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Narcissism and the Use of Personal Pronouns Revisited

Angela L. Carey
University of Arizona

Melanie S. Brucks
Stanford University

Albrecht C. P. Küfner
University of Münster

Nicholas S. Holtzman
Georgia Southern University

Fenne große Deters
Free University of Berlin

Mitja D. Back
University of Münster

M. Brent Donnellan
Texas A & M University

James W. Pennebaker
University of Texas at Austin

Matthias R. Mehl
University of Arizona

Among both laypersons and researchers, extensive use of first-person singular pronouns (i.e., I-talk) is considered a face-valid linguistic marker of narcissism. However, the assumed relation between narcissism and I-talk has yet to be subjected to a strong empirical test. Accordingly, we conducted a large-scale (N = 4,811), multisite (5 labs), multimeasure (5 narcissism measures) and dual-language (English and German) investigation to quantify how strongly narcissism is related to using more first-person singular pronouns across different theoretically relevant communication contexts (identity-related, personal, impersonal, private, public, and stream-of-consciousness tasks). Overall (r = .02, 95% CI [−.02, .04]) and within the sampled contexts, narcissism was unrelated to use of first-person singular pronouns (total, subjective, objective, and possessive). This consistent near-zero effect has important implications for making inferences about narcissism from pronoun use and prompts questions about why I-talk tends to be strongly perceived as an indicator of narcissism in the absence of an underlying actual association between the 2 variables.

Keywords: narcissism, personality, language, text analysis, LIWC, replication

"All I can hear I me mine, I me mine, I me mine,

Even those tears I me mine, I me mine, I me mine,

No-one's frightened of playing it,

Everyone's saying it,

Flowing more freely than wine,

All through your life I me mine."

—George Harrison of The Beatles (1970)

In the lyrics of their iconic song "I, me, mine," The Beatles lament an excessive self-focus which they equate with an overuse of I-talk, or the use of first-person singular pronouns. Excessive self-focus is thought to form the core of narcissism, an important psychological phenomenon with broad interpersonal consequences (e.g., Back, Schmukle, Egloff, 2010; Bushman & Baumeister, 1998; Twenge & Campbell, 2003). Although a connection between narcissism and I-talk is highly intuitive, the empirical basis for this association is surprisingly weak. The original evidence comes from a study that Raskin and Shaw (1988) published under the title "Narcissism and the Use of Personal Pronouns." Based on a sample of 48 participants, their data yielded a positive correlation of .26.[1] The goal of the current

Angela L. Carey, Department of Psychology, University of Arizona; Melanie S. Brucks, Department of Marketing, Stanford University; Albrecht C. P. Küfner, Department of Psychology, University of Münster; Nicholas S. Holtzman, Department of Psychology, Georgia Southern University; Fenne große Deters, Department of Education and Psychology, Free University of Berlin; Mitja D. Back, Department of Psychology, University of Münster; M. Brent Donnellan, Department of Psychology, Texas A&M University; James W. Pennebaker, Department of Psychology, University of Texas at Austin; Matthias R. Mehl, Department of Psychology, University of Arizona.

James W. Pennebaker is a co-owner of the LIWC software. All profits from the sale of the LIWC are donated to the University of Texas at Austin.

Correspondence concerning this article should be addressed to Angela L. Carey or Matthias R. Mehl, Department of Psychology, University of Arizona, P.O. Box 210068, Tucson, AZ 25721. E-mail: acarey@email.arizona.edu or mehl@email.arizona.edu

[1] In Table 2 (p. 400), this correlation is flagged as statistically significant, $p < .05$. When we computed the 95% confidence interval for a r = .26 correlation, it included zero ([−.03; .51]). It appears that the authors used a one-tailed significance test (one-tailed p value = .04; two-tailed p value = .07). Therefore, by conventional standards, the reported effect would be considered a trend-level association.

project was to evaluate the evidence for the link between I-talk and narcissism on a large scale by pooling data across multiple labs, language tasks, and narcissism measures to generate a more precise understanding of the connection between narcissism and the use of first-person singular pronouns.

According to the American Psychiatric Association (2013), clinical narcissism involves a pervasive pattern of grandiosity, self-focus, and self-importance. An extensive focus on oneself is clear in the definition of subclinical narcissism as well; specifically, subclinical narcissism involves sustained efforts to maintain a grandiose self-view (Morf & Rhodewalt, 2001), high levels of self-esteem (e.g., Raskin, Novacek, & Hogan, 1991), and unrealistically positive beliefs about the self (Campbell, Rudich, & Sedikides, 2002; John & Robins, 1994; Robins & Beer, 2001). Consistent with this idea, measures of narcissism tend to include multiple items to capture an extensive self-focus. For example, the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988), the most extensively validated and widely used measure of subclinical narcissism, tests whether participants endorse statements such as "I like to be the center of attention," "I think I am a special person," and "I like to look at myself in the mirror." Similarly, the Dirty Dozen (Jonason & Webster, 2010), a more recently developed yet already frequently used narcissism measure, asks participants to rate how much they agree with statements such as "I tend to want others to pay attention to me," "I tend to have a sense of self-importance," and "I tend to be ego-centric."

Given that excessive self-focus is central to narcissism, it seems reasonable that narcissism should be manifested in self-referential language use—as in the song "I, me, mine." Most commonly, self-referential language use is operationalized as *I-talk*, or the spontaneous use of first-person singular personal pronouns (Pennebaker, Mehl, & Niederhoffer, 2003; Tausczik & Pennebaker, 2010; Weintraub, 1989). Indeed, the link between narcissism and I-talk is so intuitive that, among laypersons, it is frequently considered self-evident (Mark Liberman's *Language Log* provides a summary across multiple blog posts; e.g., entries on 07/13/2009, 06/27/2011, 08/29/2012, 10/14/2014; http://languagelog.ldc.upenn.edu/nll/?author=2).

Prior Research on I-Talk as a Marker of Narcissism

In line with the strong lay perception, I-talk has repeatedly been used as a way to operationalize narcissistic self-focus in research studies (Ireland & Mehl, 2014). For example, DeWall and colleagues investigated how narcissists communicate information about themselves in social media (DeWall, Buffardi, Bonser, & Campbell, 2011). Across two studies, narcissistic individuals who failed to use first-person singular pronouns, an assumed implicit marker of narcissistic self-focus, compensated through utilizing alternative attention-grabbing self-presentation strategies such as posting provocative photos or using more profanity and verbal aggression in their online self-descriptions. Another study tracked linguistic changes in popular U.S. song lyrics between 1980 and 2007 and interpreted the identified increase in first-person singular pronouns as an increase in self-focus that mirrors the increase in NPI scores that the researchers had found in other studies over the corresponding time period (DeWall, Pond, Campbell, & Twenge, 2011).

Two other recent studies (Chatterjee & Hambrick, 2007; Aktas, de Bodt, Bollaert, & Roll, 2012) used I-talk to examine narcissism in CEOs. Arguing that self-reports of their narcissistic tendencies might not be trustworthy, the authors used the indirect assessment strategy of tracking CEOs' first-person singular pronoun use in interviews and annual reports. They found that narcissistic CEOs tend to gravitate toward bold, attention-grabbing actions that can bring about big wins or big losses for companies (Chatterjee & Hambrick, 2007), and that the effects of CEO narcissism can be positive for the company, but are context dependent (Aktas et al., 2012). The implications of this line of research are far-reaching, but of course they hinge on whether first-person pronoun use is, in fact, a valid marker of narcissism.

With both laypersons and researchers having a tendency to relate I-talk with narcissism, the question emerges, how solid of a scientific basis exists in favor of this association. Apart from selected qualitative approaches (Pennebaker et al., 2003), Raskin and Shaw's (1988) study was the first study to empirically test this link. In their study, 48 undergraduate participants were recorded as they talked for 5 minutes about any topic of their choosing. Upon completion of this unconstrained speaking task, they completed the Narcissistic Personality Inventory (NPI). Consistent with the intuitive narcissism–I-talk link, participants' NPI scores correlated positively with their spontaneous use of first-person singular (r = .26). This study is consensually considered the measurement foundation for using I-talk as a marker of narcissism.

