



# Never good enough: The relation between the impostor phenomenon and multidimensional perfectionism

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## Abstract

The Impostor Phenomenon can be described as the tendency to attribute professional success not to one's own abilities but to excessive effort or fortunate external circumstances. Individuals strongly experiencing those tendencies fear that one day they will be exposed as “impostors” as soon as their alleged incompetence can no longer be concealed. Typical characteristics of the Impostor Phenomenon outlined by Clance (1985) show a remarkable conceptual similarity to the personality construct of perfectionism. Thus, the present study aimed at investigating how the Impostor Phenomenon is related to various facets of dispositional perfectionism with respect to predominant conceptualizations of perfectionism by Frost et al. (1990), Hewitt and Flett (1991), as well as their combination within the bifactor model of Perfectionistic Strivings and Perfectionistic Concerns (Frost et al. 1993). A total of  $N = 274$  individuals participated in an online survey including the Impostor Phenomenon Scale (CIPS; Clance 1988), the Frost Multidimensional Perfectionism Scale (FMPS; Frost et al. 1990), and the Hewitt und Flett Multidimensional Perfectionism Scale (MPS short form; Hewitt et al. 2008). Hierarchical regression analyses were conducted to determine the differential contributions of perfectionism dimensions and factors in predicting the Impostor Phenomenon. The perfectionism dimensions Doubts about Actions, Concern over Mistakes and Socially prescribed Perfectionism appeared to be efficient predictors of the Impostor Phenomenon. Contrary to Perfectionistic Strivings, Perfectionistic Concerns as a maladaptive perfectionism factor strongly contributed to the prediction of the Impostor Phenomenon. Theoretical and practical implications of the associations between the Impostor Phenomenon and multidimensional perfectionism are discussed.

**Keywords** Impostor phenomenon · Perfectionism · Perfectionistic strivings · Perfectionistic concerns

## Introduction

There are people who are objectively perceived as very competent due to their professional or academic achievements and qualifications, but who perceive themselves as insufficient and do not believe in their own abilities. Apparently, the characteristics associated with high success, such as recognition, power, and status do not necessarily increase confidence in their own performance, but rather cause the opposite, namely fears of failure (Clance 1985; Clance and Imes 1978). Clance and Imes (1978) first discovered this phenomenon in their therapeutic work with women from different professions and

further noted that such individuals also tend to explain their professional accomplishments not with their own abilities, but with excessive effort or fortunate circumstances. Furthermore, they report that these individuals are supposedly convinced to be overestimated by others, which is why they fear to be exposed as a “fraud” as soon as their alleged incompetence can no longer be concealed. Clance and Imes (1978) summarized this pattern of dysfunctional thoughts and feelings as the “Impostor Phenomenon” (IP), which is considered an independent personality disposition nowadays (Rohrmann 2018; Rohrmann et al. 2016; Ross and Krukowski 2003).

According to Clance (1985), “impostors” are characterized by a so-called superwoman/superman complex, high performance demands as well as the tendency to overwork. According to their need to be the very best, they set themselves unrealistically high standards and strive to accomplish each task flawlessly (Imes and Clance 1984). Individuals with high impostor tendencies often feel overwhelmed and overgeneralize themselves as failures when they are unable to fulfill their exaggerated goals (Clance 1985). These characteristics are closely

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associated with the personality trait of perfectionism, which is broadly defined by extremely high performance standards and overcritical self-assessment (Flett and Hewitt 2002; Frost et al. 1990). The theoretical description of the IP by Clance and Imes (1978) therefore suggests a noticeable conceptual link to dispositional perfectionism. Both constructs are similar in that they constitute a performance and evaluation process (Brauer and Wolf 2016; Stoeber and Otto 2006). Like perfectionistic individuals, people with strong impostor tendencies are driven to excel. However, while perfectionism is motivated by an internal pressure of fulfilling high standards, the IP is essentially driven by the internal experience of intellectual phoniness (Cokley et al. 2018). Within the context of pronounced impostor tendencies, perfectionistic behaviors may particularly serve as a strategy to overcompensate for these thoughts of inadequacy.

Several research findings point to the presence of typical social-cognitive components of perfectionistic behaviors among individuals with high IP levels. Thompson et al. (1998) found perfectionistic thinking of individuals with high impostor tendencies in the form of high standards of self-evaluation, over-generalization of single failures to their overall self-concept, and strong self-criticism. Likewise, Thompson et al. (2000) demonstrated that people with higher levels of IP express greater concern over mistakes, have a stronger inclination to overestimate errors, and are more dissatisfied with their performance. This penchant for perfectionism is also corroborated in a study by Ferrari and Thompson (2006): Based on their findings, it is important for individuals with high IP levels to present others with the perfect picture of themselves. This tendency is also one of avoiding situations where imperfection might be revealed. However, unlike individuals with high levels of perfectionism who would not disclose shortcomings to others (Frost et al. 1995), individuals with high impostor tendencies communicate their perception of imperfect performance (Ferrari and Thompson 2006).

Taken together, empirical evidence for typical interpersonal (i.e. self-presentational facets) and self-relational (i.e. perfectionistic cognitions) aspects of perfectionistic behavior that accompany the IP supports its theoretical link with trait perfectionism. Against this backdrop, perfectionism can be identified as a core vulnerability factor to the IP, that - according to Kets de Vries (2005) as well as Sakulku and Alexander (2011) - may have strong influence on its development and maintenance.

