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Worker bees and their queens: The dynamics of ostracism and trait mindfulness

Cleoputri Yusainy[1*]; Ziadatul Hikmiah[1], Dita Rachmayani[1], Isma Adila[2], Muhammad Haikal Azaim Barlaman[1], Jeremy Alexander Timothy[1], Salsabila Salsabila[1], Hannah Victoria Freeman[3], Natasha van Antwerpen[3], Deborah Turnbull[3]

[1]*Department of Psychology, Universitas Brawijaya, Malang, Indonesia*

[2]*Department of Communication Studies, Universitas Brawijaya, Malang, Indonesia*

[3]*School of Psychology, University of Adelaide, South Australia, Australia*

Abstract

"Queen bee" behavior is often conjectured as legitimization of intragender inequality that may or may not include ostracism. This study examines whether the psychological effect of exposure to a female superior with queen bee behavior could be moderated by the female subordinate ("worker bee") being more mindful, and whether the moderation would occur when the superior later displays workplace ostracism. We used a randomized controlled experiment (queen bee X ostracism scenarios) and tested the result consistency on participants of female undergraduates from Australia (Study 1; N = 140) and Indonesia (Study 2; N = 222). A superior displaying queen bee behavior was considered more sexist and triggered more negative affect, especially by Australian females low in trait mindfulness. The moderation of trait mindfulness diminished once the superior ostracized, albeit lower trait mindfulness still predicted higher negative affect.

Keywords: intra-gender, ostracism, queen bee, trait mindfulness, worker bee

*Corresponding author.
Cleoputri Yusainy
Department of Psychology,
Universitas Brawijaya, Malang,
Indonesia
E-mail: cleo.yusainy@ub.ac.id
(C. Yusainy)

Introduction

Despite significant progress in changing attitudes towards equality, women continue to encounter distinct obstacles in the workplace. The current study focuses on the psychological effects of "queen bee" (QB) behavior, and later exposure to workplace ostracism, on female subordinates. The term QB behavior describes the actions of women in positions of power within a male-dominated work environment who hinder the advancement of their female subordinates, also known as "worker bees" (Derks et al., 2011). The phenomenon of QB behavior is thought to be present in diverse professions and institutions due to a range of obstacles, including the gender wage gap and the more obstructive career advancement model encountered by women (Duguid, 2011; Mavin, 2008), as well as the symbolic idealism associated with female leaders as being patient, sincere, approachable, and concerned with women's issues (Andajani et al., 2016; Hurst et al., 2017; Yusainy et al., 2023). Even among current generations of scholars, females in the senior career stages are more likely than their male counterparts to undervalue the dedication of early-career females (Faniko et al., 2021).

Kark et al. (2023) in a recent review on intra-gender competition conclude that working women are often faced with two paradoxical expectations: to conform to the workplace norms of competition and to conform to societal gender norms of cooperation. These paradoxical expectations influence the ways women respond to the perceived competition ("competitive threat"). As expressions of aggression towards other females who elicit the competitive threat are typically prohibited by societal norms, some females resorted to less overt competitive behaviors such as ostracism. Ostracism is a passive social exclusion through silencing or ignoring (Williams, 2009), which neuroscientifically induces pain of equal measure to physical affliction (Kross et al., 2011). Ostracism can have a more detrimental impact compared to other forms of mistreatment in the workplace, as it instills in the targets a sense of unworthiness even of negative attention (O'Reilly et al., 2015). Nevertheless, few, if any, detailed investigations into the dynamics of QB behavior and ostracism have been published. Thus, it is unclear how exposure to these behaviors would produce corroborating effects from the perspective of female subordinates.

When viewed from the perspective of the subordinates, female superiors' displays of QB behavior are frequently attributed to their internal characteristics, such as their lack of self-control (Brescoll & Uhlmann, 2008; Lopez & Ensari, 2014). Women who work with female superior displaying QB behavior also reported more distress and psychological symptoms compared to women who work with male superior (Abalkhail, 2020; Schieman & Mcmullen, 2008; Suharnomo & Permatasari, 2019). Even among female student participants less familiar with workplace situations, envisioning a superior with QB behavior induced more negative affect (i.e., anger, sadness, and anxiety) than envisioning a superior with neutral behavior (Sterk et al., 2018). This lack of intimacy, trust, and empathy for female superiors eventually influences a female junior's career decisions (Hurst et al., 2017).

As an expected beneficial solution, the current study also explores whether the trait mindfulness of female subordinates could buffer the initial effects of exposure to QB behavior as well as later experience of ostracism. Mindfulness is a quality of being attentive to and aware of the present moment (Brown & Ryan, 2003). Prior studies have shown that the non-judgmental reaction to the mindful individuals own thoughts and emotions extends to their reactions to the behaviors and intentions of other people. More mindful employees perceived their workplace less negatively (Good et al., 2016), and reported lower levels of personal and professional problems (Mesmer-Magnus et al., 2017). When faced with relevant sexist cues, more mindful female participants performed better on a reasoning test than those who were less mindful (Jarunratanakul & Jinchang, 2018; Weger et al., 2012). We expect that similar benefits could be observed with regards to exposure to a female superior with QB behavior.

According to the predictive processing framework by Laukkonen and Slagter (2021), our perception, affective experiences, action and everything in between, are typically constructed based on past experience in order to adaptively interact with sensory input. Mindfulness reduces the tendency of any mental processes to rely on active inference, by bringing attention and awareness to the here and now. Hence, it is reasonable to expect that more mindful individuals would stop focusing on the prior exposure of QB behavior, and focus on their present condition which might or might not involve ostracism. Being more mindful has been suggested as one of the "ramification alleviation" strategies to cope with ostracism (Sharma & Dhar, 2023). Previous research also supported that mindfulness aids recovery from an ostracism episode (Molet et al., 2013; Yusainy et al., 2019). However, there is lack of research supporting that similar benefits could be observed immediately after an ostracism episode.

The current study

Many prior studies of QB behavior were carried out using qualitative approaches (Mavin, 2008; Suharnomo & Permatasari, 2019) and correlational methods (Abalkhail, 2020; Choi, 2021). To advance the inclusion of the mindfulness quality of female subordinates as a moderator of exposure to QB behavior and ostracism, experimental inquiry is required to establish the proof of causality. The current study incorporated the Sterk et al. (2018) experimental procedure for QB behavior manipulation and the Fiset et al. (2017) design for superior ostracism.

