14 RESEARCH-BASED STRATEGIES FOR COMBATING THE IMPOSTOR PHENOMENON IN HIGHER EDUCATION

DANIELLE ROSENSCRUGGS AND
LAURA SCHRAM

When Dr. Kevin Cokley first approached us to write this chapter on applied strategies for managing impostor experiences in higher education contexts, we were honored and thrilled to contribute to such an important project. However, as we began writing, our own impostor feelings started to creep in. We wondered, separately and together, who we were to speak with authority on this topic. Despite Laura's years of experience developing and facilitating impostor phenomenon (IP) workshops in her role at Rackham Graduate School at the University of Michigan and Danielle's research agenda focusing on strategies for mitigating the impacts of IP among graduate students as a PhD candidate in developmental psychology, both of us fell into the trappings of our impostor cycles. Even as scholars knowledgeable on the topic of IP, we were not immune to the common maladaptive thought patterns (e.g., doubting our place in this edition) that emerged, ignoring the evidence that we belonged in the collection and were up to the task (the least of which was the invitation from a preeminent IP scholar).

Upon reflection, we realized we were perfect examples of the insidious and toxic nature of IP. It was a humbling reminder that everyone is susceptible to negative self-talk and self-doubt, particularly when we allow ourselves to suffer in isolation. Although it would be understandable to feel defeated by the

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ubiquity of these experiences or the ease with which impostor cycles are triggered, we chose to reframe our experience as support for the pressing need for this important collection. Managing IP is a nonlinear process. Some days will be great, and others will be challenging. But the only way any of us can expect to make progress is by staying committed to the ongoing process of combating IP.

Accordingly, we are thrilled to contribute to this critical conversation about IP within higher education contexts. In this chapter, we invite you to explore how higher education institutions (HEIs) can effectively and efficiently balance empirical evidence and practical limitations to conceptualize and deliver student-facing IP interventions while working toward institutional-level changes to address systemic factors that foster IP. The content and strategies we share are drawn from findings from an extensive literature review and our work designing and facilitating IP workshops. We acknowledge that more research is needed and, as a result, do not claim to have all of the answers or act as infallible guides. Instead, we hope this chapter serves as a call to action for social science scholars. Although the scholarship on the existence of IP is not new, applied research is still in its infancy. As a result, there is a wide gap in the extant research related to evidence-based IP strategies and interventions, particularly within higher education contexts. This gap must be filled if HEIs hope to effectively support students in interrupting their impostor cycles.

However, despite the literature limitations, we believe the information we present is helpful for higher education administrators, faculty, or staff educators looking to minimize students' experiences of IP. With that said, we welcome you into this critical conversation!

COAUTHOR POSITIONALITY STATEMENT

Given that this chapter provides information on interventions we share with students in our collaborative work as scholar-practitioners facilitating IP workshops, it is appropriate to describe our positionality and summarize our identities. Both coauthors are White, cisgender women whose undergraduate and graduate studies occurred at predominantly White institutions (PWIs) in the United States. We do not have lived experiences at minority-serving institutions and therefore do not have direct experience working with students in those contexts. Both coauthors are social scientists (political science and developmental psychology) who conducted their doctoral studies at the University of Michigan, Ann Arbor, where we currently collaboratively lead psychoeducational workshops and guest lectures on IP. We both dealt with IP during our time as doctoral students, which led to our shared interest in providing support

for graduate students struggling with impostor thinking. Scientific objectivity is a matter of degrees, and we acknowledge our identities as women in quantitatively oriented social science fields and lived experiences of IP at PWIs influence our interest in IP interventions in higher education.

IMPOSTOR PHENOMENON MANIFESTATIONS IN HIGHER EDUCATION

IP manifestations within HEIs have been discussed throughout this collection; therefore, we do not provide an in-depth review here. However, we give a brief overview to set up our chapter. Readers interested in a more detailed discussion of this topic are encouraged to (re)visit Chapters 5, 7, 8, 9, 10, and 11.

IP is prevalent on college campuses (Bravata et al., 2020; Vaughn et al., 2020), and the empirical literature has demonstrated that students of all types (e.g., traditional, nontraditional, first-generation) from all disciplines (e.g., science, technology, engineering, mathematics, humanities) and levels of study (e.g., undergraduate, graduate, professional) are vulnerable to impostor thoughts and feelings (McWilliams et al., 2023; Parkman, 2016; Pervez et al., 2021). Across student groups, IP has also been shown to be correlated with a variety of academic (e.g., test anxiety, academic success, achievement orientation, academic self-efficacy) and psychological (e.g., perfectionism, self-esteem, neuroticism) factors and has been established as a reliable predictor of student mental health (Parkman, 2016). IP triggers have been shown to vary by context, identity, and personality characteristics; however, research across education levels has found that common triggers include progress evaluations, public recognition, peer comparisons, academic and professional skill development, applied learning, and help seeking (Chakraverty, 2020; S. Chang et al., 2022; Cisco, 2020). Additionally, among medical students, IP is associated with burnout and depression (Villwock et al., 2016), along with mediating the relationship between maladaptive perfectionism and suicidal ideation (Brennan-Wydra et al., 2021).