Whereas originally a unidimensional nature of perfectionism was assumed (Burns 1980), more recent conceptualizations conceive perfectionism as a multidimensional and multilevel disposition that incorporates both self-related and interpersonally-related components (Enns and Cox 2002; Flett and Hewitt 2002). Two widely used multidimensional models of perfectionism (despite some conceptual overlap) capture some apparently distinct dimensions (Frost et al. 1993). Frost et al.'s (1990) model involves six dimensions

of perfectionism, which are directed towards the self (high Personal Standards, Concern over Mistakes, Doubts about Actions, Organization), and reflect the perceived presence of parental demands on the self (Parental Expectations, Parental Criticism). Hewitt and Flett (1991) developed a more interpersonally focused approach to the definition and measurement of perfectionism, that, depending on the source and target of perfectionistic demands (self or others), distinguishes between Self-oriented (demanding perfection of oneself), Other-oriented (demanding perfection of others), and Socially prescribed Perfectionism (perceiving others as demanding perfection of oneself). Moreover, the various dimensions of perfectionism can empirically be combined to higher order factors: While Perfectionistic Strivings represent the tendency to set oneself highly demanding standards and strive for their attainment, Perfectionistic Concerns comprise tendencies to the perception of others exerting pressure to be perfect, harsh self-evaluation, and doubts about one's capacity to progress towards high standards (Frost et al. 1993; Stoeber and Otto 2006). Distinguishing between Perfectionistic Strivings and Perfectionistic Concerns appears sensible because the two factors differently show positive relations to indicators of psychological adjustment (such as conscientiousness, problem-focused coping, positive affect) and maladjustment (such as neuroticism, avoidant coping, negative affect), respectively (Stoeber 2014; see also Stoeber and Otto 2006, for a review).

The relationships between the IP and the multiple dimensions of trait perfectionism have partly been examined by some empirical studies. Using a perfectionism inventory by Hill et al. (2004), Dudău (2014) found positive correlations between impostor tendencies and Concern over Mistakes, Need for Approval, Parental Pressure, and Rumination as well as a negative relationship with Organization. High Standards for others, Planfulness, or Striving for Excellence, however, showed no connection with the IP. Rohrmann et al. (2016) investigated the relation of the IP to a limited selection of Frost's dimensions of perfectionism, i.e. Personal Standards and Concern over Mistakes and Doubts (a factor combining Concern over Mistakes and Doubts about Actions as recommended by Stoeber 1998) and found positive correlations with both scales ( $r = .21$  and  $r = .57$ ). Using a factor analytic approach, they also showed that the IP, despite its intercorrelations, can be differentiated from perfectionism and other conceptually close personality traits (neuroticism, anxiety, core self-evaluations) as a construct in its own right. In accordance with Rohrmann et al. (2016), Vergauwe et al. (2015) discovered a negative association between impostor tendencies and Personal Standards in the sense of an adaptive perfectionism factor, and a positive association between IP and a maladaptive factor averaging Concern over Mistakes and Doubts about Actions. In a recent study by Cokley et al. (2018) the IP was not significantly related to participants' personal standards but

to the perceived discrepancy between their current performance and those standards assessed with another perfectionism measure by Slaney et al. (2001). However, empirical evidence concerning the IP's relatedness to multiple perfectionism facets according to Hewitt and Flett's (1991) conceptualization is sparse. To date, only one study by Cowie et al. (2018) has explored the role of these perfectionism components in the IP and found Socially prescribed Perfectionism to be positively associated with impostor tendencies of graduate students, whereas Other-oriented Perfectionism negatively predicted the IP. Surprisingly, Self-oriented Perfectionism showed no unique effect in this sample.

Given the limited perspective of current research findings, a comprehensive picture of the differential relations of the IP to various aspects of trait perfectionism, which integrates the perspectives of different perfectionism concepts, has so far not been sufficiently obtained. Clarification of the full "perfectionistic profile" (i.e. more or less strong manifestations of specific perfectionism dimensions and factors) is needed to broaden our understanding of the role of dispositional perfectionism in the IP. Hence, our study aimed at comprehensively examining the relative associations of IP and the various components of perfectionism including both intra- and interindividual facets, adaptive and maladaptive factors of perfectionism. The study therefore considered the prevailing approaches to describing perfectionism according to (1) Frost et al. (1990), (2) Hewitt and Flett (1991), and (3) the global distinction between Perfectionistic Strivings and Perfectionistic Concerns at the higher order level originally proposed by Frost et al. (1993). In doing so, we intended to identify the contribution of these perfectionism dimensions and factors in predicting the IP. Based on the theoretical description of the IP (Clance and Imes 1978; Clance 1985) and the empirical findings to date (Dudău 2014; Ferrarri and Thompson 2006; Rohrmann et al. 2016; Thompson et al. 1998; Thompson et al. 2000; Vergauwe et al. 2015), we expect the following differential relationships:

(1) Out of the desire to be special through outstanding performance (need to be the best), people with strong impostor tendencies set themselves unrealistically high goals and expect themselves to master any requirement flawlessly (superwoman/superman complex), while they are in constant fear of failure and not meeting their own exaggerated standards. These typical characteristics of individuals with high impostor tendencies point to a significant role of interpersonal, self-evaluative perfectionism aspects according to Frost et al. (1990), in the form of a tendency towards extremely high standards, enormous concerns about mistakes, as well as doubts about the quality of one's own actions. With regard to Frost et al.'s (1990) perfectionism approach, the following hypotheses can thus be formulated:

High Levels of (1a) Personal Standards, (1b) Concern over Mistakes, and (1c) Doubts about Actions Predict High Levels of IP

(2) People with high levels of IP are afraid of appearing incompetent and fraudulent in front of others and of attracting others' negative evaluations. Their striving for perfectionism, in the sense of a socially imposed component, therefore also seems to be aimed at receiving others' approval and not disappointing their expectations. Taking into account the distinction between perfectionism components according to Hewitt and Flett (1991), the perfectionistic demands of "impostors" thus do not arise solely from self-imposed expectations (self as target and source) but seem clearly motivated by social concerns (self as target, others as source). In the literature no indications can yet be found that the IP is also accompanied by perfectionistic demands toward other people (others as target, self as source). This leads to the following assumptions:

High Levels of (2a) Self-Oriented Perfectionism and (2b) Socially Prescribed Perfectionism Predict High Levels of IP

(3) People with strong impostor feelings are characterized by persistent self-doubts about their own competence and quality of work, fear of exposure, and missing expectations, which implies high psychological distress. In contrast to a productive pursuit of high self-imposed performance goals, IP seems to be associated with a maladaptive form of perfectionism. On the level of the two superordinate perfectionism factors Perfectionistic Strivings and Perfectionistic Concerns according to Frost et al. (1993) the following hypothesis can be derived:

Perfectionistic Concerns Incrementally Predict IP Levels beyond Perfectionistic Strivings

While Clance and Imes (1978) initially assumed that the IP would primarily affect women, subsequent research showed inconsistent findings concerning gender differences (e.g., Cromwell et al. 1990; Harvey and Katz 1985; Leonhardt et al. 2017; McGregor et al. 2008; Rohrmann et al. 2016; Rohrmann 2018). Accordingly, there is still no certainty as to whether possible gender effects exist or not. Furthermore, study results indicate that different age groups are affected by the IP, such as adolescents (Chayer and Bouffard 2010; Lester and Moderski 1995), emerging adults (Lane 2015), students (Bussotti 1990), academics (Topping 1983), and marketing managers (Fried-Buchalter 1992). Hence, in all of the following analyses we included gender and age as control variables.

