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# From perceived workplace envy to deviance: a multi-theoretical model of envy-related workplace behaviors and the moderating role of social courage

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## Abstract

Perceived workplace envy is associated with critical interpersonal dynamics in high-stakes settings such as air traffic control, where collaboration and error-minimization are paramount. The present study examined associations among perceived workplace envy, social loafing, workplace ostracism, and interpersonal deviant behavior, with workplace social courage as a moderator. Integrating social comparison, affective events, social exclusion, and self-regulation theories, the study tested an associative sequential framework using cross-sectional survey data from 425 licensed air traffic controllers in Türkiye, a context blending individualistic and collectivist values. Structural equation modeling showed that perceived workplace envy was positively associated with social loafing and interpersonal deviant behavior, with significant indirect paths from perceived envy to ostracism via social loafing, and from social loafing to interpersonal deviant behavior via workplace ostracism. Workplace social courage strengthened the associations between perceived envy and social loafing, and between perceived envy and deviance, but did not moderate the workplace ostracism–interpersonal deviant behavior association. The results advance the organizational behavior literature by reframing perceived envy as an associated factor in sequential workplace behaviors and highlighting workplace social courage's dual role. The study's findings suggest that emotional awareness training and team-based evaluation systems are needed to foster team cohesion, reduce competitive tensions, and mitigate envy-related strains, enhancing psychological and operational safety in high-reliability professions, particularly in culturally hybrid contexts such as Türkiye.

**Keywords** Perceived workplace envy · Social loafing · Workplace ostracism · Interpersonal deviant behavior · Workplace social courage · Air traffic controllers

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## Introduction

Professions that require high attention, precision, and constant focus can expose individuals to emotional and social processes closely related to personal well-being, workplace safety, and operational effectiveness (Chuang et al., 2025). Air traffic controllers represent one of the most prominent examples of such environments, where occupational mistakes can have critical consequences (Ribas et al., 2011).

In air traffic control, performance is continuously benchmarked (e.g., delay, handoff timing, communication clarity) and is highly visible to peers (EUROCONTROL PRR, 2025; FAA, 2024). Such transparent, status-relevant metrics are associated with heightened social comparison, which can increase the likelihood of perceived workplace envy (PWE) when controllers differ in recognition or workload allocation (Li et al., 2023). Envy has been linked to social undermining and intentional information withholding/knowledge hiding (Connelly et al. 2012; Duffy et al. 2012a, b). In this setting, subtle forms of interpersonal deviant behavior (IDB)—such as information withholding, delayed assistance, or exclusion from coordination—can undermine safety-critical interdependence in shift-based teams (Svensson et al., 2020).

Although the literature demonstrates a broad consensus that perceived workplace envy (PWE) can be associated with adverse dynamics, ongoing theoretical discussions remain concerning its consequences and the contextual factors that influence it. For instance, findings on the association between PWE and social loafing (SL) are contradictory. For example, Duffy et al. (2012a, b) reported a positive relationship between PWE and SL through increased interpersonal tension, whereas Cohen-Charash and Mueller (2007) suggested PWE can sometimes be associated with prosocial behavior. Similar inconsistencies have been observed in the associations between WO, SL, and IDB (Shaikh et al., 2022; Williams, 2007). These contradictions point to the absence of an integrated, process-oriented explanation in the literature.

More specifically, three key gaps emerge. First, prior research lacks a process-oriented model that connects PWE to IDB sequentially (a process gap). Second, the potential mediating roles of SL and WO remain underexplored (mechanism gap). Third, boundary conditions such as workplace social courage (WSC) have received little research attention, despite their potential to alter the trajectory of envy-driven behaviors (boundary gap). Türkiye's cultural hybridity, combining collectivist and individualistic values, provides a unique lens for understanding how PWE unfolds into SL, WO, and IDB. This context underscores the importance of examining these dynamics in a high-stakes, hierarchical profession such as air traffic control.

Based on these gaps, the present study investigates a number of research questions (RQs): (i) What are the sequential relationships between PWE, SL, WO, and IDB? (RQ1); (ii) Do SL and WO function as mediators that explain these associations? (RQ2); and (iii) Does WSC moderate the strength of these relationships? (RQ3). To address these questions, the study developed a multi-theoretical framework that integrates social comparison, affective events, social exclusion, and self-regulation theories. It tested this framework using survey data from Turkish air traffic controllers.

The present study contributes to the literature in three main ways. First, it proposes a behavioral framework in which PWE, SL, WO, and IDB are viewed as interrelated components of a sequential process. This framework advances prior research by moving beyond simple associations and proposes a stepwise pathway that explains how envy-related perceptions are associated with IDB. Second, by integrating four complementary theories, the study demonstrates how theoretical convergence can contribute to explaining dynamic organizational phenomena. Third, it offers insights into how WSC may function as a regulatory mechanism within this chain, thereby providing a theoretical basis for both individual-level and structural interventions. Türkiye's cultural hybridity—combining individualistic and collectivist values—offers an original perspective on how envy manifests in behaviors such as SL, WO, and IDB. This cultural context enhances the model's theoretical relevance not only within Türkiye but also in terms of its testability across diverse cultural settings. For practitioners, the study highlights how negative dynamics emerge in high-stress professions. It also suggests ways to address them in attention-demanding environments.

## Theoretical background

### The relationship between perceived workplace envy, social loafing, and interpersonal deviant behavior

To establish the foundational relationships before exploring mediation, the direct associations between PWE and key outcomes need to be considered (Baron & Kenny, 1986). According to the social comparison theory (Festinger, 1954), PWE arises when individuals compare themselves to colleagues who have advantages, such as superior performance or higher social status. This perception may generate emotional tension, reducing cooperation in team settings. PWE can trigger negative emotional responses, such as anger, feelings of inadequacy, or exhaustion.

Affective events theory (AET; Weiss & Cropanzano, 1996) proposes that workplace events elicit emotional reactions, which, in turn, are associated with employees' behaviors and attitudes. According to AET, emotions are not merely by-products of job satisfaction but serve as proximal determinants

of both short-term behaviors and long-term attitudes. Being the target of PWE can be considered an affective workplace event within the AET framework. When employees perceive themselves as being envied for their performance, status, or recognition, they may experience negative emotions such as anxiety, guilt, or fear of WO (Duffy et al. 2012a, b). These emotional reactions may, in turn, trigger various self-regulation strategies aimed at avoiding social conflict.

One such strategy is SL, which is defined as the deliberate reduction of individual effort in group tasks (Karau & Williams, 1993). Individuals with PWE may consciously reduce their performance to defuse interpersonal tensions and avoid conflict. According to AET (Weiss & Cropanzano, 1996), the emotional discomfort caused by PWE may act as a proximal stimulus for decreased effort. This behavior is not necessarily rooted in laziness but reflects a coping mechanism to regulate the social environment (which may serve adaptive functions in tension reduction but maladaptive outcomes in team performance). Therefore, AET offers a robust theoretical perspective for understanding the relationship between the emotional impact of PWE and subsequent SL behavior (Weiss & Cropanzano, 1996). Empirical research supports this line of reasoning. For instance, Duffy et al. (2012a, b) found significant associations between PWE, interpersonal tension, and reduced work effort. Wee et al. (2019) reported a positive relationship between PWE and SL in a study involving public and private sector employees. More recently, Atmaji et al. (2024) reported meaningful associations between PWE, emotional exhaustion, and tendencies toward reduced effort among private sector employees. Similarly, Piwowar-Sulej and Iqbal (2025b) noted that PWE may be associated with weakened group dynamics, which could subsequently be associated with motivational decline.

