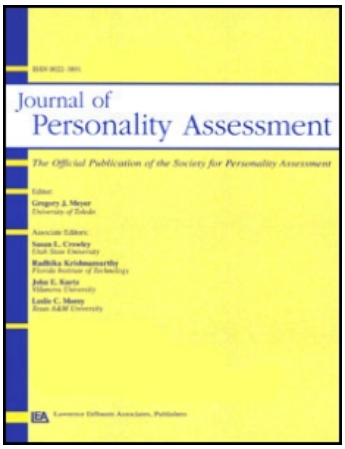

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Measuring the Impostor Phenomenon: A Comparison of Clance's IP Scale and Harvey's I-P Scale

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Many of the discrepancies reported to date in empirical investigations of the impostor phenomenon (IP) may be due in part to (a) the use of different methods for identifying individuals suffering from this syndrome (impostors), (b) the common use of a median split procedure to classify subjects, and (c) the fact that subjects in many studies were drawn from impostor-prone samples. In this study, we compared the scores of independently identified impostors and nonimpostors on two instruments designed to measure the IP: Harvey's I-P Scale and Clance's IP Scale. The results suggest that Clance's scale may be the more sensitive and reliable instrument. Cutoff score suggestions for both instruments are offered.

The *impostor phenomenon* (IP; Clance & Imes, 1978) was first defined as an internal experience of intellectual phoniness in high-achieving women who seemed to be unable to internalize their success experiences. Regardless of the degree of their success, these women retained the belief that each new task would expose them as frauds.

Despite a recent flurry of interest in the IP, including the publication of popular articles and clinical literature regarding treatment of individuals suffering from this syndrome (impostors), relatively little empirical data regarding the scales used to measure it have been published. Research has supported Clance and Imes's (1978) contention that the IP is a valid (Cozzarelli & Major, 1990; Crouch, Powell, Grant, Posner-Cahill, & Rose, 1991; Edwards, Zeichner, Lawler, & Kowalski, 1987; Harvey, 1981; Imes, 1979; Topping & Kimmel,

1985), nongender specific (Edwards et al., 1987; Harvey, 1981; Imes, 1979) construct. However, some of these studies have demonstrated contradictory results. For example, despite the original contention that the IP was an experience limited to high-achieving women, most studies have shown that men and women experience the IP at similar rates. On the other hand, Topping and Kimmel (1985) reported a higher incidence of the IP in men in their sample, whereas Cozzarelli and Major (1990) reported a marginally higher incidence in women. Furthermore, depending on the study cited, a case would be made for the IP as being positively related to attributions of success to interpersonal skills (Harvey, 1981; Imes, 1979), negatively related to attributions of success to task-related ability, or unrelated to either of these (Topping, 1983). Similarly, support can be found for a correlation between the IP and perceived atypicality (Harvey, 1981), or there can be no such correlation (Flewelling, 1985; Imes, 1979; Topping, 1983).

It is possible that discrepancies in the IP literature may result in part from methodological flaws or problems. For example, Clance and Imes (1978) may have used a biased sample in their initial formulations of the IP. That is, they and others (e.g., Harvey, 1981) used as subjects people who could be expected to be prone to impostor dynamics, so that designations of high and low IP have been based on the range of scores of subjects belonging to impostor-prone groups, rather than on the range of scores of independently identified impostors and nonimpostors. This procedure leads to problems of restricted range and complicates the measurement of the IP in a broader sample.

A second methodological problem is the frequent use of a median split procedure to divide subjects into high- and low-IP groups. A median split may have led to the inclusion of a large number of false positives in the high-IP groups or false negatives in the low-IP groups, and it may be that the inclusion of marginal impostors in both groups diluted the results obtained by many researchers by adding undue variability, obscuring their interpretations.

It is also possible that the discrepancies in the literature may be explained in part by the fact that different researchers have used different instruments to measure the phenomenon. Early research used descriptive attributes to identify impostors and nonimpostors (Imes, 1979). To standardize the measurement of the IP, Harvey (1981) developed the I-P Scale, a 14-item scale often used in later research, sometimes with modifications (Topping & Kimmel, 1985). Clance (1985; Clance & O'Toole, 1988) developed a new instrument partly because of criticisms of IP measurement raised by researchers. Her scale is designed to tap clinically observed attributes or feelings not addressed by Harvey's scale (e.g., fear of evaluation and feeling less capable than peers). Furthermore, wording on Clance's scale is intended to minimize social desirability effects and to encourage a feeling of safety and acceptance in the respondent. Recent studies (e.g., Cozzarelli & Major, 1990; Crouch et al., 1991) have employed Clance's IP Scale.