## Method

### Participants

A total of 274 people (217 women and 57 men) at the age of  $27.63 \pm 7.90$  years took part in an online survey. The sample was recruited via social networks (Facebook, LinkedIn), mailing lists of different German student councils, as well as the Goethe University's alumni network. Our target subjects were students and working academics since the IP is mainly to be found among well-educated, professionally, and/or academically successful individuals. Among the participants, 62.4% were students and 37.6% were employed.  $N = 151$  indicated a university degree,  $n = 97$  a high school diploma as the highest educational degree, with a large majority of the participants achieving good (55.7%) to very good (22.7%) marks according to their self-report.

### Procedure

The data were collected as part of an online survey study, which was based on the ethical guidelines of the German Psychological Society. Participation in the survey was voluntary and could be terminated at any time without giving reasons. The processing of the questionnaire to capture the IP and the different perfectionism dimensions took about 30 min. Objectivity of the investigation was ensured by a standardized instruction of all participants.

### Measures

#### Clance Impostor Phenomenon Scale

The Clance Impostor Phenomenon Scale (CIPS; Clance 1985; German translation by Salm-Beckgerd, see Clance 1988) is a self-assessment tool that allows the detection of interindividual differences in the manifestation of the IP. On the basis of 20 items three different aspects of content are recorded, such as doubts and worries about one's own abilities and intelligence (e.g., "Sometimes I am afraid that others will realize how little I actually know and can."), the conviction of having attained successful achievements by factors like coincidence/luck (e.g., "Sometimes I think I've gotten my present position or my current success because I was in the right place at the right time or knew the right people.") as well as the inability to acknowledge good performance and accept praise (e.g., "If people praise me for my accomplishments, I am afraid that I will not meet their expectations in the future."). The items are to be answered on the basis of a five-point Likert scale from 1 = "does not apply at all" to 5 = "exactly applies". With regard to the three-factor solution postulated by Clance (1985), different empirical results can be found. While a study by Chrisman et al. (1995) confirmed the three factors assumed

by Clance (1985), other studies come to different conclusions and suggest, for example, a two-factor solution in which the factors Fake and Discount are combined into one factor (French et al. 2008). Due to the inconsistent findings, the majority of the literature refrains from an analysis at the sub-scale level (e.g. Leary et al. 2000; Bernard et al. 2002; Kumar and Jagacinski 2006; Rohrmann et al. 2016). In line with that only the total score of the CIPS was used in our analyses.

The translation of the CIPS has already been used many times in research, for example to study the effects of the IP on leadership styles (Bechtold, 2015), career development (Neureiter and Traut-Mattausch 2016), as well as stress and working styles (Rohrmann et al. 2016). The original and German versions proved to be instruments of good psychometric quality with high internal consistency and convergent, discriminatory, and nomological validity (Brauer and Wolf 2016; Chrisman et al. 1995). In the present study, the CIPS showed excellent internal consistency ( $\alpha = .92$ ).

#### Frost Multidimensional Perfectionism Scale

With 35 items on six sub-scales, the Frost Multidimensional Perfectionism Scale (FMPS; Frost et al. 1990; German translation by Stoeber 1995) captures perfectionism along six dimensions: Personal Standards (PS) (e.g., "I set myself higher goals than most people do"), Concern over Mistakes (CM) (e.g., "When I fail at work /at my studies, then I am also a failure as a person"), Doubts about actions (DA) (e.g., "I tend to get behind with my work because I repeat things over and over again"), Parental Expectations (PE) (e.g., "My parents have always expected excellence from me"), Parental Criticism (PC) (e.g., "I never felt that I could meet the demands of my parents"), and Organization (O) (e.g., "Neatness is very important to me"). The subjects evaluate the items on the basis of a five-point Likert scale from 1 = "does not apply at all" to 5 = "exactly applies". Additive composition of the scale values can also be used to calculate a total score for perfectionism, in which all dimensions except for Organization are included, since the latter correlates only slightly with the overall scale (Frost et al. 1990; Stoeber and Joormann 2001). Despite a reanalysis by Stoeber (1998) suggesting only four instead of six underlying factors (PS and O as separate factors, whereas combining CM with D as well as PE with PC), we decided to adhere to the original 6-factor solution suggested by Frost et al. (1990). This is mainly due to the better comparability of the results with previous findings on the relationship between the Impostor Phenomenon and perfectionism as well as in order to gain a more differentiated picture of perfectionistic tendencies of "impostors". Furthermore, studies show that some samples may distinguish more clearly between instances of Concerns and Doubts and between Parental Expectations and Criticism whereas these

differentiations seem to play a minor role in others (e.g., Frost and Steketee 1997).

Many studies provide evidence for the concurrent and discriminant validity of the FMPS as well as adequate internal consistency of the subscales (for a review see Enns and Cox 2002). The German version of the FMPS also showed satisfactory psychometric properties (Altstoetter-Gleich and Bergemann 2006). In the present sample, the internal consistencies of the subscales amount to  $\alpha$  (PS) = .82,  $\alpha$  (CM) = .92,  $\alpha$  (D) = .76,  $\alpha$  (O) = .92,  $\alpha$  (PC) = .83, and  $\alpha$  (PE) = .96 in the present sample. Cronbachs  $\alpha$  of the total scale was  $\alpha$  = .93.