In high-stress environments such as air traffic control, where tasks need to be coordinated with high precision and collaboration is essential, a strong performance by an individual with PWE may increase emotional strain when combined with shift-based and demanding working conditions. This strain could lead to SL behavior and potentially pose indirect risks to operational safety (Dimitriou & Zantanidis, 2021). This contextual risk is particularly important for air traffic controllers, where even small performance lapses can have disproportionate consequences. This person-centered view of PWE allows for nuanced differences in responses, unlike variable-oriented approaches that assume linear effects (Howard, 2019). Based on AET (Weiss & Cropanzano, 1996), and previous empirical research, it was hypothesized that PWE would be positively related to SL ($H_1$).

Moreover, an individual with PWE may engage in harmful behaviors toward coworkers as a form of coping. Self-regulation theory (Baumeister & Heatherton, 1996) suggests that PWE can tax an individual's regulatory resources, potentially resulting in impulsive or norm-violating behavior (potentially linked to strained autonomy and competence needs). Recent studies have provided empirical support for this. For instance, Shu and Lazatkhan (2017) reported significant associations between PWE and IDB such as incivility. Similarly, Ghasemi et al. (2025) found that PWE may be associated with deviant actions through the mediating role of negative emotions.

In environments such as air traffic control, where performance is monitored with high transparency and even minor mistakes can have substantial consequences, IDB directed at coworkers in response to PWE, such as deliberate communication breakdowns, may become more visible. These behaviors may be associated with potential operational risks by undermining team coordination and trust. Highlighting these direct associations helps clarify why the hypothesized relationship between PWE and IDB is critical before examining more complex pathways. Based on AET and previous empirical research, it was hypothesized that PWE would be positively associated with IDB ($H_2$).

## The mediating role of social loafing and workplace ostracism in the relationship between perceived workplace envy and interpersonal deviant behavior

Perceived workplace envy (PWE) may heighten socially tense interactions in organizational contexts, with affective and behavioral correlates. To account for these links, we draw on Affective Events Theory (Weiss & Cropanzano, 1996), self-regulation theory (Baumeister & Heatherton, 1996), and social exclusion theory (Williams, 2007).

Self-regulation processes under PWE may strain individuals' regulatory resources, increasing the likelihood of WO. Within this framework, SL and WO can serve as mediators in the relationship between PWE and IDB. Experiencing PWE may trigger emotional reactions such as anxiety, guilt, or anger, which may shape behavioral patterns and organizational attitudes. Individuals with PWE may withdraw or reduce their visibility to avoid social tension, which can lead to decreased work contribution (i.e., social loafing) (Karau & Williams, 1993). From a self-regulation perspective (Baumeister et al., 2007), this behavior can be interpreted as a coping response aimed at reducing emotional strain and minimizing the perceived threat of WO by intentionally holding back effort.

Coworkers may, in turn, ostracize the envied individual by omitting them from decision-making processes or limiting social interactions (Liet al., 2023; Shafique et al., 2021). This, in turn, may evoke feelings of WO, devaluation, or perceived injustice by the envied individual. According to the Social Exclusion theory (Williams, 2007), such experiences threaten fundamental psychological needs such as belonging, control, and meaning.

In this context, SL and WO may function as key pathways through which PWE is associated with IDB (Jahanzeb et al., 2023; Li et al., 2023), including behaviors such as passive-aggressive responses, information withholding, work slowdowns, or sabotage.

Empirical research supports these relationships. For example, Shaikh et al. (2022) found that SL was significantly related to lowered team trust, which was associated with a greater likelihood of WO. Karau and Williams (1993) demonstrated experimentally that social loafers are more likely to be socially ostracized by their group members. Liu et al. (2024) further noted that PWE is associated with WO through reduced team trust. SL may be associated with interpersonal team fragility in high-stress, coordination-intensive work environments such as air traffic control, particularly in shift-based work structures. Shift-based structures may amplify WO dynamics due to hierarchical transparency variations (Jiménez-Martín et al., 2020). This contextual emphasis highlights that in professions such as air traffic control, even minor breakdowns in cooperation can escalate exclusion dynamics and indirectly compromise safety. Tariq et al. (2022) also reported a significant relationship between PWE and SL, noting its potential link with group cohesion and WO. Zurriaga et al. (2020) similarly found that envied individuals were more likely to experience social WO. Ghasemi et al. (2025) reported that WO mediated the association between SL and IDB, such as sabotage or incivility.

This sequential process underscores how direct effects may expand into chain mediations, reflecting both theoretical plausibility and empirical support. Based on this theoretical framework and supporting empirical evidence, it was hypothesized that (i) social loafing would mediate the relationship between perceived workplace envy and workplace ostracism (H3), and (ii) workplace ostracism would mediate the relationship between social loafing and interpersonal deviant behavior (H4).

## The moderating role of workplace social courage

WSC may moderate the relationships between (i) PWE and SL, (ii) WO and IDB, and (iii) PWE and IDB. According to self-regulation theory (Baumeister & Heatherton, 1996), WSC enhances an individual's ability to regulate emotional reactions and behaviors and encourages courageous action in the face of social risk (Baumeister & Heatherton, 1996; Howard et al., 2017). SL, as a form of behavior that violates group norms and organizational expectations, may require individuals to consciously challenge those norms. For an envied individual, engaging in SL associated with attempts to manage emotional tension may involve the willingness to face risks such as receiving lower performance evaluations from supervisors (Price et al., 2006) or being exposed to WO by colleagues (Karau & Williams, 1993; Murphy et al., 2003).

In this context, individuals with higher levels of WSC may be more likely to report norm-challenging behaviors—such as SL or IDB—alongside negative emotions (e.g., anger, perceived inadequacy) associated with PWE, compared to those with lower WSC (Abdollahi et al., 2022; Howard, 2019; Maddi, 2004, 2006; Pury et al., 2015). WSC is also relevant to how individuals regulate retaliatory urges following WO, as reflected in the association between WO and IDB. Therefore, WSC may moderate the strength of the association between WO and IDB (e.g., sabotage, aggressive communication) across the chain (Howard & Cogswell, 2018; Howard et al., 2017).

Although the literature often treats WSC as a constructive and prosocial personality trait (Detert & Bruno, 2017; Koerner, 2014), recent research has also investigated its darker side (Howard, 2019; Pury et al., 2015). High levels of WSC may sometimes facilitate the adoption of norm-violating behaviors, reflecting a form of maladaptive courage (Howard, 2019). Here, WSC can be viewed not only as a product of self-regulatory capacity but also as a driving force that reflects the willingness to assume social risks (Howard, 2021). This dual nature reflects that high levels of WSC may correspond with prosocial responses, such as constructive voice (i.e., speaking up with improvement-oriented suggestions despite interpersonal risk) and risk-taking for the benefit of others, but may also coincide with maladaptive IDB under emotional strain (Howard, 2019; Magnano et al., 2022). With this dual nature, WSC has been framed as expanding the scope of self-regulation theory (Baumeister & Heatherton, 1996) by introducing the behavioral dimension of social risk-taking, offering a broader perspective on emotional regulation in the workplace (Magnano et al., 2022).

Recent research over the past five years underscores the "bright side" of WSC, positioning it as an adaptive mechanism linked to several organizational themes. In terms of individual outcomes, WSC is strongly associated with life satisfaction, career adaptability (Santilli et al., 2024), employee well-being (Mohsin, 2024; Deeg & May, 2022), and happiness (Mert et al., 2022), while serving as a buffer against emotional exhaustion (Koksal & Mert, 2024). Ethically, it reinforces moral identity (Holmes & Howard, 2023), corporate social responsibility, and whistle-blowing (Wang et al., 2024), while mitigating unethical pro-organizational conduct (Mert & Koksal, 2023). Furthermore, WSC shapes social dynamics by fostering relational identity (Kaltiainen et al., 2024), workplace spirituality and organizational loyalty (Srivastava & Gupta, 2022; Mert & Koksal, 2022). It also bolsters leadership effectiveness (Alshehri & Elsaied, 2022; Ogunfowora et al., 2021; Mert et al., 2025) and drives

team innovation and citizenship behavior (Peralta et al., 2021; Tkachenko et al., 2020).