Various identity and social characteristics (e.g., gender, race, socioeconomic status, parenting styles) have also been discussed in relation to students' IP experiences. However, the most commonly explored are gender, race, and ethnicity, and research has shown that many students feel that the status of these identities contributes to their feelings of impostorism (Chakraverty, 2019; McGee et al., 2022). It should not be surprising that gender is often explored in the context of IP, as the foundational research by Clance and Imes (1978) identified IP as a phenomenon among high-achieving women. Since then, multiple

studies have confirmed the connection between gender and IP, with most finding female students are more susceptible than their male peers (Cusack et al., 2013; Metz et al., 2020; Villwock et al., 2016). However, findings from systematic reviews have caused some to question gendered patterns, as more recently, IP has been shown to be common among both women and men (Bravata et al., 2020; Gottlieb et al., 2020). Furthermore, while interrogating the documented gender differences, Cokley et al. (2015) found that, among undergraduate students, gender stigma consciousness (i.e., awareness of the stigmatized status of one's gender) positively predicted IP for both male and female students, although IP only positively predicted grade-point average for women. Although effects were greater for female students, these findings indicate that a combination of internalized gender socialization and stigma consciousness could be driving documented gender differences in IP rather than innate gender-based differences (Cokley et al., 2015).

Racial and ethnic identities have also been explored in relation to students' IP experiences. Research has found that students who identify with minoritized groups may be more susceptible to IP, particularly at PWIs (Parkman, 2016). As a result, these students suffer from greater psychological distress and reduced mental well-being (Peteet, Brown, et al., 2015; Peteet, Montgomery, & Weeks, 2015). For example, among African, Asian, and Latin American students, impostor feelings were stronger predictors of mental health (e.g., anxiety, depression, loss of behavioral control, positive affect) than minority status stress (Cokley et al., 2013). Additionally, among minoritized graduate students, experiences of microaggressions and racism were connected to impostor feelings (Chakraverty et al., 2022; McGee et al., 2022). However, the intensity of these connections and the underlying mechanisms are not homogenous across all minoritized groups (Cokley et al., 2017). Triggers, correlates, and manifestations of IP are incredibly nuanced, so more work is needed to understand IP in higher education through culturally informed frameworks (Stone et al., 2018).

ADDRESSING THE IMPOSTOR PHENOMENON IN HIGHER EDUCATION

Given the prevalence of IP in higher education, there is a growing demand for efforts to support students in reducing their impostor experiences. It is no longer acceptable to assume that IP will naturally dissipate with time, as multiple studies have found that academic advancement and achievement are insufficient in combating impostor feelings. For example, one study of 1st-year medical students found that IP scores were significantly higher at the end of the

year compared with the beginning (Rosenthal et al., 2021), and another found that the 4th year of medical school was associated with the highest levels of IP (Villwock et al., 2016).

However, although many HEIs have begun to recognize the epidemic levels of IP, most are unsure how to tackle the issue. In attempts to minimize students' IP experiences, many have created resources and programs (Parkman, 2016), including online resource hubs, single-session workshops, psychoeducational minicourses, and curriculum integration (e.g., orientations, proseminars). Unfortunately, in most cases, the provided content is designed primarily based on mass media/pop psychology resources. This reliance on unsubstantiated resources is understandable, given the imbalance between the scholarly and lay literature related to IP. Although only a handful of empirical studies have explored higher education IP interventions (Cisco, 2020), thousands of popular media publications have discussed the topic (Bravata et al., 2020; Holt et al., 2023).

Nevertheless, despite the IP intervention scholarship's limitations, HEIs that focus their IP combating approaches on student-facing programs must resist the urge to implement untested methods as an overreliance on lay resources, which could exacerbate IP experiences. For example, a plethora of pop psychology pieces based on select empirical studies (e.g., Tewfik, 2022) have promoted the supposed upsides of IP. However, most have been written for corporate audiences with explicit or implied goals of maximizing profits, prompting team harmony, and minimizing turnover. Additionally, they have stopped short of full-person considerations, often downplaying or ignoring psychological costs (e.g., diminished mental health). Therefore, by promoting the benefits of maladaptive coping strategies (e.g., fear of failure, perfectionism), HEIs could inadvertently perpetuate students' impostor cycles, particularly among high-achieving students.

Furthermore, much of the lay IP literature frames strategies as cures rather than management techniques, which many publicly available university resources and programs mimic. In their materials, these programs present workshops, minicourses, and the like as cures that will eliminate IP. However, it is unreasonable to expect that impostor thoughts and feelings, like any maladaptive patterns, can be entirely eliminated within a short intervention or single-session workshop. Therefore, creators of these resources must be mindful of the language used when promoting and delivering IP content. Instead of promising cures, which could further exacerbate feelings of failure or fraudulence when that unrealistic goal is not met, it would be better to let students know that the intended purpose is to minimize or manage their impostor experiences. For example, Dr. Valerie Young, a prominent IP scholar, explained that rather than trying to overcome impostorism, it is more realistic

to develop reframing and coping skills that will allow individuals to move away from living impostor lives and instead experience fleeting impostor moments (Young, 2017).

Individual-Level Impostor Phenomenon Interventions

Individual-level interventions are considered the gold standard for IP management on many campuses, despite the scarcity of empirically validated interventions and a growing movement among scholars to reject pathologizing conceptualizations. Furthermore, due to the lack of IP-specific scholarship, many administrators and faculty interested in evidence-based, individual-level approaches must be creative in developing IP curricula, workshops, and interventions, drawing mainly from the peripheral literature. In some respects, this solution makes sense, as multiple systematic reviews and empirical studies have established critical correlates of IP, including depression, anxiety, low self-esteem, low efficacy, heightened neuroticism, perfectionism, somatic symptoms, and social dysfunction (Bravata et al., 2020; Dudău, 2014; Fleischhauer et al., 2021; Schubert & Bowker, 2019; Thompson et al., 2000; Tigranyan et al., 2021). As a result, some scholars have suggested the extension of evidence-based strategies for established correlates in treating IP while practitioners wait for the maturation of the IP scholarship (Bravata et al., 2020; Jacobs & Sasser, 2021).