### Hewitt and Flett Multidimensional Perfectionism Scale, Short Version

A short version (Hewitt et al. 2008) of the Multidimensional Perfectionism Scale by Hewitt and Flett (1991; MPS; German translation by Altstoetter-Gleich 2014) was used which captures perfectionism with a total of 15 instead of the original 45 items on three subscales: Self-oriented Perfectionism (SOP) (e.g., “One of my goals is to be perfect in everything I do”), Other-oriented Perfectionism (OOP) (e.g., “To people I care about, I have high expectations.”), and Socially prescribed Perfectionism (SPP) (e.g., “Success means I have to work harder to please others.”). A six-point response scale tracked the level of approval for each of the statements from 0 = “strongly disagree” to 5 = “strongly agree”. Within the framework of the MPS only the sum values of the individual scales are considered, a total value over the different dimensions is not intended. The MPS has demonstrated good reliability as well as factorial, convergent, and discriminant validity in numerous studies involving student, community, and clinical samples (for a review see Hewitt and Flett 2004). The internal consistencies were  $\alpha$  = .83 for the SOP scale,  $\alpha$  = .72 for the OOP scale, and  $\alpha$  = .75 for the SPP scale in the sample at hand.

### Statistical Analysis

In order to obtain the higher order perfectionism factors Perfectionistic Strivings and Perfectionistic Concerns, we followed the original approach by Frost et al. (1993). The factor Perfectionistic Strivings was composed of combining Frost et al.’s (1990) perfectionism facets Personal Standards and Organization, and Hewitt and Flett’s (1991) perfectionism facets Self-oriented Perfectionism and Other-oriented Perfectionism. To obtain the dimension Perfectionistic concerns the perfectionism facets Concerns over Mistakes, Doubts about Actions, Parental Criticism and Parental Expectations by Frost et al. (1990), and Socially prescribed Perfectionism by Hewitt and Flett (1991) were combined. Having compiled all relevant scales, the sample was checked for the existence of systematically missing values. The online

survey was configured in a way that did not allow any omission of responses to individual items. Furthermore, none of the participants abandoned the completion of the questionnaires, so no missing values were present in the sample.

Subsequently, the variables were tested for outliers using the Box-Plot method. Detected outliers were winsorized.

Possible gender and age effects were examined in relation to each relevant variable via bivariate Pearson correlations. Moreover, gender differences were analyzed via *t*-tests.

To address the research questions of the present study, partial correlation analyses were calculated. Furthermore, hierarchical regression analyses were used to empirically test our hypotheses. General requirements of correlation and regression analysis were checked before calculations. Accordingly, an approximately random distribution of errors and homogeneous error variances could be assumed. Additionally, the VIF ( $VIF_{max} = 2.79$ ) did not reveal any presence of increased multicollinearity between the predictors. By visual inspection of histograms, the standardized residuals of the engaged variables furthermore appeared to be approximately normally distributed. In addition, the scales showed a moderate skewness and kurtosis. We therefore conducted hierarchical regression analyses with the control variables gender and age entered in a first step and the predictor sets entered in a second step.

## Results

Bivariate Pearson correlations of all analyzed variables with gender and age are illustrated in Table 1.

The IP correlated significantly with gender ( $r = -.134$ ,  $p = .027$ ) and age ( $r = -.149$ ,  $p = .014$ ). With regard to all other relevant variables, only the FMPS subscales Organization ( $r = -.189$ ,  $p = .002$ ), Concern over Mistakes ( $r = -.153$ ,  $p = .011$ ) and Doubts about Actions ( $r = -.127$ ,  $p = .036$ ) correlated significantly with gender or age. Using *t*-tests, it was shown that male and female participants differed significantly in terms of the CIPS ( $t(272) = 2.226$ ;  $p = .027$ ,  $g_{Hedges} = -.331$ ) as well as the FMPS subscale Organization ( $t(272) = 2.679$ ;  $p = .009$ ,  $g_{Hedges} = -.474$ ), with female participants scoring higher on both scales than male participants. Therefore, gender and age were maintained as control variables in the following analyses.

Descriptive statistics and results of the partial correlational analysis including all scales obtained in the present study are shown in the following overview (see Table 2).

There was a high, significantly positive correlation between the IP and the overall level of perfectionism ( $r = .63$ ,  $p < .001$ ) if gender and age were kept constant. High impostor tendencies were also associated with a high degree of Concern over Mistakes ( $r = .67$ ,  $p < .001$ ) and Doubts about Actions ( $r = .67$ ,  $p < .001$ ). Both were strong effects. In addition, the

**Table 1** Bivariate Pearson correlations with gender and age

	Gender	Age
1 Impostor Phenomenon (CIPS)	-.134*	-.149*
2 Concern over Mistakes (FMPS-CM)	-.004	-.153*
3 Doubts about Actions (FMPS-DA)	-.057	-.127*
4 Parental Expectations (FMPS-PE)	-.005	.032
5 Parental Criticism (FMPS-PC)	.020	.061
6 Personal Standards (FMPS-PS)	.061	-.075
7 Organization (FMPS-O)	-.189**	.042
8 Perfectionism (FMPS total score)	.009	-.090
9 Self-oriented Perfectionism (MPS-10 SOP)	-.082	.052
11 Other-oriented Perfectionism (MPS-OOP)	-.038	.041
12 Socially prescribed Perfectionism (MPS-SPP)	.026	-.030
13 Perfectionistic Concern (CM + DA + PE + PC + SPP)	-.003	-.075
13 Perfectionistic Striving (SOP + OOP + PS + O)	-.079	.017

N = 274

CIPS Clance impostor phenomenon scale (Clance 1985), FMPS Frost Multidimensional Perfectionism Scale (Frost et al. 1990). MPS = Multidimensional Perfectionism Scale by Hewitt and Flett (1991), Short Form (Hewitt et al. 2008)

\* $p < .05$ . \*\* $p < .01$

severity of the IP correlated with Parental Criticism ( $r = .40, p < .001$ ). Significantly low correlations were found with regard to Parental Expectations ( $r = .27, p < .001$ ) and Personal Standards ( $r = .25, p < .001$ ). Merely, no correlation with the dimension Organization could be discovered ( $r = -.08, p = .184$ ).

All of the following hierarchical regression analyses initially revealed that a significant effect was present for the control

variables age ( $\beta = -.15, p = .010$ ) and gender ( $\beta = -.14, p = .019$ ) which were entered in the regression in a first step ( $F [2, 271] = 5.90, R = .20, p = .003$ ) (Step 1). They could explain 4% of the observed variance in the manifestation of the IP.