As it stands, studies have not consistently replicated the original Raskin and Shaw (1988) findings. For example, Holtzman, Vazire, and Mehl (2010) found no reliable association between narcissism and I-talk using a larger sample and a more naturalistic measure of word use by recording spontaneous first-person singular references in everyday speech. In this study, 79 undergraduate students wore the Electronically Activated Recorder (EAR; Mehl, Pennebaker, Crow, Dabbs, & Price, 2001) for 4 days during their waking hours. The EAR unobtrusively sampled sound bites from their daily conversations with others, which were then transcribed and analyzed for various aspects of word use. Interestingly and surprisingly, given the Raskin and Shaw (1988) finding, participants' NPI scores were not correlated with their use of first-person singular, r = .13 (p = .26; 95% CI [−.15; .29]). Moreover, narcissism reports from informants, who knew the participants well, correlated even less strongly with participants' use of first-person singular (r = .07, p = .53, 95% CI [−.09; .34]). These findings are particularly important, as the EAR method's language sampling ensures that participants' I-talk is representatively captured across (close to) the full range of their daily settings and activities (e.g., at home, at work, in class; during leisure activities) and interactions (with strangers, friends, family, romantic partners, coworkers).

Further, Fast and Funder (2008) found no general association between narcissism and I-talk. They conducted life history interviews with 181 undergraduate participants who completed the NPI along with various other personality measures. The correlation between participants' NPI scores and their spontaneous I-talk did not attain statistical significance despite a sample size that was 3.8 times as large as Raskin and Shaw's, 1988 sample (r = .02 for women; r = .11 for men). Among men, selected NPI facets and selected acquaintance ratings of assertive behaviors (using the California Q-sort) correlated positively with I-talk suggesting that,

in the absence of a reliable overall association, I-talk might mark narcissism more strongly in men than in women.

In sum, the empirical basis for the association between I-talk and narcissism is surprisingly sparse and provides weak and inconsistent support for the underlying relation. This assessment of the empirical support for this connection stands in contrast to the strength of the lay belief in this association as well as the number of researchers who have relied on this connection to study manifestations of narcissism in everyday life. Thus, it is important to conduct a high-powered study to provide better insight into the connection between I-talk and narcissism and to test whether this relation is moderated by gender.

Overview of the Present Study and Research Questions

We revisited the original Raskin and Shaw study by conducting a systematic, large-scale investigation into the degree to which narcissism is related to I-talk. Specifically, our project sought to address overall the extent to which narcissism is related to use of first-person singular (Research Question 1), the extent to which this association varies across communication contexts (Research Question 2), and the extent to which this association varies by gender (Research Question 3).

Research Question 1: To What Extent Is Narcissism Related to Use of First-Person Singular Pronouns (i.e., I-Talk)?

To estimate the overall association between narcissism and first-person singular use, we assembled a large database consisting of 15 samples and more than 4,000 participants collected across five labs in the United States and Germany. To provide a comprehensive analysis of I-talk, we analyzed the original raw English and German text data for participants' use of overall, subjective ("I"), objective (e.g., "me"), and possessive (e.g., "my") first-person singular pronouns (McGregor, 2010). Based on the prior research, we expected no particularly strong association between I-talk and narcissism. However, theoretically, it is possible that subjective first-person singular captures a more active or self-as-actor form of self-focus and objective first-person singular captures a more passive or self-as-target form of self-focus. In the same way, possessive first-person singular may capture a form of self-focus that manifests itself in (possessively) tagging the self onto persons or objects. Given this possibility, the narcissism–I-talk association might differ by first-person singular pronoun type. For example, narcissistic individuals' preoccupation with how they are perceived by others might cause more objective self-referential language use (e.g., "They like me"). In addition, narcissists' desire to be the center of attention could lead to possessively referring to others and objects in relationship to the self (e.g., "my friend"). Thus, a stronger association between I-talk and narcissism might emerge when just focusing on objective and possessive I-talk, as opposed to subjective I-talk.

Because narcissism measures widely used in social and personality psychology tend to capture potentially adaptive personality aspects such as leadership and confidence in addition to maladaptive attributes like feelings of entitlement and a willingness to exploit others, Paulhus, Robins, Trzesniewski, and Tracy (2004) suggested residualizing narcissism scores for self-esteem scores if the researcher's intention lies in isolating narcissism's maladaptive or socially toxic core. We followed this recommendation here and, where possible, report all narcissism–I-talk correlations for both raw and self-esteem residualized narcissism scores. Given that excessive self-focus is arguably part of the maladaptive attributes of narcissism, we expected the correlations for the residualized measure to exceed the correlations for the raw measure.

Research Question 2: To What Extent Does the Relationship Between Narcissism and I-Talk Vary Across Communication Contexts?

It is plausible that the narcissism–I-talk link varies by communication context. Social environments differentially afford the expression of personality traits (Funder, 1999; Snyder & Ickes, 1985), and the pragmatic meaning of words can differ in different contexts. Consistent with this idea, Mehl, Robbins, and Holleran (2012) found that emotions words were indicative of neuroticism only in a private and not in public communication context and that the reverse was true for verbal immediacy (a composite reflecting a personal, involved, experiential language) as a marker of extraversion. Theoretically, communication contexts that afford the expression of narcissism may be particularly good candidates for yielding an I-talk association. Also, communication contexts that promote or alleviate impression management concerns might accentuate or dampen the association with I-talk. Finally, communication contexts that pull for spontaneous language might yield higher I-talk associations than contexts that allow for the careful construction of language.

Based on these ideas, we analyzed the narcissism–I-talk link across the following six theoretically relevant communication contexts: (a) identity-related tasks where participants wrote or talked about aspects of their identity, (b) tasks of a personal nature where participants wrote or talked about a topic that is related to themselves, (c) tasks of an impersonal nature where participants wrote or talked about a topic that was not relevant to themselves, (d) tasks of a private nature where participants wrote or talked about a topic in the absence of an actual or implied audience, (e) tasks of a public nature where participants wrote or talked about a topic in the presence of an actual or implied audience, and (f) stream-of-consciousness tasks where participants wrote about what they were thinking in the moment (or close in time).

This diversity in tasks allows for a reasonably rigorous test of the degree to which the narcissism–I-talk link varies across communication contexts that differentially afford the expression of narcissism (e.g., personal vs. impersonal), differentially engage impression management concerns (e.g., public vs. private), and pull for more spontaneous or controlled language (e.g., stream-of-consciousness vs. identity). Again, to answer the research question comprehensively, we estimate the narcissism–I-talk association for both raw and self-esteem residualized narcissism and for overall as well as subjective, objective, and possessive first-person singular.

Research Question 3: To What Extent Does the Relationship Between Narcissism and I-Talk Vary by Gender?

Finally, we evaluated the degree to which the association between narcissism and I-talk varies by gender. Parallel to the other two research questions, we again estimate the association by gender for both raw and self-esteem residualized narcissism and for overall as well as subjective, objective, and possessive first-person singular. Based on Fast and Funder's (2008) finding that I-talk tended to be more strongly related to self-reported narcissism and acquaintance-rated assertive and dominant behaviors in male than in female participants, we expected the narcissism-I-talk link to be somewhat more positive among men than among women. We made no predictions regarding specific communication contexts or specific subtypes of first-person singular pronouns where this would be particularly the case.

Method

Samples and Procedures

Important information about the study samples is summarized in Table 1.

Sample 1. As part of a larger study, 101 introductory psychology students completed a series of questionnaires and gave a videotaped self-description that was later transcribed. For more details on the sample and procedures, see Krause, Back, Egloff, and Schmukle (2011).

Sample 2. As part of a larger study, 68 introductory psychology students completed a series of questionnaires and participated in a videotaped group session (2 males and 2 females) wherein their task was to describe themselves to the other three group members (for more details see Küfner, Nestler, & Back, 2013).

Sample 3. As part of a larger study, 340 college students completed a series of questionnaires online and participated in a videotaped group session (4–6 individuals). As part of the group session, they introduced themselves briefly to the other group members based on the prompt "Tell something about yourself, what you study, what your hobbies are, and so forth" (Küfner & Back, unpublished data, 2010).

Sample 4. Seventy-three introductory psychology students participated in a study on the first day of class. Participants were randomly assigned to a seat as they entered the room. They were then (one after the other) asked to step forward to a marked spot on the floor and briefly introduce themselves. Immediately afterward, they were rated by the other class members for first impressions. In addition, they engaged in several short writing tasks as part of another class session. One task asked them to write down specific attributes they have and the other asked them to write down their goals. For more details see Back, Schmukle et al. (2010).