It seems that the first step in unraveling the contradictions across studies and

thus in understanding the IP is to make certain that the instruments used to measure it are valid, reliable, and sufficiently sensitive. This study was intended as an effort in this direction by assessing these issues in the most common IP instruments used to date—Harvey's I-P Scale and Clance's IP Scale—with samples of independently identified impostors and nonimpostors. In view of the discrepancy between Clance and Imes's clinical observations and the findings of later empirical investigations and in an attempt to resolve some of the problems of potential sample bias, we utilized both clinical and nonclinical samples. We anticipated that the use of subjects identified as impostors or nonimpostors by means other than the instruments under investigation would allow conclusions to be drawn regarding appropriate cutoff scores for both instruments and regarding specific explanations of the discrepancies in the results of previous studies.

METHOD

Subjects

There were 62 subjects in this study, including 14 males and 48 females. The mean age of the subjects was 28.9 years (SD = 8.6). These subjects represented two samples. Thirty-two subjects comprised a clinical sample, and 30 subjects comprised a nonclinical sample. Within each sample there were two groups: an impostor group and a nonimpostor group.

Clinical subjects. The subjects in both clinical groups were obtained through referrals from experienced clinicians. All of these subjects were outpatients, and none of them came to therapy with identified IP issues. The eight referring clinicians had been in practice an average of 6.4 years, with varied therapeutic orientations. All of the clinicians had at least some prior exposure to the IP, but the extent of this exposure varied and was not empirically documented.

Each referring clinician was provided with a general description of the IP based on the original Clance and Imes (1978) paper. They were also provided with information designed to help differentiate the IP from simple performance anxiety (i.e., the feelings of phoniness tend to be chronic, these feelings occur in an individual who demonstrates general competence in terms of outward success, and the feelings continue to occur when the individual has already demonstrated competence). A list of IP indicators, reproduced in Table 1, was also provided. Finally, the criteria for determining whether a particular client met the requirements of the study were specified (i.e., the subject was clearly an impostor or a nonimpostor as defined by the IP indicators).

The referring clinicians classified the subjects as impostors or nonimpostors

TABLE 1
List of Indications of the IP

Describes self as intellectual phony, fraud, impostor.
Has difficulty accepting praise.
Has difficulty believing that praise and so on is deserved.
Tends to be disappointed in accomplishments; believes should have done more.
Fears others will discover his or her lack of knowledge or ability.
Fears failure.
Fears cannot repeat successes.
Feels there is a marked difference between public and private intellectual image.
Tends to succeed even though feared failure before he or she tried.
Is afraid cannot live up to expectations.
Feels less capable than others or not as bright despite objective evidence to the contrary.
Tends to attribute success to interpersonal assets.
May believe ritualistic behaviors necessary to ensure success.
May prefer low-level or unchallenging positions because fears will fail in position commensurate with ability.
Unable to internalize success; persists in belief in own lack of ability and so on, despite accumulating objective evidence to the contrary.

Note. In general, a person who experiences five or more of these indicators could be considered an impostor.

based on the information provided. Their written designations were returned directly to the researchers and were not seen by the clinical subjects. Of the 39 test packets distributed to referred subjects, complete data were obtained for 32 subjects.

Sixteen subjects, 3 males and 13 females (M age = 34.5, *SD* = 4.4), were clinically identified impostors (CI). Fifteen of these subjects identified themselves as White, and 1 did not indicate a racial group. Their mean education level was 17.9 years. Sixteen subjects, 4 males and 12 females (M age = 32.7, *SD* = 6.1), were clinically identified nonimpostors (CN). Fifteen of these subjects identified themselves as White, and 1 did not indicate a racial group. Their mean education level was 17.1 years.

Nonclinical subjects. All of the nonclinical subjects were undergraduates at a large urban university who volunteered to participate to fulfill a course requirement. Because the IP was initially formulated as an experience of phoniness among high achievers, and because achievement was a part of the criteria used by the clinicians in classifying the subjects in the clinical sample, we attempted to include a minimal external measure of success for the nonclinical sample. Accordingly, as a condition of participation, only subjects with a self-reported grade point average of 3.0 or higher were allowed to sign up.

