the 0.50 expected under the null hypothesis ($p < .001$, by sign test).

To address concerns of publication bias, whereby the results of the meta-analysis may be biased because of the tendency to primarily report and publish statistically significant results, we calculated a fail-safe $N$ (Orwin, 1983). This procedure involves estimation of the number of unreported unpublished studies required to negate the significant effect found. The results of the fail-safe $N$ analysis indicate that to reduce the obtained mean effect size of 0.51 across the 149 correlational studies to a mean effect size of 0.3, there would have had to be 268 effect sizes of zero. To reduce the obtained mean effect size of 0.41 across the 72 experimental studies to a mean effect size of 0.3, there would have had to be 107 effect sizes of zero. Thus, in both study designs, the number of studies that would have had to report null results to reduce the mean effect size from the obtained effect size to a 0.3 mean effect size exceeds the number of studies included in this meta-analysis. For the purposes of this meta-analysis we had to exclude 28 studies for which we could not compute an effect size. Of those studies, 17 reported significant results, whereas 11 reported nonsignificant results.

Although the study-level effect sizes were not skewed, neither were they homogeneous (see Table 2). Homogeneity was not attained until 52 (correlational) and 17 (experimental) effect sizes (34.9% and 23.6% of the effects, respectively) were removed. Removing these outliers did not significantly change the overall mean effect sizes, which were 0.49 for the correlational studies and 0.53 for the experimental studies—still significantly different from zero. On the basis of these results and of our theoretical

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Correlational data set</th>
<th>Experimental data set</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of studies</td>
<td>149</td>
<td>72</td>
</tr>
<tr>
<td>M</td>
<td>1990</td>
<td>1990</td>
</tr>
<tr>
<td>Participants</td>
<td>Overall number</td>
<td>28,095</td>
</tr>
<tr>
<td></td>
<td>Mean number</td>
<td>188.56</td>
</tr>
<tr>
<td></td>
<td>% female (M)</td>
<td>56.41</td>
</tr>
<tr>
<td>Age of participants (n)</td>
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<td></td>
</tr>
<tr>
<td>Children (under 12 years)</td>
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<td>1</td>
</tr>
<tr>
<td>Adolescents (12–17 years)</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>Adults (18 years and older)</td>
<td>133</td>
<td>71</td>
</tr>
<tr>
<td>Population Nonclinical</td>
<td>113</td>
<td>50</td>
</tr>
<tr>
<td>Subclinical</td>
<td>3</td>
<td>17</td>
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<tr>
<td>Clinical</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Nonclinical vs. subclinical</td>
<td>19</td>
<td>0</td>
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<tr>
<td>Nonclinical vs. clinical</td>
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<tr>
<td>Publication source</td>
<td>Journal</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td>Dissertation</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>9</td>
</tr>
</tbody>
</table>
The relationship between self-focus (SFA) and negative affect (NA) has been a topic of interest in psychology. The relationship is typically examined using self-focus manipulations, which involve directing participants to focus on themselves and their inner experiences. The magnitude of the relationship has been found to vary by several factors, including the age of the participants, the sample characteristics, and the publication year. We conducted a meta-analysis to summarize the effect sizes obtained from both correlational and experimental studies, and to examine whether the relationship between SFA and NA has increased over time. The findings demonstrated that the effect size for both correlational and experimental designs, we examined possible explanatory factors of this effect by conducting an overall median split by year and comparing sample qualities between the earlier and the later studies. Studies published before 1990 included more nonclinical samples (78% and 71%, respectively) and smaller overall female percentages (51% and 60%, respectively). In addition, earlier studies used weaker self-focus manipulations. Early studies primarily used exposure to a mirror (across all years, d = 0.21, n = 26), whereas later studies primarily used self-focus manipulations in which participants were instructed to focus on themselves (across all years, d = 0.75, n = 29). Nonetheless, some of the increase in effect size magnitude does not seem to be reducible to change in methods. More recent studies yielded stronger effect sizes even when using the same self-focus measures or manipulations. For example, studies that used the SCS prior to 1990 yielded a mean effect size of 0.49 using the same measure. The same was true of the mirror manipulation, which yielded a mean effect size of 0.11 before 1990 and a mean effect size of 0.97 after 1990. Thus, the larger effect for studies published after 1990 seems to be associated with a combination of the choice of population (more females and more clinical samples) and methodological changes.

### Study Qualities

**Publication Year**

For both the experimental and the correlational designs, the mean year of publication was 1990. For both types of designs, there was a significant effect for year of publication on mean effect size (correlational studies: \( b = 0.02, \beta = .22, p < .001 \); experimental studies: \( b = 0.03, \beta = .31, p < .001 \)), such that more recent studies were characterized by larger positive effect sizes. Because year of publication was a significant predictor of the magnitude of the effect size for both correlational and experimental designs, we examined possible explanatory factors of this effect by conducting an overall median split by year and comparing sample qualities between the earlier and the later studies. Studies published before 1990 included more nonclinical samples (78% and 71%, respectively) and smaller overall female percentages (51% and 60%, respectively). In addition, earlier studies used weaker self-focus manipulations. Early studies primarily used exposure to a mirror (across all years, \( d = 0.21, n = 26 \)), whereas later studies primarily used self-focus manipulations in which participants were instructed to focus on themselves (across all years, \( d = 0.75, n = 29 \)). Nonetheless, some of the increase in effect size magnitude does not seem to be reducible to change in methods. More recent studies yielded stronger effect sizes even when using the same self-focus measures or manipulations. For example, studies that used the SCS prior to 1990 yielded a mean effect size of 0.49 using the same measure. The same was true of the mirror manipulation, which yielded a mean effect size of 0.11 before 1990 and a mean effect size of 0.97 after 1990. Thus, the larger effect for studies published after 1990 seems to be associated with a combination of the choice of population (more females and more clinical samples) and methodological changes.

### Publication Source

To examine the existence of a publication bias in the data set, we compared the effect sizes of studies published in peer-reviewed journals with those obtained from dissertations and unpublished studies. Among the correlational studies, the effect sizes of published studies were not significantly higher than those obtained from unpublished studies (\( d = 0.50, n = 122, \) and \( d = 0.50, n = 18 \), respectively, \( Q_{ib}(1) = 6.23 \)). However, among the experimental studies, the effect sizes of published studies were significantly higher than those obtained from unpublished studies (\( d = 0.59, n = 46, \) and \( d = 0.22, n = 22 \), respectively, \( Q_{ib}(1) = 18.28 \)).

### Population Characteristics

**Percentage of Female Participants**

The percentage of female participants in the studies was hypothesized to predict the magnitude of the effect size for the relationship between SFA and NA. We hypothesized, on the basis of Nolen-Hoeksema’s (1987, 1991) response style theory, that as the proportion of females in the sample increased, the magnitude of the effect size would increase because women are more likely to use rumination rather than other types of self-focus. Only 106 correlational studies (71.14%) and 49 experimental studies (68.06%) provided information about the proportion of female participants. As predicted, a significant positive relationship was found between percentage of female participants and magnitude of effect size among the correlational studies (\( b = 0.05, \beta = .32, p < .001 \)). However, this relationship was not significant among the experimental studies (\( b = 0.02, \beta = .10, p < .16 \)). This nonsignificant result would be expected because both the male and female participants in the samples were exposed to the same experimental manipulation.