Providing students with individual-level evidence-based strategies can empower them to interrupt their impostor cycles. To be most effective, these strategies should be actionable, allowing for independent implementation following formal training. Although there are many design elements to consider when creating IP interventions and workshops, research has shown that the most effective programs incorporate some type of skill-oriented content along with cognitive behavioral or mindfulness-based strategies (Conley et al., 2013). We have chosen to highlight several interpersonal and intrapersonal strategies that may effectively minimize IP by interrupting impostor cycles, addressing maladaptive coping strategies, and mitigating related adverse effects.

A range of evidence-based IP interventions could be offered depending on the context. Fortunately, IP research has shown that using any evidence-based strategy is more effective than no strategy (Barr-Walker et al., 2020). However, whenever possible, it is best to provide a variety of IP management strategies, even as postintervention resources, as broader intervention research has shown that multistrategy approaches may hold the most promise. For example, multicomponent positive psychology interventions, which incorporate the development of multiple facets of well-being, are more effective than single strategy

designs at promoting long-term change (Morgan & Simmons, 2021; Myers et al., 2017; Rusk et al., 2018).

Student-level IP interventions are just one piece of the puzzle and should not be considered sufficient to address campus-wide IP crises. However, we believe implementing individual-level evidence-based programs is a critical first step. Thus, we have provided a brief discussion of promising designs and management strategies that have been shown to reduce IP. This section should not be considered an exhaustive review but a curated selection of approaches with the most empirical support.

Psychoeducational and Skill-Oriented Approaches

Initially used in clinical settings to treat mental illness, psychoeducational approaches may effectively support students' social and emotional well-being (J. A. Brown et al., 2020), including managing impostor thoughts and feelings. Although diverse in their specific application, these approaches typically utilize evidence-based, didactic designs that provide condition-specific, systematic, structured information (Ekhtiari et al., 2017) that considers whole-person experiences (Motlova et al., 2017). By integrating informational, emotional, motivational, behavioral, and cognitive elements, these approaches can empower participants through increased topic literacy and self-efficacy (Ekhtiari et al., 2017). One of the advantages of use in higher education settings is the flexibility of application (Lukens & McFarlane, 2004), which allows programs to be tailored to meet the needs of specific student populations and department structures. In the case of IP, psychoeducational group experiences may provide great value and opportunities for group discussions, social learning, and support, which can reduce feelings of isolation, self-blame, and shame (N. W. Brown, 2018; Hutchins & Flores, 2021; Lukens & McFarlane, 2004). Additionally, systematic reviews of higher education well-being interventions have shown that psychoeducational programs are most effective when delivered in multisession modules incorporating didactic sessions, skill-oriented training, supervised practice, or individual coaching (Conley et al., 2013).

Most of the publicly available higher education IP programs we reviewed were delivered as single or multisession informational or psychoeducational workshops led by external facilitators or, more often, in-house staff educators or faculty. A core practice used in nearly all instances was an early establishment of a shared understanding of the IP construct, including common manifestations. Approaches included introducing students to the psychological construct (e.g., defining IP elements), helping them identify typical manifestations of IP (e.g., how and when IP may show up), and recognizing IP in themselves (e.g., their IP thought patterns). An overview of common maladaptive coping

strategies and their associated long-term negative consequences was also typical, as was the informal administration of the Clance Impostor Phenomenon Scale (Clance, 1985), which was used to provide students with insights into their IP levels. Although many of these elements are simple in design, the literature supports their use. For example, qualitative research has shown that by simply learning how to name their experiences and recognize that they are not alone in their feelings, students experience some immediate relief from IP (Haney et al., 2018). Additionally, by participating in group discussions, students can appreciate the universal nature of IP, which can normalize their own experiences and reduce solitary suffering (Haney et al., 2018; Hutchins & Flores, 2021).

Intrapersonal Strategies

The most empirically supported individual-focused interventions rely on cognitive reframing and retraining strategies to address maladaptive, self-critical cognitive distortions. Cognitive behavioral approaches are commonly utilized in clinical settings and can include a variety of therapeutic models (e.g., cognitive behavioral therapy [CBT], cognitive process therapy, mindfulness-based CBT). These models have been proposed as effective strategies for combating impostor thinking (Clance & Imes, 1978; Playforth, 2021), and nonclinical adaptations have been studied for use within higher education settings. Although specific content and delivery vary across methods and settings, the goal of reprogramming maladaptive cognitive processes using reframing, deidentification, and interrupting maladaptive cognitive cycles is constant. Therefore, it can be expected that, when incorporated into IP interventions, these cognitive reframing strategies may effectively reduce impostor thoughts by interrupting students' impostor cycles. Over time this could lead to the retraining of automatic, persistent negative self-talk patterns and maladaptive cognitive distortions (e.g., thinking they are frauds), particularly if students are given a chance to rehearse in safe settings, even before the new patterns feel authentic (Lukens & McFarlane, 2004).

The few empirically validated IP-specific interventions conducted using these strategies have shown promise. For example, Hutchins and Flores (2021) investigated the potential benefits of a multisession psychoeducational IP workshop based on an adaptation of the 12-step cognitive processing therapy process. By incorporating commonly used cognitive processing tools and interactive exercises (e.g., ABC Theory, Challenging Questions, Problematic Thinking Patterns), the intervention reduced feelings of impostorism and increased core self-evaluation beliefs (i.e., self-esteem, generalized self-efficacy, neuroticism, locus of control). Additionally, qualitative responses

indicated that participants' improved ability to recognize "stuck points" (i.e., moments when one gets stuck in IP thoughts) was a necessary first step in managing IP and that relating to fellow participants' IP examples helped normalize their own experiences, leading to greater levels of acceptance (Hutchins & Flores, 2021). Although this intervention was studied in nonacademic settings, similar outcomes could be expected for students.