Sample 5. As part of a larger study, 130 introductory psychology students completed a series of questionnaires a few days before participating in a behavioral study. For the behavioral study, they were seated in front of a camera and asked to introduce themselves in response to the prompt "Please tell us about yourself, your hobbies, what you are interested in, and so on." Fifty-three participants also participated in the study described in sample 4. For more details see Back, Schmukle, and Egloff (2009).

Sample 6. Forty-four online social network users were recruited through Germany-wide advertisements for an online study of personality. They completed a series of personality measures and provided researchers with the "about me" descriptions on their profile pages (Küfner & Back, unpublished data, 2010).

Sample 7. For a replication of the original Raskin and Shaw (1988) study, 241 introductory psychology students were asked to write for 5 minutes about any topic that they wanted to, provided that they wrote for the entire time without stopping (Holtzmann & Donnellan, unpublished data, 2012).

Sample 8. Three hundred eleven psychology students wrote short essays in response to four different prompts adapted from McAdams' (2008) Life Story Interview. Participants were asked to (a) describe a personal memory they considered "self-defining," (b) describe a scene, episode, or memory in their life that stands out as an especially positive experience or high point in their life story, (c) identity a scene that stands out as a low point in their life story, and (d) describe themselves, either by discussing their life or their characteristics, or both (Donnellan & Holtzman, unpublished data, 2012)

Sample 9. Four hundred fifty psychology students wrote short essays in response to six different prompts modeled after the Life Story Interview. These prompts asked them to (a) describe an important scene, episode, or moment in life that stands out as either especially positive or especially negative (i.e., high or low point in life story), (b) describe an episode or moment that stands out as a significant event in their romantic life, love life, or sexual life, (c) write about the person they care most about in life and to describe the person, (d) describe a recent problem or trouble that you had to face and tell how they overcame it, (e) write what they like most about themselves, and (f) write about what they like least about themselves (Donnellan & Holtzman, unpublished data, 2013)

Sample 10. Seventy Facebook users were recruited via mailing lists of student organizations from German universities. They completed a series of questionnaires and provided researchers with access to their Facebook status updates (Deters, Mehl, & Eid, 2014).

Sample 11. As part of a larger study, 127 Facebook users were recruited from introductory psychology classes. They completed a series of questionnaires and provided researchers with their Facebook status updates (Deters & Mehl, 2013).

Sample 12. As part of a class assignment, 712 introductory psychology students completed a series of questionnaires and participated in a stream of consciousness writing task (similar to the task described in Holleran & Mehl, 2008) as well as a task that required them to write short essays in response to a picture from the Thematic Apperception Test (Murray, 1943).

Sample 13. As part of a class assignment, 862 introductory psychology students completed a series of questionnaires as well as a stream of consciousness writing task. (The task was identical to that used for Sample 12.)

Sample 14. As part of a class assignment, 1,209 introductory psychology students completed a series of questionnaires as well as a stream of consciousness task (identical to Samples 12 and 13), a thematic apperception test (identical to Sample 12), and an essay in response to the prompt "Write about who you are."

Sample 15. As part of a larger study, 73 Facebook users recruited from introductory psychology courses completed a series

Table 1
Overview of the Study Samples, Tasks, and Measures and Categorization of Study Tasks Into Communication Contexts

		Sample			Narcissism		Self-esteem		Communication context					
Sample	Task	Lang.	*N*	% Female	Measure	α	Measure	α	Identity	Personal	Impersonal	Private	Public	Moment. Th.
1	Video-taped self-descriptions	German	101	77	NPI 15	.75	RSE	.88	x	x			x	
2	Describe yourself to group members	German	68	50	NPI 40	.78	RSE	.84	x	x			x	
3	Introduce yourself to group members	German	340	70	NPI 40	.82	RSE	—	x	x			x	
4	1. Write down specific attributes you have	German	73	71	NPI 40	.84	RSE	—	x	x		x		
	2. Write down goals							x		x				
	3. Video-taped self-descriptions							x	x			x		
5	Introduce yourself into camera	German	130	59	NPI 40	.82	RSE	—	x	x			x	
6	“About me” on German social media profile	German	44	86	NPI 15	.84	—	—	x	x			x	
7	Direct replication of Raskin & Shaw (1988)	English	241	82	NPI 40	.83	RSE	.85		x		x		x
8	1. Self-defining memory essay	English	311	67	NPI 40	—	RSE	—	x	x		x		
	2. High point in life essay								x	x		x		
	3. Low point in life essay								x	x		x		
	4. Describe yourself essay								x	x		x		
9	1. Important memory or life episode essay	English	450	72	NPI 40	.84	RSE	.88	x	x		x		
	2. Important moment in romantic life essay									x		x		
	3. Person you care most about essay									x		x		
	4. Recent problem essay									x		x		
	5. Like most about yourself essay									x	x		x	
	6. Like least about yourself essay									x	x		x	
10	Facebook status updates	German	70	79	NPI 15	.72	—	—		x			x	x
11	Facebook status updates	English	127	64	NPI 40	.83	—	—		x			x	x
12	Stream of consciousness task	English	712	63	NPI 16	.70	1 item	n/a		x		x		x
	Thematic apperception test						x		x					
13	Stream of consciousness task	English	862	62	NPI 16	—	—	—		x		x		x
14	Stream of consciousness task	English	1,209	66	Dirty Dozen	.74	—	—		x		x		x
	Thematic apperception test								x	x				
	“Who am I?” writing task								x	x		x		
15	Facebook status updates	English	73	82	NPI 40	.72	RSE	.87		x			x	x

Note. Lang. = Language; % female = percentage of all sample participants that were female; α = Cronbach’s alpha; measure = narcissism or self-esteem measure administered in a study; Moment. Th. = momentary thought; NPI = Narcissistic Personality Inventory (15-, 16-, or 40-item version); RSE = Rosenberg Self-Esteem Scale; 1 item = single-item self-esteem measure; where participants within a study completed more than one task that belonged to a communication context (e.g., different life story prompts), the language variables were aggregated within participant before the average effect sizes for the communication context was computed.

of questionnaires and provided researchers with their Facebook status updates.

Measures

Important information about the study measures is summarized in Table 1.

Narcissism. The 40-item Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988) was administered in the original English version in Sample 7, Sample 8, Sample 9, Sample 11, and Sample 15. The 16-item NPI was administered in Sample 12 and Sample 13 and uses selected items from the NPI 40. The German version of the 40-item NPI (Schütz, Marcus, & Sellin, 2004) was administered in Sample 2, Sample 3, Sample 4, and Sample 5. The German 15-item NPI version (Schütz et al., 2004) was administered in Sample 1 and Sample 10. Finally, the Dirty Dozen (Jonason & Webster, 2010), a newer but already widely used 12-item measure of the dark-triad was administered in Sample 14. The four narcissism items are: I tend to "want others to admire me," "want others to pay attention to me," "seek prestige or status," and "expect special favors from others." In the validation study, Dirty-Dozen- and NPI-measured Narcissism were correlated $r = .46$ (Jonason & Webster, 2010). Descriptive statistics for the narcissism measures employed in the different samples are provided in Table 2.

Self-esteem. The Rosenberg Self-Esteem scale (original English version: Rosenberg, 1979; German version: von Collani & Herzberg, 2003) was administered in Sample 1, Sample 2, Sample 3, Sample 4, Sample 5, Sample 7, Sample 8, and Sample 15 (see Table 1). The single item self-esteem measure "I see myself as someone who has high self-esteem" (Robins, Hendin, & Trzesniewski, 2001) was administered in Sample 12.

I-talk. All videotaped introductions and interactions were transcribed and saved as text documents. All written documents were saved as text documents and, where the sample size permitted, manually cleaned and spell checked. The resulting text documents from English samples were submitted to the English version of Linguistic Inquiry and Word Count (LIWC; Pennebaker, Francis, & Booth, 2007). The resulting text documents from the German samples were submitted to the psychometrically validated German LIWC dictionary (Wolf et al., 2008).

For the purpose of this study, we focused exclusively on how narcissism is related to the use of first-person singular. To comprehensively address this question, we separately analyzed participants' use of (a) all first-person singular (Pennebaker et al., 2007), (b) subjective first-person singular (English: "I"; German: "Ich"), (c) objective first-person singular (English: "me," "myself"; German: "mich," "mir," the genitive pronoun "meiner" is hardly used in spoken German and was omitted here for its overlap with the routinely used possessive pronoun "meiner"), and (d) possessive first-person singular (English: ""my," "mine"; German: "mein," "meine," "meinem," "meinen," "meiner," "meines," "meins"). A similar strategy was used by McGregor (2010). All I-talk measures are in percentage-based metric; that is, expressed relative to all words in a participants' (written or spoken) text sample. That way, our measures are comparable to Raskin and Shaw's (1988) (manually derived) measures. Descriptive statistics for participants' first-person singular use in the different samples are provided in Table 3.