Past research (Derks et al., 2016; Faniko et al., 2016) concludes that three general indicators of QB behavior include assimilating to masculine higher-status groups (i.e., men), distancing from female subordinates, and legitimizing the masculine organizational status quo. Following Sterk et al. (2018), all three dimensions of QB behavior were integrated into the present study to create a manipulation tailored for undergraduate female participants. Due to the students' relatively limited experiences with workplace, equal conditions

could be expected among participants prior to the experimental manipulations.

Sterk et al. (2018) original study investigated how the participants perceived and were affected by exposure to fictitious male vs. female superiors displaying QB-type behavior. Although the behavior was not immediately recognized as intentionally less positive or more sexist when the superior was female (as opposed to male superior), the participants were still negatively affected by its exposure. Conversely, male superior was perceived with less positive intent, and therefore considered more sexist. Sterk et al. concluded that ingroup leader bias is exacerbated when group members identify strongly with their group (e.g., gender identification), which results in more severe consequences for the subordinates. While their mediation model did not control for gender identification, it could have confounded the findings.

In the current study, we modify the aforementioned model by controlling for participant's gender identification, and used the participants' trait mindfulness (rather than superiors' gender) as a moderator for the effects of the queen bee and ostracism. These effects are not only mapped onto participants' perception towards QB behavior (perceived positive intent then perceived sexism) and negative affect (NA1), but also their positive affect (PA1). We predict that:

H1. Trait mindfulness would moderate the indirect effect of exposure to QB behavior on perceived sexism through perceived positive intent. Specifically, participants low in trait mindfulness would report higher perceived sexism following QB manipulation. This hypothesis is tested controlling for participants' gender identification.

H2. Trait mindfulness would moderate the effect of exposure to QB behavior on mood. Specifically, participants low in trait mindfulness would report lower positive affect (PA1) and higher negative affect (NA1) following QB manipulation. This hypothesis is tested controlling for participants' gender identification.

In Sterk et al. (2018), all participants received ambiguously negative feedback to ensure that the reported outcomes were exclusively caused by exposure to QB behavior, not due to the participants' feeling of rejection. Here, we instead deliberately conditioned participants to receive ostracism treatment (ostracism vs. inclusion; Fiset et al. 2017) after receiving female superior QB treatment (QB vs. non-QB). We focus the effects on the early (reflexive) phase of ostracism in accordance with the generic temporal need threat model by Williams (2009). In this phase, ostracism typically triggers negative affect and creates threat to the fulfillment of four basic needs (i.e., belonging, self-esteem, control, and meaningful existence). These four basic needs could be gathered into a need satisfaction index (Molet et al., 2013). We predict that:

H3. Trait mindfulness would moderate the interaction effect of prior exposure to QB behavior and later exposure to ostracism on mood and need satisfaction. Specifically, participants low in trait mindfulness would report lower positive affect (PA2) and higher negative affect (NA2) following QB and ostracism manipulations. Participants low in trait mindfulness would also report lower need satisfaction index. This hypothesis is tested controlling for participants' gender identification as a covariate.

Method

Participants and procedure

Our research protocol was approved by the Human Research Ethics Committee at the University of Adelaide. The research hypotheses were tested twice, with female undergraduates from Australia (Study 1) and Indonesia (Study 2) presumably similar to the lack of actual working experiences. Although the Australian government enacted the Workplace Gender Equality Act in 2012, followed by the Indonesian government through Decree no. 1/2017, gender disparity on a global scale continues (Grant Thornton International Ltd., 2019), indicating similarities in woman worker experiences worldwide. Conversely, the 6-D cultural model comparing worker behaviors in Indonesia and Australia (Leach et al., 2008) suggests probable outcome differences (Hofstede Insights, 2023). Thus, we had no strong predictions regarding cultural differences in trait mindfulness' moderation of ostracism by QB. Through direct replication, however, response pattern consistency from women of different cultural backgrounds could be inferred.

Participants were recruited through convenience sampling using the Prolific platform (Study 1: Australia) and through researchers' own social media (Study 2: Indonesia). When calculated with G*Power 3.1.9.7 (Faul et al., 2007), a total 128 participants was required to detect a medium effect (f = .25) for four groups and 1 covariate (gender identification) at the power of .80 and an alpha level of .05. The final participants consisted of 140 from Australia (attrition rate = 3.45%) and 222 from Indonesia (attrition rate = 40.48%). Participants who completed the study were given options to receive a small amount of money (equal to 3 USD), a chance to win a larger amount of money (equal to 10 USD), or experimental credit points for the students signing up via the Research Participation Scheme.

All procedures were undertaken in SurveyMonkey (Fig. 1). Compared conditions were hypothetical scenarios IV1 (Time 1): QB (QB vs. Non-QB) by IV2 (Time 2): Ostracism (Ostracized vs. Included). After reading study information and providing consent, participants filled in (i) demographic data (country of origin, age), (ii) gender identification scale (Leach et al., 2008), and (iii) trait mindfulness scale (Brown & Ryan, 2003). Half of the participants randomly received the QB scenario (experiment IV1) and half received the Non-QB scenario (control IV1). All participants later filled the first mood scale (Watson et al., 1988), the perceived positive intent scale (Sterk et al., 2018), and the perceived sexism scale (Sterk et al., 2018).

Afterwards, half the participants in experimental condition IV1 and control condition IV1 randomly received the Ostracized (experiment IV2) or Included scenario (control IV2). All participants later filled out an ostracism scenario condition manipulation check (Williams, 2009), a second mood scale (Watson et al., 1988), and a basic needs modified scale (Williams, 2009). At closing, participants filled out a Prolific ID or email address (optional) for debriefing and incentive. For Study 2, we translated and back-translated all scenarios and measures into Indonesian.