Importantly, these adaptive associations are unlikely to emerge uniformly across contexts. In work environments characterized by higher levels of psychological safety, individuals may perceive lower interpersonal risks when expressing concerns or challenging existing practices (Edmondson, 2019). Under such conditions, WSC may be more closely associated with constructive voice, problem-solving, and cooperative behaviors (Morrison, 2014). In contrast, in contexts marked by higher emotional strain or relational uncertainty, the same tendency to take social risks may coincide with behaviors that are less aligned with group norms (Howard & Holmes, 2019).

In the context of air traffic controllers, this dual function of WSC may be associated with both constructive and destructive responses to social events such as being envied or excluded. Such responses may correspond with stronger or weaker observed associations, highlighting potential implications for operational safety. For instance, high WSC may be associated with stronger envy–SL links, while variations in the WO–IDB association may reflect differences in emotional regulation patterns.

Based on the aforementioned theoretical framework and empirical literature, it was hypothesized that (i) the positive relationship between perceived workplace envy and social loafing would be stronger among individuals with higher levels of WSC ($H_{5a}$), (ii) the positive relationship between workplace ostracism and interpersonal deviant behavior would be stronger among individuals with higher levels of WSC ($H_{5b}$), and (iii) the positive relationship between perceived workplace envy and interpersonal deviant behavior would be stronger among individuals with higher levels of WSC ($H_{5c}$).

The present study employed empirical methods to examine the essential theoretical relationships between the variables examined. This approach allowed the conducting of quantitative explanatory analysis. Figure 1 illustrates the research model.

## The present study

Research examining PWE shows a field rich with debate but lacking consensus, particularly regarding its behavioral outcomes (Duffy et al. 2012a, b; Umbra and Fasbender 2025). Studies have alternately framed PWE as a catalyst for self-improvement or, more commonly, as a trigger for IDB. While some research has reported associations between PWE and adverse outcomes such as SL and IDB, the findings are inconsistent (den Nieuwenboer et al., 2023; Yu et al., 2025). For example, some scholars suggest that perceived fairness can mitigate envy's harmful effects, while others find direct associations between envy, emotional exhaustion, and reduced effort (Kim & Jang, 2023; Umbra & Fasbender, 2025; Yarivand et al., 2025). The reasons for these contradictory findings often lie in a lack of process-oriented models that can explain the mechanisms through which an initial affective event—such as PWE—transforms into overt IDB, especially from the perspective of the envied individual.

This points to several critical gaps in the literature. First, while variables such as SL and WO have been studied concerning envy, they have been examined in a fragmented manner rather than as sequential components of a single behavioral chain (Banerjee & Shinde, 2025). The assumption that these behaviors form a mutually reinforcing process has not been systematically tested. Second, the role of individual traits that may regulate this process, such as WSC, remains underexplored, particularly its potential to function as a maladaptive, risk-enabling factor rather than a purely prosocial one.

The present study was therefore designed to address these gaps. The study was situated within the unique occupational context of air traffic controllers in Türkiye—a profession where high-stress, transparent performance monitoring,

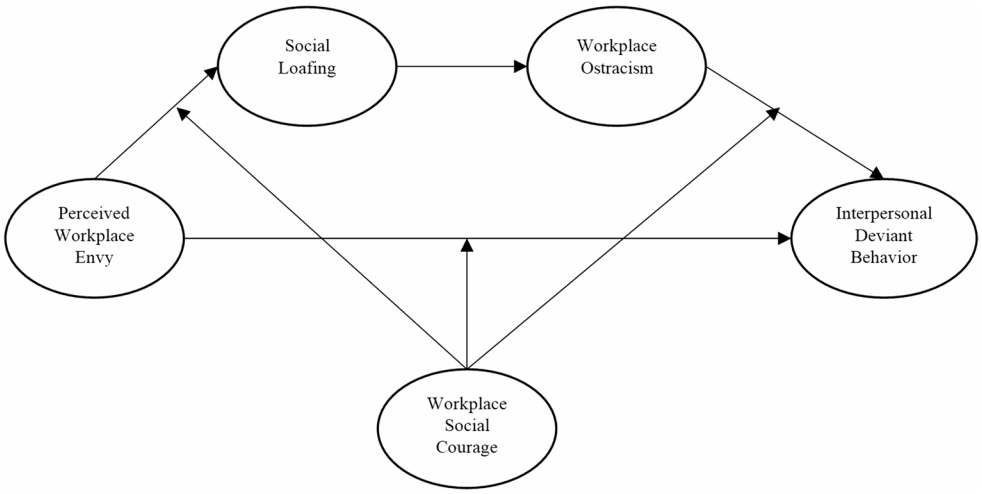



**Fig. 1** The research model

and intense collaboration are paramount. This high-stakes environment provides a critical test case for examining how interpersonal tensions can escalate into behaviors that pose operational risks. Moreover, Türkiye's cultural hybridity, which blends individualistic and collectivist values, offers a novel context for understanding these dynamics. Based on these factors, the study aimed to answer the following questions, each tied to a specific gap: (i) What are the relationships between PWE, SL, WO, and IDB?; (ii) Does SL mediate the relationship between PWE and WO, and does WO mediate the relationship between SL and IDB?; and (iii) Does WSC moderate the relationships between PWE and SL, WO and IDB, and PWE and IDB?

### Research design and rationale

Research in organizational behavior uses various designs to study interpersonal dynamics such as envy and IDB. Common approaches include experimental, longitudinal, and cross-sectional surveys. Laboratory experiments offer high control by manipulating variables to find cause-and-effect, but may lack external validity due to artificial settings (Shadish et al., 2002). Longitudinal studies follow participants over time, giving insights into how processes develop and supporting causality. However, they are resource-heavy and face participant dropout. Cross-sectional surveys take a snapshot at one time, efficiently capturing data from large, diverse samples, and are useful for testing complex models, often via SEM.

The primary shortcoming of the cross-sectional approach is its inability to establish definitive causality, because all variables are assessed concurrently. Despite this limitation, a cross-sectional survey design was chosen for several compelling reasons. The central aim of the study was to propose and provide an initial test of a novel, multi-theoretical process model that has not previously been examined. Given the novelty of this framework—which posits a sequential chain from PWE to SL, WO, and finally, IDB—a cross-sectional design offered the most pragmatic and robust method for establishing the foundational relationships between these constructs within a real-world occupational setting. It allowed the opportunity to validate the proposed theoretical structure and determine if the hypothesized associations existed before committing to more resource-intensive longitudinal research.

The significance of the study lies in its innovative approach to theory and context. By employing a cross-sectional SEM design, the present study: (i) advances a process-oriented model that moves beyond fragmented analyses of perceived envy-related behaviors to test a cohesive, sequential chain of events, (ii) integrates four complementary theories—social comparison, affective events, social exclusion, and self-regulation—to comprehensively explain a complex organizational phenomenon, (iii) investigates these dynamics in a critical, high-stakes context (air traffic control), where the negative consequences of interpersonal conflict can have serious implications for operational safety, and (iv) challenges the conventional understanding of WSC, providing empirical evidence for its potential maladaptive function under conditions of emotional strain, thereby refining self-regulation theory (Baumeister & Heatherton, 1996). In sum, while acknowledging its limitations, the research design chosen provides a strong and necessary empirical foundation for a new theoretical model of perceived envy-related workplace behaviors.