Table 2
Means and Standard Deviations for Narcissism Measures

Sample	Narcissism measure	All participants Mean (*SD*)	Female participants Mean (*SD*)	Male participants Mean (*SD*)
1	NPI 15 (G)	25.5 (19.3)	25.3 (19.3)	26.1 (19.9)
2	NPI 40 (G)	36.0 (14.7)	32.4 (11.7)	39.6 (16.3)
3	NPI 40 (G)	36.5 (15.7)	35.2 (15.2)	39.6 (16.5)
4	NPI 40 (G)	39.9 (17.0)	38.2 (17.0)	44.1 (17.0)
5	NPI 40 (G)	36.4 (16.2)	35.0 (15.6)	38.6 (16.9)
6	NPI 15 (G)	35.4 (20.6)	35.6 (20.3)	34.4 (24.0)
7	NPI 40 (E)	40.5 (16.7)	40.0 (16.6)	42.7 (17.2)
8	NPI 40 (E)	40.9 (16.3)	40.0 (15.5)	42.9 (17.5)
9	NPI 40 (E)	42.6 (17.1)	41.8 (16.9)	44.8 (17.7)
10	NPI 15 (G)	32.9 (19.3)	30.4 (18.2)	41.8 (21.3)
11	NPI 40 (E)	45.5 (17.5)	41.6 (15.2)	52.4 (19.3)
12	NPI 16 (E)	34.6 (19.4)	32.0 (18.2)	38.9 (20.6)
13	NPI 16 (E)	31.2 (18.0)	29.0 (17.5)	34.8 (18.2)
14	Dirty Dozen	67.5 (14.6)	66.1 (15.0)	70.2 (13.5)
15	NPI 40 (E)	40.7 (14.8)	39.1 (14.8)	46.9 (13.4)

Note. (G) and (E) refer to the German and the English version of the NPI, respectively; to facilitate comparison, all sample sores were converted to POMP scores and therefore reflect percentage values relative to the maximum possible score (Cohen, Cohen, Aiken, & West, 1999).

Communication Contexts

Table 1 summarizes the categorization of the individual study tasks into six theoretically important communication contexts: (a) identity, (b) personal, (c) impersonal, (d) private, (e) public, and (f) momentary thoughts. Three of the authors (ALC, MB, MRM) categorized each study task into these (nonexclusive) contexts and discussed their solutions until unanimous agreement was reached.

Identity. Study tasks were considered about identity if participants talked or wrote about aspects of themselves, that is who they are as a person, their attributes, or life story. Sample tasks are self-introductions, personal profile descriptions, and life story essays (e.g., self-defining memory). Identity-related tasks may particularly afford the expression of narcissism and thereby allow for stronger potential correlations. On the other hand, identity-related tasks also set the norm to talk about oneself and thereby might reduce variability in I-talk, which would result in attenuated correlations.

Personal. Study tasks were categorized as personal if participants talked or wrote about a topic related to themselves. All identity-relevant tasks were categorized as personal but some personal tasks are not per se about participants' identity (e.g., Facebook status updates; stream-of-consciousness writing task; essay about most cared-about person). Personal tasks conceptually represent weak situations in that participants' verbal behavior is, to a large extent, a function of their personal preference or choice (Snyder & Ickes, 1985). This may result in increased correlations between narcissism and I-talk.

Impersonal. Only one study task was categorized as impersonal or as a task where participants wrote about a topic that was not related to themselves. For this task, participants wrote essays to a Thematic Apperception Test (TAT) picture (Pennebaker & King, 1999). Impersonal tasks represent strong situations in that participants' verbal behavior is, to a large extent, a function of the

Table 3
Means and Standard Deviations for First-Person Singular Pronoun Use

	All participants				Female participants				Male participants			
Sample	Total fps	Subj. fps	Obj. fps	Poss. fps	Total fps	Subj. fps	Obj. fps	Poss. fps	Total fps	Subj. fps	Obj. fps	Poss. fps
1	11.3 (4.0)	8.9 (3.6)	1.3 (1.5)	1.3 (1.5)	12.0 (3.9)	9.5 (3.6)	1.3 (1.5)	1.2 (1.6)	9.0 (3.4)	6.6 (3.0)	1.2 (1.5)	1.2 (1.3)
2	10.1 (3.4)	7.7 (3.2)	1.1 (1.3)	1.3 (1.4)	11.0 (4.0)	8.7 (3.7)	0.9 (1.2)	1.4 (1.7)	8.9 (2.2)	6.6 (2.2)	1.1 (1.3)	1.2 (1.2)
3	10.2 (4.0)	8.4 (3.8)	0.6 (1.1)	1.3 (1.8)	10.9 (4.1)	9.0 (3.9)	0.6 (1.1)	1.4 (1.9)	9.0 (3.5)	7.2 (3.1)	0.6 (1.1)	1.2 (1.5)
4	10.7 (4.4)	7.6 (3.6)	1.2 (1.2)	1.9 (2.2)	10.7 (4.0)	7.2 (2.9)	1.6 (1.2)	1.8 (1.7)	9.3 (3.6)	6.3 (2.9)	1.1 (1.1)	1.9 (1.6)
5	10.0 (2.5)	6.9 (2.3)	1.6 (0.9)	1.5 (1.0)	10.6 (2.6)	7.4 (2.3)	1.6 (0.9)	1.6 (1.1)	9.1 (2.2)	6.2 (2.2)	1.5 (1.0)	1.5 (0.9)
6	6.1 (6.7)	3.4 (4.7)	1.9 (3.9)	0.8 (2.3)	5.9 (6.9)	3.3 (4.9)	1.8 (4.1)	0.8 (2.4)	7.2 (6.0)	3.7 (3.9)	2.5 (2.9)	1.0 (1.9)
7	7.6 (4.1)	5.2 (3.0)	0.7 (1.0)	1.8 (1.6)	7.7 (4.1)	5.2 (3.0)	0.7 (1.0)	1.9 (1.6)	6.8 (4.0)	4.6 (2.8)	1.0 (1.3)	1.2 (1.2)
8	11.3 (2.0)	6.8 (1.6)	1.5 (0.7)	3.0 (0.9)	11.6 (2.1)	7.0 (1.7)	1.5 (0.7)	3.1 (1.0)	10.7 (1.6)	6.3 (1.5)	1.4 (0.6)	3.0 (0.8)
9	11.4 (2.6)	6.5 (2.2)	2.0 (0.9)	2.9 (1.4)	11.6 (2.5)	6.7 (2.0)	2.0 (0.8)	2.9 (1.4)	10.9 (2.9)	6.0 (2.6)	1.9 (1.0)	3.0 (1.5)
10	2.8 (3.7)	1.3 (2.0)	0.7 (1.3)	0.8 (1.7)	3.1 (4.0)	1.4 (2.0)	0.8 (1.3)	1.0 (1.9)	1.3 (2.0)	0.5 (1.0)	0.7 (1.2)	0.1 (0.3)
11	5.5 (3.6)	3.0 (2.3)	0.7 (0.8)	1.8 (2.0)	5.9 (3.8)	3.2 (2.3)	0.7 (0.7)	1.9 (2.1)	5.0 (3.2)	2.7 (2.2)	0.7 (1.0)	1.6 (1.8)
12	6.0 (2.1)	4.3 (1.6)	0.5 (0.4)	1.1 (0.6)	5.8 (1.3)	4.2 (1.1)	0.5 (0.3)	1.1 (0.5)	5.3 (1.7)	3.9 (1.3)	0.5 (0.3)	1.0 (0.5)
13	10.6 (2.5)	7.5 (1.9)	1.0 (0.6)	2.1 (0.9)	10.7 (2.5)	7.5 (2.0)	0.9 (0.6)	2.7 (1.0)	10.6 (2.5)	7.5 (1.9)	1.0 (0.5)	2.1 (0.9)
14	8.2 (1.9)	5.6 (1.5)	1.1 (0.4)	1.6 (0.6)	8.6 (1.7)	5.8 (1.4)	1.1 (0.4)	1.7 (0.6)	7.7 (1.9)	5.2 (1.5)	0.9 (0.4)	1.5 (0.6)
15	6.4 (3.0)	3.2 (2.2)	1.0 (1.0)	2.2 (1.6)	6.7 (3.0)	3.3 (2.3)	1.1 (1.1)	2.4 (1.6)	4.7 (2.3)	2.9 (1.6)	0.7 (0.6)	1.2 (1.2)

Note. Total fps = all first-person singular pronouns; Subj. fps = Subjective first-person singular pronouns (i.e. "I"); Obj. fps = objective first-person singular pronouns (i.e. "me", "myself"); Poss. fps = Possessive first-person singular pronouns (i.e. "my", "mine"); numbers represent sample means with standard deviations in parentheses and are expressed as percentage of words across all tasks that participants in the respective samples completed.

situation (here, the content of the picture that participants were asked to describe). They afford third-person language, render self-referential language non-normative, and may thereby attenuate correlations between narcissism and I-talk.