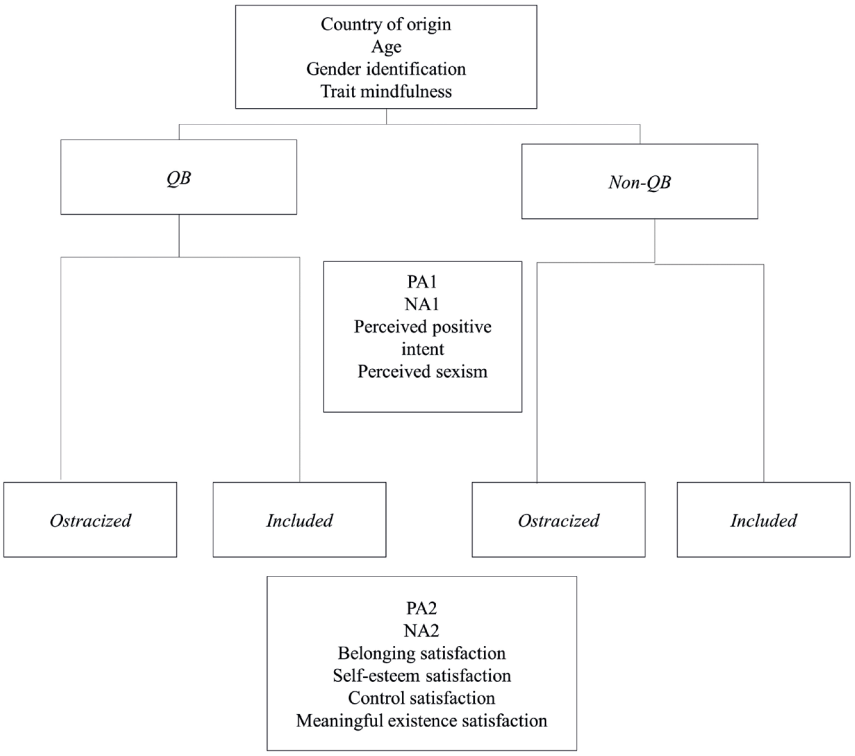


Fig. 1. Flow of participants. QB = Queen bee scenario; Non-QB = Non-queen bee scenario. PA1 = Positive affect post-QB; NA1 = Negative affect post-QB. PA2 = Positive affect post-ostracism; NA2 = Negative affect post-ostracism.

QB and ostracism scenario

Participants were asked to imagine that they worked for a nondescript company for a short time with a male-dominated managerial structure. Then they were given the first manipulation through the QB variation (Sterk et al., 2018) in the form of a company magazine (QB vs. Non-QB). The QB scenario was operationalized from the three QB dimensions to produce a [female superior name] profile with (i) masculine self-description, (ii) affirmation of gender stereotypes, and (iii) denial of gender discrimination. Following Sterk et al. (2018), we did not measure the success of QB scenario manipulation.

Afterwards, participants orthogonally received the second manipulation through an Ostracism scenario (Ostracized vs. Included). The Ostracized group was faced with a scenario where the aforementioned [female superior] did not answer calls or get invitations to social outings and ignored participants when they met. The Included group received the scenario where the female superior responded to calls, invited the participant to social outings, and involved the participant in jobs (Fiset et al., 2017). The manipulation check was measured by asking how participants felt about being ignored (Molet et al., 2013) and excluded (Fiset et al., 2017) on a 5-point scale (1 = not at all, 5 = very). Both items correlated positively for both studies (rs = .94, ps < .001).

Self-reported measures

Gender identification was measured using three items developed by (Leach et al., 2008). Participants rated on a 7-point scale (1 = strongly disagree, 7 = strongly agree) the extent to which they regarded the importance of being feminine, how much being female is part of their self-identity, and how often they pondered on being a female.

The Mindfulness Attention Awareness Scale (MAAS: Brown & Ryan, 2003) consists of 15 questions measuring the lack of attention to and awareness of various daily experiences (e.g., "I find it difficult to stay focused on what's happening in the present.") on 6-point Likert scale (1 = *almost always* and 6 = *almost never*). A higher average MAAS score means higher reported trait mindfulness.

As with Sterk et al. (2018), perceived positive intent contains two questions of whether [female superior] 'sincerely puts participants' interests first' and 'sincerely puts women's interests first'. Perceived sexism contains two questions of whether [female superior] 'is sexist' and 'denigrated women'. Both scales are rated on 7-point scales (1 = *strongly disagree*; 7 = *strongly agree*).

The Positive Affect, Negative Affect Schedule (PANAS; Watson et al., 1988) consists of two mood subscales, positive affect (PA) defined as enthusiastic, active, and aware (10 items; e.g., interested) and negative affect (NA) defined as subjectively depressive and unpleasant feeling (10 items; e.g., upset)) on 5-point scale ratings (1 = *very little* or *not at all* and 5 = *very*). The PANAS scale was given twice, each after the QB (Mood1) and Ostracism scenarios (Mood2).

We modified the Need Threat Scale (Williams, 2009) to take account of workplace ostracism in the QB behavior context. Participants responded from 1 (*strongly disagree*) to 5 (*strongly agree*) regarding their feelings of threat after reading Ostracism scenarios: needs for belonging (5 items; e.g., "I would feel the director of operations interacted with me a lot."); self-esteem

(5 items; e.g., "I would feel good about myself."); control (5 items; e.g., "I would feel powerful."); and meaningful existence (5 items; e.g., "I would feel useful."). Following Molet et al. (2013), we calculated the need satisfaction index as the mean of the four needs and used this index in hypothesis testing.

Results

Initial analysis

The typical time spent to complete the experiment was 8 mins 13 seconds (Study 1) and 9 mins 46 seconds (Study 2). Descriptive data and psychometric properties of the scales are displayed in Table 1, supporting that the internal reliability of the scales was relatively high except for perceived positive intent in Study 2 (α Cronbach = .64). Study 1 (Australian) participants were older on average (t(148.69) = 7.01, p < .001), and had lower gender identification (t(257.38) = -4.25, p < .001) and trait mindfulness (t(272.12) = -4.69, p < .001) compared to those in Study 2 (Indonesian). Factorial ANOVA tests (IV1 QB by IV2 Ostracism) indicated the success of random assignment to produce participant equality on all four compared conditions in terms of age, gender identification, or trait mindfulness (ps ≥ .25 [Study 1] and ps ≥ .10 [Study 2]).

The correlation matrix between demographic and outcome variables are presented in Table 2. For Study 1, *gender identification* was positively related to PA1 (p = .02) and NA1 (p = .02), whereas *trait mindfulness* was negatively related to NA2 (p = .02). The correlations between other demographic and outcome variables were not significant (ps ≥ .13). For Study 2, age was positively related to perceived positive intent (p = .04), gender identification was positively related to PA1 (p < .001) and perceive positive intent (p = .02), while trait mindfulness was positively related to PA1 (p = .04), perceive positive intent (p = .01), and need satisfaction index (p = .04), but negatively related to NA2 (p = .02). The correlations between the remaining variables were not significant (ps ≥ .063).