Several scholars have also identified a positive relationship between IP and fixed mindsets (Kumar & Jagacinski, 2006). Mindset theory suggests that those with a so-called fixed mindset attribute intelligence to innate ability, compared with those with a growth mindset who believe that effort and practice are the best predictors of learning and that intelligence is expandable (Dweck, 1986, 2017). Zanchetta et al. (2020) posited that IP is associated with a fixed mindset (i.e., intelligence is considered a stable trait) rather than a growth mindset (i.e., mistakes are viewed as opportunities for learning). These scholars found that coaching and training interventions aimed at promoting growth mindsets reduced IP, with the coaching intervention having the most substantial impact on IP levels (Zanchetta et al., 2020). S. Chang et al. (2022) found similar success for mindset-oriented IP interventions in higher education settings. Following a summer research program that included a workshop on IP and growth mindset, students reported increased endorsements of growth mindset related to academic ability and reductions in impostor feelings, specifically fears of being exposed as lacking knowledge (S. Chang et al., 2022). Therefore, growth mindset strategies, which encourage growth and learning from constructive feedback, particularly those that include one-on-one coaching, could be helpful for students who avoid input out of fear of negative appraisals (a common IP characteristic).

Another approach to address students' maladaptive thought patterns and cognitive distortions is the integration of mindfulness-based strategies. Like other cognitive approaches, mindfulness-based strategies may buffer students against the trappings of the impostor cycle by reducing emotion dysregulation, rumination, and overidentification with state emotions (Hofmann et al., 2010; Suh et al., 2019). Multiple systematic reviews and meta-analyses (e.g., Bamber & Schneider, 2016; Dawson et al., 2020; Gu et al., 2015) have substantiated the positive mental well-being impacts of mindfulness-based interventions (MBIs), and the proposed psychological mechanisms underlying their effectiveness (e.g., cognitive and emotional reactivity, mindfulness, rumination, worry) provide compelling support for IP management applications.

Although there has been limited direct investigation of MBIs' impact on IP, promising evidence indicates their effectiveness in reducing various predictors and adverse outcomes associated with IP in higher education

settings. Multiple studies have demonstrated that MBIs can enhance students' well-being (Wingert et al., 2022) and decrease psychological distress (Barbosa et al., 2013; Falsafi, 2016; Finkelstein et al., 2007; Huberty et al., 2019; Lampe & Müller-Hilke, 2021; Rosenzweig et al., 2003), both of which are significant predictors and outcomes of IP (Peteet, Montgomery, & Weeks, 2015; Wei et al., 2020). Moreover, MBIs have been shown to reduce forms of behavioral self-handicapping, including avoidance-focused coping (de Vibe et al., 2018). These strategies (e.g., procrastination, avoidance), which are commonly employed by IP sufferers to avoid negative self-evaluation, as well as shame, a maladaptive response that often leads to rumination and negative self-evaluation, have both been shown to predict impostor thinking (Cowman & Ferrari, 2002). Furthermore, shame has been found to mediate the relationship between students' impostor feelings and psychological distress (Wei et al., 2020). Therefore, MBIs may also be beneficial in the treatment of IP stemming from students' ability to reduce both behavioral self-handicapping (Blouin-Hudon et al., 2017; Dionne, 2016; Rad et al., 2023) and shame (for a review, see Goffnett et al., 2020). Lastly, MBIs have demonstrated efficacy in reducing students' perfectionist tendencies (James & Rimes, 2018; Wimberley et al., 2016), which are established predictors of IP (Dudău, 2014; Pannhausen et al., 2022; Wang et al., 2019). However, further research is needed to confirm the potential benefits of MBIs in directly addressing IP.

As typical manifestations of IP include critical self-talk, isolation, and rumination, mindfulness-based approaches that increase self-compassion could be especially beneficial, as they could bolster students' ability to resist the trappings of their impostor cycles. Self-compassion scholar Kristin Neff (2003) proposed a three-element mindful self-compassion model that expands upon the core tenets of mindfulness. These elements are self-kindness versus self-criticism (in times of stress, being warm and loving toward oneself instead of being critical or judgmental), common humanity versus isolation (recognizing mistakes and suffering are part of the human experience), and mindfulness versus overidentification (taking a balanced view of oneself and avoiding rumination or overidentification with emotions). Multiple correlational studies have established a negative relationship between students' self-compassion and IP (e.g., Patzak et al., 2017; Rosenthal et al., 2021) as well as common IP correlates, including maladaptive perfectionism (Mehr & Adams, 2016), rumination (Smeets et al., 2014), depression, and burnout (Richardson et al., 2020) among both undergraduate and graduate students. Self-compassion has also been shown to moderate the relationship between IP and psychological distress among Asian American university students, such that greater self-compassion weakened the association between IP and psychological distress (Wei et al., 2020). However,

more experimental research is needed to fully understand the causal relationship between self-compassion and IP, as one correlational study found a positive association between self-compassion and IP among psychology doctoral students (Tigranyan et al., 2021). Fortunately, a growing number of experimental studies are exploring these relationships; however, at the moment, most are in the context of master's theses and doctoral dissertations. Although not yet published in peer-reviewed journals, their findings are promising. For example, Liu (2022) found that following a brief self-compassion intervention, undergraduate students experienced significant decreases in IP and maladaptive perfectionism, along with increases in overall psychological well-being.

However, all mindfulness-based approaches are not created equal, so evidence-based strategies should be utilized rather than relying on oversimplified techniques. Just as "think differently" would not be sufficient instruction for CBT-style cognitive reframing techniques, to be effective, mindfulness-based strategies must go beyond "just breathe." Additionally, care should be taken to manage students' expectations appropriately and avoid perpetuating feelings of fraud or failure. It is critical to ensure that students understand that delayed benefits are normal and not a reflection of the quality of their efforts. As with any cognitive retraining approach, mindfulness and self-compassion practices should be titrated and done regularly to realize the full benefits.