Private. Study tasks were categorized as private if participants engaged in the task in the absence of an actual or implied audience. Sample tasks are stream-of-consciousness writing tasks, life story essays, and TAT picture essays. Private tasks reduce the salience of norms and minimize self-presentational concerns. This may facilitate variability in self-referential language use and thereby increase correlations between narcissism and I-talk (Holleran & Mehl, 2008).

Public. Study tasks were categorized as public if participants engaged in the task in the actual or implied presence of an audience. Sample tasks are self-introductions, personal profile descriptions, and Facebook status updates. Public tasks render social norms salient and maximize self-presentational concerns (Paulhus & Vazire, 2007). This may lead to self-censoring and language editing and thereby reduce variability in I-talk to the extent that it is perceived socially undesirable. The reduced variability may constrain potential correlations. On the other hand, given that narcissism is characterized by a desire to be admired and focused on, public domains might provide an opportunity to yield admiration and attention. This might encourage narcissistic individuals to increase their I-talk, thereby strengthening focal correlations.

Momentary thought. Study tasks were categorized as reflecting momentary thoughts if participants wrote about what they were thinking in the moment or close in time. This category comprised stream-of-consciousness writing tasks, collected Facebook status updates (in response to the prompt "What's on your mind?"), and a writing prompt that mimicked closely the original Raskin and Shaw (1988) task ("Please write for 5 minutes about any topic you want"). Language in this context tends to be spontaneous and subject to limited censorship or editing thereby emphasizing the automatic (relative to controlled) component of language use. The spontaneous, automatic nature might allow for maximal correlations between narcissism and I-talk.

Data Analytic Strategy

The analyses for the different communication contexts were conducted based on the merged task data from the respective samples (standardized within sample). For samples in which more than one task belonged to a communication context, the tasks were aggregated at the level of the participant (e.g., for the analysis of private contexts, the two writing tasks and the videotaped self-description in Sample 4 were aggregated prior to merging the data into the multisample data set). All measures were standardized within each sample prior to the analyses.

Following recommendations to decrease reliance on significance testing (Cumming, 2012), we computed 95% confidence intervals around the correlation point estimates for the main analyses. Further, due to the large sample size, we used $r > |.10|$ as a guideline for what might be considered a nontrivial effect size (Meehl, 1997). In other words, we interpret associations between narcissism and use of first-person singular as meaningful if the pooled correlation across samples was larger than what is consensually deemed a small effect (Cohen, 1988; Hemphill, 2003; Richard, Bond, & Stokes-Zoota, 2003). Note that the research questions do not conceptualize the narcissism–I-talk link from a prediction perspective as the degree to which a trait predicts a real-world behavioral criterion (for which $r = .10$ might be deemed a practically important effect) but, rather, from a measurement perspective as the degree to which a behavior can serve as an indicator for the measurement of a trait. To provide a complete picture, however, and to allow for the evaluation of our results using traditional inferential statistics, we flag correlations that were statistically significant at $p < .05$.

Because standard measures of narcissism capture both adaptive and maladaptive (or socially toxic) components of narcissism (Ackerman et al., 2011; Back et al., 2013), Paulhus et al. (2004)

recommended residualizing narcissism for self-esteem scores when the purpose is to isolate behavioral correlates of narcissism's maladaptive core. For this reason, where self-esteem information was available, we also report correlations between narcissism and I-talk that are residualized for self-esteem. For the purpose of our study, this strategy was preferable to analyzing facet level narcissism since (a) five different narcissism measures were administered across all samples (b) the NPI has no consensually agreed upon factor structure (Ackerman et al., 2011) and (c) it keeps the number of statistical tests minimal thereby limiting false positive findings (Simmons, Nelson, & Simonsohn, 2011).

Results

Research Question 1: To What Extent Is Narcissism Related to Use of First-Person Singular Pronouns (i.e., I-Talk)?

Overall, narcissism was unrelated to total I-talk. Figure 1 shows the scatterplot between narcissism and use of all first-person singular pronouns for all participants. Across all samples, the correlation was $r = .02$, 95% CI [−.02, .04] (Figure 2, left panel, first row). Overall, narcissism was also unrelated to use of subjective ("I"; $r = .02$), objective ("me," "myself"; $r = -.02$), and possessive ("my," "mine"; $r = .00$) first-person singular pronouns. In spite of the large sample size, these correlations were not statistically significant ($ps > .05$).

As shown in Table 4, a similar picture emerged when participants' narcissism scores were residualized for their self-esteem scores, to better capture the maladaptive core of narcissism. Residualized narcissism was effectively uncorrelated with total ($r = .03$), subjective ($r = .04$), objective ($r = -.01$), and possessive ($r = .01$) first-person singular (Table 4, left panel, first row, numbers in parentheses). Given the large sample size, the correlation with subjective first-person singular was statistically significant ($p = .02$) but minimal in magnitude.[2]

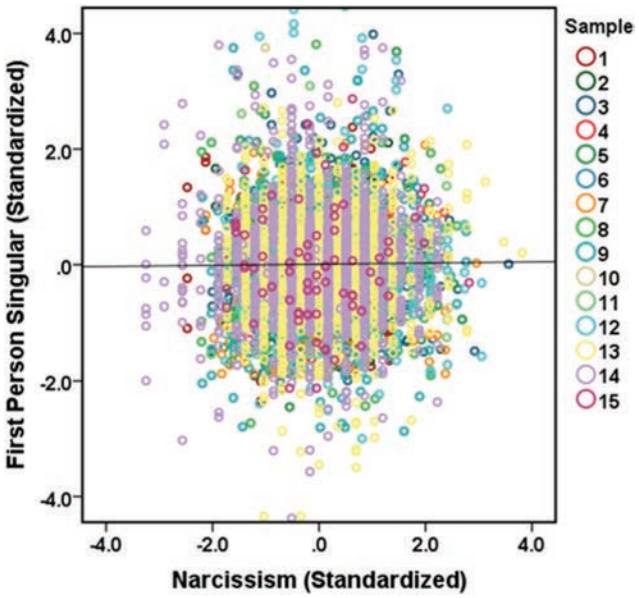

Figure 1. Scatterplot for the overall association between narcissism and I-talk across all 15 samples ($N = 4{,}811$); only **z**-scores ranging from [−4; +4] are displayed for both narcissism and the use of all first-person singular pronouns. See the online article for the color version of this figure.

Research Question 2: To What Extent Does the Relationship Between Narcissism and I-Talk Vary Across Communication Contexts?

The six studied communication contexts varied in the degree to which they afforded self-referencing (identity), represented weak situations facilitating personality expression (personal) or strong situations constraining personality expression (impersonal), primed (public) or did not prime (private) self-presentational concerns, and evoked automatic language behavior that is less susceptible to self-censoring (momentary thoughts). Yet, narcissism was consistently unrelated to I-talk across all communication contexts. The correlations for total first-person singular were all very close to zero ($r_{max} = .03$) and, despite the large sample size, not statistically significant. Further, in no case did even the upper limit of their confidence intervals include $r = .10$ (Figure 2, left panel), suggesting very low odds that the population effect, if nonzero, is of a practical significance. Finally, none of the context correlations for subjective, objective, or possessive first-person singular use exceeded $r = |.04|$ and, all failed to meet the conventional standard of statistical significance (Table 4, left panel).