Beyond this contribution of age and gender, when including the relevant variables Concern over Mistakes, Doubts about Action, Parental Criticism, Parental Expectations, Personal Standards, and Organization in the second step the

**Table 2** Descriptive statistics, internal consistencies, and partial variable intercorrelations

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Impostor Phenomenon (CIPS)	59.08	15.46	(.92)												
2 Concern over Mistakes (FMPS-CM)	24.58	8.97	.67**	(.92)											
3 Doubts about Actions (FMPS-DA)	10.97	3.83	.67**	.60**	(.76)										
4 Parental Expectations (FMPS-PE)	10.81	5.38	.27**	.41**	.21**	(.91)									
5 Parental Criticism (FMPS-PC)	8.34	4.18	.40**	.49**	.33**	.75**	(.82)								
6 Personal Standards (FMPS-PS)	23.35	5.69	.25**	.57**	.21**	.19**	.20**	(.81)							
7 Organization (FMPS-O)	22.41	5.54	-.08	-.04	-.10	-.08	-.10	.25**	(.92)						
8 Perfectionism (FMPS total score)	77.98	20.56	.63**	.90**	.62**	.68**	.72**	.65**	-.01	(.91)					
9 Self-oriented Perfectionism (MPS-SOP)	20.94	4.43	.28**	.49**	.19**	.17**	.13*	.65**	.31**	.50**	(.83)				
10 Other-oriented Perfectionism (MPS-OOP)	18.45	4.40	.12*	.31**	.11	.28**	.23**	.42**	.20**	.39**	.48**	(.72)			
11 Socially prescribed Perfectionism (MPS-SPP)	16.49	4.77	.51**	.59**	.38**	.54**	.48**	.35**	.02	.66**	.46**	.45**	(.75)		
12 Perfectionistic Concern (CM + DA + PE + PC + SPP)	71.17	21.01	.67**	.87**	.64**	.74**	.77**	.44**	-.07	.96**	.41**	.37**	.78**	(.79)	
13 Perfectionistic Striving (SOP + OOP + PS + O)	85.20	14.47	.19**	.45**	.13*	.18**	.15*	.80**	.62**	.52**	.82**	.68**	.42**	.38**	(.70)

model could explain a considerable proportion of the observed variation of the impostor manifestations with a total variance explanation of 60% ( $F [8, 265] = 49.80, R = .77, p < .001$ ). The incremental variance of the relevant perfectionism variables indicated a significantly incremental contribution to predicting the IP with an additional variance explanation of 56% ( $F$ -Change  $[6, 265] = 61.77, p < .001$ ). In the final regression model only three relevant variables were statistically significant: Concern over Mistakes ( $\beta = .47, p < .001$ ), Doubts about Action ( $\beta = .38, p < .001$ ), and Personal Standards ( $\beta = -.11, p = .028$ ). Contrary to our expectation, Personal Standards (hypothesis 1a) was negatively related to impostor tendencies. Furthermore, the control variable gender showed a significant contribution ( $\beta = -.10, p = .009$ ) to the prediction of the IP. Parental Expectations ( $\beta = -.07, p = .209$ ), Parental Criticism ( $\beta = .12, p = .052$ ), Organization ( $\beta = .01, p = .761$ ), as well as the control variable age ( $\beta = -.05, p = .250$ ) did not significantly contribute to the prediction of the IP in the final model (Table 3).

Concerning the source and target of perfectionistic demands in the sense of Hewitt and Flett (1991), the following correlation pattern emerged taking gender and age as control variables into account (Table 2): a high significant correlation was found between the IP and Socially prescribed Perfectionism ( $r = .51, p < .001$ ), while a significantly moderate correlation with Self-oriented Perfectionism ( $r = .28, p < .001$ ) was demonstrated. However, the IP and Other-oriented Perfectionism showed very little but significant correlation ( $r = .12, p = .040$ ).

When including the relevant variables Self-oriented Perfectionism, Other-oriented Perfectionism, and Socially prescribed Perfectionism in the second step of the regression

analysis to test Hypothesis 2 the model could explain a considerable proportion of the observed variation of the Impostor manifestations with a total variance explanation of 31% ( $F [5, 268] = 24.35, R = .56, p < .001$ ) beyond the contribution of age and gender (see Step 1). The incremental variance of the relevant perfectionism variables indicated a significantly incremental contribution to predicting the Impostor Phenomenon with an additional variance explanation of 27% ( $F$ -Change  $[3, 268] = 35.16, p < .001$ ). In the final regression model all relevant variables were statistically significant except for Self-oriented Perfectionism ( $\beta = .11, p = .063$ ). Socially prescribed Perfectionism was the strongest predictor ( $b = .52, p < .001$ ), followed by Other-oriented Perfectionism ( $\beta = -.17, p = .006$ ). Additionally, the control variables gender ( $\beta = -.15, p = .004$ ) and age ( $\beta = -.14, p = .007$ ) showed a significant contribution to the prediction of the IP (Table 4).

Regarding the higher order factors Perfectionistic Strivings and Perfectionistic Concerns suggested by Flett et al. (1993) a high, significantly positive correlation between IP and Perfectionistic Concerns ( $r = .67; p < .000$ ) emerged if the gender and age variables were kept constant. High impostor tendencies were also associated with Perfectionistic Strivings ( $r = .19, p < .001$ ) but to a much lesser degree (Table 2).

In addition to the individual regression analyses, which separately illuminated the dimensions of the perfectionism construct defined by Frost et al. (1990) and Hewitt and Flett (1991) with respect to their predictive value for the IP, a further evaluation of this kind was carried out, including Perfectionistic Strivings and Perfectionistic Concerns in order to examine whether Perfectionistic Strivings incrementally predict IP beyond Perfectionistic Concerns (and vice versa) after controlling for gender and age.