**Age of Participants**

The relationship between SFA and NA was also moderated by the age of the participants. The majority of studies examined adult samples. Among the correlational studies, only one study examined children; therefore, we compared effect sizes obtained from adult and adolescent samples. Larger effect sizes were obtained in studies that examined adults than in those that examined adolescents, \( Q_{ib}(1) = 43.53, p < .001 \). Among the experimental studies only one study examined children, whereas all other studies examined adult samples. We therefore did not compare these studies. Although the findings obtained from the correlational studies were consistent with our predictions, it is important to interpret these results with caution because of the relatively small number of studies examining children and adolescents (particularly children).

**Clinical Status of Participants**

The magnitude of the relationship between SFA and NA was significantly related to the clinical status of the participants, \( Q_{ib}(4) = 25.48, p < .001 \), for the correlational studies and, \( Q_{ib}(3) = 42.04, p < .001 \), for the experimental studies. Among the correlational studies, self-focus correlated with NA most strongly among clinical samples (\( d = 0.82, n = 5 \)), compared with subclinical (\( d = 0.43, n = 3 \)) and nonclinical (\( d = 0.50, n = 113 \)) samples. Post hoc tests pointed to significant differences between clinical and subclinical samples, \( \chi^2(4, N = 719) = 10.50, p < .03 \).
and between clinical and nonclinical samples, $\chi^2(4, N = 24,933) = 23.84, p < .001$. Findings based on the experimental studies indicate that participants in clinical ($d = 0.88, n = 3$) or subclinical ($d = 0.94, n = 17$) samples responded with higher levels of NA to self-focus manipulations than did participants in nonclinical samples ($d = 0.31, n = 50$). Post hoc tests pointed to significant differences between clinical and nonclinical samples, $\chi^2(4, N = 24,933) = 6.39, p < .09$, and between subclinical and nonclinical samples, $\chi^2(4, N = 719) = 34.98, p < .001$. To address the possibility that a high proportion of female participants in clinical samples contributed to higher magnitude of the effect size associated with clinical samples, we examined the relationship between the magnitude of the effect size and percentage of female participants within the clinical samples. The mean percentage of females in clinical samples was 55.2, which was lower than the overall mean percentage of females. In addition, among the clinical samples, the proportion of female participants was negatively correlated with the magnitude of the effect size ($r = -.44, p < .09$).

### Characteristics of Self-Focus

**Rumination**

Ruminative self-focus was hypothesized to yield stronger effect sizes than would other types of self-focus. This hypothesis was tested by comparing the mean effect size for ruminative self-focus with nonruminative self-focus. As predicted, rumination was more strongly related to NA than was nonruminative self-focus, $Q_d(1) = 307.49, p < .001$, for correlational studies and, $Q_d(1) = 24.53, p < .001$, for experimental studies (see Table 3). These results seem to support Nolen-Hoeksema’s (1987, 1991) assertion that rumination is a particularly maladaptive type of self-focus.

Several measurement issues need to be considered before completely endorsing Nolen-Hoeksema’s (1987, 1991) model. First, among the correlational studies, those that examined rumination used measures with overall higher reliability (mean $r = .88$), compared with those that examined nonruminative self-focus (mean $r = .79$). The higher reliability of rumination measures may have contributed to the strong relationship between measures of rumination and NA.

In addition, among the experimental studies, rumination studies typically instructed participants to focus on themselves (and particularly on their mood and the reasons and consequences for their mood), whereas the most common manipulation within the non-rumination studies was presentation of a mirror. Whereas instructing one to focus on oneself is an explicit self-focus manipulation, a mirror manipulation is an implicit one and thus might not be as strong a manipulation. In addition, rumination focuses directly on the emotion, whereas other global measures of self-focus may involve appearance, plans, personal characteristics, and other self-aspects that may not bear directly on affect.

### Private and Public Self-Focus

Results comparing the magnitude of the relationship between self-focus and NA for private and public self-focus are presented in Table 3. Across both study designs, the majority of studies examined private self-focus. The mean effect size for public self-focus was significantly higher than the mean effect size for private self-focus, $Q_d(1) = 8.43, p < .001$, among correlational studies. This difference was not statistically significant among the experimental studies, $Q_d(1) = 0.42, p < .51$. This effect, found among the correlational studies, should be considered with caution, as we later explore the interactive effect of focus of self-attention (private vs. public) and type of NA.

### Self-Focus Valence

We hypothesized that heightened SFA on negative self-aspects would be related to higher levels of NA but that heightened SFA

<table>
<thead>
<tr>
<th>Type of self-focus</th>
<th>Between-classes effect ($Q_B$)</th>
<th>$n$</th>
<th>Mean weighted effect size ($d$)</th>
<th>95% CI</th>
<th>Homogeneity within each class ($Q_{ah}$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlational studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rumination</td>
<td>307.49**</td>
<td>8</td>
<td>1.08</td>
<td>1.01/1.14</td>
<td>66.06**</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>138</td>
<td>0.46</td>
<td>0.44/0.48</td>
<td>923.49**</td>
</tr>
<tr>
<td>Private</td>
<td>8.43**</td>
<td>50</td>
<td>0.55</td>
<td>0.52/0.58</td>
<td>637.79**</td>
</tr>
<tr>
<td>Public</td>
<td></td>
<td>11</td>
<td>0.63</td>
<td>0.58/0.68</td>
<td>223.99</td>
</tr>
<tr>
<td>Experimental studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rumination</td>
<td>24.53**</td>
<td>23</td>
<td>0.76</td>
<td>0.61/0.91</td>
<td>67.48**</td>
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<tr>
<td>Other</td>
<td></td>
<td>49</td>
<td>0.31</td>
<td>0.21/0.41</td>
<td>144.36**</td>
</tr>
<tr>
<td>Private</td>
<td>0.42</td>
<td>53</td>
<td>0.50</td>
<td>0.39/0.60</td>
<td>170.04**</td>
</tr>
<tr>
<td>Public</td>
<td></td>
<td>2</td>
<td>0.65</td>
<td>0.19/1.11</td>
<td>0.04</td>
</tr>
</tbody>
</table>

*Note.* CI = confidence interval. **$p < .01$. 

Table 3

Categorical Model for Effect Sizes by Type of Self-Focused Attention
on positive self-aspects would be related to lower levels of NA. Unfortunately, very few studies assessed the valence of self-focus. Thus, to obtain sufficient effect sizes for each valence category (i.e., positive, negative, neutral), we used a shifting unit of analysis whereby we included all effect sizes of studies that measured self-focus valence and aggregated studies within this moderator to allow maximum independence of effect sizes (H. M. Cooper, 1998). Because there were no studies that experimentally manipulated positive self-focus, we report results obtained for correlational studies and for studies that manipulated NA and examined its effects on differentially valenced self-focus. Results of this comparison are presented in Table 4. The results were consistent across correlational and experimental designs. Whereas heightened attention to negative aspects of the self was strongly related to higher levels of NA (correlational studies: $d = 0.95$, $n = 10$; experimental studies: $d = 0.97$, $n = 1$), heightened attention to positive aspects of the self was related to lower levels of NA (correlational studies: $d = -0.26$, $n = 7$; experimental studies: $d = -0.86$, $n = 1$). Mean effect sizes for both negative and positive self-focus were significantly different from zero. These results support our initial hypothesis regarding the importance of valence of the self-aspects one attends to.

### The Context for Self-Focus

On the basis of Pyszczynski and Greenberg’s (1987) study, we expected that self-focus following a positive event (e.g., success) would be associated with lower levels of NA. To test this hypothesis, we compared studies in which participants experienced a positive event prior to or during the time they engaged in self-focus with those in which they experienced a negative event (e.g., a failure manipulation or a stressful event) prior to or during the time they engaged in self-focus.

