

**THE STRAIN OF SPANNING STRUCTURAL HOLES:
HOW BROKERING LEADS TO BURNOUT AND ABUSIVE BEHAVIOR**

Abstract

Connecting otherwise disconnected individuals and groups - spanning structural holes - can earn social network brokers faster promotions, higher remuneration, and enhanced creativity. Organizations also benefit through improved communication and coordination from these connections between knowledge silos. Neglected in prior research, however, has been theory and evidence concerning the psychological costs to individuals of engaging in brokering activities. We build new theory concerning the extent to which keeping people separated (i.e., *tertius separans* brokering) relative to bringing people together (i.e., *tertius iungens* brokering) results in burnout and in abusive behavior toward coworkers. Engagement in *tertius separans* brokering, relative to *tertius iungens* brokering, we suggest, burdens people with onerous demands while limiting access to resources necessary to recover. Across three studies, we find that *tertius separans* leads to abusive behavior of others, mediated by an increased experience of burnout on the part of the broker. First, we conducted a five-month field study of burnout and abusive behavior, with brokering assessed via e-mail exchanges among 1,536 university employees in South America. Second, we examined time-separated data on self-reported brokering behaviors, burnout, and coworker abuse among 242 employees of U.S. organizations. Third, we experimentally investigated the effects of the two types of brokering behaviors on burnout and abusive behavior for 273 employed adults. The results across three studies showed that *tertius separans* brokering puts the broker at an increased risk of burnout and subsequent abusive behavior toward others in the workplace.

KEYWORDS: structural holes, brokering behaviors, *tertius separans*, *tertius iungens*, social networks

Network brokers¹, individuals who span gaps in the social structure, play a key informal role in organizations by bridging individuals and social groups that would otherwise be disconnected. In organizational settings, brokering across structural holes (lack of ties between actors, Burt 1992) facilitates the diffusion and coordination of information and resources across time and space (Burt 2005). By transferring otherwise siloed knowledge (Reagans and McEvily 2003), employees who broker across structural holes facilitate positive organizational outcomes (Kellogg 2014). Brokering across structural holes also unlocks career advantages for brokers, including high performance (e.g., Burt 2005), fast promotions (e.g., Podolny and Baron 1997), high remuneration (e.g., Burt 2007), and high creativity (e.g., Burt 2004).

These advantages that social network brokering achieves for individuals and their employing organizations result from intense and sometimes difficult social interactions across boundaries (e.g., Kellogg 2014, Long Lingo and O'Mahony 2010). The question arises as to whether brokering comes with a psychological cost. Brokers have been portrayed as experiencing "strain, stress, and confusion" (Stovel and Shaw 2012, p. 153) and role conflict (Stovel et al. 2011). They "can expect to be rip-sawed by conflicting pressures" (Burt 2015, p. 151). Brokering between disconnected alters can be stressful (Stovel and Shaw 2012) given that people prefer to huddle with others similar to themselves rather than connect with relative strangers (Ingram and Morris 2007, McPherson et al. 2001). Bridging diverse and disconnected others, brokers may be confronted with conflicting norms that may undermine brokers' identities (e.g., Podolny and Baron 1997) while removing sources of trust and support (Coleman 1990). The strain involved in bridging separated parties has been depicted as psychologically torturous (e.g., Krackhardt 1999) given that brokers may incur distrust (e.g., Tasselli and Kilduff 2018, Xiao and Tsui 2007) and suffer reputational loss (e.g., Podolny and Baron 1997).

¹ Here, we refer to brokers as individuals who span a structural hole (Burt 1992). Following prior research (e.g., Halevy et al. 2019, Soda et al. 2018), we use the term brokering to refer to a set of distinct activities brokers engage in toward their mutually unacquainted contacts. Spanning a structural hole (similar to the concept of brokerage in Halevy et al. 2019) is the necessary precondition for engaging in brokering behaviors. Brokers may span few or many structural holes.

Despite these allusions to the strains associated with brokering across structural holes, prior research has neglected to either theorize or empirically examine the potentially negative effects of brokering on brokers and those whose well-being is affected by the activities of brokers (Halevy et al. 2019). We break new ground by developing theory relating activities that brokers engage in when spanning structural holes to their experience of burnout and subsequent abusive behavior toward their coworkers. Burnout is an extreme stress syndrome, recognized by the World Health Organization as an occupational phenomenon that costs U.S. companies up to \$190 billion each year in healthcare (Borysenko 2019). Employees who are exposed to a sustained overly demanding environment are more likely to experience burnout (Bakker et al. 2004), feel emotionally exhausted, and experience psychological distance from their job (Demerouti et al. 2001). Furthermore, brokers who suffer burnout and the consequent inability to curtail anger are at risk of engaging in abusive behavior toward coworkers (e.g., Lin et al. 2016) that can inflict productivity and social costs on their organizations (Foulk et al. 2018, Tepper 2007).

We distinguish between two types of brokering behaviors: *tertius separans*² behaviors that keep separated people apart (Obstfeld et al. 2014) and *tertius iungens* behaviors that bring separated people together (Obstfeld 2005, Simmel 1950, Stovel and Shaw 2012). Drawing on the *job demands-resources* framework (JD-R) (Bakker and Demerouti 2017), we suggest that these two types of brokering behaviors have different consequences for brokers' burnout and abusive behavior. Specifically, we argue that people engaged in *tertius separans* brokering behavior experience higher informal role demands combined with limited potential to replenish resources. Thus, *tertius separans* brokering exposes people to a higher risk of burnout, that, in turn, increases their risk of engaging in abusive behavior. By contrast, people engaged in *tertius iungens* brokering experience lower informal role demands, that, in turn, lowers their relative risk of experiencing burnout and of behaving abusively toward coworkers.