**Table 3** Results of the hierarchical regression analysis for predicting the manifestation of the Impostor Phenomenon by means of the perfectionism dimensions according to Frost et al. (1990)

Model	R	R <sup>2</sup>	SE	df1,2	F	p	R <sup>2</sup> -Change	df1,2	F-Change	p-Change
1	.20	.04	15.19	2271	5.90	.003	.04	2271	5.90	.003
2	.77	.60	9.92	8265	49.80	<.001	.56	6265	5.90	<.001
	Model parameter	b	SE	β	t	p				
1	Absolute term	73.86	4.40		16.78	<.001				
	Gender	-5.32	2.26	-.14	-2.35	.019				
	Age	-.30	.12	-.15	-2.59	.010				
2	Absolute term	34.28	4.90		7.00	<.001				
	Gender	-4.00	1.53	-.10	-2.62	.009				
	Age	-0.09	.08	-.05	-1.15	.250				
	Concern over Mistakes	0.82	.11	.47	7.33	<.001				
	Doubts about Action	1.54	.20	.38	7.58	<.001				
	Personal Standards	-0.31	.14	-.11	-2.21	.028				
	Parental Criticism	0.45	.23	.12	1.95	.052				
	Parental Expectations	-0.22	.17	-.07	-1.26	.209				
	Organization	0.04	.12	.01	.30	.761				

**Table 4** Results of the hierarchical regression analysis for predicting the manifestation of the Impostor Phenomenon by means of the perfectionism dimensions according to Hewitt and Flett (1991)

Model	R	R <sup>2</sup>	SE	df1,2	F	p	R <sup>2</sup> -Change	df1,2	F-Change	p-Change
1	.20	.04	15.19	2271	5.90	.003	.04	2271	5.90	.003
2	.56	.31	12.94	5268	24.35	<.001	.27	3268	35.16	<.001
	Model parameter	<i>b</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>				
1	Absolute term	73.86	4.40		16.78	<.001				
	Gender	-5.32	2.26	-.14	-2.35	.019				
	Age	-0.30	.12	-.15	-2.60	.010				
2	Absolute term	48.08	5.61		8.57	<.001				
	Gender	-5.70	1.94	-.15	-2.94	.004				
	Age	-0.27	.10	-.14	-2.71	.007				
	Socially prescribed Perfectionism	1.69	.19	.52	8.72	<.001				
	Other-oriented Perfectionism	-0.59	.21	-.17	-2.77	.006				
	Self-oriented Perfectionism	0.40	.21	.11	1.87	.063				

After entering gender and age in the first step (see Step 1), both higher order factors were included as independent variables in a second step of the hierarchical regression analysis to test Hypothesis 3. Consistent with our expectations, Perfectionistic Concerns ( $\beta = .69, p < .001$ ) were found to significantly predict the IP, while Perfectionistic Strivings was not a unique predictor beyond Perfectionistic Concerns ( $\beta = -.08, p = .097$ ). The control variables gender ( $\beta = -.14, p = .001$ ) and age ( $\beta = -.10, p = .022$ ) showed a significant contribution to the prediction of the IP beyond Perfectionistic Concerns (Table 5).

The final model accounted for a total of 48% of the observed variance in the manifestations of the IP ( $F [4, 269] = 61.76, R = .69, p < .001$ ). The incremental variance of the relevant perfectionism variables indicated a significantly incremental contribution to predicting the Impostor Phenomenon beyond

the control variables with an additional variance explanation of 44% ( $F$ -Change [2, 269] = 112.77,  $p < .001$ ).

### Discussion

Our study aimed at examining the association and predictive value of various dimensions of perfectionism regarding the IP. Taking into account the different, most influential models of conceptualizing multidimensional perfectionism, we were able to provide a comprehensive analysis of the specific aspects of perfectionism associated with IP.

We found strong correlations between multidimensional perfectionism defined by Frost et al. (1990) and the IP, which primarily applies for Concern over Mistakes as excessive fear of

**Table 5** Results of the hierarchical regression analysis for predicting the manifestation of the Impostor Phenomenon by means of the higher order perfectionism factors according to Frost et al. (1993)

Model	R	R <sup>2</sup>	SE	df1,2	F	p	R <sup>2</sup> -Change	df1,2	F-Change	p-Change
1	.20	.04	15.19	2271	5.90	.003	.04	2271	5.90	.003
2	.69	.48	11.25	4269	61.76	<.001	.44	2269	112.77	<.001
	Model parameter	<i>b</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>				
1	Absolute term	73.86	4.40		16.78	<.001				
	Gender	-5.32	2.26	-.14	-2.35	.019				
	Age	-0.30	.12	-.15	-2.60	.010				
2	Absolute term	42.24	5.36		7.87	<.001				
	Gender	-5.40	1.68	-.14	-3.21	.001				
	Age	-0.20	.09	-.10	-2.30	.022				
	Perfectionistic Concerns	0.51	.03	.69	14.41	<.001				
	Perfectionistic Strivings	-0.08	.05	-.08	-1.66	.097				

making mistakes, as well as for doubts about the quality of one's own actions and performances (Doubts about Actions). Moreover, Parental Expectations as the belief that parental standards cannot be met, Parental Criticism as the conviction that parents are very critical of meeting their standards, and Personal Standards as the overemphasis on entitlement onto oneself were correlated with impostor tendencies. Regression analysis with reference to Frost's dimensions revealed Concern over Mistakes, Doubts about Actions, and Personal Standards (in a negative sense) as significant predictors of the IP. These findings are largely consistent with previous study results by Rohrmann et al. (2016) and Vergauwe et al. (2015), which already pointed to a close association of the IP with the Frost dimensions of Doubts about Actions and Concern over Mistakes, as well as with the characteristics of individuals with strong impostor tendencies originally described in the theoretical literature (e.g., the conviction that the personal performance is not good enough, striving for flawlessness, attention to details, fear of failure, see Clance 1987; Clance and Imes 1978; Imes and Clance 1984). Clance (1985) also assumed that "impostors", according to their need to be the very best, set themselves extremely high standards. While previous studies have shown inconsistent findings on the relationship between IP and Personal Standards (Rohrmann et al. 2016; Vergauwe et al. 2015), in our study, however, regression analysis revealed Personal Standards to be weakly negatively associated with the IP (i.e. higher Personal Standards rather predicted weaker impostor tendencies). Our finding may suggest that individuals with high impostor tendencies are somewhat less inclined to self-set perfectionistic standards but to the dependence on supposedly high standards of others, as discussed below. The corresponding perception of excessive Parental Expectations and Criticism regarding their fulfillment is also in line with Clance and Imes' (1978) observation that in the family environment of individuals with high impostor tendencies elevated levels of performance and the need to accomplish tasks with ease often predominate. Interestingly, Organization was the only dimension of perfectionism within this analysis that showed no correlation with the IP. One study that previously examined this relationship has found the Organization dimension to be weakly negatively correlated with the IP (Dud u 2014). A possible explanation may lie in the self-impairing behaviors (e.g., procrastination) that have repeatedly been demonstrated among individuals with high levels of the IP (Cowman and Ferrari 2002; Ross et al. 2001; Want and Kleitman 2006). Accordingly, Clance (1985) has already outlined that high demands on oneself combined with doubts about one's own abilities, the fear of failing, and being considered incapable by others leads to characteristic working styles of individuals with strong impostor tendencies in the form of excessive workload (perfectionism) or long postponement of work (procrastination) when confronted with performance-related tasks in order to avoid failure or having an explanation for it to protect the self-worth. The lack of correlation between