Following group test administrations, each nonclinical subject was individually interviewed to determine if she or he should be classified as an impostor or a nonimpostor. The nonclinical subjects were classified on the basis of this

interview, which was conducted by one of the researchers before she saw the completed scales. The interviews followed a semistructured format, and the same criteria were used to determine group membership as those used by referring clinicians. The length of the interview ranged from 30 to 45 min.

Only those subjects with clear indications of the IP were classified as impostors; those who were clearly nonimpostors and any marginal cases were included in the nonimpostor group. Ten subjects, 1 male and 9 females (M age = 28.4, *SD* = 12.4), were nonclinically identified impostors (NI). Nine identified their race as White, and 1 was Asian. The mean education level for this group was 13.6 years. Twenty subjects, 6 males and 14 females (M age = 22.2, *SD* = 5.5), were nonclinically identified nonimpostors (NN). Fifteen identified themselves as White, 3 as African American, 1 as Asian, and 1 as being of mixed descent. The mean education level for this group was 12.7 years.

Instruments and Procedures

Harvey's I-P Scale is a self-administered, 14-item instrument utilizing a 7-point Likert scale for responses (see Table 2 for sample items). It was designed by Harvey (1981) to validate the IP as a distinct construct. The items were generated from previous research on the IP. Harvey obtained a coefficient alpha of .85 for her scale, whereas Edwards et al. (1987) found a much lower alpha for the overall scale (.36).

TABLE 2
Harvey's and I-P Scale and Clance's IP Scale—Sample Items With Highest and Lowest Corrected Item–Total Correlations

Scale Items	*Item–Total Correlation*
Harvey I-P Scale Item[a]	
I feel confident that I will succeed in the future. (R)	.83
Sometimes I am afraid I will be discovered for who I really am.	.82
In discussions, if I disagree with my professor or boss I speak out. (R)	.43
My personality or charm often makes a impression on people in authority. (R)	−.11
Clance IP Scale Item[b]	
Sometimes I'm afraid others will discover how much knowledge or ability I really lack.	.89
I'm afraid other people important to me may find out I'm not as capable as they think I am.	.88
I feel bad or discouraged if I'm not "the best" or at least "very special" in situations that involve achievement.	.48
If I'm going to receive a promotion or gain of some kind, I hesitate to tell others until it is an accomplished fact.	.41

[a](R) indicates reverse scoring. Scale published in Harvey (1981). [b]Scale published in Clance (1989) and Clance and O'Toole (1988).

Clance's IP Scale is a self-administered, 20-item instrument utilizing a 5-point Likert scale for responses (see Table 2 for sample items). This instrument was designed to assess dimensions thought to be related to the IP but not measured by the Harvey scale, including fear of evaluation, feeling less capable than peers, and fear that success cannot be repeated. In addition, the items were worded in such a way as to minimize social desirability response sets. The instrument is published in Clance (1985) and Clance and O'Toole (1988).

First, all subjects completed a personal information questionnaire that requested demographic information. Then, they were administered Harvey's I-P Scale and Clance's IP Scale. Clance's scale was presented first to 50% of the subjects and Harvey's scale was presented first for the remaining 50%. The forms were distributed to the clinical subjects by their referring therapists; the nonclinical subjects completed the measures in a group setting, followed by an individual interview conducted by the principal investigator.

RESULTS

Characteristics of the Scales

Subjects' scores on Clance's IP Scale ranged from 28 to 97. The highest group mean was obtained by the CI subjects, whereas the lowest group mean was obtained by the CN subjects, with the NI and NN subjects scoring between the two clinical groups. Subject scores on Harvey's I-P Scale ranged from 18 to 89, with a group mean ranking identical to that obtained with the Clance scale. The group means, standard deviations, and ranges for the two scales are shown in Table 3.

Both scales were found to have a high level of internal consistency. For

TABLE 3
Summary of Means, Standard Deviations, Minimum/Maximum Scores for the Clance IP Scale and the Harvey I-P Scale by Group

Scale	*Group*	*n*	*M*	*SD*	*Min*	*Max*
Clance	CI	16	86.87	5.38	79	97
	NI	10	70.30	8.50	62	87
	NN	20	49.65	8.66	31	61
	CN	16	45.50	11.09	28	67
Harvey	CI	16	75.06	8.74	61	89
	NI	10	56.90	10.06	35	65
	NN	20	41.05	11.16	18	58
	CN	16	39.31	13.10	24	70

Note. N = 62. CI = clinical impostors; CN = clinical nonimpostors; NI = nonclinical impostors; NN = nonclinical nonimpostors.