A largely similar picture emerged for the residualized narcissism measure. Although the correlations were slightly larger and in some cases statistically significant (Table 4, left panel, numbers in parentheses), only one of the 24 estimates exceeded $r = .10$. Residualized narcissism correlated .11 with objective first-person singular pronoun use ("me," "myself") in impersonal communication contexts, that is, participants' TAT picture stories.

Research Question 3: To What Extent Does the Relationship Between Narcissism and I-Talk Vary by Gender?

Following Fast and Funder's (2008) recommendation to test for gender differences in the narcissism-I-talk link, we also analyzed all correlations (raw and residualized for self-esteem) for all six communication contexts, and for total as well as subjective, objective, and possessive first-person singular use separately for male and female participants. The results are summarized in the middle (female participants) and right panel (male participants) of Figure 2 and Table 4.

Among female participants, narcissism was again consistently unrelated to use of I-talk. The correlation for total first-person singular across all contexts was $r = .02$, 95% CI [−.02, .05].

[2] Raskin and Shaw (1988) also reported a statistically significant negative association between narcissism and first-person plural use, $r = -.29$, $p < .05$. In our combined sample, narcissism was uncorrelated with use of total ($r = -.01$; 95% CI [−.04; .02]), subjective ($r = .01$; 95% CI [−.03; .05]), objective ($r = -.02$; 95% CI [−.06; .03]), and possessive ($r = -.02$; 95% CI [−.05; .01]) first-person-plural. Similar results emerged for residualized narcissism (all $rs \leq |.03|$). The focus of this paper is on first-person singular only given the strong lay perceptions about I-talk (but not we-talk) indicating narcissism and given that researchers have used I-talk (but not we-talk) as an operationalization of narcissism.

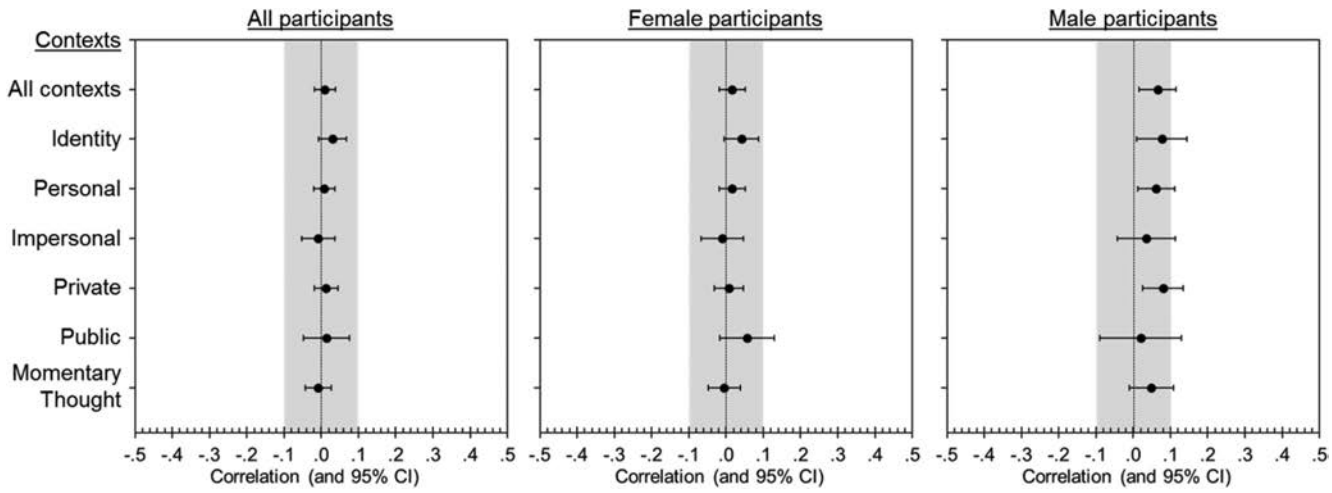

Figure 2. Correlation coefficients with 95% confidence intervals for the association between narcissism and I-talk; overall and context-specific effect sizes are displayed for the full sample and for female and male participants separately.

Further, the correlations for the six communication contexts were all close to zero and not statistically significant (Table 4, middle panel). Finally, none of the 18 context correlations for subjective, objective, and possessive I-talk exceeded $r = .10$ and only one emerged as statistically significant ($r = .09$ for subjective first-person singular in public contexts).

A similar picture emerged for the residualized narcissism measure. Although the correlations were again slightly larger and in some cases statistically significant (Table 4, middle panel, numbers in parentheses), only one of the 24 estimates exceeded .10. Residualized narcissism correlated $r = .13$ (95% CI [.04; .21]) with subjective first-person singular pronoun use ("I") in public contexts (e.g., self-introductions, Facebook status updates).

Finally, among male participants, narcissism was slightly more strongly related to I-talk, albeit the relation was overall still small in magnitude. The correlation for total first-person singular across all contexts was $r = .07$, 95% CI [.02, .12]. None of the correlations for the six communication contexts exceeded $r = .10$ (Figure 2, right panel) but half of them were statistically significant suggesting that the population effects are likely nonzero, positive, and somewhere below or around $r = .10$ in magnitude. Three of the 18 context correlations for subjective, objective, and possessive first-person singular were statistically significant but none exceeded $r = .10$.

The analyses for residualized narcissism and I-talk among male participants yielded overall the strongest effects. Yet, even those were generally relatively small in magnitude and often not statistically significant. Only three context correlations exceeded $r = .10$. In impersonal contexts, residualized narcissism correlated $r = .13$ with total, $r = .12$ with subjective, and $r = .16$ with objective first-person singular use. Because of the smaller sample size (self-esteem information was only available for 227 male participants), however, only the correlation with objective first-person singular was statistically significant. Note that the respective effect for female participants was close to zero ($r = .03$, *ns*) suggesting that the overall effect, $r = .11$, $p < .05$ was driven by male participants.

In sum, we found indications that male (but not female) participants who frequently used "me" and "myself" in their (third-person) TAT picture stories scored higher on maladaptive (but not overall) narcissism. This effect size estimate is based on a sample size that is substantial, yet slightly below the size recommended for stable estimates (Schönbrodt & Perugini, 2013).

Discussion

There is a widely assumed association between I-talk and narcissism among both laypersons and scientists despite the fact that the empirical support for this relation is surprisingly sparse and generally inconsistent. Given the pressing need for more conclusive empirical study, we revisited the original Raskin and Shaw (1988) study by conducting a large-scale, multisite, multimeasure, and dual-language investigation into the degree to which narcissism is related to use of first-person singular pronouns across different theoretically relevant communication contexts. Overall, our analyses revealed consistent evidence of a near-zero effect. In short, our high powered investigation provided little compelling support for the often discussed connection between narcissism and I-talk.[3]

[3] An anonymous reviewer suggested we estimate how many more first-person singular pronouns a hypothetical group of narcissists might use on a daily basis relative to a hypothetical group of non-narcissists—which is a useful way to calibrate an arbitrary metric (Blanton & Jaccard, 2006; Sechrest, McKnight, & McKnight, 1996). Based on our obtained overall effect size ($r = .02$ or, converted, $d = 0.04$), one might estimate this difference as 16,000 (average number of words per day; estimate obtained from Mehl, Vazire, Ramírez-Esparza, Slatcher, & Pennebaker, 2007) $*$ 1.7% ([estimated pooled] standard deviation in natural, spoken first-person singular use; estimate obtained from Mehl, Gosling, & Pennebaker, 2006) $*$ 0.04 (r-to-d converted effect size estimate obtained in this study) = 10.88 first-person singular pronouns. This formula then suggests that narcissists might use approximately 11 more first-person singular pronouns per day—with the average person using more than 1,000 first-person singular pronouns per day (16,000 words per day $*$ 6.7% first-person singular pronouns = 1,083; Mehl et al., 2006).