## Methods

### Participants and procedure

The study received approval from the first author's Social and Human Sciences Research Ethics Committee. Ethics Committee (Protocol code: 281). Participants provided written informed consent and were informed that their participation was voluntary. They were assured that they could decline or withdraw their participation at any point.

The study population comprised licensed air traffic controllers working at 59 civil airports across Türkiye (Directorate General of Civil Aviation [DGCA], 2024). At the time of the study, a total of 2,088 licensed air traffic controllers were employed at these airports. The authors calculated the required sample size to be 325, based on a 95% confidence level and a 5% margin of error (Krejcie & Morgan, 1970).

Given the operational constraints of accessing this professional group, data were collected using a convenience sampling approach. Although this method may limit generalizability, it is commonly used in organizational research involving specialized populations and allows access to participants in high-demand operational settings.

Data were initially collected from 447 participants using convenience sampling and an online survey. Twenty-two participants were excluded from the analysis due to incorrect responses to the attention-check item, resulting in a final sample of 425.

Table 1 presents the participants' demographic characteristics. Of these participants, 58.6% were male and 41.4% female; 60.2% were married, and 39.8% were single. Regarding age, 39.1% were between 36 and 45 years, 36.5% were between 25 and 35 years, 12.9% were older than 45, and 11.5% were under 25. Regarding educational background, 76.2% had a university degree, and 23.8% had completed high school. Regarding work experience, 29.6% had 11–15 years, 19.5% had 6–10 years, 19.3% had 16–20 years, 15.5% had 1–5 years, and 16% had more than 20 years of experience.

**Table 1** Demographic characteristics

| Gender | Number | % |
|---|---|---|
| Male | 249 | 58.6 |
| Female | 176 | 41.4 |
| Marital status | | |
| Married | 256 | 60.2 |
| Single | 169 | 39.8 |
| Education | | |
| Associate degree | 101 | 23.8 |
| License | 259 | 60.9 |
| Graduate | 65 | 15.3 |
| Age | | |
| 25 years or below | 49 | 11.5 |
| 26–35 years | 155 | 36.5 |
| 36–45 years | 166 | 39.1 |
| 46 years or above | 55 | 12.9 |
| Professional experience | | |
| 1–5 years | 66 | 15.5 |
| 6–10 years | 83 | 19.5 |
| 11–15 years | 126 | 29.6 |
| 16–20 years | 82 | 19.3 |
| 21 years or above | 68 | 16.0 |

## Measures

*Perceived Workplace Envy (PWE).* The three-item PWE scale (Vecchio, 2005; Turkish version: Elçi et al., 2021) was used to assess the feeling of perceived workplace envy. Items (*"Because of my success at work, I am sometimes resented by my coworkers," "Because of the closeness of the working relationship I have with my supervisor, I am sometimes resented by my coworkers"*, and *"Some of my coworkers are envious of my accomplishments"*) are rated using a 7-point Likert scale (1 = *Very inaccurate*, 7 = *Very accurate*), where higher scores indicate stronger perceived workplace envy. Cronbach's alpha was 0.806 in the present study.

*Social Loafing (SL).* The four-item SL scale (Price et al., 2006) was used to assess social loafing. The authors translated the items into Turkish following the guidelines proposed by Hambleton and Patsula (1999). Items (e.g., *"I left my work to others to do"*, *"I claimed there were other things to do when others needed help"*, *"I avoided work and responsibility"*, and *"I loafed on my share of tasks"*) are rated on a 7-point Likert scale (1 = *Never*, 7 = *Always*), with higher scores indicating greater perceived loafing. Cronbach's alpha was 0.890 in the present study.

*Workplace Ostracism (WO).* The 13-item WO scale (Ferris et al., 2008; Turkish version: Çalışkan & Pekkan, 2020) was used to assess WO. Items (e.g., *"I feel that others at work do not care about me"* and *"Others act as if I am not there"*) are rated on a 7-point Likert scale (1 = *Never*, 7 = *Always*). Higher scores reflect higher perceptions of WO. Cronbach's alpha was 0.935 in the present study.

*Workplace Social Courage (WSC).* The nine-item WSC scale (Howard et al., 2017; Turkish version: Mert & Koksal, 2022) was used to assess perceptions of workplace social courage. Items (e.g., *"Although it may damage our friendship, I would tell my superior when a coworker is doing something incorrectly"* and *"Although my coworker may become offended, I would suggest to him/her better ways to do things"*) are rated on a 7-point Likert scale (1 = *Strongly Disagree*, 7 = *Strongly Agree*). Higher scores indicate greater perceived workplace social courage. Cronbach's alpha was 0.922 in the present study.

*Interpersonal deviant behavior (IDB).* The seven-item IDB subscale from the DB scale (Bennett & Robinson, 2000; Turkish version: İyigün & Çetin, 2012) was used to assess IDB. Items (e.g., *Made fun of someone at work"* and *"Publicly embarrassed someone at work"*) are rated on a 7-point Likert scale (1 = *Never*, 7 = *Always*), with higher scores indicating greater levels of IDB. Cronbach's alpha was 0.914 in the present study.

## Transparency and openness

All measures, procedures, and data exclusion criteria used in the present study were fully reported. The study adhered to the *Journal of Applied Psychology* methodological checklist and followed the APA Journal Article Reporting Standards (JARS). Due to confidentiality agreements with participants and institutional restrictions, the dataset, analysis code, and study materials are not publicly available; however, they are available from the corresponding author upon reasonable request. The present study was not preregistered.

## Data analysis

The authors employed structural equation modeling (SEM) in AMOS 23.0 to evaluate the proposed model. To test the proposed sequential mediation chain, Covariance-Based SEM was employed. SEM was selected because it allows for the simultaneous estimation of multiple interconnected dependence relationships, accounts for measurement error in latent variables, and provides global fit indices to evaluate the overall viability of the process-oriented model. Five thousand bootstrap samples were utilized to assess the mediation effect and conduct significance testing. Conversely, to test the moderation hypotheses (H5a, H5b, H5c) and probe the conditional effects, we utilized Hayes' (2013) PROCESS macro (Model 1) via ordinary least squares regression. While SEM can handle latent interactions, the PROCESS macro was preferred for this step because it provides a robust, bootstrapping-based computational tool for generating simple slopes, plotting interaction graphs, and evaluating the exact nature of moderation at different levels of WSC.

Because the study was cross-sectional, the SEM model was an associative, process-oriented framework rather than a causal or temporal model. It is acknowledged that cross-sectional SEM cannot establish causality, only assess the model's plausibility.

Utilizing self-report instruments may lead to common method bias. Therefore, the study employed procedural remedies such as separating focal variables, ensuring respondent anonymity, reducing evaluation apprehension, and minimizing common scale properties (Podsakoff et al., 2003). In addition, the unmeasured latent variable technique was applied using both a baseline model and a common latent factor model (Simmering et al., 2015), where the baseline model included only the theoretical constructs and the alternative model incorporated a common latent factor to capture shared variance among observed variables. A comparison of chi-square statistics indicated that the difference between the two models was not statistically significant [$\Delta\chi^2$ (38) = 49.42, $p > .05$], suggesting that the inclusion of a common latent factor did not meaningfully improve model fit and that common method bias is unlikely to have substantially influenced the results. However, it is acknowledged that such approaches have limitations and do not fully eliminate the possibility of method-related variance (Podsakoff et al., 2024).