The Ostracism scenario managed to rouse ostracism condition as predicted (ps ≤ .001). In Study 1, compared to the Included group (n = 63), participants in the Ostracized group (n = 77) reported greater feelings of being ignored ($M_{ostracism}$ = 4.61, SD = 1.12 vs. $M_{inclusion}$ = 1.54, SD = 0.52; t(138) = 22.14, p < .001) and excluded ($M_{ostracism}$ = 4.52, SD = 0.85 vs. $M_{inclusion}$ = 1.75, SD = 1.11; t(114.74) = 16.31, p <.001). In Study 2, participants in the Ostracized group (n = 109) also reported stronger feelings of being ignored ($M_{ostracism}$ = 4.16, SD = 1.12 vs. $M_{inclusion}$ = 1.47, SD = 0.89; t(206.75) = 19.99, p < .001) and excluded ($M_{ostracism}$ = 4.06, SD = 1.13 vs. $M_{inclusion}$ = 1.42, SD = 0.81; t(194.51) = 19.99, p < .001) compared to the Included group (n = 113).

Exposure to QB behavior and trait mindfulness

Mean differences in the post-QB outcome variables are presented in Table 3 (top half for *H1*, bottom half for *H2*). We used Model 5 PROCESS macro for SPSS (Hayes, 2022) to test *H1* on the moderation of trait mindfulness on the effect

Tab. 1. Descriptive statistics for participants and psychometric properties of the scales

	Study 1 (Australian; N = 140)			Study 2 (Indonesian; N = 222)		
	M	***SD***	α Cronbach	***M***	***SD***	a Cronbach
Age	25.46	8.02		20.56	1.88	
Gender identification	5.10	1.46	.85	5.73	1.23	.75
Trait mindfulness	3.50	0.88	.87	3.93	0.80	.84
Perceived positive intent	2.49	1.07	.87	4.34	1.45	.64
Perceived sexism	3.79	1.67	.87	2.92	1.61	.84
PA1	2.15	0.81	.91	3.22	0.90	.89
NA1	2.11	0.75	.87	2.02	0.91	.93
PA2	2.07	0.91	.94	2.87	1.01	.90
NA2	2.20	0.87	.89	2.39	1.08	.93
Need satisfaction index	2.42	1.06	.96	3.09	0.99	.93

Note. PA1 = Positive affect post-QB; NA1 = Negative affect post-QB. PA2 = Positive affect post-ostracism; NA2 = Negative affect post-ostracism. Need satisfaction index = Average for the items assessing each need.

Tab. 2. Correlation between demographic and outcome variables in Study 1 (Australian; N = 140) and Study 2 (Indonesian; N = 222)

	Age		Gender identification		Trait mindfulness	
	Study 1	Study 2	Study 1	Study 2	Study 1	Study 2
PA1	.15	.03	.20*	.23***	-.02	.14*
NA1	-.03	.05	.20*	.06	-.06	-.07
Perceived positive intent	.05	.14*	-.07	.16*	< .001	.16*
Perceived sexism	.06	.11	.08	.04	.02	.05
PA2	.13	-.02	.11	.04	-.06	.13
NA2	-.12	-.01	.08	.10	-.20*	-.16*
Need satisfaction index	.10	.04	.06	-.08	.06	.14*

Note. PA1 = Positive affect post-QB; NA1 = Negative affect post-QB. PA2 = Positive affect post-ostracism; NA2 = Negative affect post-ostracism. Need satisfaction index = Average for the items assessing each need. *p < .05, ***p < .001

of exposure to QB behavior on perceived sexism through perceived positive intent. Model 5 is suitable to test the role of one or more mediators (i.e. perceived positive intent) and one moderator (trait mindfulness) of the direct path only. In Study 1, the model explained 32.30% of the variances in perceived sexism (Fig. 2, Panel A). *H1* was supported as the moderation of trait mindfulness on the indirect effect of QB behavior on perceived sexism through perceived positive intent was significant (*B* = -0.57, *SE* = 0.27, 95% CI [-1.11, -0.34]). Plotting the interaction between the direct effect of QB on perceived sexism (-1 *SD* and +1 *SD*, Fig.2, Panel A) showed that for those low in trait mindfulness, exposure to QB resulted in higher perceived sexism (*B* = 1.40, *SE* = 0.35, 95% CI [0.70, 2.10]). For those high in trait mindfulness, exposure to QB did not influence perceived sexism (*B* = 0.34, *SE* = 0.36, 95% CI [-0.37, 1.05]). There was no main effect of trait mindfulness on perceived sexism (*B* = -0.02, *SE* = 0.14, 95% CI [-0.29, 0.25]).

Mediation analysis in Study 1 also found a significant indirect effect of QB behavior on perceived sexism (*B* = 0.27, *SE* = 0.07, 95% CI [0.14, 0.43]). Exposure to QB predicted lower perceived positive intent (*B* = -0.71, *SE* = 0.17, 95% CI [-1.05, -0.37]), while perceived positive intent predicted lower perceived sexism (*B* = -0.63, *SE* = 0.12, 95% CI [-0.86, -0.40]). After accounting for perceived positive intent, the direct effect of QB on perceived sexism was still significant (*B* = 0.87, *SE* = 0.25, 95% CI [0.37, 1.37]), suggesting partial mediation of perceived positive intent on the QB and perceived sexism link. Gender identification predicted neither perceived positive intent (*B* = -0.06, *SE* = 0.06, 95% CI [-0.17, 0.06]) nor perceived sexism (*B* = 0.05, *SE* = 0.09, 95% CI [-0.11, 0.22]).