Organization and the IP could thus reflect these working styles (Chae et al. 1995) or it may be underestimated due to the tendency towards self-deprecation, which is inherent to the IP (Pannhausen et al. 2019).

With respect to the correlations between the IP and specific perfectionism facets described by Hewitt and Flett (1991), the strongest link was found with Socially prescribed Perfectionism, which characterizes an individual's belief that significant others have an exaggerated expectation toward the own person and their feeling of having to comply with this. The IP was also linked to Self-oriented Perfectionism, the tendency to set oneself high standards and to rigorously evaluate or criticize one's own behavior. Both facets of perfectionism focused on the self, while Other-oriented Perfectionism, the tendency to make high demands on others and to rigorously evaluate or criticize their behavior, showed a weak association with the IP. In the context of regression analysis, Socially prescribed Perfectionism presented itself as a strong predictor of the IP, yet Other-oriented Perfectionism (in a negative sense) could also contribute to the prediction of the manifestation of the IP. Self-oriented Perfectionism, however, was not found to be a significant predictor in our sample.

Based on these findings the understanding of the IP can be broadened to include the perspective that individuals with high impostor tendencies seem to be driven by the conviction that others have very high expectations of them that they need to fulfill but not by the need to live up to personal self-set standards. Since Clance's (1985) clinical observations implied - above all - the self as a source and goal of aspiration and thus self-evaluative aspects (e.g., the motive of wanting to be brilliant, the best and perfect in all areas of life), our findings emphasize the strongly social-evaluative perfectionistic component that accompanies the IP. This corresponds to the social evaluation fears and the need to gain others' appreciation, which Thompson et al. (2000) and Cromwell et al. (1990) found among individuals with high impostor tendencies. In addition, according to our results, people with high levels of the IP experience external pressure to be perfect and believe others evaluate them critically, but they themselves do not tend to apply perfectionistic standards to significant others (e.g., co-workers, partners, children) or to engage in stringent evaluation of others' performances.

Considering the higher order perfectionism factors, to which the individual dimensions defined by Frost et al. (1990) and Hewitt and Flett (1991) have been conceptually and empirically combined by various authors (e.g., Dunkley et al. 2003; Flett et al. 1993; Stoeber and Otto 2006), Perfectionistic Concerns emerged as a powerful predictor of the IP in our sample, whereas Perfectionistic Strivings did not. In contrast to a functional pursuit of excellence (Perfectionistic Strivings), this factor includes the reliance on others' standards, doubts about oneself to fulfil them, and the concern about drastic consequences in the case of

mistakes (Perfectionistic Concerns). Consequently, it is not the “standard setting” itself that is harmful, but “the process of self-evaluation that accompanies it” (DiBartolo et al. 2004, p. 242). Perfectionistic Concerns have repeatedly been associated with a number of negative outcomes such as depression (Ashby et al. 2012), anxiety (Gnilka et al. 2012), and increased levels of perceived stress (Rice and Van Arsdale 2010). Based on the high predictive value of Perfectionistic Concerns in our study, Socially prescribed Perfectionism, Concern over Mistakes and Doubts about Actions as indicators of this factor can be identified as those trait components of perfectionism that contribute to the dysfunctional thoughts, feelings, and behaviors of people with high impostor tendencies, as well as the associated impairments of mental well-being.

### Practical Implications

Depending on the intensity of the IP and its documented harmful effects on personal well-being (e.g., depression and overall poorer mental health; McGregor et al. 2008; Sonnak and Towell 2001) and career advancement (Kets de Vries 2005; Neureiter et al. 2016), psychological interventions such as support programs, coaching or even psychotherapy may be indicated. Based on our findings, IP-typical dysfunctional thoughts, experiences, and behaviors seem to be closely associated with specific, especially maladaptive, dimensions of perfectionism, which foster psychological maladjustments (e.g. negative affect, depression, increased stress, avoidant coping, see e.g., Dunkley et al. 2003; Enns et al. 2008). Although the research and evaluation methodology used in the present study does not allow the derivation of causal interpretations and direct practical implications, our results may indicate possible starting points where psychological interventions for persons with high levels of IP could be effective. In this context, the direct modification of perfectionistic thinking styles and perfectionism-related behaviors dominant in the IP (e.g., cognitive biases like overgeneralizing, dichotomous thinking, selective attention to errors in performance) could be a valuable cognitive-behavioral oriented element (e.g., Egan et al. 2014; Flett and Hewitt 2002). The accessibility and appropriateness of perfectionistic thoughts could therefore be examined socratically (e.g., by adopting other people’s perspectives, comparing standards from different areas of life, or developing a dialogue with the “inner critic”) as well as instrumentally (e.g., by weighing up advantages and disadvantages or imaginative exercises in order to emphasize negative consequences like loss of time and pleasure, neglect of other important goals). Newly acquired alternative cognitions may be transferred into everyday action by means of exercises to set fixed time targets for activities affected by perfectionism, to gradually reduce the perfectionistic demands for such an

activity and to deliberately commit minor mistakes (e.g., typing errors in an e-mail) while observing the consequences (Egan et al. 2014; Flett and Hewitt 2002; Spitzer 2016). Moreover, challenging the intense self-criticism and the over-dependency of self-worth on striving and achievement (e.g., “I have to be competent and successful in all tasks I face in order to feel valuable”, “The better I work, the better I am”), which goes hand in hand with maladaptive and, in particular, Socially Prescribed Perfectionism (Flett et al. 2003; Sturman et al. 2009), is an particularly important target of cognitive strategies. It is not a question of raising a permanently low self-esteem, but of broadly enhancing a solely success-dependent self-esteem (differentiation of the dysfunctional scheme of self-evaluation) and skillfully managing it (e.g., by pie charts, downward comparisons, “arm’s length” view or perspective of a loving companion instead of critic) and making it less dependent on circumstances in the sense of unconditional self-acceptance (Egan et al. 2014; Spitzer 2016).