Clance's scale, a coefficient alpha of .96 was obtained. Corrected item–total correlations ranged from .41 to .89, with a mean interitem correlation of .55 and an overall item mean of 3.08. For Harvey's scale, a coefficient alpha of .91 was obtained. Corrected item–total correlations ranged from −.11 to .82, with an overall item mean of 3.70. Elimination of the two weakest items in either scale did not increase the alpha levels appreciably.

Comparison of the Clance and Harvey Scales

Scores on the Clance and Harvey scales were significantly correlated; over all subjects, the correlation was .89 ($p < .001$). The correlation between the two scales varied from group to group: The correlation was .55 ($p < .01$) for the CI group, .78 ($p < .01$) for the CN group, .26 (ns) for the NI group, and .64 ($p < .01$) for the NN group.

Two separate one-way analyses of variance (ANOVAs) with contrasts were performed, each comparing the scores of the four groups on one of the two IP scales. A group effect was found for Clance's IP Scale, $F(3, 58) = 80.59$, $p < .001$. The scores of the CI group were significantly higher than those of the CN group (Ms = 86.69 and 46.19, respectively), $t(58) = 13.50$, $p < .001$, and scores of the NI group were significantly higher than those of the NN group (Ms = 70.30 and 49.65, respectively), $t(58) = 6.27$, $p < .001$. In addition, the scores of the CI group were significantly higher than those of the NI group (Ms = 86.69 and 70.30, respectively), $t(58) = 4.78$, $p < .001$. A group effect was also found for Harvey's I-P Scale, $F(3, 58) = 37.93$, $p < .001$. Again, the scores of the CI group were significantly higher than those of the CN group (Ms = 75.06 and 39.25, respectively), $t(58) = 9.21$, $p < .001$, and scores of the NI group were significantly higher than those of the NN group (Ms = 56.90 and 41.05, respectively), $t(58) = 3.72$, $p < .001$. Finally, Harvey's I-P Scale scores of the CI group were significantly higher than those of the NI group (Ms = 75.06 and 56.90, respectively), $t(58) = 4.10$, $p < .001$.

An analysis of covariance (ANCOVA) performed for between-group differences on Harvey's scale scores, statistically holding Clance's scale constant, indicated that there are no group differences after adjusting for differences on the Clance scale, $F(3, 57) = .552$, $p = .65$ (ns). However, the same analysis performed for Clance's scale scores, statistically holding Harvey's scale constant, indicated that Clance's IP Scale measures group-related variance in addition to that measured by Harvey's scale, $F(3, 57) = 15.11$, $p < .001$. That is, even when the Harvey scale scores are held constant, the Clance scale continues to differentiate among the four groups in this study.

Potential contamination of these results by gender and age differences between the clinical and nonclinical samples was investigated. A one-way ANOVA with contrasts indicated that age differences did exist between the groups, $F(3, 57) = 10.91$, $p < .001$. Because the Cochran's C test for homoge-

neity of variances was significant, separate variance estimates were used for the contrasts. These contrast analyses demonstrate that clinical subjects differed in age from nonclinical subjects, $t(15.7) = 3.67$, $p = .002$, but that impostors did not differ in age from nonimpostors at a statistically significant level, $t(15.7) = 1.78$, $p = .09$ (ns). Also, impostors did not differ in age from nonimpostors at a statistically significant level in either the clinical sample (CI and CN), $t(27.1) = .96$, ns, or the nonclinical sample (NI and NN), $t(10.8) = 1.52$, ns.

To clarify these differences further, Age × Gender × Group interactions were investigated through the use of regression modeling. No significant Age × Group, Gender × Group, or Age × Gender × Group interactions were found. Despite the lack of interactions, separate ANCOVAs for the clinical and nonclinical samples were performed because these two samples were found to differ in age. The results were virtually identical to those just reported for the study as a whole. That is, no significant between-group differences were found on Harvey's I-P Scale when Clance's IP Scale was used as a covariate in either the clinical sample, $F(1, 29) = .127$, ns, or the nonclinical sample, $F(1, 27) = .153$, ns, whereas Clance's IP Scale continued to differentiate between groups when Harvey's I-P Scale is used as a covariate in both the clinical sample, $F(1, 29) = 26.86$, $p < .001$, and the nonclinical sample, $F(1, 27) = 15.59$, $p < .001$. Finally, the greater sensitivity of the Clance scale was also maintained when age was used as a second covariate.