Unfortunately, the recent surge in superficial mindfulness interventions (e.g., very brief breath work) and commercialization of mindfulness products (e.g., mindfulness apps) has led some to be quick in their dismissal of all mindfulness-based approaches, despite growing empirical support. Often relying on straw man arguments, many dismissals are based on mischaracterizations that suggest mindfulness is just about breathing away problems. Critics have also challenged the individual-level focus of many IP strategies, including mindfulness-based techniques. For example, McGee et al. (2022) argued that individualized IP strategies that ask students to "breathe, yoga pose, meditate, and affirm their own ways to cope" can be harmful to Black and other marginalized students, as they perpetuate the myth that internal, individual-level changes are sufficient for addressing inequitable systems of power (p. 488). We concur that, for many students, IP is often the product of structural and interactional racism and traditional conceptualizations of impostor syndrome fail to account for critical social and environmental issues. However, we disagree that individual-level strategies, including mindfulness-based approaches, should summarily be dismissed. We realize that more IP-specific research is needed in this area, and we encourage scholars to continue investigating these approaches. However, in the meantime, we believe if thoughtfully designed and responsibly delivered (e.g., accounting for the legacy of White supremacy

in HEIs), these intrapersonal strategies can be valuable tools to help students manage their IP experiences, especially in the context of inequitable or racist educational settings.

In addition to the variety of cognitive strategies designed to reframe maladaptive thought patterns, research has also found that supporting the development of academic or professional skills can reduce IP and improve student well-being. For example, skill-oriented programs, particularly those that included supervised practice, have been shown to reduce students' emotional distress (e.g., depression, anxiety, stress) while promoting self-confidence, social and emotional skills, and prosocial behavior (Conley et al., 2013). Furthermore, research has shown that, among college students, there is a negative relationship between IP and conscientiousness (Bernard et al., 2002). Therefore, interventions that incorporate academic and professional skill training (e.g., time management, study skills) and support discipline-specific competence development (e.g., scholarship literacy) may be especially beneficial for combating IP (Bernard et al., 2002; Cisco, 2020).

Cisco (2020) incorporated academic skills training into his postgraduate student IP intervention, which was based on an adaptation of previously validated clinical interventions. Like the psychoeducational models previously discussed, he began by introducing students to the IP construct and allowing them to identify their own IP experiences; recognize the associated adverse effects; and consider their use of standard, maladaptive coping strategies (e.g., avoidance, procrastination). Following the didactic content, students were guided through strategies for developing academic literacy and field-specific skills based on literacy pedagogy research. In total, the intervention consisted of four literacy-based workshops held over 1 month. Although all the workshops utilized a group support model, only the first workshop included content and discussions explicitly dedicated to IP. Workshops 2 through 4 focused on disciplinary and academic literacy using various literacy paradigms (e.g., content area reading and writing, disciplinary literacy, academic literacy, discourse theory). After the program, participants in the experimental condition experienced a 23% reduction in IP scores compared with the control group. However, although these findings are promising, some aspects warrant additional study. For example, there was a greater reduction in IP scores among the PhD students compared with the master's students, as well as differential rates of IP reduction by gender, with male students experiencing more significant drops. Therefore, although the intervention appeared to be successful overall, the effects of the treatment may not have been universally beneficial across all students, as program level and identity characteristics seemed to affect outcomes.

Metz and colleagues (2020) also developed a promising academic skill-based IP intervention. They explored the impacts of an online IP intervention embedded as a module in a course for first-year dental doctoral students and found it effectively reduced students' IP levels. As part of this coping skills intervention, students watched an informational video on IP, which included testimonials from former students related to their IP experiences. The video also reviewed evidence-based strategies for dealing with common maladaptive coping practices (e.g., procrastination, overpreparing). Most participants felt that the workshop increased awareness of IP and provided practical strategies for interrupting their impostor cycles. In postintervention follow-ups, the two most utilized coping strategies were scheduling techniques to reduce procrastination and overpreparing for nonessential tasks (Metz et al., 2020). As there was no control group, it is possible IP reductions were due to acclimation to graduate school; however, as discussed earlier, research has shown that program progress alone does not serve as an effective buffer against the development or perpetuation of IP (Rosenthal et al., 2021; Villwock et al., 2016).

Interpersonal Strategies

In addition to intrapersonal strategies, various interpersonal strategies (i.e., social strategies) are related to fewer experiences of impostor thoughts and feelings (Barr-Walker et al., 2020). Social strategies are still utilized at the individual level, but rather than relying exclusively on introspection and self-reflection, they seek to reduce IP experiences by encouraging reliance on social support through diverse mentor networks, affinity groups, and peer support. By utilizing social strategies, students can build upon their individual-level IP management skills while improving their understanding of their IP experiences in the context of sociocultural factors, such as stereotype threat, experiences of racism, and microaggressions (Joshi & Mangette, 2018).

One social strategy proposed to reduce the adverse effects of IP is the cultivation of a robust and diverse mentor network. Although not explicitly investigating student experiences, Manongsong and Ghosh (2021) explored the potential benefits of diversified developmental support for minoritized women working in higher education. Based on their findings, they proposed that diverse mentor networks could effectively combat impostor thoughts and feelings. Given the structure of the U.S. education system, this strategy may be most accessible to graduate students due to the commonly utilized mentor–mentee structure. Posselt (2018a) highlighted the critical role of faculty mentors in supporting doctoral students, including their ability to normalize struggle and failure and encourage adaptive coping strategies, which are crucial for managing students' IP experiences.