In Study 2, the model only explained 10.60% of the variance in perceived sexism (Fig.2, Panel B). We found no support for *H1* such that the moderation of trait mindfulness on the indirect effect of QB behavior on perceived sexism through perceived positive intent was not significant (*B* = 0.15, *SE* = 0.26, 95% CI [-0.37, 0.66]). Trait mindfulness did not predict perceived sexism (*B* = 0.21, *SE* = 0.13, 95% CI [-0.05, 0.47]). However, mediation analysis found a significant indirect effect of QB on perceived sexism (*B* = 0.12, *SE* = 0.07, 95% CI [0.01, 0.29]). Exposure to QB predicted lower perceived positive intent (*B* = -0.38, *SE* = 0.19, 95% CI [-0.76, -0.01]), while perceived positive intent predicted lower perceived sexism (*B* = -0.32, *SE* = 0.07, 95% CI [-0.47, -0.18]). The direct effect of QB on perceived sexism in the presence of perceived positive intent was insignificant (*B* = 0.36, *SE* = 0.21, 95% CI [-0.05, 0.77]. Gender identification predicted higher perceived positive intent (*B* = 0.20, *SE* = 0.08, 95% CI [0.05, 0.36]) but not perceived sexism (*B* = 0.11, *SE* = 0.09, 95% CI [-0.06, 0.27]).

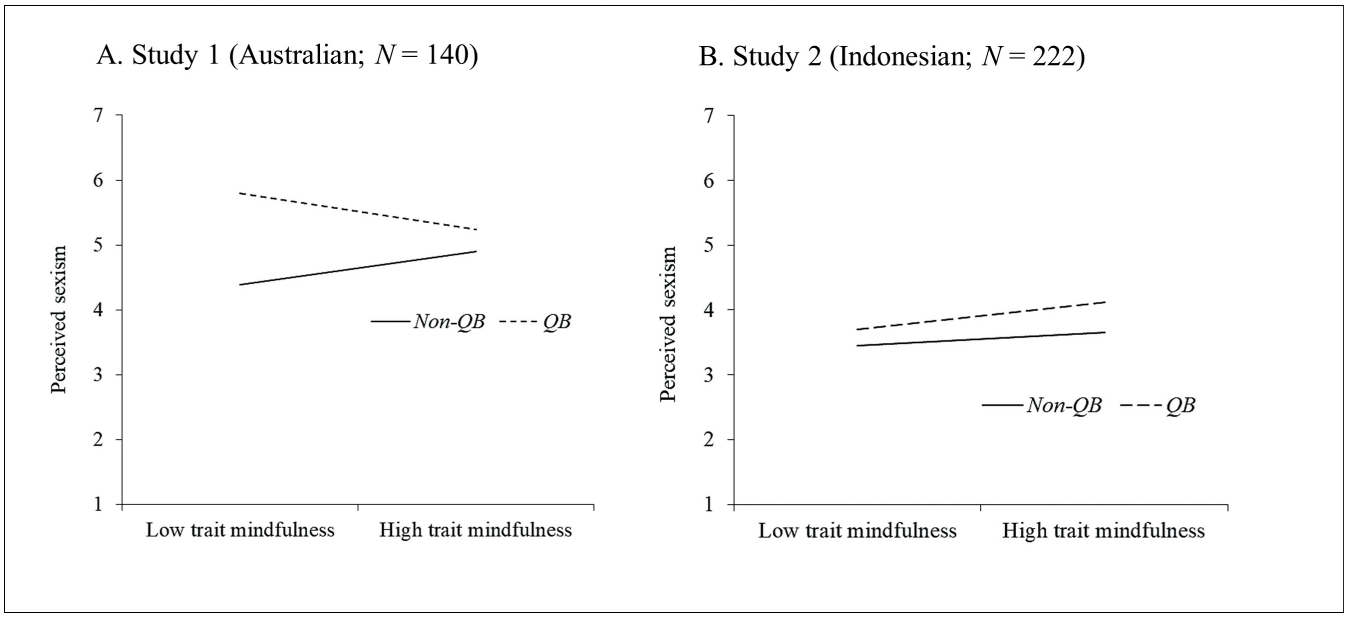
We tested *H2* (Table 4) of the moderation of trait mindfulness on the effect of exposure to QB behavior on mood with Model

Tab. 3. Mean differences on outcomes following manipulation of QB (Study 1, Australian: *n* QB = 72; *n* non-QB = 68. Study 2, Indonesian: *n* QB = 108; *n* non-QB = 114)

	Study 1				Study 2			
	QB		*Non-QB*		*QB*		*Non-QB*	
	M	SD	M	SD	M	SD	M	SD
Perceived positive intent	2.15	1.04	2.85	0.99	4.16	1.54	4.51	1.36
Perceived sexism	4.42	1.65	3.11	1.42	3.16	1.63	2.70	1.56
PA1	1.99	0.74	2.31	0.86	3.18	0.94	3.26	0.87
NA1	2.26	0.75	1.96	0.68	2.09	0.97	1.96	0.84

Note. PA1 = Positive affect post-QB; NA1 = Negative affect post-QB; Study 1, Australian; *N* = 140; Study 2, Indonesian; *N* = 222

Fig. 2. Moderation of trait mindfulness on the indirect effect of QB (code 0 = Non-QB, 1 = QB) on perceived sexism through perceived positive intent. Gender identification as covariate. Interaction plot is based on J. F. Dawson (http://www.jeremydawson.co.uk/slopes.htm)



1 PROCESS macro for SPSS (Hayes, 2022). In Study 1, the QB group reported lower positive affect and higher negative effect compared to the Non-QB (Table 3, top half). Trait mindfulness was insignificant in predicting PA1 and NA1. *H2* was partially supported as there was interaction between QB behavior and trait mindfulness to NA1, but not to PA1. Plotting the interaction between QB behavior and trait mindfulness on NA1 (-1 *SD* and +1 *SD*, Fig.3, Panel A), QB exposure affected NA1 for those low in trait mindfulness (*slope* = 0.75, $t(140) = 3.57$, $p < .001$), but not for those high in trait mindfulness (*slope* = -0.14, $t(140) = -1.15$, $p = .25$). Gender identification predicted higher PA1 and NA1.

In Study 2, there was no difference between *QB* vs. *Non-QB* groups in terms of positive or negative affect (Table 4, bottom half). Trait mindfulness predicted higher PA1, but not NA1. *H2* was not supported because trait mindfulness did not moderate the effect of exposure to QB behavior on either PA1 or NA1 (Fig. 3, Panel B). Gender identification also predicted higher PA1 but did not predict NA1.