The relationship between self-focus and NA was indeed contingent on the context in which self-focus took place (see Table 5). Among the correlational studies, heightened self-focus after a negative event was associated with NA ($d = 0.72$, $n = 20$). In contrast, heightened attention to the self after a positive event ($d = -0.24$, $n = 5$) was not associated with NA (although the mean effect size was negative, it was not significantly different from zero). The mean effect sizes associated with positive and negative contexts differed significantly, $\chi^2(1, N = 1,335) = 28.58$, $p < .001$. Similarly, among the experimental studies, heightened self-focus after a negative event was associated with NA ($d = 0.37$, $n = 29$). In contrast, heightened attention to the self after a positive event ($d = 0.06$, $n = 5$) was not associated with NA. As a result of the large uncertainty associated with the mean effect size for studies in the positive context group (confidence interval [CI] = $-0.32/0.44$), the mean effect sizes associated with positive and negative contexts did not differ significantly.

Unfortunately, only a small number of studies (correlational: $n = 25$; experimental: $n = 34$) examined the effects of context on the relationship between self-focus and NA, and only five in either design paradigm examined self-focus in a positive context. Despite the tentative nature of these results, we believe that they provide support for our initial prediction that self-focus would have negative affective consequences following negative events but not following positive events and that they contribute to the understanding of contextual factors related to self-focus.

### Characteristics of NA: The Specificity of the Relationship

As mentioned earlier, one of the important controversies in this field has been the specificity of the relationship between SFA and types of NA or of psychopathology (cf. Ingram, 1990b, 1991; Pyszczynski, Greenberg, et al., 1991). We tested the specificity of the relationship by comparing effect sizes from studies that used negative mood, depression, and anxiety as variables. By conducting this comparison, we attempted to answer two questions. First, is self-focus positively related to temporary negative affective states (i.e., mood) as well as to more long-lasting negative affectivity (i.e., depressive and anxiety symptomatology)? Second, is self-focus related to anxiety to the same degree as to depressive symptomatology? Because the experimental studies primarily examined temporary mood rather than depression and anxiety ($n = 64$ for mood, $n = 2$ for anxiety), analyses comparing mood, depression, and anxiety were conducted using the correlational studies only. Analyses conducted to answer the first question

---

### Table 4

<table>
<thead>
<tr>
<th>Self-focus valence</th>
<th>Between-classes effect ($Q_{mh}$)</th>
<th>$n$</th>
<th>Mean weighted effect size ($d$)</th>
<th>95% CI</th>
<th>Homogeneity within each class ($Q_{Wh}$)</th>
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</thead>
<tbody>
<tr>
<td>Correlational</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Positive</td>
<td>130.13**</td>
<td>7</td>
<td>-0.26</td>
<td>-0.43/-0.08</td>
<td>35.83**</td>
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<td>Negative</td>
<td></td>
<td>10</td>
<td>0.95</td>
<td>0.82/1.09</td>
<td>25.44**</td>
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<tr>
<td>Neutrual</td>
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<td>2</td>
<td>-0.23</td>
<td>-0.63/-0.18</td>
<td>2.82</td>
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<tr>
<td>Unspecified</td>
<td></td>
<td>138</td>
<td>0.50</td>
<td>0.49/0.52</td>
<td>1219.93**</td>
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<tr>
<td>Experimental (manipulated negative affect)</td>
<td>28.96**</td>
<td>1</td>
<td>-0.86</td>
<td>-1.40/-0.32</td>
<td>0.00</td>
</tr>
<tr>
<td>Positive</td>
<td></td>
<td>1</td>
<td>0.97</td>
<td>0.42/1.52</td>
<td>0.00</td>
</tr>
<tr>
<td>Negative</td>
<td></td>
<td>1</td>
<td>0.21</td>
<td>-0.31/0.73</td>
<td>0.00</td>
</tr>
<tr>
<td>Neutral</td>
<td></td>
<td>4</td>
<td>0.69</td>
<td>0.40/0.99</td>
<td>3.48</td>
</tr>
</tbody>
</table>

*Note.* Because of the small number of studies that assessed self-focus valence, these results are based on the shifting unit of analysis procedure and include some effect sizes that are nonindependent. CI = confidence interval.

**$p < .01$.**
indicated that SFA was positively related to both temporary mood states and depression and anxiety symptomatology. All three mean effect sizes were significantly different from zero (see Table 6). The effect size associated with negative mood was not significantly different from the effect size associated with depression and anxiety combined, $\hat{Q}_w(1) = 0.21$, ns, or from depression and anxiety alone, $\chi^2(2, N = 11,514) = 4.59, p < .10$, for depression and, $\chi^2(2, N = 13,319) = 5.50, p < .06$, for anxiety. Analyses conducted to answer the second question indicated that the relationship between depression and self-focus was stronger than the relationship between anxiety and self-focus, $\chi^2(2, N = 21,779) = 76.03, p < .001$.

As we noted above, anxiety is a broad term that subsumes several distinct groups of psychopathology symptoms. To further explore the specificity of the relationship between SFA and NA, we examined the relationship between self-focus and various anxiety conditions. Overall, generalized anxiety was most related to SFA ($d = 0.91$, $n = 7, \text{CI} = 0.76/1.06$). Social anxiety (the most commonly studied form of anxiety, with 40 of the 56 studies) was moderately positively associated with self-focus ($d = 0.41, n = 42, \text{CI} = 0.38/0.44$). Though the mean effect size associated with panic disorder ($d = 0.39, n = 2, \text{CI} = -0.01/0.79$) was very close to that of social anxiety, it aggregated only two studies and thus is highly unreliable.

It is important to examine whether the mean effect size for social anxiety was inflated by the frequent use of the Social Anxiety subscale of the SCS and the shared method variance between this subscale and the Private and Public Self-Consciousness subscales of this measure. Thus, we removed studies that used this subscale from the analysis. The resulting mean effect size for studies of social anxiety was higher than the originally obtained one ($d = 0.43, n = 13$). On the basis of these results, we can conclude that the mean effect size for social anxiety was not inflated by the use of the Social Anxiety subscale.

Interactive Effects of Types of Self-Focus and NA

In the previous sections, we explored the features and types of SFA that moderate the relationship between self-focus and NA as well as the features and classes of NA that moderate this relationship. However, a more complex type of moderation may be revealed when subtypes of SFA are considered in interaction with subtypes of NA. In this section, we turn to such an interactive comparison. Specifically, we predicted that private self-focus would be primarily associated with depression, whereas public self-focus would be primarily associated with anxiety. Two sets of comparisons were made to test this hypothesis. The first set compared studies exploring private versus public SFA within studies that examined the same NA variable (anxiety vs. depression). The second set compared studies exploring anxiety versus depression within studies that examined the same type of self-focus (private vs. public). To investigate these interactive effects, we conducted simple effects analyses. Because of the limited number of studies in the experimental data set that examined depression and anxiety.