### Measurement model validity and reliability

The scale items were evaluated for normality, and skewness and kurtosis values were found to be within acceptable limits (Sposito et al., 1983). To assess the measurement model, confirmatory factor analysis (CFA) was conducted, and factor loadings ranged from 0.664 to 0.841, indicating acceptable item reliability.

As presented in Table 2, the measurement model demonstrated satisfactory convergent and discriminant validity. Convergent validity was supported, with all average variance extracted (AVE) values exceeding the recommended threshold of 0.50. Discriminant validity was established according to the Fornell and Larcker (1981) criterion, as the AVE for each construct exceeded its correlations with other constructs, and AVE values were greater than the maximum shared variance (MSV). This was further confirmed by heterotrait-monotrait (HTMT) ratio values ranging between 0.038 and 0.671 (Henseler et al., 2015), all below the conservative threshold of 0.85.

**Table 2** Convergent and discriminant validity of the measurement model ($N$ = 425)

| Scale | CR | AVE | MSV | Cronbach alpha |
|---|---|---|---|---|
| PWE | 0.809 | 0.586 | 0.437 | 0.806 |
| SL | 0.891 | 0.671 | 0.318 | 0.890 |
| WO | 0.935 | 0.526 | 0.437 | 0.935 |
| WSC | 0.923 | 0.521 | 0.020 | 0.922 |
| IDB | 0.914 | 0.603 | 0.145 | 0.914 |

*CR* Composite reliability, *AVE* Average variance extracted, *MSV* Maximum shared variance, *PWE* Perceived Workplace Envy, *SL* Social Loafing, *WO* Workplace Ostracism, *WSC* Workplace Social Courage, *IDB* Interpersonal Deviance Behavior

Reliability was confirmed, as both composite reliability (CR) and Cronbach's alpha values exceeded the threshold of 0.70. The measurement model also demonstrated a good fit to the data [$\chi^2(655) = 1092.587$, $\chi^2/df = 1.668$, CFI = 0.952, SRMR = 0.038, RMSEA = 0.040, PClose = 0.978] (Hu & Bentler, 1999).

## Results

### Correlational analysis

Table 3 presents the study variables' means, standard deviations, and correlations. PWE had a significant positive correlation with SL, WO, and IDB, and a non-significant correlation with WSC. Additionally, loafing had a significant positive correlation with WO, WSC, and IDB. WO also correlated significantly and positively with IDB, while WSC was positively correlated with IDB. Among these variables, only WSC's mean score exceeded the midpoint of 3.5, whereas perceived envy had the lowest mean value.

### Structural equation modeling and regression analysis

Before the SEM analysis, multicollinearity was assessed using the variance inflation factor (VIF) and condition index in SPSS. The VIF and condition index values ranged from 1.67 to 2.69 and 1.00 to 9.32, respectively, indicating no multicollinearity among the variables. An SEM analysis was performed on the study model, as shown in Fig. 1. The results indicated an acceptable fit to the data. [$\chi^2(320) = 626.419$, $\chi^2/df = 1.958$, CFI = 0.953, SRMR = 0.080, RMSEA = 0.048, $P_{close} = 0.766$]. The final model with standardized path coefficients is presented in Fig. 2.

To provide a clear and intuitive explanation of the mediation results, the findings are broken down into total, direct, and indirect associations in Table 4. This table details the specific pathways through which the variables are associated with one another. The findings supported hypotheses $H_1$, $H_3$, and $H_4$. As shown in Table 4; Fig. 2, PWE was significantly associated with social loafing ($\beta = 0.59$, $p < .001$), supporting $H_1$. Moreover, the analysis confirmed the proposed chain mediation. SL mediated the relationship between PWE and WO (indirect effect = 0.27, $p < .001$), supporting $H_3$.

**Table 3** The means, standard deviations, and correlation values between the study variables ($N$=425)

| Variables | M | SD | Range | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|
| 1. PWE | 2.78 | 1.32 | 1–7 | - | | | |
| 2. SL | 3.01 | 1.29 | 1–7 | 0.63** | - | | |
| 3. WO | 2.98 | 1.41 | 1–7 | 0.73** | 0.51** | - | |
| 4. WSC | 4.35 | 1.14 | 1–7 | −0.03 | 0.15** | −0.09 | - |
| 5. IDB | 3.36 | 1.40 | 1–7 | 0.28** | 0.30** | 0.40** | 0.10* |

*PWE* Perceived Workplace Envy, *SL* Social Loafing, *WO* Workplace Ostracism, *WSC* Workplace Social Courage, *IDB* Interpersonal Deviance Behavior

**$p$<.01 (two-tailed)

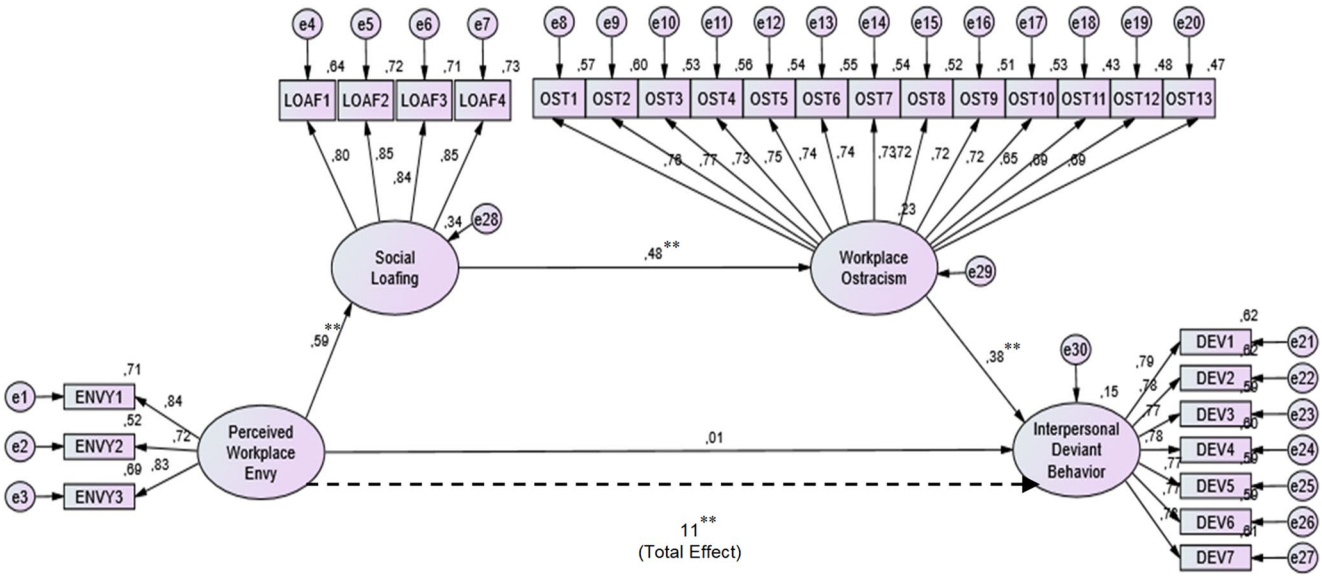



**Fig. 2** SEM Model and results (** $p < .01$)

**Table 4** Results of the structural equation modeling

| Path | Direct effect | Indirect effect | Total effect(s) |
|---|---|---|---|
| PWE → SL | 0.59** | - | 0.59** |
| (SE) | 0.04 | - | 0.04 |
| 95% CI | [0.51, 0.66] | - | [0.51, 0.66] |
| PWE→ WO | - | 0.27** (via SL) | 0.27** |
| (SE) | - | 0.04 | 0.04 |
| 95% CI | - | [0.22, 0.35] | [0.22, 0.35] |
| PWE→ IDB | 01 (ns) | 10** (via SL and WO) | 11** |
| (SE) | 0.06 | 0.03 | 0.06 |
| 95% CI | [-0.09, 0.11] | [0.07, 0.15] | [0.02, 0.21] |
| SL→ WO | 0.48** | - | 0.48** |
| (SE) | 0.04 | - | 0.04 |
| 95% CI | [0.40, 0.55] | - | [0.40, 0.55] |
| SL→ IDB | - | 0.19** (via WO) | 0.19** |
| (SE) | - | 0.04 | 0.04 |
| 95% CI | - | [0.12, 0.25] | [0.12, 0.25] |

Bootstrap samples = 5,000. *CI* confidence interval, *SE* standard error, *ns* not significant, ** $p < .001$, *PWE* Perceived Workplace Envy, *SL* Social Loafing, *WO* Workplace Ostracism, *WSC* Workplace Social Courage, *IDB* Interpersonal Deviance Behavior

Subsequently, WO mediated the relationship between SL and IDB (indirect effect = 0.19, $p < .001$), supporting $H_4$.