Establishing Cutoff Scores

Scores on the Clance and Harvey scales were examined for a cutoff score that would most adequately distinguish between subjects who were classified as impostors and nonimpostors by the interview and clinician assessment methods described. The goal of this analysis was to establish cutoff scores for both instruments that would minimize false positives and false negatives. Ideally, all subjects scoring below the cutoff score would have been classified as nonimpostors, and all subjects scoring above the cutoff would have been classified as impostors.

A median split procedure, as often reported in previous studies, proved to be inadequate. Using the median split, subjects scoring 58 or above on the Clance scale would have been included in the impostor groups. However, this results in five false positives (i.e., five identified nonimpostors would have been included in the impostor group). On the Harvey scale, subjects scoring at or above 50 would have been included in the impostor group if a median split procedure were used. This would have resulted in eight false positives and two false negatives (i.e., eight nonimpostors would have been included in the impostor groups, and two impostors would have been included in the nonimpostor groups).

On the Clance scale, the lowest score obtained by an impostor was 62, and

the highest score obtained by a nonimpostor was 67. This latter score was obtained by a single subject who also had the highest nonimpostor score on Harvey's scale. A cutoff of 62 for the Clance scale resulted in one false positive and no false negatives; we therefore suggest that 62 be considered as a cutoff score for Clance's IP Scale.

Although Clance's scale scores show a relatively clean division between subjects classified as impostors and nonimpostors in both the clinical and nonclinical samples, there is considerably more overlap of impostor and nonimpostor scores on the Harvey scale, even if the nonimpostor subject with the highest score (70) is eliminated. The next highest score for a nonimpostor on this scale was 61, and five impostors scored at or below 61. Seven nonimpostors scored between 50 and 61 on Harvey's scale. Given this degree of overlap, it is difficult to suggest a cutoff score that would not lead to the inclusion of a substantial number of nonimpostors in the impostor group or of impostors in the nonimpostor group. This is especially true in the nonclinical sample, wherein the degree of overlap on the Harvey scale between impostors and nonimpostors is greater than in the clinical sample. The most efficient cutoff score on the Harvey scale is also 62, which results in five false negatives and one false positive. Because it would seem better to err on the side of false negatives, we suggest that 62 be considered as a cutoff score for the Harvey scale.

DISCUSSION

In this study, we examined the reliability of the Clance IP Scale and the Harvey I-P Scale and compared the two scales on their ability to distinguish between independently identified impostors and nonimpostors in both a clinical and a nonclinical sample. The results indicate that the Clance scale is the more sensitive instrument, based on an ANCOVA and on a reduced incidence of false positives and false negatives in establishing cutoff scores.

Clance's IP Scale and Harvey's I-P Scale clearly differentiate between both clinically and nonclinically identified impostors and nonimpostors. In addition, the interitem reliabilities for both scales are quite high, with Clance's scale being only slightly higher in this study.

On the other hand, the ANCOVA for Harvey's scale, using Clance's scale as a covariate, did not yield a significant result, whereas the ANCOVA for Clance's scale was significant. This suggests that Clance's scale is a more sensitive measure of the IP because it appears to be able to distinguish between the groups of this study even when Harvey's scale scores are held constant. It may be that Clance's scale is measuring a broader construct than Harvey's scale. This interpretation is consistent with Clance's (1985) intention to design a scale to measure attributes and feelings, such as feeling less capable than peers and fear

of evaluation, thought to be associated with the IP but not addressed by Harvey's scale.

The suggestion that Clance's scale is a more sensitive measure of the IP is also supported by an analysis of cutoff scores for each scale. As noted, the scores on Clance's scale demonstrated much less overlap between independently identified impostors and nonimpostors. A cutoff score that minimized the number of false positives and false negatives was readily established for the Clance scale, but a cutoff score could not be satisfactorily defined for the Harvey scale. This finding suggests that the Clance scale, using the recommended cutoff score of 62, will more reliably separate impostors from nonimpostors.