### Table 5

**Categorical Model for Effect Sizes by Context of Self-Focused Attention (SFA)**

<table>
<thead>
<tr>
<th>Context of SFA</th>
<th>Between-classes effect ($Q_B$)</th>
<th>n</th>
<th>Mean weighted effect size ($d$)</th>
<th>95% CI</th>
<th>Homogeneity within each class ($Q_w$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlational</td>
<td>31.80**</td>
<td>1</td>
<td>-0.45</td>
<td>-1.26/0.36</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>-0.19</td>
<td>-0.57/0.18</td>
<td>13.12*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16</td>
<td>0.75</td>
<td>0.54/0.85</td>
<td>45.62**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>0.42</td>
<td>0.05/0.78</td>
<td>4.78</td>
</tr>
<tr>
<td>Experimental</td>
<td>3.55</td>
<td>3</td>
<td>0.03</td>
<td>-0.42/0.49</td>
<td>3.79</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>0.12</td>
<td>-0.58/0.83</td>
<td>2.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24</td>
<td>0.39</td>
<td>0.26/0.53</td>
<td>64.50**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>0.16</td>
<td>-0.24/0.56</td>
<td>5.33</td>
</tr>
</tbody>
</table>

**Note.** CI = confidence interval.  
* $p < .05$.  ** $p < .01$.

### Table 6

**Categorical Model for Effect Sizes by Type of Negative Affect**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Between-classes effect ($Q_B$)</th>
<th>n</th>
<th>Mean weighted effect size ($d$)</th>
<th>95% CI</th>
<th>Homogeneity within each class ($Q_w$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative mood</td>
<td>76.25**</td>
<td>15</td>
<td>0.52</td>
<td>0.45/0.60</td>
<td>50.36**</td>
</tr>
<tr>
<td>Depression</td>
<td></td>
<td>53</td>
<td>0.61</td>
<td>0.58/0.64</td>
<td>470.71**</td>
</tr>
<tr>
<td>Anxiety</td>
<td></td>
<td>63</td>
<td>0.43</td>
<td>0.40/0.46</td>
<td>659.41**</td>
</tr>
</tbody>
</table>

**Note.** CI = confidence interval.  
** $p < .01$.  ** $p < .001$.  ** $p < .05$.  ns = not significant.
we conducted these analyses using the correlational data set only. The results of these analyses are presented in Table 7.

Among studies that explored depression, those that examined private self-focus yielded a higher mean effect size ($d = 0.67, n = 34$) than the single effect size of the study that examined public self-focus ($d = 0.52, n = 1$). This difference was statistically significant, $Q_{(1)} = 11.26, p < .001$.

Among studies that explored anxiety, those that examined public self-focus yielded a higher mean effect size ($d = 0.74, n = 8$) than did those that examined private self-focus ($d = 0.08, n = 4$). This difference was statistically significant, $Q_{(1)} = 147.99, p < .001$.

Among studies that explored private self-focus, those that examined depression yielded a higher mean effect size ($d = 0.67, n = 34$) than did those that examined anxiety ($d = 0.08, n = 4$). This difference was statistically significant, $Q_{(1)} = 175.13, p < .001$.

Among studies that explored public self-focus, those that examined anxiety yielded a higher mean effect size ($d = 0.74, n = 8$) than did the single study that examined depression ($d = 0.52, n = 1$). This difference was statistically significant, $Q_{(1)} = 15.98, p < .001$.

Taken together, the results of these interaction analyses support our initial prediction whereby private self-focus is more strongly associated with depression and public self-focus is more strongly associated with anxiety. However, because anxiety is heterogeneous and because it subsumes various constructs, we examined the relationship of private and public self-focus with the various anxiety conditions. Unfortunately, the dearth of studies examining each of the anxiety constructs limited the possible analyses. We compared private and public self-focus among studies of social anxiety and those of generalized anxiety. Among studies of social anxiety, public self-focus yielded higher effect sizes ($d = 0.73, n = 6$) than did private self-focus ($d = -0.04, n = 1$), $\chi^2(1, N = 9,682) = 181.69, p < .001$. Among studies of generalized anxiety there was no difference between private and public self-focus ($d = 0.83, n = 2$ for private, $d = 0.81, n = 2$ for public).

### Direction of Causality

The direction of the causal relationship between SFA and NA was examined in this synthesis. Several possible causal pathways have been described for the relationship between NA and self-focus: (a) Self-focus leads to NA; (b) NA leads to self-focus; (c) self-focus leads to NA, which in turn leads to more self-focus; and (d) NA leads to self-focus, which in turn leads to more NA. Because of the nature of the available study designs, only the first two causal pathways could be contrasted in this meta-analysis.

We compared three groups of studies. The first group consisted of studies in which self-focus was manipulated and can provide support for the first causal pathway. The second group consisted of studies in which NA was manipulated and can provide support for the second causal pathway. The third group is one in which neither NA nor SFA was manipulated and cannot provide support to either of the possible causal pathways. For the purpose of this comparison, we combined these groups of studies across the data sets examined in this meta-analysis.

As mentioned earlier, most of the studies ($n = 149$) used correlational designs, a minority used self-focus manipulations ($n = 72$), and only five studies used a NA manipulation. Overall, all three groups of studies obtained moderate effect sizes that differed significantly from zero ($d = 0.51, 0.44$, and $0.55$, respectively). The effects associated with the three study designs did not differ significantly from each other, $Q_{(2)} = 2.29, ns$. These results seem to support the reciprocity of the relationship between self-focus and NA.

### Measurement-Related Questions

#### The SCS

Despite several critiques of the SCS, it has been the most frequently used measure of self-focus. Using the correlational data set, we compared the mean effect size for studies that used this measure with all other studies. The mean effect size for studies using the SCS (either its private or public subscales) was compared with the mean effect size of studies that used any other manipulation self-focus measure. The results indicated that the mean effect size associated with the SCS was lower than that of the other measures ($d = 0.47, n = 72$, and $d = 0.55, n = 77$, respectively, $Q_{(1)} = 22.00, p < .001$).

Some may argue that the reported overall mean effect size for the relationship between SFA and NA ($d = 0.51$) is inflated by the use of confounded measures of self-focus and NA. Such claims may be particularly relevant to the frequent use within the same study of the three subscales of the SCS: the Private and Public Self-Consciousness subscales on the one hand, and the Social Anxiety subscale on the other. To examine this argument, we compared the mean effect size obtained from studies that used the Social Anxiety subscale and either the private or the public subscale to the mean effect size of all other studies. The results suggest that use of the SCS did not inflate the overall mean effect size. In fact, the mean effect size obtained from studies that used this procedure ($d = 0.44, n = 23$) was significantly smaller than the mean effect size obtained from all other studies ($d = 0.52, n = 126$, $Q_{(1)} = 12.57, p < .001$).

#### Manipulation of Self-Focus

Approximately one third of the studies used a self-focus manipulation. A further examination of the effect of shared method variance of self-focus and NA on the overall mean effect size can be done by comparing the mean effect sizes obtained from studies

### Table 7

<table>
<thead>
<tr>
<th>Negative affect</th>
<th>Public</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>0.52</td>
<td>0.67</td>
</tr>
<tr>
<td>$n$</td>
<td>1</td>
<td>34</td>
</tr>
<tr>
<td>Anxiety</td>
<td>0.74</td>
<td>0.08</td>
</tr>
<tr>
<td>$n$</td>
<td>8</td>
<td>4</td>
</tr>
</tbody>
</table>
that used a manipulation of self-focus with those from studies that measured self-focus. The mean effect sizes for the two groups of studies were not significantly different from each other (manipulations: $d = 0.45, n = 72$; measures: $d = 0.51, n = 149$; $Q_{b1}(1) = 1.92, p < .17$). This finding supports the validity of the overall mean effect.