A particularly noteworthy finding concerns the relationship between PWE and IDB. Although the initial correlation was statistically significant ($r = .28$, $p < .01$), the direct path from PWE to IDB became non-significant (β=0.01, not significant) after incorporating the mediators into the model. Nevertheless, a significant total indirect effect was observed (indirect association = 0.10, $p < .001$), indicating that the association between PWE and IDB is fully mediated by a sequential pathway involving social loafing and workplace ostracism. This finding strongly supports the process-oriented model and provides robust evidence for H2 via mediation, highlighting the importance of these intermediary variables in understanding the relationships among the constructs.

Hayes (2013) PROCESS macro (Model 1) was used to conduct a simple regression analysis assessing the moderating role of WSC on the associations between PWE and SL, as well as between PWE and IDB. Table 5 shows that PWE) and WSC positively associated with SL and IDB, and WSC

**Table 5** Regression analysis results

| Independent: Social loafing | β | S.E. | t | *P* | F | $R^2$ | $\Delta R^2$ |
|---|---|---|---|---|---|---|---|
| Constant | 2.71 | 0.05 | 46.85 | 0.01 | 152.52 | 0.60 | 0.01 |
| PWE | 0.54 | 0.03 | 16.43 | 0.01 | | | |
| WSC | 0.32 | 0.03 | 8.18 | 0.01 | | | |
| Interaction (BE x WSC) | 0.05 | 0.02 | 2.10 | 0.03 | | | |
| *Independent: IDB* | | | | | | | |
| Constant | 3.22 | 0.10 | 31.32 | 0.01 | 44.16 | 0.22 | 0.00 |
| WO | 0.44 | 0.06 | 7.00 | 0.01 | | | |
| WSC | 0.30 | 0.06 | 4.88 | 0.01 | | | |
| Interaction (WO x WSC) | 0.03 | 0.04 | 0.69 | 0.48 | | | |
| *Independent: IDB* | | | | | | | |
| Constant | 3.22 | 0.10 | 30.47 | 0.01 | 21.44 | 0.15 | 0.02 |
| PWE | 0.27 | 0.06 | 4.51 | 0.01 | | | |
| WSC | 0.30 | 0.06 | 4.46 | 0.01 | | | |
| Interaction (PWE x WSC) | 0.08 | 0.04 | 2.18 | 0.03 | | | |

*PWE* Perceived Workplace Envy, *SL* Social Loafing, *WO* Workplace Ostracism, *WSC* Workplace Social Courage, *IDB* Interpersonal Deviance Behavior

played a moderating role in these associations. However, the moderating role was non-significant in the association between WO and IDB.

Interaction graphs were drawn to interpret the moderating role of WSC. Figure 3 shows that high WSC strengthened the positive association between PWE and SL. Figure 4 shows that high WSC strengthened the positive association between PWE and IDB. In other words, employees with higher WSC tended to report higher SL and IDB than those with lower WSC. Based on these results, $H_2$ was also supported.

## Discussion

The present study examined the sequential relationships between PWE, SL, WO, and IDB from the perspective of envied individuals within the high-stress occupational context of air traffic control. The findings indicate that PWE is positively associated with both SL and IDB (supporting H1 and H2), with SL and WO functioning as sequential mediators linking PWE to IDB outcomes (supporting H3 and H4).

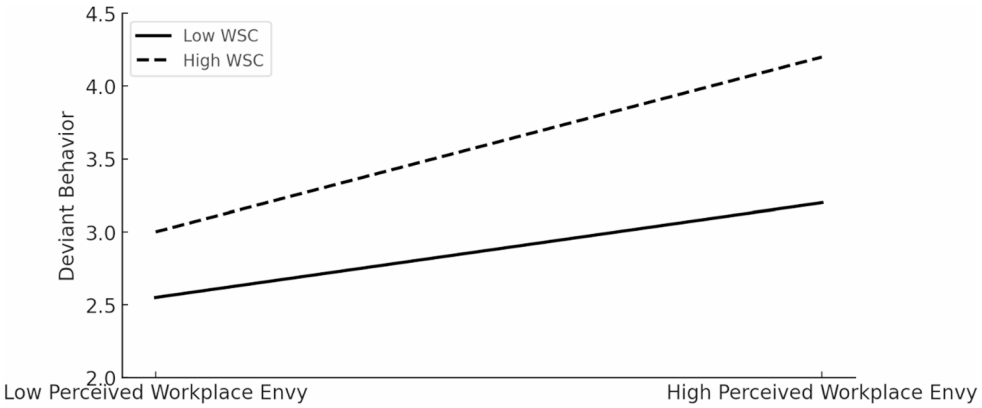



**Fig. 3** The moderating role of workplace social courage in the relationship between perceived workplace envy and social loafing

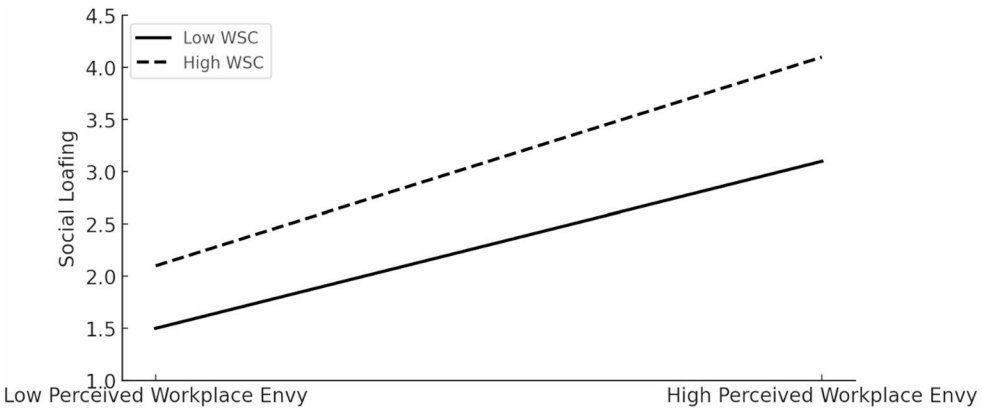



**Fig. 4** The moderating role of workplace social courage in the relationship between perceived workplace envy and interpersonal deviant behavior

In addition, WSC significantly strengthened the relationships between PWE and SL, as well as between PWE and IDB (supporting H5a and H5c).

The non-significant moderating effect of WSC on the WO–IDB relationship (H5b) provides important theoretical insight into the boundaries of individual traits in highly regulated environments. In safety-critical professions such as air traffic control, strict procedural rules, high interdependence, and continuous monitoring appear to constrain the behavioral expression of WO, thereby diminishing the potential moderating role of WSC. This finding suggests that structural and contextual factors may outweigh the regulatory capacity of individual dispositions in such settings.