A relational perfectionism model (Hewitt et al. 2017a) has also been described, which seems particularly relevant to explain and change the social-cognitive processes involved in IP. Here, perfectionistic behavior tendencies are understood as a means to correct a flawed, inferior self (see Adler 1965; Bruch 1988) and to secure the approval and acceptance of others, as well as to prevent rejection, abandonment, and humiliation, thus serving relational goals (including the relationship to the self as well as to others). Perfectionists and above all socially prescribed perfectionists are predisposed to negative interpersonal expectations due to a history of unfair expectations and social constraints to be perfect, to become targets of criticism and maltreatment. They are therefore overly guided by the (alleged) expectations of the environment as to how they should be and measure their value by the extent to which they fulfill them. This seems to be especially true for people with high impostor tendencies, who, according to our results, strongly tend to Socially prescribed Perfectionism, and can contribute to the fact that these people experience themselves as impostors having to present a seemingly perfect but false self to the outside world (see Hewitt et al. 2003; Sorotzkin 1985; Winnicott 1965). Their own accomplishments and achievements are therefore devalued, experienced as empty and unsatisfactory, and can hardly increase the self-esteem (Hewitt et al. 2017a). In order to control impostor feelings, it thus seems necessary to develop a feeling of autonomy and self-efficacy as well as the ability to self-soothe instead of relying on the external confirmation of others. In order to make such relational dynamics more flexible, the interpersonal, psychodynamic approach according to Hewitt et al. (2017a) focuses on insight into the causes of perfectionist behavior in early relationship experiences, their interpersonal impact (e.g., alienation), and underlying relational needs (e.g., security, belonging, caring from others). Since these aspects

are particularly susceptible to being updated and processed in a group as a social microcosm and rich field of transference, application in group settings (Hewitt et al. 2015) could represent a particularly effective intervention.

In general, the perfectionistic tendencies of individuals with strong manifestation of the IP may impair the success of psychological interventions, particularly the establishment of a working alliance, by the fact that they try to be the perfect client, to live up to anticipated high expectations of the counselor or group members and fear their judgement (Flett and Hewitt 2002). Defense positions associated with perfectionism (e.g., intellectualization) may impede real emotional involvement and exchange with the counselor (Hewitt et al. 2017a). Their strong tendency to Socially prescribed Perfectionism is also a predictor of low tolerance to the stigma of psychological help and may negatively affect self-disclosure and help-seeking attitudes (Spitzer 2016; Hewitt et al. 2017b). Critical to the prevention and alleviation of these potential treatment problems is the counselor's awareness and management of the client's interpersonal sensitivity and behaviors as well as his or her corresponding emotional responses (i.e., countertransference, see Hewitt et al. 2017b).

### Limitations and Future Research

Our study has some limitations that must be taken into account when interpreting the results. First, we did not use a cross-validation technique to assess how these results will generalize to an independent data set. Future studies should strengthen confidence in the relations found in our study by replicating them in other samples. Second, a cross-sectional research design was used that does not allow causal conclusions to be drawn about the observed associations. It would be desirable to investigate the relationship between IP and perfectionism over time in order to be able to identify whether perfectionism is an antecedent of IP or vice versa. Using longitudinal designs and complex causal analysis methods, future studies could empirically test assumptions about the causal role of perfectionism as a predisposing and sustaining factor of IP, as hypothesized by Kets de Vries (2005), and Sakulku and Alexander (2011). Moreover, the data were collected exclusively by means of self-reports, so that the relationship between the variables could be increased due to common variance. Self-reported data may also be subject to response biases such as socially desirable self-presentation. Inclusion of informant reports could overcome this limitation. In the present study, the relationship between IP and maladaptive or adaptive perfectionism in the sense of bivariate correlations was investigated separately. According to Hill and Madigan (2017), this common approach is useful insofar as Perfectionistic Strivings and Perfectionistic Concerns correlate positively and often have opposite correlations to criterion variables. Recently, however, a more complex, promising approach to the study of perfectionism has been developed, the

so-called 2 × 2 model (Gaudreau and Thompson 2010), which allows the differentiation of four “subtypes” of perfectionism due to different combinations of Perfectionistic Striving (PS) and Perfectionistic Concerns (PC) (each low vs. high). Future research could use this model to test IP against the within-person configurations of PS and PC (e.g., pure evaluative concerns perfectionism as a combination of low PS/high PC) and related outcomes (e.g., higher negative affect, lower academic satisfaction and achievement; Gaudreau and Thompson 2010).

### Conclusion

Overall, the reported research findings suggest that primarily high manifestations of maladaptive facets of perfectionism such as doubts about the quality of one's own performances and actions, the fear of making mistakes, and the dependence on (supposedly) high standards of others contribute to the impostor tendencies of high performers and could therefore be considered as potential predisposing and sustaining factors of the IP.

In general, the comprehensive consideration of the IP in its relation to and differentiation from other personality traits such as perfectionism not only enhances our understanding of the IP as a complex personality construct, it also emphasizes the negative characteristics, processes, and outcomes associated with it. The maladaptive perfectionism dimensions associated with the IP are for example closely linked to workaholism and burn-out (Stoeber and Damian 2015). In view of the impairment of psychological well-being (e.g., McGregor et al. 2008; Sonnak and Towell 2001) and the academic and professional development (Neureiter and Traut-Mattausch 2016) of people with high levels of IP, it is to be expected that targeted interventions can contribute to successively minimizing their feeling of being an impostor, so that they will succeed in adopting a positive, benevolent attitude towards themselves and come to realize that being him/herself is truly *good enough*.

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### Compliance with Ethical Standards

**Conflict of Interest** Sophie Pannhausen, Kristina Klug, and Sonja Rohmann declare that they have no conflict of interest.

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