Several self-focus manipulations have been used over the past 3 decades. As a final measurement-related analysis, we compared the various self-focus manipulations to determine which ones yield stronger effects. The most common manipulations were seating participants in front of a mirror or instructing them to focus on themselves. The manipulations that yielded the strongest effects were the instruction to focus on oneself ($d = 0.75, n = 29$, CI = 0.62/0.87), giving a speech ($d = 0.62, n = 2$, CI = 0.16/1.08), and listening to one’s voice ($d = 0.37, n = 1$, CI = $-0.20/0.94$). The mirror ($d = 0.21, n = 26$, CI = 0.06/0.35) and the video ($d = 0.23, n = 11$, CI = 0.01/0.45) manipulations and writing an essay using I, me, or similar words ($d = 0.26, n = 3$, CI = $-0.005/0.53$) were far weaker.

**Discussion**

**Overview of the Results**

This meta-analysis revealed an overall moderate relationship ($d = 0.51$ for correlational designs and $d = 0.41$ for experimental designs) between SFA and NA. According to Cohen’s (1988) criteria, the strength of this relationship is moderate, that is, observable to the naked eye. This relationship was qualified by population-related factors as well as by factors associated with the definition and measurement of self-focus and of NA.

The analysis revealed that several population variables moderated the relationship between SFA and NA. One main variable was gender: Among the correlational studies, a stronger relationship between SFA and NA was associated with a higher percentage of female participants in a study. Another main variable was the clinical status of the participants: Samples from clinical populations yielded stronger effects than did samples of nonclinical populations.

In addition, several important characteristics of self-focus moderated the relationship between self-focus and NA. These included the self-aspect to which one attends, self-focus valence, and the context in which self-focus occurred. Rumination, self-focus on one’s negative mood, its causes and consequences, was more strongly related to NA than self-focus on other self-aspects. Focus on negative self-aspects was associated with higher NA, whereas focus on positive self-aspects was related to lower NA. Similarly, the context of self-focus affected the relationship between self-focus and NA. Self-focus after negative events was associated with NA, whereas self-focus after positive events was unrelated to NA.

We explored several aspects of the specificity of the relationship between self-focus and NA (i.e., unique interactive pattern of SFA and NA). All three forms of NA (depression, anxiety, and negative mood) were significantly related to self-focus. Depression was more strongly associated with self-focus than was overall anxiety. However, when specific anxiety conditions were examined, generalized anxiety was more strongly associated with self-focus than was depression, whereas the opposite was true for social anxiety.

Perhaps our most important finding relates to the interplay between public and private SFA and different forms of NA or psychopathology. Specifically, although overall NA is more strongly associated with public self-focus than with private self-focus, an interaction exists between the forms of NA and type of self-focus: Private self-focus is more strongly related to depression, whereas public self-focus is more strongly related to social anxiety.

Our findings have theoretical implications for models of personality, affect and cognition, and self-regulation, as well as practical measurement implications. We first review the implications of the findings for social cognition and for psychopathology research. We then discuss their measurement implications.

**Theoretical Implications**

**Social Cognition**

The multifaceted nature of self-focus. First and foremost, our results suggest that SFA should not be construed as a unitary construct. It is an umbrella term for focusing on various aspects of the self in various contexts. Specification of types of SFA is important because, as the meta-analysis results indicate, the affective implications of self-focus depend not only on the amount (excessive or not) of self-focus, but also, and maybe more importantly, on the type of self-focus. The findings of this meta-analysis suggest that individuals who engage in similar degrees of self-focus may experience different emotional consequences. For example, when individuals focus on private self-aspects, they are more likely to experience depression, whereas when they focus on public self-aspects, they are more likely to experience social anxiety. Similarly, focus on positive aspects of the self has different affective implications than focus on negative aspects.

In his seminal review, Ingram (1990b) described self-focus as a construct that varies along several dimensions (i.e., degree, duration, and flexibility). According to Ingram, NA and emotional disorders are associated with rigid or inflexible self-focus. In contrast, Pyszczynski, Greenberg, et al. (1991) noted that depressed individuals exhibit a particular maladaptive pattern of self-focusing: They focus on themselves following or during negative and stressful events but not after positive events. This pattern, then, demonstrates that self-focus in depressed individuals is not rigid and inflexible but rather varies by context. As contextual factors play an important role in the relationship of NA and self-focus, the role of rigidity in this relationship becomes unclear. Unfortunately, studies that directly examine the effects of rigidity on the relationship between self-focus and NA could not be located for this meta-analysis. In addition, being inflexible about self-focus may be maladaptive but is not, in and of itself, a sufficient condition for NA. Although intransigent self-focus may be associated with other psychopathological states, the results of this meta-analysis support the approach presented by Pyszczynski, Greenberg, et al., who suggested that even individuals who engage in rigid and inflexible self-focus may not experience NA if they focus their attention on positive self-aspects.

The multifaceted nature of SFA has implications not only for affective processes but also for other behavioral and cognitive
correlates and consequences. For example, self-focus has been shown to promote the suppression of stereotypes (e.g., Macrae, Bodenhausen, & Milne, 1998). It is also associated with increased social comparison (e.g., Duval, Duval, & Mullenis, 1992), a propensity for internal attributions (e.g., J. Greenberg, Pyszczynski, Burling, & Tibbs, 1992; Nadler, 1983), and task performance (e.g., Lewis & Lindner, 1997). Similar to the research on the affective correlates of SFA, research on these behavioral and cognitive correlates has largely ignored the multifaceted nature of SFA. As is true for the relationship between NA and SFA, contextual factors and population characteristics may lead to very different conclusions regarding the relationship between these various constructs and SFA. Thus, the results of this meta-analysis cast doubt on the generalizability of previous findings regarding the relationship between SFA and nonaffective constructs.

In sum, considering self-focus as a multifaceted construct would facilitate a comprehensive examination of the intricate causal relationships and processes between self-focus and affective, cognitive, and behavioral constructs. Several of the results of the meta-analysis highlight the importance of specifying factors of self-focus that moderate its relationship with NA. Given these findings, we find it imperative that researchers take a multifaceted contextualized approach to the study of SFA.

Self-regulation. SFA is thought to play a major role in self-regulatory processes. Carver and Scheier (e.g., 1998) suggested that self-focus occurs during the testing phase of the self-regulatory process. In this phase, people compare their current standing with a particular salient self-standard and determine whether they are meeting this standard. When individuals recognize that they fall short of the standard, they typically make efforts to meet the standard. When the standard is met, this self-regulatory process ends. However, when progress toward the standard is slow or the discrepancy between the current standing and the desired state seems impossible to bridge, NA ensues. Carver and Scheier (1998) also discussed the bidirectionality of the relationship between SFA and NA and the role NA plays in drawing attention to the self. Similarly, Morris (1999) pointed out that negative mood serves as an indicator that something is wrong and thus leads to self-focus in an effort to address the problem. This approach is consistent with the mood-as-information theory, which contends that people use mood cues as important information that guides them in decision making and attitude formation (Schwartz & Clore, 1996).

Our comparison of studies examining the valence of self-focus revealed that NA occurred after participants focused on their deficiencies but not when they focused on their positive aspects. In fact, when participants did not fall short of their standard, the relationship between self-focus and NA was negative. In addition, our examination of the causal direction of the relationship between SFA and NA revealed a reciprocal relationship in which SFA leads to NA and NA leads to SFA. Taken together, these results contribute to the understanding of the role of SFA in self-regulatory processes. They point to the cyclical nature of the relationship between SFA and NA that is characteristic of self-regulatory processes, and they emphasize the importance of discrepancies from a standard to the understanding of the relationship between NA and SFA.