As demonstrated by the final structural model (Fig. 2), our findings successfully integrated the proposed theoretical sequence. The process unfolds as follows: Initially, rooted in social comparison theory, an individual's perception of being envied acts as a stressful affective event (Affective Events Theory). To cope with this emotional tension, the envied individual initiates a maladaptive self-regulation strategy, intentionally reducing their effort through SL. This withdrawal subsequently triggers a retaliatory or exclusionary response from peers, manifesting as WO, aligning with social exclusion theory. Finally, the psychological pain of this ostracism depletes remaining regulatory resources, culminating in active IDB (e.g., information withholding or aggressive communication) directed at coworkers. By establishing this PWE → SL → WO → IDB sequence, we demonstrate that envy-related deviance is not a spontaneous occurrence, but rather the endpoint of a specific, unfolding chain of withdrawal and exclusion. Furthermore, WSC acts as a catalyst early in this chain, providing the dispositional risk tolerance necessary to violate team norms through loafing and deviance under emotional strain.

From a theoretical perspective, the results integrate social comparison theory (Festinger, 1954), Affective Events Theory (Weiss & Cropanzano, 1996), self-regulation theory (Baumeister & Heatherton, 1996), and social exclusion theory (Williams, 2007). PWE arises from performance-based social comparisons and generates emotional strain that triggers coping responses such as SL. These withdrawal behaviors, in turn, provoke negative social reactions leading to WO. WO then threatens fundamental psychological needs for belonging and control, ultimately relating to retaliatory IDB (e.g., information withholding or aggressive communication). This sequential process model offers a coherent explanation for how envy-related tensions unfold into IDB in high-stakes workplaces.

The relatively low mean levels of PWE observed in the sample should be interpreted with caution. In high-reliability professions like air traffic control, professional stoicism combined with cultural norms emphasizing modesty and relational harmony in Türkiye may lead to under-reporting of socially undesirable emotions. Thus, the low scores likely reflect restrained self-reporting rather than the absence of underlying interpersonal tension.

A central contribution of this study is the demonstration of the dual nature of WSC. On the one hand, higher WSC amplified the positive associations between PWE and both SL and IDB, supporting the view that WSC can take a maladaptive form under emotional strain by encouraging norm-challenging and risk-taking behaviors (Howard, 2019; Pury et al., 2015). On the other hand, WSC also possesses significant adaptive potential. This duality is highly context-dependent, particularly on the level of psychological safety in the work environment. In contexts characterized by high psychological safety and low emotional strain, individuals with high WSC are more likely to channel their courage toward constructive outcomes, such as speaking up about safety concerns, offering improvement-oriented ideas, and mediating interpersonal conflicts (Edmondson, 2019; Howard & Holmes, 2019; Namal et al., 2023). These adaptive expressions can enhance team learning and organizational effectiveness.

In contrast, in high-pressure environments marked by performance demands and relational uncertainty — as is common in air traffic control — the same WSC may manifest in maladaptive ways, intensifying the pathway from PWE to IDB. Therefore, WSC should not be viewed as inherently beneficial or detrimental; its behavioral consequences depend on the interplay between individual disposition and contextual factors, especially psychological safety.

These findings contribute to the ongoing debate concerning whether PWE produces constructive or destructive outcomes. In high-stress, highly transparent settings such as air traffic control, the results support a predominantly destructive chain of responses. At the same time, they illustrate how WSC can either amplify or mitigate these dynamics depending on the organizational context. The non-significant moderation on the WO–IDB link further extends social exclusion theory by highlighting that, in highly interdependent and hierarchical professions, the threat of WO may be too severe for individual traits alone to buffer.

Finally, this study advances the literature methodologically by conceptualizing PWE-related behaviors as part of an interconnected sequential chain rather than isolated constructs. This process-oriented approach provides a more integrative understanding of interpersonal dysfunction in organizations and lays a stronger foundation for both theoretical refinement and practical interventions. In particular, the findings underscore the need for structural measures and targeted training that address not only individual traits but also the contextual conditions that shape WSC expression.

Managers may also benefit from monitoring subtle indicators of exclusion, such as reduced communication frequency or coordination delays, to prevent the escalation of WO into IDB.

## Theoretical contributions

The present study offers three key theoretical contributions to the literature. First, by conceptualizing the interpersonal behavioral consequences of PWE as a sequential process model (PWE → SL → WO IDB), it addresses a notable gap in process modeling within the literature (Duffy et al. 2012a, b; Shaikh et al., 2022) by integrating social comparison theory (Festinger, 1954), providing a novel framework that contributes to meta-analytic models of WE antecedents and consequences (Li et al., 2023). The study also contributes to the explanatory scope of AET (Weiss & Cropanzano, 1996), social exclusion theory (Williams, 2007), and self-regulation theory (Baumeister & Heatherton, 1996) in capturing dynamic organizational phenomena. More specifically, social comparison theory (Festinger, 1954) is useful in understanding the origins of PWE, AET (Weiss & Cropanzano, 1996) helps to explain emotional responses, social exclusion theory (Williams, 2007) is relevant to the consequences of WO, and self-regulation theory (Baumeister & Heatherton, 1996) is associated with the moderating role of WSC. This integrative framework provides a comprehensive approach to addressing theoretical tensions by considering the interplay between constructive and destructive forms of PWE, and linking self-regulation to the dual nature of WSC under emotional strain (Howard, 2019; Magnano et al., 2022).

Second, by highlighting the dual nature of WSC (prosocial vs. maladaptive courage), the study offers a critical contribution to self-regulation theory (Baumeister & Heatherton, 1996). The findings suggest that WSC may be associated with heightened levels of PWE and IDB, while exhibiting limited capacity to moderate the relationship between WO and IDB (Howard, 2019). The non-significant result for $H_{5b}$ is particularly noteworthy. It indicates that the weight of structural and contextual forces, such as WO in high-stakes professions may overwhelm individual traits such as WSC. This finding refines theoretical assumptions by showing that not all hypothesized moderations are viable in contexts where exclusion threatens fundamental psychological needs. By studying a high-stakes, interdependent profession, the study suggests that the associations of WO may be so severe that they bypass the moderating influence of individual traits such as WSC. This highlights the significant role of structural factors (e.g., hierarchy and shift-based work) and challenges the assumption that responses to WO are purely individual, thereby extending social exclusion theory (Williams, 2007) via the Perfectionism Social Disconnection Model, where envied individuals' disconnection amplifies ostracism-related outcomes (Flett et al., 2016). This suggests that WSC may not always be a positive trait and may be associated with norm-violating behaviors in high-stress environments. As such, this contribution broadens the explanatory scope of self-regulation theory (Baumeister & Heatherton, 1996) in addressing social risk-taking behavior (Magnano et al., 2022).

Third, by examining PWE-related processes in the particular occupational context of air traffic controllers, the study examines the boundaries of social exclusion theory (Williams, 2007). The finding that WO was significantly associated with IDB and that WSC was ineffective in moderating this relationship highlights the contextual relevance of WO's effects (e.g., hierarchy, shift-based work). This challenges the assumption in the literature that WO elicits purely individual-level responses (Williams, 2007), instead emphasizing the role of structural factors as seen in responsive theory extensions where exclusion in high-stakes hierarchies overwhelms trait-based coping (Sommer et al., 2016). The cultural hybridity of Türkiye further contributes to understanding the local and universal dimensions of these dynamics.