Table 4
Raw and Self-Esteem Residualized Correlations Between Narcissism and First-Person Pronoun Use Across Communication Contexts

Context	All participants					Female participants					Male participants				
	N	Total fps	Subj. fps	Obj. fps	Poss. fps	*n*	Total fps	Subj. fps	Obj. fps	Poss. fps	*n*	Total fps	Subj. fps	Obj. fps	Poss. fps
All contexts	4811 (3238)	.02 (.03)	.02 *(.04)*	−.02 (−.01)	.00 (.01)	3167 (2169)	.02 (.03)	.03 *(.04)*	−.02 (−.02)	−.02 (.00)	1566 (1068)	*.07 (.08)*	*.06 (.08)*	.00 (.01)	*.05* (.05)
Identity	2699 (1463)	.03 (.05)	.03 (.05)	−.02 (−.04)	.03 (.02)	1784 (1004)	*.04 (.07)*	.04 *(.07)*	−.02 (−.02)	.01 (.01)	840 (458)	*.08* (.07)	.05 (.07)	−.02 (−.06)	*.07* (.05)
Personal	4799 (3231)	.01 (.02)	.02 (.03)	−.02 (−.02)	.00 (.00)	3162 (2166)	.02 (.02)	.03 (.03)	−.02 (−.03)	−.01 (−.01)	1559 (1064)	*.06 (.07)*	*.05 (.07)*	.00 (−.01)	.05 (.04)
Impersonal	1893 (605)	−.01 *(.09)*	.00 *(.09)*	.00 ***(.11)***	−.03 (.06)	1189 (378)	−.01 (.05)	.00 (.05)	.00 (.03)	−.03 (.06)	628 (227)	.04 **(.13)**	.04 **(.12)**	.03 ***(.16)***	.02 (.08)
Private	3857 (2527)	.01 (.04)	.02 (.04)	−.02 (−.01)	.01 (.03)	2510 (1687)	.01 (.02)	.02 (.02)	−.01 (−.02)	−.01 (.01)	1269 (839)	*.08 (.10)*	*.07 (.10)*	.00 (.01)	*.07 (.07)*
Public	1026 (783)	.01 (.04)	.04 *(.07)*	−.02 (−.03)	−.04 (−.04)	708 (533)	*.06 (.09)*	.09 **(.13)**	−.03 (−.04)	−.04 (−.03)	318 (250)	.02 (.02)	.02 (.04)	−.01 (−.02)	−.01 (−.02)
Momentary thoughts	3259 (1767)	−.01 (.00)	.01 (.02)	.00 (−.02)	−.03 (−.02)	2105 (1162)	−.01 (−.01)	.02 (.01)	−.01 (−.04)	−.04 (−.02)	1077 (605)	.05 (.06)	.05 (.06)	.02 (.02)	.02 (.03)

Note. Effect sizes > |.10| are bolded; statistically significant effects ($p < .05$) are italicized; numbers in parentheses are the results of analyses where narcissism was residualized for self-esteem; Firstps = all first-person singular pronouns; Total fsp = all first-person singular pronouns; Subj. fps = Subjective first-person singular pronouns (i.e. "I"); Obj. fps = objective first-person singular pronouns (i.e. "me", "myself"); Poss. fps = Possessive first-person singular pronouns (i.e. "my", "mine"); contexts refer to categorization of study tasks into communication contexts as displayed in Table 1.

Narcissism and the Use of First-Person Singular Pronouns Revisited

Narcissism emerged as largely unrelated to I-talk as measured by participants' overall use of first-person singular pronouns as well as more specifically their use of subjective, objective, and possessive first-person singular pronouns. Across the full sample, no significant correlations emerged that exceeded what is generally considered a trivial effect ($r > |.10|$), neither for raw nor for self-esteem residualized narcissism (Paulhus et al., 2004). Our estimates are slightly lower than those obtained by Fast and Funder (2008; $r = \sim.07$), somewhat lower than those obtained by Holtzman and colleagues (2010; $r = .13$ for self-reports; $r = .07$ for informant reports) and considerably lower than those obtained by Raskin and Shaw (1988; $r = .26$).

Schönbrodt and Perugini (2013) introduced a procedure to evaluate the stability of correlations by computing effects for subsamples that increase in size up to *N*. Figure 3 shows such a plot (one trajectory based on a random order of participants) for our data. Clearly, our effect size estimates are stable beyond the first 1,000 participants. Further, consistent with what Schönbrodt and Perugini (2013) found, estimation errors appear limited for subsamples of more than 250 of our participants. Finally, with subsamples of fewer than 100 of our participants, effect size estimates begin to escalate. This suggests that, correlation coefficients from such studies would often lead to seriously biased conclusions if taken as representative of the "true" effect. Interestingly, Fast and Funder's (2008) study comprised 181 participants, Holtzman and colleagues' (2010) Study 79, and Raskin and Shaw's (1988) Study 48. Sample 7, which is closest to a direct replication of the Raskin and Shaw (1988) study, had 241 participants and yielded an estimate that differed from our full-sample estimate only in the thousandth ($r_{\text{Sample 7}} = .019$ vs. $r_{\text{overall}} = .017$). Taken together, this suggests that at least some of the variability in the published narcissism−I-talk effects is due to the impact of small sample sizes on effect size estimates.

Regarding our second question, we found little consistent evidence that specific contexts impact the ability to detect a connection between narcissism and I-talk. None of the six studied communication contexts stood out as yielding robust and meaningfully large links between narcissism and I-talk. This is important because the selected contexts varied considerably along dimensions that can moderate the expression of personality (e.g., salience of norms, impression management, controllability) and included some tasks that laypeople routinely use for inferring narcissism from I-talk (e.g., self-introductions, life stories, and Facebook status updates). On the other hand, despite the variability in studied tasks and communication contexts, our study fell short of a comprehensive analysis across the full range of relevant communication situations. Future research might benefit from adopting the DIAMOND taxonomy of situations that Rauthmann and colleagues (2014) recently put forward. For example, the Mating dimension of their model might prove especially important for studying how narcissism is expressed in everyday life (Holtzman & Strube, 2013). In this context it is also important that our interpersonal tasks were limited to situations relevant for first impressions (e.g., self-introductions to a video camera or to a group). They therefore do not speak to the potentially interesting question whether the narcissism−I-talk relation changes as a func-

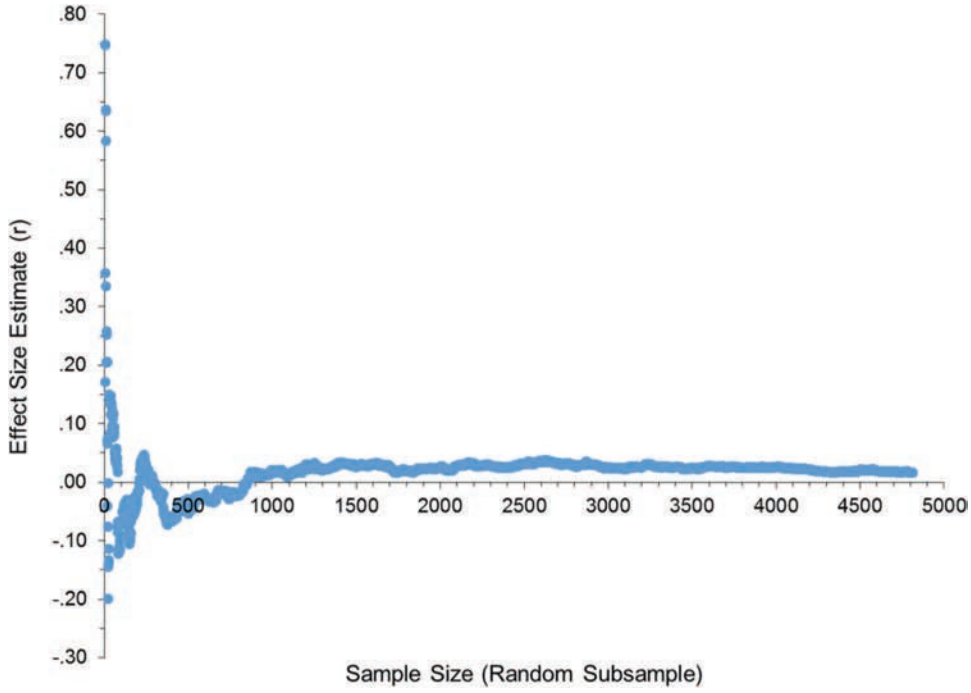

Figure 3. Effect size estimate (*r*) for the association between narcissism and total first-person singular as a function of (sub-)sample size. Following Schönbrodt and Perugini (2013), the narcissism−I-talk correlation was computed for subsamples of *n* participants increasing from $n = 3$ to $N = 4{,}811$. Due to the aggregation of multiple samples, participant order was arbitrary in this analysis; the graph depicts one plot for a random order of participants. See the online article for the color version of this figure.

tion of acquaintance. On the other hand, anecdotally, it appears that laypeople infer narcissism from I-talk mostly in contexts in which they have little individuating information about a target, so we do not believe this omission is serious.