In summary, the results of this meta-analysis support previous calls (Carver & Scheier, 1998; Pyszczynski, Greenberg, et al., 1991) regarding the necessity of understanding SFA as part of an overall self-regulatory process. According to these theories, attention to the self interacts with other cognitive processes and contextual factors to differentially impact NA. Indeed, the results of our review lead us to conclude that it is not SFA, in and of itself, that is related to NA. Instead, it is the role SFA plays as part of a self-regulatory process that underlies the association with NA.

Temporary and chronic sources of variability in self-focus. Psychological states have two sources of variability: temporary and chronic (Higgins, 1999). Various cognitive structures and processes (e.g., knowledge activation and self-regulation) can vary as a function of both person and situation factors such that a “general principles” perspective points to a different research enterprise than the traditional perspectives on personality. Rather than a concern with personality principles of psychology that provide unique “person” explanations for people’s psychological states, general principles that explain variation across both persons and situations would be sought. (Higgins, 1999, p. 85)

Our results demonstrate how this general principles approach can be exemplified in the study of SFA. Specifically, we found that studies that manipulated self-focus had effect sizes that were moderate and comparable to studies that measured self-focus as an individual difference variable. This finding suggests that the relationship between self-focus and NA occurs when self-focus is construed as either a temporary (typically manipulated) or a chronic state (measured). Thus, a full understanding of the construct of SFA and its relationship to other psychological states requires synthesis of information that is obtained from both person and situation sources of variability. Individuals may be characterized as high on the “trait” of self-consciousness or can be induced to experience temporary states of heightened self-focus. Higgins (1999) described two processes by which situation and person sources of variability work together; they may compensate for each other or inhibit each other. These sources of variability are said to compensate for each other when increased situational accessibility makes up for low chronic accessibility. On the other hand, these sources of variability are said to inhibit each other when a situational framing inhibits the person’s chronic predisposition. Compensation within the context of self-focus may occur when a non-self-conscious person is exposed to a self-focus induction (e.g., a mirror, giving a speech, etc.) and acts as a “highly self-conscious” individual. Inhibition occurs when a highly self-conscious person is situationally distracted from focusing on the self and functions as a low self-conscious individual. Further exploration of temporary and chronic sources of variability in SFA and NA is needed to better understand the interactive effects of compensatory and inhibitory processes in self-focus.

In sum, the results of this meta-analysis bear relevance to several key issues in social cognition. First, we have demonstrated that SFA is a multifaceted construct. Careful examination of SFA requires addressing contextual factors that influence the process of self-focusing as well as its emotional, cognitive, and behavioral concomitants and consequences. In addition, examination of SFA also requires addressing the type of self-focus in which one engages, or the aspects of the self to which one attends. Relatedly,
SFA and the relationship between SFA and affective experience should be examined as part of a more general process of self-regulation in which reciprocal relationships between these processes take place over time. Finally, we have demonstrated both “person” and “situation” sources of variability in SFA. The interactive effects of these sources of variability on SFA and on related affective processes seem to be the next step in the exploration of SFA.

**Psychopathology**

The results of this meta-analysis indicate that SFA is associated with negative mood, anxiety, and depression. This general finding partially supports Ingram’s (1990b) notion of the generalizability of the relationship between SFA and NA. Although depression was more strongly associated with SFA than was overall anxiety (combined across various anxiety conditions), when examined separately, generalized anxiety was more strongly associated with self-focus than was depression. Thus, these results do not seem to support views that afford depression a privileged relationship with SFA (e.g., Pyszczynski & Greenberg’s, 1987, model).

The overall relationship between SFA and depression and anxiety was qualified by a pattern of relationships between private and public self-focus and depression and anxiety. There was a strong relationship between private SFA and depression and between public SFA and anxiety, particularly social anxiety. The relationship between depression and public SFA was somewhat weaker, whereas the relationship between social anxiety and private self-focus was significantly weaker. For generalized anxiety, there was no difference between private and public self-focus, and the effect sizes associated with generalized anxiety were higher than those associated with either depression, negative mood, or other forms of anxiety.

In the following discussion of this pattern of results, we address several questions. First, we address possible explanations for the strong association between anxiety (primarily generalized and social anxiety) and public SFA and between depression and private SFA. Second, we address possible explanations for the existence of a relationship between depression and public SFA and between anxiety and private SFA. Last, we address the difference in the magnitude of the relationship between depression and public SFA and social anxiety and private SFA and possible explanations for finding a relatively smaller relationship between social anxiety and private SFA.

The relationship between anxiety and public self-focus and depression and private self-focus. The strong association between anxiety and public SFA and between depression and private SFA is consistent with our initial hypothesis regarding the interactive effects of type of self-focus and type of NA, based on self-discrepancy theory (Higgins, 1987, 1999). According to this theory, a discrepancy between the ideal self and the actual self leads to depression, whereas a discrepancy between the ought self and the actual self leads to anxiety (e.g., Higgins 1987, 1999). As attention to one’s ideal-self guide involves private self-focus and attention to one’s ought-self guide involves public self-focus, a strong relationship between private self-focus and depression and between public self-focus and anxiety is not surprising.

The relationship between depression and public self-focus and anxiety and private self-focus. The moderate relationship between depression and public self-focus and the smaller relationship between overall anxiety and private self-focus may seem inconsistent with our original prediction of the specificity of the relationship between affect and SFA. Several measurement factors as well as diagnostic and classification issues may contribute to the existence of these relationships. First, self-report measures of depression and anxiety often include very similar items. Measures such as the BDI (Beck, 1967) have often been described as nonspecific and have been associated with a wide range of pathological conditions, particularly in college student samples (e.g., Feldman, 1993; Gotlib, 1984; Kendall, Hollon, Beck, Hammen, & Ingram, 1987; Kendall & Watson, 1989; D. Watson, Clark, & Harkness, 1994). This nonspecificity implies that individuals who score high on a nonspecific depression measure are likely to experience (and report on this measure) symptoms of anxiety and that individuals who score high on an anxiety measure may actually report symptoms of depression that overlap with their anxiety symptoms. Thus, because these self-report measures are not measuring “pure” depression and anxiety, the relationship between depression and public SFA and between anxiety and private SFA may be attributed to “contamination” that is due to shared item content.

Second, shared item content is a direct result of symptom co-occurrence. The key symptoms that define both depression and anxiety disorders often co-occur. Although all anxiety and mood disorders have unique symptoms, they also share many symptoms. In fact, the current diagnostic nosology (i.e., DSM–IV) defines depressive and anxiety disorders using shared diagnostic criteria. For example, depression and generalized anxiety disorders have a high symptom overlap. The diagnostic criteria for both disorders include such symptoms as irritability, difficulty concentrating, and sleep disturbance. Thus, the correlations between anxiety and private SFA and depression and public SFA may in fact be due to shared depression–anxiety variance rather than a real relationship between these constructs. This seems particularly true for the relationship between anxiety and private self-focus. Our examination of the relationship between private self-focus and types of anxiety revealed that whereas generalized anxiety was strongly related to private self-focus, social anxiety was unrelated to private self-focus. Thus, the overall relationship between private self-focus and anxiety was driven by generalized anxiety. This finding is consistent with the growing evidence that generalized anxiety disorder is more closely linked to depression than to other anxiety disorders and that it is genetically indistinguishable from depression (Kendler, 1996; Kendler et al., 1995; Mineka, Watson, & Clark, 1998).