Later exposure to ostracism and trait mindfulness

Model 3 PROCESS macro for SPSS (Hayes, 2022) was used to test *H3* on the moderation of trait mindfulness on the interaction effect of prior exposure to QB behavior and later exposure to ostracism on mood and need satisfaction. We present mean differences in the outcomes in Table 5, and moderated moderation results in Table 6.

Tab. 4a. Moderation of trait mindfulness on the effect of QB behavior on mood for Study 1, Australian ($N = 140$)

	PA1			NA1		
	B	***SE***	***p***	***B***	***SE***	***p***
X (QB)	-0.32	0.13	.02*	0.31	0.12	.01*
W (trait mindfulness)	< 0.01	0.08	.99	-0.08	0.07	.22
X x W	-0.07	0.15	.65	-0.48	0.13	< .001***
Covariate (Gender identification)	0.11	0.05	.02*	0.09	0.04	.02*
Constant	1.59	0.24	< .001***	1.64	0.21	< .001***

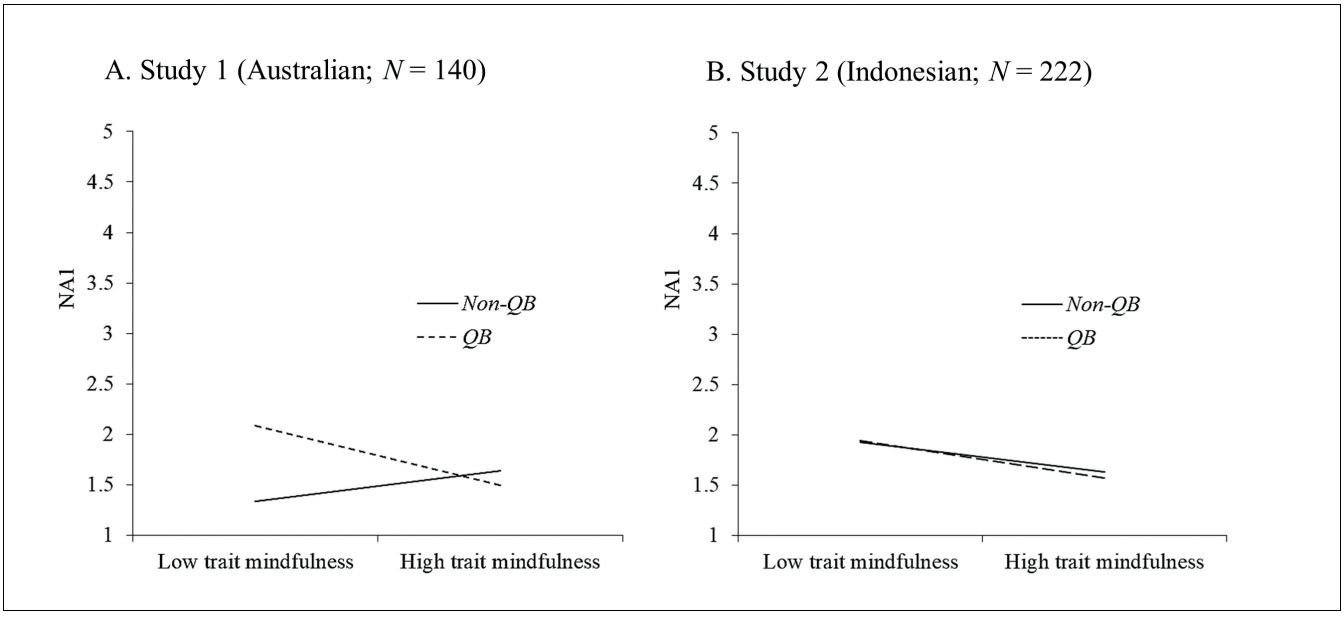
Note. PA1: $R^2 = 0.08$, $F(4, 135) = 2.98$, $p = .02$; NA1: $R^2 = 0.16$, $F(4, 135) = 6.56$, $p < .001$; PA1 = Positive affect post-QB, NA1 = Negative affect post-QB (code 0 = Non-QB, 1 = QB)
*$p < .05$, ***$p < .001$

Tab. 4b. Moderation of trait mindfulness on the effect of QB behavior on mood for Study 2, Indonesian ($N = 222$)

	PA1			NA1		
	B	***SE***	***p***	***B***	***SE***	***p***
X (QB)	-0.08	0.12	.48	0.11	0.12	.37
W (trait mindfulness)	0.15	0.07	.04*	-0.09	0.08	.24
X x W	-0.12	0.15	.41	0.18	0.15	.24
Covariate (Gender identification)	0.17	0.05	< .001***	0.04	0.05	.45
Constant	2.26	0.28	< .001***	1.82	0.29	< .001***

Note. PA1: $R^2 = 0.07$, $F(4, 217) = 4.29$, $p < .001$; NA1: $R^2 = 0.19$, $F(4, 217) = 1.03$, $p < .001$; PA1 = Positive affect post-QB, NA1 = Negative affect post-QB (code 0 = Non-QB, 1 = QB)
*$p < .05$, ***$p < .001$

Fig. 3. Moderation of trait mindfulness on negative affect (NA1) after exposure to QB condition (code 0 = Non-QB, 1 = QB). Gender identification as covariate. Interaction plot is based on J. F. Dawson (http://www.jeremydawson.co.uk/slopes.htm).



Results for Study 1 showed that both mood outcomes (lower PA2 and higher NA2) and need satisfaction index were affected by ostracism's main effect (Table 6a). The QB main effect did not influence the index. No support was found for *H3* as the three-way interaction between QB X ostracism X trait mindfulness was insignificant on all outcomes. The two-way interaction between trait mindfulness and experimental conditions was also insignificant. Trait mindfulness independently predicted lower NA2, but not other outcomes. Gender identification predicted higher NA2.

Results for Study 2 consistently showed outcomes whereby mood (lower PA2 and higher NA2) and lower need satisfaction index were influenced by ostracism's main effect but not QB (Table 6b). There was no support for *H3* as the three-way interaction between QB X ostracism X trait mindfulness was insignificant on all outcomes. The two-way interaction between trait mindfulness and experimental conditions was also insignificant. Trait mindfulness independently predicted part of the outcomes in the form of lower NA2 and marginally higher need satisfaction index. Gender identification did not predict outcomes.