The difference in overlap between impostor and nonimpostor scores on the two scales was especially strong in the nonclinical sample. Four of the five false negatives on the Harvey scale occurred in the nonclinical sample; that is, although a cutoff score of 62 only marginally favored the Clance scale in the clinical sample, in the nonclinical sample, the Harvey scale was particularly ineffective. This finding is consistent with the fact that the NI group was the only group for which a nonsignificant correlation between the Clance and Harvey scales was found. It is likely that the low between-scales correlation in this group is the result of increased variability of Harvey I-P Scale scores in the nonclinical sample, especially in the NI group. Taken together, these findings suggest that the relative strength of the Clance scale's ability to differentiate impostors from nonimpostors is particularly salient in the nonclinical sample, and that the Clance scale is therefore the instrument of choice in research with the general (i.e., nonclinical) population.

We suggested in the introduction that the common use of a median split procedure in identifying impostors and nonimpostors may have contributed to contradictory findings in previous research on the IP. The number of false positives and false negatives that would have been found in this study using the median as a cutoff score supports this contention. It appears that earlier results may well have been diluted by a substantial number of false positives and/or false negatives. Furthermore, the results of our study suggest that this problem is particularly relevant for studies that have used the Harvey scale to assess the presence or absence of the IP.

Caution should be exercised in interpreting and generalizing these results because the subjects were not randomly assigned to groups. Rather, the assignment process was designed to ensure that the two IP groups contained only subjects who were experiencing a high degree of the IP. The use of subjects selected by clinical interview is one of the strengths of this study, and the interview was designed to enable the establishment of cutoff scores for the two instruments. However, caution is advised in generalizing the results beyond persons who have been independently identified as impostors or nonimpostors either clinically or by an interviewer who is thoroughly familiar with the constructs and attributes associated with the IP. Such generalization awaits

confirmation in future research. If future results support the use of the cutoff scores, empirical research on the IP will be facilitated by the knowledge that group assignment is consistent with clinical experience.

However, the use of both a clinical sample and a nonclinical sample strengthens the generalizability of the study. The clinical sample was older than the nonclinical sample, and the clinical sample included individuals who had completed more education and had demonstrated competence in their fields. The finding that the increased sensitivity of the Clance scale is maintained when both age and the Harvey scale scores are used as covariates broadens the utility of the Clance scale as both a clinical and a research instrument.

Nonetheless, the age factors in this study are a source of potential difficulty in interpreting the results. Because the nonclinical sample was drawn from an urban university, which attracts nontraditional students, subjects in this sample were often older than may be expected in a typical undergraduate sample. In addition, the mean age of the NI group was higher than that of the NN group. However, this difference was not statistically significant, and it results largely from the inclusion of an outlier in terms of age (the oldest person in the study). Somewhat more problematic are the age differences between CIs and NIs. CI subjects were older than NI subjects, and CI subjects had significantly higher scores on both the Clance and Harvey scales than did the NI subjects. However, our analyses suggest that the higher IP scores of the CIs were not the result of age differences per se.

The higher scores of CIs are explained by two factors other than age. First, the subjects in the clinical sample were actively involved in therapy and, therefore, more likely to be aware of their impostor feelings, whereas subjects in the nonclinical sample may or may not have been in therapy and would not be expected on average to show a high degree of awareness of impostor feelings. Second, clinicians referring subjects for the clinical sample were instructed to select patients who were clearly impostors and nonimpostors, whereas no such prior selection criteria were used for the nonclinical sample. Because of these two factors, a wider difference in IP scale scores could be expected between CIs and CNs than between NIs and NNs.

Results of this study validate the Clance and Harvey scales against clinical judgment, and they demonstrate that the Clance scale is a more sensitive measure in this regard. Although the study does not establish the IP as a syndrome, the further studies that are required to demonstrate the discriminant validity of the IP will depend on a reliable and sufficiently sensitive instrument. The Clance IP Scale, particularly with the use of the cutoff scores recommended in this study, will be of value in this endeavor. Furthermore, the cutoff scores may be valuable in resolving some of the contradictory results of previous studies, particularly those that employed a median split procedure for classifying impostors and nonimpostors. The capacity to correctly identify impostors and nonimpostors through the use of the Clance scale should facilitate the investi-

gation of a number of other interesting questions, such as the incidence of the IP in general as well as in high-achieving populations, and the determination of those covariates that make the experience of the IP personally and emotionally debilitating for some individuals and not for others.

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