The difference in magnitude of the relationship between depression and public self-focus and anxiety and private self-focus. As mentioned earlier, the relationship between depression and public self-focus was significantly stronger than the relationship between overall anxiety and private self-focus. This discrepancy may be explained by comorbidity patterns of depressive and anxiety disorders. Numerous clinical and epidemiological studies consistently point to a large comorbidity between depression and anxiety (for a
review, see Mineka et al., 1998). Generally, among patients diagnosed with depression, there is a high likelihood of a lifetime diagnosis of any anxiety disorder. Similarly, among patients diagnosed with an anxiety disorder, there is a high likelihood of a depressive disorder (for a review, see Clark, 1989).

Thus, the evidence suggests that comorbidity of depression and anxiety is bidirectional. Despite this bidirectionality, the comorbidity between depression and anxiety is not symmetric. Pure anxiety is more common than is pure depression (e.g., Alloy, Kelly, Mineka, & Clements, 1990). The rarity of pure depression relative to pure anxiety might be explained by findings regarding the sequential relationship of these disorders; both within a single episode and across the life span, anxiety disorders typically precede the development of depression (Alloy et al., 1990; Schatzberg, Samson, Rothschild, Bond, & Regier, 1998). As anxiety precedes depression, individuals diagnosed with a mood disorder are likely to have already been diagnosed with an anxiety disorder, leading to the relative rarity of pure depression.

Across the studies examined in this meta-analysis, we found a moderate effect size for the relationship between depression and public SFA (but still smaller than that found for the relationships between private SFA and depression and for public SFA and anxiety). In contrast, we found a significantly weaker relationship between overall anxiety and private self-focus (though when examined separately, generalized anxiety was strongly related to private self-focus). This pattern of results fits the clinical comorbidity data we presented earlier. If anxiety is associated with public self-focus, then the moderate relationship between depression and public self-focus can be explained by the fact that depressed people are often anxious. This relationship may be due to anxiety symptoms that co-occur with depression. In contrast, as depression is associated with private self-focus, the weak relationship between private self-focus and social anxiety can be attributed to the relative rarity of depressive symptoms that co-occur with an anxiety disorder. That is, the effect size for the relationship between anxiety and private self-focus is smaller because the likelihood of experiencing depression while being anxious is significantly smaller than is the reverse.

Studies that examined depression are likely to have assessed participants who were simultaneously suffering from anxiety symptoms. Because anxiety is strongly related to public SFA, participants in these studies would be expected to report high levels of public self-focus. In contrast, because pure anxiety is more common than pure depression, studies that examined anxiety are less likely to have assessed participants who were simultaneously suffering from depression. That we found a strong relationship between generalized anxiety and private self-focus but no relationship between social anxiety and private self-focus provides support for this assertion, as recent studies have demonstrated that generalized anxiety disorder is more commonly comorbid with depression than is social phobia (Kendler et al., 1995).

Rumination. Several of the findings in this meta-analysis can be understood in light of the response style theory (Nolen-Hoeksema, 1987, 1991). First, we found that rumination was more strongly related to NA than were other types of SFA. This finding is not surprising because rumination increases individuals’ access to negative cognitions about themselves or their environments, whereas nonruminative self-focus does not necessarily involve attention to one’s mood and does not constrain one to focus on negative cognitions.

Another finding in line with the response style theory is the relationship between percentage of females in the sample and the strength of the association between SFA and NA. Higher percentages of females in a sample were related to more positive effect sizes. Nolen-Hoeksema (1987, 1991) has used response style theory to explain the striking difference in prevalence rate of depression between men and women. She argued that this gap could be explained by the different styles typically used by the two genders in coping with NA. Several studies have shown that in response to depressed mood, men engage in active behaviors designed to relieve the negative mood by distraction. Women, on the other hand, tend to engage in more passive behaviors that are designed to focus their attention on the negative mood (Kleinke, Staneski, & Mason, 1982; Nolen-Hoeksema, Larson, & Grayson, 1999). This coping mechanism of focusing on NA exacerbates the affect (Nolen-Hoeksema et al., 1993). The results of this meta-analysis suggest that the relationship between self-focus and NA is stronger for women than it is for men (or for studies with a higher percentage of women). That is, these results may indicate that when women engage in self-focus, they do so in a more maladaptive manner than when men engage in self-focus. Further research examining the specific cognitive patterns that men and women engage in is needed to further illuminate this issue.

Finally, a third finding in line with Nolen-Hoeksema’s (1987, 1991) response style theory was the stronger relationship between SFA and NA in samples of clinical or subclinical populations. When considered with previously reported findings, it seems that SFA is most strongly related to increased negative mood in people who already experience significant levels of NA. According to the response style theory, rumination does not necessarily lead to depression. In a study of depressed and nondepressed participants, Nolen-Hoeksema and Morrow (1993) demonstrated that rumination leads to significant mood changes only for depressed but not for nondepressed participants. This finding may provide some support for the idea of a cyclical relationship between SFA and NA. It seems that people who are already distressed may tend to focus more on themselves. When doing so while experiencing NA, they are likely to attend to negative aspects of themselves and thus become more distressed.

Measurement Implications

Self-Focus as an Individual Difference Trait

On the basis of this meta-analysis, we offer several suggestions for the measurement of SFA. Many studies reviewed in this meta-analysis used the SCS or a modified version of it as a measure of SFA (89 effect sizes out of 226 were computed for the SCS). Although the SCS is one of the only scales to make the distinction between private and public SFA, there are several significant problems associated with its use. The SCS has relatively low reliability (alphas range from about .73 to .84), and it does not assess the valence of the self-focus or contextual factors. The relationships among the subscales of the SCS are already well established, as are the correlations between this scale and common NA measures (e.g., BDI). Thus, we use this opportunity to suggest
researchers turn to developing alternative measurement tools with high reliability and validity rather than replicate these well-established findings.

Several alternative measures of self-focus do assess factors neglected by the SCS. On the basis of our findings, we recommend using measures such as thought-listing tasks (e.g., Sedikides, 1992b), essays, diaries, or interviews (e.g., Nolen-Hoeksema, McBride, & Larson, 1997; Wood, Saltzberg, Neale, Stone, & Rachmiel, 1990). These measures examine a specific type of self-focus (e.g., the Rumination scale; Nolen-Hoeksema et al., 1993) and allow the researcher to code for valence, domain, and contextual factors.

**Self-Focus as a Manipulated State**

Some studies reviewed in this meta-analysis used experimental designs in which SFA was manipulated in one of several ways. Unfortunately, the majority of studies that manipulated self-focus failed to report manipulation checks that would specify the quality of the manipulations used. The effect sizes associated with some of the manipulations were relatively small. This may be a result of using ineffective manipulations. Many studies used the mirror manipulation, which yields relatively small effect sizes. This may be the result of being ineffective in inducing self-focus or being effective in inducing self-focus, but inducing self-focus that is irrelevant to the predicted affective consequence. Unfortunately, there were not consistent data on the effectiveness of the manipulations, and thus these options could not be further explored.

**Causality**

As we outlined above, different theories have presented competing predictions regarding the causal direction of the relationship between SFA and NA. In this meta-analysis, we attempted to shed some light on this question by contrasting studies in which SFA was manipulated with those in which NA was manipulated. Unfortunately, only a small group of studies in which NA was manipulated were located for inclusion in this meta-analysis. As a result, inferences regarding the direction of causality must be made with caution. That said, studies that manipulated NA did not differ from studies that manipulated SFA in their mean effect sizes. This finding suggests the coexistence of two reciprocal causal pathways. Over time, a cyclical relationship is likely to unfold in which self-focus leads to NA which in turn leads to more self-focus. This relationship may also begin with the experience of NA.