Although robust and diversified mentor networks would likely serve all students, there is reason to believe it could be most effective for students who identify with historically marginalized or excluded groups within the academy or their discipline (e.g., women, ethnically/racially minoritized students, queer students, first-generation students). For example, research has shown that first-generation students, compared with their continuing-generation counterparts, are less likely to utilize campus support resources or seek help when they are struggling (J. Chang et al., 2020). However, much of this research has relied on deficit-based models that are fixated on the shortcomings of these students in higher education settings (T. Payne et al., 2021), including lack of academic engagement, low self-esteem, lower grade-point average, and higher attrition rates (Macias, 2013; Schwartz et al., 2018). In contrast, T. Payne et al. (2021) took a strengths-based approach and discovered that first-generation students did engage in help-seeking behaviors; they were just more reliant on their personal networks when deciding whether to seek help and plan the appropriate course of action. Therefore, departments must ensure that these students have access to and are encouraged to develop a diverse set of mentors to help them navigate hidden curricula and recognize the impacts of inequitable systems and institutions on their mental health and academic success.

There has also been extensive research on the benefits of peer mentorship in higher education contexts, which could extend to combating IP. For mentees, participation in peer-mentoring programs provided psychosocial and instrumental support (Grant-Vallone & Ensher, 2000), which led to increases in retention rates (Ward et al., 2010), campus integration (Collings et al., 2014), academic performance (Asgari & Carter, 2016), sense of community (Paolucci et al., 2021), feelings of belonging (Dennehy & Dasgupta, 2017), and strengthened social bonds (Fávero et al., 2018). Student mentors have also been shown to benefit from peer-mentoring relationships through increased opportunities for self-development (Paolucci et al., 2021) and experiences of personal satisfaction (Kalpazidou Schmidt & Faber, 2016). Although there is little empirical research on peer mentorship related to IP, numerous scholars have suggested that it could be an effective strategy for combating feelings associated with IP (Fowler & Villanueva, 2023), such as isolation (Sattler et al., 2012), and increasing program diversity (Fraiman et al., 2022). Additionally, the few studies that have explored the connection between peer mentorship and IP have provided promising results. For example, Graham and McClain (2019) found that Black college students at PWIs who received peer mentorship experienced lower levels of IP and an increased sense of belonging and college adjustment compared with their peers who did not have peer mentors. Sattler et al. (2012) also found that participation in peer-led mentoring groups increased students'

academic identity development and self-affirmation while decreasing their impostor feelings. So, although much more work is needed, particularly related to the characteristics of mentor relationships that are most effective in combating IP, it appears to be a worthwhile strategy.

Similar to formal peer-mentorship models, participation in affinity groups has also been proposed to deal with IP experiences. Research has shown that when students sought social support from individuals outside their program, they often reported greater improvements in their impostorism feelings than those who sought help from department peers (Gardner et al., 2019). This difference indicates that having a broad network of peers beyond department area cohorts, such as those found through affinity groups, could provide the best support for students as they work to manage their IP. Additionally, the benefits of peer support may be multidirectional, with those offering support gaining as much from the interaction as those seeking it. For example, students experiencing IP reported that providing social support to their struggling peers helped them reframe and reduce their own feelings of impostorism (Gardner et al., 2019). However, for some, reaching out to peers for support fueled feelings of impostorism (Gardner et al., 2019), possibly due to maladaptive social comparisons, so it may not be a strategy that works for everyone.

Although not all affinity groups are designed around racial or ethnic group identity, much of the IP and broader student well-being research has focused on these identity characteristics. Research has established a connection between racial/ethnic group identity and mental health among minoritized students, with group identity positively predicting psychological empowerment and well-being (McClain et al., 2016; Molix & Bettencourt, 2010). Furthermore, minority stress and impostor feelings are negative predictors of mental health for Black college students in the United States (McClain et al., 2016). Therefore, participation in affinity groups may serve as a buffer against developing impostor thoughts and feelings, particularly for historically marginalized students attending PWIs. For example, as part of their development of a culturally informed model of IP for Black graduate students attending PWIs, Stone et al. (2018) identified awareness of low racial representation and feelings of otherness as factors contributing to students' impostor experiences and feelings of emotional isolation. They recommend participation in affinity groups as one potential strategy for targeting IP. T. Payne et al. (2021) also highlighted the critical role of solid peer networks in bolstering help-seeking behavior and well-being among ethnic minority first-generation students. For example, many students viewed help-seeking behavior as a sign of weakness, noting stereotype threat as a compounding factor (T. Payne et al., 2021). Those willing to seek support preferred to rely on peers rather than faculty and, through the

development of these networks, were able to increase their social capital and experience greater levels of support (T. Payne et al., 2021). Social capital benefits become collective by improving individual and, by extension, group levels. In the context of IP interventions, those collective benefits could be realized if members of an affinity group attend IP trainings and share coping strategies with group members. This knowledge sharing could also help normalize IP experiences and increase the likelihood of IP strategies being practiced beyond the formal training period. Therefore, to support these students in mitigating IP and associated adverse effects, IP interventions must discuss and encourage the importance of peer-based affinity groups.

However, it is not enough to promote participation in affinity groups, as the relationship between racial/ethnic identity and IP has been shown to be mediated by self-esteem. Therefore, for affinity groups to be effective, it is imperative that these groups, and by extension, their members, feel supported, included, and empowered by their institutions (Lige et al., 2017).