Discussion

The current study is a preliminary attempt to explore the psychological effects of exposure to a QB behavior female superior and later workplace ostracism from the superior,

Tab. 5. Mean differences on outcomes following exposure to QB behavior and then ostracism

	Study 1								Study 2							
	Condition 1		Condition 2		Condition 3		Condition 4		Condition 1		Condition 2		Condition 3		Condition 4	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
PA2	1.52	0.50	1.81	0.89	2.43	0.89	2.70	0.83	2.36	0.92	2.17	0.75	3.47	0.84	3.43	0.77
NA2	2.67	0.71	2.67	0.81	1.67	0.60	1.58	0.67	2.88	0.79	3.20	1.00	1.81	0.86	1.75	0.83
Need satisfaction Index	1.61	0.37	1.71	0.56	3.33	0.82	3.48	0.69	2.33	0.56	2.30	0.78	3.77	0.71	3.87	0.57

Note. PA2 = Positive affect post-ostracism; NA2 = Negative affect post-ostracism. Condition 1 = QB then Ostracized; 2 = Non-QB then Ostracized; 3 = QB then Included; 4 = Non-QB then Included; Study 1, Australian: *n* =140, Condition 1 *n* = 41, Condition 2, *n* = 36, Condition 3, *n* = 31, Condition 4, *n* = 32; Study 2, Indonesian: *n* = 222, Condition 1 *n* = 56, Condition 2, *n* = 53, Condition 3, *n* = 53, Condition 4, *n* = 61

Tab. 6a. Moderated moderation model of trait mindfulness on the interaction between prior exposure to QB and later exposure to ostracism for Study 1, Australian (*N* = 140)

	PA2			NA2			Need satisfaction index		
	B	***SE***	***p***	***B***	***SE***	***p***	***B***	***SE***	***p***
QB	-0.25	0.13	.06	.06	.12	.60	-0.20	0.11	.08
Ostracism	-0.92	0.14	< .001***	1.03	0.12	< .001***	-1.66	0.11	< .001***
QB x Ostracism	-0.09	0.27	.75	-0.14	0.24	.55	0.17	0.23	.44
Trait mindfulness	-0.10	0.08	.19	-0.14	0.07	.04*	0.00	0.07	.94
QB x Trait mindfulness	-0.13	0.15	.39	-0.16	0.14	.26	0.02	0.13	.87
Ostracism x Trait mindfulness	0.17	0.16	.27	0.02	0.14	.90	-0.04	0.13	.77
QB x Ostracism x Trait mindfulness	0.17	0.31	.59	0.12	0.27	.65	0.07	0.26	.79
Covariate (Gender identification)	0.02	0.05	.61	0.08	0.04	.04*	-0.02	0.04	.53
Constant	1.96	0.24	< .001***	1.78	0.22	< .001***	2.54	0.20	< .001***

Note. PA2: R^2 = 0.30, F (8, 131) = 6.90, p < .001; NA2: R^2 = 0.41, F (8, 131) = 11.19, p < .001; Need Satisfaction Index: R^2 = 0.64, F (8, 131) = 28.21, p < .001. PA2 = Positive affect post-ostracism; NA2 = Negative affect post-ostracism. Need satisfaction index = Average for the items assessing each need. Dummy-coded 0 = Non-QB or Included, 1 = QB or Ostracized. *p < .05, ***p < .001

Tab. 6b. Moderated moderation model of trait mindfulness on the interaction between prior exposure to QB and later exposure to ostracism for Study 2, Indonesian (*N* = 222)

	PA2			NA2			Need satisfaction index		
	B	***SE***	***p***	***B***	***SE***	***p***	***B***	***SE***	***p***
QB	0.12	0.11	.27	-0.17	0.12	.14	-0.01	0.09	.87
Ostracism	-1.17	0.11	< .001***	1.22	0.12	< .001***	-1.49	0.09	< .001***
QB x Ostracism	0.18	0.22	.41	-0.35	0.24	.14	0.11	0.18	.53
Trait mindfulness	0.09	0.07	.18	-0.17	0.07	.02	0.10	0.06	.06
QB x Trait mindfulness	0.11	0.14	.43	0.04	0.15	.80	-0.07	0.11	.55
Ostracism x Trait mindfulness	-0.15	0.14	.28	0.03	0.15	.82	0.04	0.11	.75
QB x Ostracism x Trait mindfulness	0.12	0.28	.67	-0.44	0.29	.13	0.02	0.22	.92
Covariate (Gender identification)	0.04	0.05	.35	0.07	0.05	.15	-0.04	0.04	.24
Constant	2.62	0.27	< .001***	1.99	0.28	< .001***	3.32	0.21	< .001***

Note. PA2: R^2 = 0.36, F (8, 213) = 15.25, p < .001; NA2: R^2 = 0.38, F (8, 213) = 16.31, p < .001; Need Satisfaction Index: R^2 = 0.59, F (8, 213) = 37.89, p < .001. PA2 = Positive affect post-ostracism; NA2 = Negative affect post-ostracism. Need satisfaction index = Average for the items assessing each need. Dummy-coded 0 = Non-QB or Included, 1 = QB or Ostracized. ***p < .001

and whether these effects would differ as a function of the subordinate's trait mindfulness. The study was directly replicated for female participants of different cultural backgrounds, Australia (Study 1) and Indonesia (Study 2), while controlling for potential ingroup bias (i.e., gender identification).

We found that trait mindfulness moderated the indirect effect of exposure to QB behavior on perceived sexism through perceived positive intent in Australian female participants, but not Indonesians. For Australian females with low trait mindfulness, exposure to QB behavior influenced higher perceived sexism, the opposite for those high in trait mindfulness. Trait mindfulness also moderated the effect of QB on mood more among Australian females, particularly on negative affect. For Indonesian females, trait mindfulness was associated with higher positive affect independent of exposure to QB.

The insignificant moderation of trait mindfulness in Indonesian female participants could be related to their higher trait mindfulness and gender identification compared to Australians, as shown in our initial analysis. As typically found in research with collectivist samples (Fischer & Derham, 2016), the Indonesian could be more strongly related to ingroup favoritism in terms of higher perceived positive intent and significant positive correlations between this variable and age, gender identification, and trait mindfulness. The QB's distantness could also be less unanticipated for Indonesian females, as Indonesian workers typically depend on a structural hierarchy marked by rights inequality; conversely, in Australian work organizations, hierarchy was upheld only for practicality, and superiors are always accessible (Hofstede Insights, 2023). The gender identification of participants from both countries predicted a higher positive affect (although Australian participants' gender identification also predicted a higher negative affect). This indicated that to females with higher gender identification, a female superior could still be considered as part of the ingroup that arouses positive feelings irrespective of whether said superior displayed low-gender identification behavior (i.e., masculine behaviors fitting the QB profile).