## Practical contributions

The present study provides actionable insights for high-stress, high-reliability professions such as air traffic control, where interpersonal dynamics can directly influence operational safety. First, given the observed sequential pathway from PWE to SL, WO, and IDB, managers should redesign performance evaluation systems to minimize upward social comparisons. Shifting from purely individual-based metrics to a balanced mix of individual and team-based goals—such as collective delay reduction or shift-team performance indicators—can reduce competitive tensions and lower the likelihood of envy-driven behaviors, consistent with social comparison theory.

Second, organizations should implement targeted training programs that address both the maladaptive and adaptive sides of WSC. Emotional awareness training, specifically tailored for air traffic controllers, can help individuals recognize and constructively regulate envy-related emotions before they translate into SL or deviant responses. Such programs should also train employees to channel high WSC toward prosocial outcomes (e.g., constructive voice and safety-related suggestions) rather than norm-violating behaviors. These interventions are particularly important in hierarchical cultures such as Türkiye, where power distance may otherwise suppress open expression of concerns.

Third, because WO was significantly associated with IDB, structural interventions are essential to reduce subtle

and "invisible" forms of exclusion in shift-based teams. In hierarchical cultures such as those in Türkiye (and similarly in Pakistan), where power distance may discourage open reporting of exclusion, shift leaders play a pivotal role in monitoring subtle WO. Practical strategies include: (1) conducting short, structured post-shift debriefs focused on coordination quality rather than individual performance; (2) implementing anonymous digital feedback tools for team communication patterns; and (3) observing participation levels in handoff and decision-making processes. These low-visibility monitoring practices can help detect invisible behaviors such as deliberate exclusion from critical information loops before they escalate into deviance and compromise team coordination.

In addition to these structural measures, softer organizational practices can further strengthen psychological safety and buffer the negative effects of PWE. These recommendations align with existing organizational practices, such as Crew Resource Management (CRM) training already used in aviation, which can be extended to include modules on emotional awareness and envy management. Additionally, integrating gratitude practices (e.g., structured peer recognition at the end of shifts) and elements of workplace spirituality (e.g., shared purpose sessions) can foster psychological safety and reduce competitive tensions in line with the study's findings. Practices such as workplace spirituality initiatives, regular gratitude exercises, and norms that promote open and respectful communication can foster a climate of mutual respect and shared purpose. These approaches help reduce emotional strain, enhance relational harmony, and encourage the prosocial expression of WSC. Empirical evidence has also shown that workplace spirituality is associated with lower levels of burnout and emotional exhaustion in high-stress work environments (Farmahini Farahani et al., 2023; Chirico et al., 2020).

Finally, while the present study was conducted with Turkish air traffic controllers, the findings likely extend to other high-stakes professions characterized by intense collaboration, transparent performance monitoring, and hierarchical structures (e.g., emergency medical teams, pilots, and military personnel). Implementing the above recommendations can improve risk management, team cohesion, and operational safety in culturally hybrid, high-reliability work environments.

## Limitations

Although the present study makes several contributions to the literature, it also has specific limitations. First, the cross-sectional design restricts the ability to draw strong causal inferences between the studied variables. Although structural equation modeling allowed for the examination of complex relationships, longitudinal data would be valuable for providing stronger causal insights, as highlighted in recent calls for temporal designs in envy research (Li et al., 2023).

Second, relying on self-report measures may introduce potential biases, such as social desirability or common method variance. Although statistical tests indicated that common method bias was unlikely to have substantially influenced the observed associations, future research employing multi-source data could further strengthen the robustness of the findings, particularly given the challenges of CMB in cross-sectional SEM and the limitations of remedies such as Harman's test (Podsakoff et al., 2024).

Third, it should be acknowledged that the PWE scale is a brief (three-item) measure. It is recommended that future research use more comprehensive measures or qualitative methods to explore the nuances of this perception, because brief scales such as the PWE scale may limit the capture of PWE heterogeneity, similar to validation issues of the Benign and Malicious Envy Scale (Lange & Crusius, 2015). Moreover, while the sample of licensed air traffic controllers in Türkiye offers a highly relevant context, the cultural and occupational specificity may limit the generalizability of the results to other professions or national contexts. Comparative studies across different cultural and organizational settings would be valuable in testing the broader applicability of the proposed model.

## Future research

The findings of the present study open new theoretical and empirical pathways for future inquiry. First, while the current model was tested in the highly specific and safety-critical context of air traffic control, future studies could examine the generalizability of these sequential relationships across different occupational domains, such as healthcare, law enforcement, or emergency services, where high-stakes decision-making and interpersonal dynamics intersect. Extending the model to other professions would help validate the theoretical framework and assess whether the interplay of PWE, SL, WO, and IDB manifests similarly across different organizational cultures and stress levels, including hybrid cultural settings beyond Türkiye (Piwowar-Sulej & Iqbal, 2025a).

Second, the cross-sectional nature of this research limits the ability to capture the temporal dynamics of PWE related processes. Future longitudinal or experience sampling studies could provide more precise insights into the causality and temporal ordering of these relationships, thereby offering a richer understanding of how these negative behavioral chains evolve, as recommended in recent envy meta-reviews (e.g., Li et al., 2023).

Third, the present study took a more focused approach by testing moderation on specific, theoretically grounded

paths. Regarding moderation across the entire chain, future research could explore more complex conditional process models (e.g., moderated mediation). Fourth, future research may benefit from incorporating additional individual and contextual moderators, such as emotional intelligence, perceptions of organizational justice, or leadership styles. These variables could potentially buffer or exacerbate the maladaptive effects of PWE and WSC observed in the present study, particularly in exploring the PWE–SL–WO pathway under conditions such as low self-control (Zhang et al., 2022).

Finally, the dual nature of WSC deserves further exploration. While the present study demonstrated its maladaptive potential under emotional strain, qualitative investigations and experimental designs could enrich the understanding of when and how WSC transitions from a constructive to a destructive force in workplace contexts, including longitudinal examinations of its role in WO–recovery dynamics (Azeem et al., 2024).

## Conclusion

The present study examined relationships between PWE, SL, WO, and IDB from the viewpoint of envied individuals, while evaluating the moderating role of WSC. Findings showed a pattern in which PWE was positively related to SL, which in turn appeared to be associated with WO and subsequent IDB. Significantly, WSC strengthened the relationship between PWE, SL, and IDB, but did not significantly moderate the association between WO and IDB.

The study highlights that emotional and relational dynamics at work, particularly under stress and in high-visibility situations, may be associated with significant operational and safety risks if left unmanaged. The study's findings encourage scholars and practitioners to reconsider the complex role of interpersonal dynamics in high-stakes organizations by demonstrating the association between PWE and a chain of negative responses, as well as how WSC may amplify these connections, consistent with recent systematic reviews on IDB in toxic cultures (Bujang et al., 2024).

**Authors' contributions** Kemal Köksal: Conceptualization; Methodology; Writing – Review & Editing; Supervision; Investigation; Software. Cenk Tufan: Conceptualization; Investigation; Writing – Original Draft; Data Curation; Supervision; Resources. Mark D. Griffiths: Conceptualization; Methodology; Writing – Review & Editing; Supervision. I. Sani Mert: Conceptualization; Methodology; Writing – Review & Editing; Supervision; Investigation. Nihan Öksüz Narinç: Methodology; Writing – Review & Editing; Software; Formal Analysis; Project Administration.

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**Data availability** The data supporting the findings of the present study are available from the corresponding author upon reasonable request.

## Declarations

**Ethics statement** The authors obtained ethics approval from the Akdeniz University Social Sciences Ethics Committee (approval number: 2022/281).

**Consent to participate** All the authors of this paper agree with the content and give their explicit consent to submit it.

**Consent for publication** All the participants consented to submit findings for publication.

**Conflict of interest** The authors have no conflicts of interest to declare relevant to the paper's content.

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