Institution-Level Strategies

Although individual-focused interventions can provide temporary symptom relief from the adverse outcomes of IP and associated maladaptive coping mechanisms, as discussed in earlier chapters, IP does not occur in a vacuum. Various cultural and systemic factors influence it. Therefore, individual-level strategies are band-aids and will not effectively treat the causal issues at the core of our institutions. The long-term goal should be to move beyond individual approaches to develop institutional-level interventions aimed at thwarting inciting incidents that trigger students' impostor cycles. Signaling the need for these types of changes, scholars have begun to advocate for a shift from considering impostorism as an individual issue (i.e., impostor syndrome) and instead conceptualizing it within the context of environmental and cultural factors that contribute to impostor feelings (Cokley et al., 2017; Feenstra et al., 2020; McClain et al., 2016; McGee et al., 2022).

Interestingly, this is not a new concept, even though contemporary IP scholarship has been nearly exclusively dedicated to exploring the construct through an individual lens. For example, Clance et al. (1995) discussed the role of social and interpersonal context in developing IP, highlighting the impact of familial and social messaging on gender-role socialization. Cokley et al. (2017) also found that among ethnic minority students, there was a positive relationship between experiences of racial discrimination on campus and impostor thoughts and feelings. If IP interventions continue to exclusively focus on person-based messaging and approaches that ignore the impact of social context on

the development and manifestations of IP, they run the risk of perpetuating the dangerous myth that IP is an individual issue that must be solely resolved by the individual (Feenstra et al., 2020; McGee et al., 2022).

Much of the IP scholarship has come from psychology, leading to an understandable imbalanced attention to individual factors and mitigation strategies. However, the more we learn about the phenomenon, the more we understand that it is not an individual issue that originates within the individual but rather a (maladaptive) coping response to inequitable and exclusionary systems and power structures. Therefore, if HEIs want to create meaningful change in reducing toxic IP experiences, they must accept their role in creating the environments, policies, and situations that contribute to the flourishing of IP. Simply providing life preservers to drowning students while ignoring the system-level factors that are pushing them into the dangerous water is, at best, ignorant short-sightedness and, at worst, willful indifference. Institutions genuinely committed to supporting the well-being of their students must stop placing the entire burden on the individual and work toward high-level structural change.

Hidden Curricula

As we have discussed, societal, institutional, and interpersonal factors play significant roles in developing and manifesting impostorism on college and university campuses (Feenstra et al., 2020). The hidden curriculum of higher education, both at the undergraduate and graduate levels, creates institutional barriers that foster students' perceived fraudulence and self-doubt, particularly among first-generation college students and students from historically marginalized backgrounds. Jack (2019) argued that the unwritten rules of higher education constitute a hidden curriculum that tests students' ability to navigate complex and exclusionary institutions rather than rewarding academic achievements. He noted that undergraduate institutions rarely offer any formal curriculum on the importance of developing relationships with faculty, attending office hours, and creating connections with staff to access institutional resources. He explains that some of the most commonly used words in undergraduate education are rarely described to students (e.g., syllabus, fellowship), and graduate school is no different. Similarly, in her model of graduate education, Posselt (2018b) included impostorism as one of the primary challenges faced in doctoral education. She asserted that impostor syndrome is fostered by the emphasis on rigor in doctoral education and is triggered by experiences of isolation, insufficient mentoring, and competition with peers (Posselt, 2018b).

Drawing on a survey of graduate students across all programs at a large midwestern university, Cohen and McConnell (2019) found that controlling for other factors, perceptions of insufficient mentorship, competition for funding,

and isolation in graduate school are associated with higher IP among postgraduate students. Similarly, in her field guide to graduate school, Calarco (2020) argued that the hidden curriculum of graduate school contributes to impostor thoughts; there is a lack of formal education on discipline-specific jargon, academic writing, publishing, or how and where to present one's research (e.g., how to give a conference presentation; Calarco, 2020; Cisco, 2020). In addition, heavy reading loads (and the unspoken assumption that graduate students should know that no one is expected to read everything), as well as the significant gaps in formal research methodological training, can also lead to students feeling that they do not measure up intellectually, fostering students' feelings of impostorism (Calarco, 2020).

IP interventions must extend beyond student-focused psychoeducational workshops to include institution-level responses to address these hidden curricula, which permeate all higher education levels (Feenstra et al., 2020). Departments, schools, and colleges must work to uncover their hidden curricula and provide formal instruction on the unwritten norms and rules of higher education. These efforts should happen at the start of undergraduate training, perhaps incorporated into required first-year student orientations. Additionally, students could be assigned first-year academic advisors who provide one-to-one coaching and support, including explicit discussion of norms and definitions of educational jargon. First-year writing seminars, required by many colleges, could also be a vehicle for formal curriculum on topics such as navigating institutional support resources, deciphering and defining higher education terminology, academic writing, and the role of faculty in supporting students.

At the graduate level, these efforts could include reducing departmental hierarchies to empower students as active participants in their development as scholars-in-training. Metz et al. (2020) solicited suggestions from doctoral students regarding institutional-level changes that could support their efforts to reduce IP, particularly during critical transition periods. Students suggested curriculum and environmental changes, including the elimination of class ranks, reductions in course load, more welcoming orientations, and pass/fail grading (Metz et al., 2020). Graduate proseminars could also be a space to normalize IP and generate open discussion among peers about impostor feelings. Graduate advisors should also explicitly decode the hidden graduate curriculum during one-to-one advising appointments, especially during the first year when students are adjusting to the new expectations of graduate school.

Curricular Integration

For HEIs that choose to offer individual-level IP interventions, some changes can also be made at the institutional or departmental level to bolster the impact.