Crucially, trait mindfulness did not moderate the effect of exposure to QB behavior immediately after the ostracism manipulation. Females from both Australia and Indonesia who scored low in trait mindfulness reported higher levels of negative affect. Due to more activation of threats to the individual self as part of core integrity, ostracism was shown to affect people from more individualistic cultures compared to collectivistic individuals (Pfundmair et al., 2015). The impacts of ostracism have also been reduced when ostracism was considered the norm (Rudert & Greifeneder, 2016) and ostracism by essential ingroups threatens basic needs more (Bernstein et al., 2010). Although speculative, trait mindfulness may have failed to moderate ostracism's effects following QB exposure because of our subtle context construction. The lack of interaction effect between QB behavior and ostracism in both studies indicated that QB behavior was not associated with certain norms concerning ostracism, or the female superior was not seen as having enough of a common identity with the participants. This latter finding supported Williams (2009) proposal that ostracism immediately pushes relatively uniform effects.

Practical implications

Research with Schein's model suggests that employee innovation and organizational performance are facilitated when executives respect and appreciate their professional camaraderie (Hogan & Coote, 2014). Gender relations encompass both intergender and intragender; however, the non-diametral nature of intragender angle makes it relatively rare as a study. The addition of female representation in managerial positions does not simply increase workplace equality if biases went unaddressed, as apparent with QB behaviors (Faniko et al., 2021). Our research underlined the potential usefulness trait mindfulness of female subordinates as buffer to the psychological effects of being exposed to QB behavior.

Both subordinates and organizations need to realize that QB behavior is not identical to ostracism. Misinterpreting others' ambiguous behavior as ostracism may lead to harmful consequences (Kawamoto et al., 2015). QB behavior could occur as a natural mechanism to distance oneself from the misconception that all female seniors are representation of their female group (Barreto & Ellemers, 2003), but this does not necessarily lead to ostracism. Whether by a female superior with QB behavior or not, we found that ostracism's impacts were less amenable by trait mindfulness of female juniors. In this case, it could be beneficial to increase trait mindfulness for the ostracizer, as previous research also suggests that higher trait mindfulness predicts higher inclusive behavior (Jones et al., 2019).

Limitations and future directions

One of the methodological limitations of this research is all measures were self-reported and the Indonesian version of the scales were not all validated. Although the adapted measures were pre-tested (with 7 pilot participants), no additional testing on their psychometric properties was conducted. At the time that the current study was undertaken, preliminary support for the efficacy of QB behavior manipulation was only provided by Sterk et al. (2018). As with their study, our data was collected online and we did not measure the actual manipulation's impact on the QB behavior or the specific time spent on the manipulation page.

While the fully-factorial design chosen in the current study allowed us to estimate the main and interactions effects of exposure to QB behavior and ostracism, the complexity of the double manipulations might have simply lead to the salience of only the more recent ostracism manipulation. Intermediary measures such as mood, perceived positive intent, and perceived sexism at Time 1 might further complicate the intricate relationship between exposure to QB behavior, ostracism, and mood/need satisfaction at Time 2.

Moreover, our sole focus was on the psychological impact of ostracism in the early phase of ostracism, namely the reflexive phase in the need threat model (Williams, 2009). To illustrate, past this phase, the ostracism target enters the reflective phase when they focus on cognitive solutions or behavioral tactics.

Further research could test trait mindfulness moderation in said later phases to enrich workplace intra-gender dynamics literature.

We conducted the current study using two samples (Australian and Indonesian female participants) to test whether the pattern of results was robust. Nevertheless, we found that none of the hypotheses have been consistently confirmed, suggesting the lack of coherence between samples. Regardless of our argument that the effects of trait mindfulness on emotion and basic needs during the reflexive phase of queen bee ostracism are interculturally consistent, we did not directly measure the participants' cultural dimensions. Measurement of these cultural values needs to be incorporated in further research, rather than comparing based on nationality. Participants of this research were also restricted to undergraduates, which may create less of an intercultural difference compared to female worker populations.

Conclusions

Research on ostracism has been widely published, yet little emphasis is placed on the way employees perceive, respond to, and manage workplace ostracism (Sharma & Dhar, 2023). Our study presented an experimental inquiry on the effects of exposure to QB behavior and ostracism among female undergraduates from Australia and Indonesia. We found that while female superior displaying QB behavior was considered more sexist and triggered more negative affect, these impacts could be moderated by trait mindfulness. These effects were mainly apparent among Australian females, who generally have less power gap dimension compared to Indonesians. While this inconsistency might reflect the general concerns of a lack of replicability of psychological findings in non-western sample (Tindle, 2021), it could also be related to cultural disparities in the intensity of ingroup bias for real groups, as opposed to groups formed randomly in experimental settings (Fischer & Derham, 2016). Regardless of whether the superiors with QB behavior then ostracized, ostracism was more resistant to trait mindfulness as a protective factor. Both Australian and Indonesian females low in trait mindfulness reported higher negative affect independent of the experimental conditions.

Ethical Approval

The research protocol was approved by the Human Research Ethics Committee at the University of Adelaide (Number: 22/64).

Data availability statement

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Author Contributions

Cleoputri Yusainy (CY) and Deborah Turnbull (DT) designed the studies, Ziadatul Hikmiah (ZH) prepared the experimental protocols, Isma Adila (IA) and Dita Rachmayani (DR) conducted the literature review and the substantive statistical analyses, Muhammad Haikal Azaim Barlaman (MHAB), Jeremy Alexander Timothy (JAT), Salsabila Salsabila (SS) collected the data for the Indonesian participants and together with IA and DR validated the analysis. Hannah Victoria Freeman (HF) conducted the literature review for the Australian participants while Natasha van Antwerpen (NvA) collected the data for the Australian participants and together with Deborah Turnbull (DT) validated the analysis. CY wrote the original draft, and all authors reviewed and edited the manuscript.

Conflict of Interests

The authors have no relevant financial or non-financial interests to disclose.

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