Finally, our third question concerned potential gender differences in the narcissism−I-talk link. Consistent with Fast and Funder (2008), we found somewhat stronger effects for men than for women. Further, this pattern was more pronounced when narcissism was residualized for self-esteem, although none of the overall effects exceeded $r = .10$ in magnitude. Looking at specific contexts, two significant correlations emerged that exceeded $r = .10$ and thereby might be deemed nontrivial in magnitude: Among women, residualized narcissism was related to using more subjective first-person singular in a public context (e.g., self-introductions, Facebook status updates), and among men, residualized narcissism was related to using more objective first-person in an impersonal context (i.e., TAT picture stories). Whereas the former bodes well with narcissists' self-focus (though surprises in its specificity), the latter is theoretically surprising given that TAT picture stories afford little opportunity for self-focus and self-presentation. Male narcissists, in essence, stand out by managing to insert themselves (with a "me" or "myself") into third-person essays, which is interesting given the history of the TAT as a projective test. Yet, both of these measure-, gender-, context-, and pronoun-subtype-specific effects should be interpreted cautiously given the large number of statistical tests, the limited number of tasks that make up these contexts, and the relatively small sample sizes (for the analysis of the impersonal context). If gender moderates the connection between narcissism and I-talk, it does not appear to be a particularly strong factor.

I-Talk as an Intuitive Marker of Narcissism in the Absence of a Real Effect

An intriguing question that emerges from these results is how I-talk can be a strong intuitive marker of narcissism in light of such small effect sizes. In other words, why do people show a strong tendency to infer narcissism from I-talk when, presumably, they encounter disconfirming evidence on a daily basis? We currently do not have a good answer to this question. However, it is known that first-person pronouns (and other function words) tend to be spoken at too fast of a rate to be consciously registered (Pennebaker et al., 2003). Therefore, when people infer narcissism from I-talk, they likely do so on the basis of a holistic perception that a person uses many I words rather than on the basis of an accurate pronoun count. Perceived I-talk, then, may be part of a perceptual schema of self-confidence or arrogance which, once activated, selectively and unrepresentatively draws attention to a person's use of first-person singular (e.g., Chapman, 1967). In other words, if someone is judged a narcissist, perceivers may believe she or he uses more I-talk regardless of an underlying empirical connection between narcissism and I-talk.

In this context it is interesting that, around the time of his first election, President Obama was repeatedly accused of using too much I-talk, making him come across cold and aloof (see, Mark Liberman's *Language Log* entries from 10/31/2012 and 09/24/2014;

http://languagelog.ldc.upenn.edu/nll/?author=2). Ironically, though, Obama's actual first-person singular pronoun counts (e.g., in press conferences) put him at the very bottom of the distribution among modern U.S. presidents; much lower, for example, than President G.W. Bush, Clinton, and G.H.W. Bush (Pennebaker, 2011). Therefore, we speculate that—and future research should test whether—the intuitive association between I-talk and narcissism might be based more on a schema-based perceptual process, in the mind of the perceiver, rather than on an analytic pronoun count.

Potential Manifestations of Narcissism in Language Use

We focused on the connection between narcissism and I-talk because of the ambiguity in prior research and the importance of the I-talk−narcissism link within and outside of the scientific community. However, the small and even trivial effect sizes we observed for I-talk raise obvious and important questions about what other aspects of language use are associated with Narcissism if not I-talk. The next step, then, is to broaden the scope and to use our existing database of narcissism measures and LIWC variables across different contexts to identify reliable language markers. We have started this investigation and are currently in the process of preparing the data (Holtzman et al., 2014). But such research, which would have to be viewed as more exploratory, was beyond the scope of this confirmatory paper.

What variables might be good candidates for being such markers? Using the EAR method, Holtzman and colleagues (2010) found that, across the range of everyday conversations, narcissism was related to a more social (e.g., references to friends), more disagreeable (e.g., more anger and swear words), and more sexual language use. It is also conceivable that a lack of ambiguity or tentativeness and a general verbal certainty (e.g., absolutely, every, fact) might emerge as betraying narcissism (Tausczik & Pennebaker, 2010). Also, given that narcissists may lack impulse control (Vazire & Funder, 2006) and be sensation seeking (Miller et al., 2009), they might show signs of verbal disinhibition (e.g., more fillers and nonfluencies, shorter words; Mehl, Gosling, & Pennebaker, 2006) or sensory language use. Theoretically, though, one might expect more context-specific than global language markers (Mehl et al., 2012). For example, sexual words might be particularly or exclusively indicative of narcissism in mating/dating contexts and certainty words might be indicative of narcissism only in public (i.e., socially shared) and not in private contexts (e.g., the person's momentary thoughts).

Beyond these immediate analyses using our existing database, future research should also open up to novel, bottom-up, open-vocabulary text analytic approaches (e.g., Atkins et al., 2012; Yarkoni, 2010). Among those, Differential Language Analysis (Schwartz et al., 2013) has recently been used with great success to reveal a broad set of vivid linguistic markers of personality (at the level of words and topics) beyond what is typically captured with existing closed-vocabulary approaches such as LIWC (Schwartz et al., 2013).

Limitations

Our study had several limitations. First, despite the fact that our database comprised five different narcissism measures (the regular and short form of the NPI in English and German as well as the Dirty Dozen), it was limited in the way narcissism was assessed. Most critically, none of the samples included informant reports. This is important because narcissism is often thought of as an egosyntonic personality phenomenon and as such can benefit from including the perspective of others (Oltmanns & Lawton, 2011). With respect to evaluating the narcissism−I-talk association, though, it is noteworthy that Holtzman and colleagues (2010) found a nominally lower correlation for informant reports ($r = .07$) than for self-reports ($r = .13$). Thus, the absence of informant reports may not have artificially lowered our effect size estimates. Beyond that, it would have been desirable to also complement our database, which relied heavily on the widely used yet also controversial NPI (Brown & Tamborski, 2011), with other novel measures of narcissism (e.g., Back et al., 2013; Pincus et al., 2009).

Another limitation was that our analyses focused on overall narcissism rather than narcissism at the level of its facets where some are clearly more maladaptive and socially toxic than others. Given that our database comprised five different measures, including short versions of the NPI as well as the Dirty Dozen (Jonason & Webster, 2010), an analysis at the facet level was not feasible. Instead, following Paulhus and colleagues (2004), we analyzed narcissism residualized for self-esteem to get at its "darker shades." The residualized measure yielded consistently slightly larger but ultimately still near-zero effects.

Finally, our database was limited in age range given that all samples consisted of college students in the United States and Germany. From a generalizability perspective, it would have been desirable to have a broader and more representative age distribution. From the perspective of evaluating the link between narcissism and I-talk, though, college students should constitute an appropriate population (Twenge, 2006). Finally, the original Raskin and Shaw (1988) effect was obtained with college students, and researchers have since used I-talk as a marker of narcissism in college students (DeWall et al., 2011).

Conclusion

In sum, our large-scale, multisite and dual-language study provided little support for the widely assumed and strongly intuitive idea that narcissists stand out by referring to themselves a lot using I-talk. Overall, we found a consistent near-zero effect across a range of theoretically important communication contexts and across all subtypes of first-person singular pronouns. Therefore, narcissists' self-focus is apparently not, as implied by the Beatles song, all about "I, me, mine." Instead, narcissism might be expressed in everyday life in other ways both subtle and overt. I-talk might not be a promising lead but we suspect that narcissism is manifest in other ways that often have negative interpersonal consequences. Those observable behaviors and perhaps even linguistic signatures will be important to explore in future research.

We close this paper with a methodological note in the context of the ongoing replicability discussions (Simmons et al., 2011). In science, precision matters and, at least in the social sciences, precision necessitates large samples. In the reality of everyday science, though, resources are limited and affording large samples can easily come at the expense of affording high-quality measures. It would be an unfortunate compromise for the field to (reasonably) settle on prioritizing sample size but thereby (unreasonably) tolerate or indirectly

incentivize a short sale of measures. The field has come a long way since Baumeister, Vohs, and Funder (2007) published their seminal call for putting behavior back into the behavioral sciences. We see the approach of teaming up across and merging study data from multiple labs as one fruitful avenue to achieving both aims—samples that are large enough to yield precise answers and measures that are strong enough to facilitate valid, real-world conclusions. As a bonus, researchers are gratified with an extra dose of intellectual "cross-pollination."

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