A limitation of the comparison of studies that manipulate self-focus and those that manipulate NA is that conclusions regarding the causal relationship between these variables is only applicable to negative mood but not to psychological disorders. More studies that examine the relationship of self-focus and NA over time are needed to explore this cyclical pattern. One promising direction may be a longitudinal examination (e.g., diary studies) of the reciprocal relationship between SFA and NA. Such an approach may also afford an examination of depression and anxiety in addition to negative mood.

**Limitations**

Although this meta-analysis has provided a useful summary of a wide range of data from a number of different studies, it is important to note its limitations. First, several studies that examined the relationship between SFA and NA did so through a multiple regression design. These studies cannot be included in a meta-analytic study. However, this group of studies represented a small minority of the studies, and thus its absence from this meta-analysis does not seem to strongly influence our overview of the literature.

Second, many of the studies in this literature used correlational designs, which are mute with regard to the exact processes that underlie the relationship between self-focus and NA. More frequent use of experimental designs would allow better examination of the causal links between SFA and affective, cognitive, and behavioral antecedents and consequences of self-focus.

Third, the small number of studies that examined complex interactive effects on the relationship between various manifestations of self-focus and NA limited our ability to include these important effects in our analyses or to draw firm conclusions regarding effects that were included in the analyses despite the small number of studies on which they were based. For example, although we were able to examine the overall effects of context (self-focus following positive vs. negative events) on the relationship between self-focus and NA, we were unable to further specify whether these contextual factors have differential effects based on the population, the focus of self attention (e.g., private vs. public), or the form of NA involved.

Fourth, in this meta-analysis we chose to focus on the relationship between SFA and NA. However, there is some evidence that SFA is related to intensification of affective states in general (including positive affect; see, e.g., Salovey, 1992). Only a handful of studies have examined the relationship of SFA and positive affect, and the results are inconsistent (Sedikides, 1992b; Wood, Saltzberg, & Goldsamt, 1990). Future investigations should contrast the unique relationship between NA and SFA with a general affect intensification effect of SFA.

This meta-analysis did not address the relationship between SFA and other cognitive factors related to NA (e.g., attribution, memory, and judgment). Clearly, these are important venues for future research, but they were beyond the scope of this analysis.

Finally, the vast majority of the studies included in this meta-analysis were conducted in the United States. Only a handful of studies examined the relationship between SFA and NA in non-Western societies. For the most part, these studies measured SFA using a translation of the SCS (except for Sakamoto, 1998). Recent investigations of cultural differences in self-perceptions (Kitayama & Markus, 1999) have noted that in Asian cultures, individuals often respond critically to themselves. As a consequence, in these cultures, the process of SFA may relate differently to affective experience. The study of SFA should be broadened to include non-Western cultures.

**Conclusions and Future Directions**

The main finding of this analysis is that SFA should not be described or understood as a unitary construct. SFA has been used as a general term for focusing on various aspects of the self in a range of contexts. For instance, focusing on public aspects of the self was related to different types of NA (depression and anxiety), whereas focusing on private aspects of the self was found to be
relatively unrelated to anxiety. Another major finding of this synthesis is that in certain contexts, self-focus was not associated with NA. We have shown that focus on positive aspects of the self usually carries a different affective implication than does focus on negative aspects of the self. Whereas focusing on negative self-aspects is associated with increased NA, focusing on positive self-aspects is related to a decrease in NA. Similarly, the affective implications of self-focus also depend on the specific context in which people engage in self-focus. Focusing on oneself after a failure experience is associated with significantly different affective responses than is focusing on oneself after a success. Consistent with the valence and context effects is the finding that SFA constitutes quite divergent processes when carried out by different populations (e.g., clinical vs. nonclinical, women vs. men). Clinically depressed or anxious individuals are more adversely affected by SFA. Similarly, women are also more adversely affected by SFA than are men, a difference that is probably due to the tendency of women to engage in ruminative SFA.

One of the primary benefits of a systematic review of this sort is its ability to point out less-studied “cells” in the larger design of the reviewed domain, subsequently highlighting worthwhile venues for further research. One such venue includes a thorough examination of the relationship between self-focus and positive affect. For instance, under some conditions self-focus may promote a better understanding of the self or a better articulation of self-schemata (e.g., Nasby, 1989). An improved grasp of this relationship would contribute to the understanding of the specificity of particular types of self-focus to NA.

An additional goal should be achieving a better understanding of the specificity of self-focus to NA, an understanding that can be obtained in several ways. First, we believe future research should involve a more complete examination of the conditions under which self-focus is maladaptive. Although it is known that focus on oneself after a negative event is maladaptive, other aspects of the context such as controllability and duration of precipitating events, as well as the interaction of these conditions, should be explored. Second, the paucity of studies investigating the relationship between public self-focus and depression limits conclusions regarding the specificity of private and public self-focus to depression and anxiety. Thus, we hope to see a more thorough evaluation of this relationship. Third, a large number of the studies reviewed herein failed to distinguish between comorbid depression and anxiety, which makes it difficult to examine the specificity of the relationship between types of SFA and NA. We hope that future researchers will use measures better suited to distinguish between the unique and the shared components of depression and anxiety (e.g., Mood and Anxiety Symptom Questionnaire; P. J. Watson, Milliron, & Morris, 1995). A fourth worthwhile venue for further exploration concerns other cognitive processes that may mediate the relationship between self-focus and NA. For example, self-focus has been related to a depressive and maladaptive attributional style (e.g., J. Greenberg et al., 1992). The relationship between various types of self-focus and these cognitive processes that are characteristic of NA should be examined.

As we indicated earlier, our results strongly support an examination of SFA as a crucial component of self-regulatory processes. This venue for future research, namely, the relationship between the SFA process on the one hand and other components of the self-regulatory process on the other, has received only limited attention. Other relevant components of the self-regulatory process may include activities directed toward discrepancy reduction, evaluation of the rate of progress, and evaluation of the likelihood of discrepancy reduction. Examination of the reciprocal relationship between self-focus and NA over time may promote the understanding of the role of SFA in self-regulation.

Finally, despite the strong interest of many researchers in the role SFA plays in psychopathology, only a small minority of the studies in this meta-analysis actually examined diagnosable depression and anxiety conditions. It is unfortunate that conclusions are made about clinical populations, considering the scarcity of research actually using clinical populations. Thus, another venue for future research should be the systematic examination of the SFA process within affective psychopathology, as well as a careful examination of the boundary conditions (e.g., context, valence, and subtype of SFA) for the role of SFA in these disorders.

We embarked on this systematic review with the hope of clarifying an important psychological phenomenon that lies at the seam of social cognition, personality psychology, and psychopathology. Although different readers may focus more of their attention on particular aspects of this review and less on others, our intention has been to provide both a systematic review and a theoretical synthesis. SFA, both as a state and as a process, is a key component of cognitive models of personality and psychopathology. Our hope is that, with this review, we not only serve those seeking an understanding of self-focus and its implications but also contribute to the continued development of the social–cognitive perspective on normal and abnormal functioning.

References

References marked with an asterisk indicate studies included in the meta-analysis.


Self-focused attention and negative affect


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