For example, incorporating IP interventions or content into curricular activities would reduce barriers to entry associated with free-standing programs. Several studies have found that identity characteristics (e.g., gender, race, religion, socioeconomic status), perceived barriers (e.g., access, usability), and academic level (e.g., undergraduate, graduate) affect students' understanding of mental health issues, perceptions of public stigma, and self-stigma toward help-seeking behavior (e.g., Clement et al., 2015; Dunley & Papadopoulos, 2019; Eisenberg et al., 2009; Pedersen & Paves, 2014). Others have found that many students struggle to find or justify the time to prioritize mental health and well-being (Broglia et al., 2021; Czyz et al., 2013; Givens & Tjia, 2002). Furthermore, Clance and Imes (1978) argued that individuals' experiences of IP are not necessarily recognized or readily admitted. So, by incorporating IP interventions into the required curriculum, more students in need of IP support could be exposed to the materials and resources.

Beyond removing real and perceived barriers, a systematic review of universal well-being promotion interventions in higher education showed that interventions incorporated into the curriculum were more effective than cocurricular small-group formats (Conley et al., 2013). Although not empirically explored, scholars speculate that the effect of curriculum integration might be due to a combination of students' familiarity with the classroom as a space for learning as well as getting more time to understand and internalize the new content, as course-based approaches tend to be longer in duration than free-standing workshops or small-group trainings (Conley et al., 2013). In the case of IP, S. Chang et al. (2022) similarly found that students appreciated the opportunity to participate in IP workshops during orientation, noting the usefulness of starting the semester off on the right foot and understanding its integration as an endorsement from the department of the importance of the content. Furthermore, class-based programs may also be less stigmatized than interventions that may be viewed as similar to therapy (H. Payne, 2022). Additionally, by removing the "elective" status, institutions signal to students that they view well-being and whole-person development as integral to students' experiences and success.

Institutional-level strategies are crucial for optimally supporting historically marginalized students in minimizing their IP experiences. For example, Stone et al. (2018) identified institution-level factors, including lack of representation and discrimination, that contribute to creating and perpetuating IP among Black students at PWIs. They argued for campus-wide initiatives that affirm Black students' presence and intellectual contributions rather than relying exclusively on individual-level resilience initiatives. One recommendation they provided was to develop psychoeducational programs and trainings for

non-Black students and faculty aimed at reducing negative biases related to Black intelligence and increasing cultural competence (Stone et al., 2018). In addition, to protect against the incorporation of harmful biases or assumptions, diverse groups of people, including students, should be included in developing and facilitating program content. By involving students, content is also more likely to be delivered in a relatable manner (e.g., cultural references, language, style; Benton et al., 2020; Hudson et al., 2014), leading participants to be more willing to express vulnerability (Djohari & Higham, 2020), which is critical when dealing with a sensitive topic like IP.

Faculty and Impostor Phenomenon

Another consideration relates to the ability of the faculty to support students as they work to manage their impostor thoughts and feelings. First, it is essential to acknowledge that most faculty are not experts on IP. Second, extensive research highlights the prevalence of IP among faculty at all levels (Hutchins, 2015; Hutchins & Rainbolt, 2017; Parkman, 2016), and scholars have argued that those who enter their professional roles with unresolved impostor issues may pass along maladaptive thought patterns or coping strategies to their trainees (Dancy & Brown, 2011). Therefore, it may be unrealistic to expect faculty mentors and advisors to effectively promote and model healthy behaviors if they, too, are suffering. Third, the prevalence of IP among faculty could negatively affect the effectiveness of student-centered IP interventions. For example, doctoral students who participated in a first-year IP intervention reported that they felt that consistent reinforcement (e.g., repeated content exposure, reminders from faculty) would be critical to their success in managing their impostor thoughts following the intervention (Metz et al., 2020). This type of continued reinforcement would not be possible if faculty could not recognize IP in themselves or their students or if they were unaware of adaptive coping strategies.

Consequently, institutions should take a two-pronged approach to combat IP, empowering both students and faculty. On the faculty side, this could be accomplished by creating faculty development programs to cultivate institutional cultures that address and prevent IP at all levels. These programs could educate faculty about evidence-based interventions and strategies that can be used by faculty and also embedded in their courses or shared with their mentees. To alleviate the burden on faculty, institutions can invite higher education staff with expertise in IP, such as educators in the counseling center or teaching and learning center, to provide guest lectures and resources for embedding interventions in their courses and advising. Furthermore, given that perceptions of low-quality mentorship are associated with higher IP among graduate

students, graduate programs should also provide formal faculty mentorship training to ensure high-quality relationships between advisors and advisees (Cohen & McConnell, 2019).

FUTURE DIRECTIONS

No doubt remains concerning the prevalence of IP on our campuses. What is left to discover is how institutions and departments can effectively drive higher level change while still directly supporting students as they navigate their IP experiences. In light of the field's growing understanding of the roles that systems of power and campus climate play in the development and perpetuation of IP, it may be tempting to dismiss individual-level IP interventions summarily. However, we believe they can still provide great value when developed using culturally informed frameworks, considering the unique impacts of identity and social status factors, and thoughtfully delivered as part of larger campus-wide efforts. Just as we encourage our students to let go of perfectionist tendencies that freeze progress, we should not let the perfect be the enemy of the good when supporting them. While we wait for the fruits of our labors to manifest at the institutional level, we have a responsibility to arm our students with tools that can empower them to minimize the frequency and impact of their impostor thoughts and feelings. Demanding or driving institution-level change does not require the wholesale rejection of individual approaches that have been demonstrated to alleviate student suffering.

Therefore, we hope this chapter serves as a call to action for social science scholars and higher education administrators. There is still much progress to be made when it comes to identifying and implementing effective evidence-based strategies for mitigating students' IP experiences. More research is needed in areas related to individual protective mechanisms; institutional interventions; and strategies for dealing with the social, cultural, and environmental factors contributing to student suffering. In the meantime, commitment is needed across all levels of HEIs to shift the focus away from individual conceptualizations of IP (i.e., impostor syndrome) and instead recognize IP as a consequence of inequitable and discriminatory environments.

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