² We follow Burt (2021) in treating *tertius gaudens* as an inclusive category of brokering behaviors that include *tertius iungens* and *tertius separans*.

We make several contributions to network research. First, we answer the call to pay “close attention to micro-level relations and social psychological processes” of brokerage (Stovel and Shaw 2012, p. 139) by introducing the JD-R framework (Bakker and Demerouti 2017) as an overarching approach to understanding how brokering relates to burnout and abusive behavior. Building on the JD-R framework, we highlight the potentially different demands associated with bringing people together and keeping people apart. Second, balanced against research showing performance benefits of *tertius separans* brokering (Soda et al. 2018), we unravel the hidden costs of *tertius separans* brokering relative to *tertius iungens* brokering. *Tertius separans* brokering, we suggest, is more likely than *tertius iungens* brokering to cause burnout as it involves higher job demands as well as a more limited availability of resources. Third, we investigate the neglected negative consequences of brokering on colleagues surrounding brokers (Halevy et al. 2019). Brokers are frequently active at the highest levels of organizations, connecting with a broad range of coworkers (e.g., Kleinbaum and Stuart 2014). Thus, their brokering activities affect colleagues and exemplify appropriate conduct throughout the organization.

Theory and Hypotheses

Demands and Resources Associated with Brokering across Structural Holes

High job demands are predictive of employees’ burnout and exhaustion according to JD-R research (e.g., Demerouti et al. 2001). Job demands are “aspects of the job that require sustained psychological, emotional, or cognitive effort” (Bakker et al. 2014, p. 392). High job demands, such as excessive workload, role conflict, and negative emotions, tend to increase employees’ experience of burnout (Alarcon 2011, Bakker and Demerouti 2017, Nahrgang et al. 2011). By contrast, job resources, such as trust, social support, and positive emotions, help buffer the impact of excessive job demands on burnout (Bakker et al. 2005, Fernet et al. 2013, Nahrgang et al. 2011, Robinson et al. 2013). And a lack of resources, such as an absence of social support or a shortage of time in which to complete tasks, increases employees’ experience of burnout (Bakker and Demerouti 2007). The JD-R framework models how formal roles in organizations relate to employees’ burnout experience (Crawford et al. 2010). We build on this

perspective to examine how the *informal* role of brokering across structural holes relates to brokers' experience of burnout.

By bridging across disconnected individuals, brokers are exposed to diverse and potentially conflicting information (Burt 1992). Accessing, assimilating, and recombining diverse information derived from multiple sources requires cognitive effort (Stovel and Shaw 2012) that places demands on brokers (Long Lingo 2022). As brokers interact with diverse and unacquainted individuals, they face the challenge of adapting to different norms and conventions and managing the role conflict and ambiguity (Mehra and Schenkel 2008, Stovel et al. 2011) that are precursors of burnout (see Lee and Ashforth 1996 for meta-analysis). Developing solutions that fulfill different sets of perspectives requires time and patience (Burt 2021, Kellogg 2014, Tasselli and Kilduff 2018) and can be psychologically and emotionally demanding (Kellogg 2014, Long Lingo 2022). Similarly, the processes of developing and maintaining bridging relationships also require effort and energy (e.g., Burt 2010, Shipilov et al. 2014) because each relationship necessitates individualized and dedicated attention (Ocasio 1997).

Besides increasing demands, brokering across structural holes negatively affects the resources available to brokers. First, brokering across different groups can limit the availability of social and psychological resources. Group members may see brokers as untrustworthy and lacking legitimacy (Friedman and Podolny 1992, Iorio 2022, Xiao and Tsui 2007), which can lead them to provide diminished social support and be less willing to cooperate with the brokers (McEvily and Zaheer 1999). Second, if time and energy are devoted to creating and maintaining relationships with disconnected alters, then less time and energy are available to access the resources that can ameliorate job stress (Bakker et al. 2003). Occupying a position that bridges disconnected others can bring with it an imbalance of role demands relative to role resources.

Two Types of Brokering Behaviors and Burnout

However, not all brokers occupying structural holes experience the same level of role demands and availability of resources. We argue that the level of demands brokers are exposed to and the level of resources available to them depend on the types of brokering behaviors in which they engage. In line with

prior research (Halevy et al. 2019, Simmel 1950, Soda et al. 2018), we distinguish between two types of brokering behaviors. *Tertius iungens* brokering involves bringing people together to form new connections thereby closing structural holes (e.g., Obstfeld 2005). *Tertius separans* brokering involves maintaining separation between people thereby keeping open structural holes (Burt 1992).

We argue that *tertius iungens* brokering, relative to *tertius separans* brokering, reduces the demands inherent in spanning structural holes. As a result of *tertius iungens* brokering, the alters interact together and thus have the possibility of reconciling their differences and preventing or resolving conflicts that brokers otherwise deal with (Stovel et al. 2011). Direct communication between the alters is likely to reduce the amount of diverse information brokers need to process as well as the need to transfer, translate, or reframe such information (Obstfeld et al. 2014). Connections between alters also reduce the amount of time and energy brokers need to spend sustaining dyadic relationships with each alter (Burt 2000).

Tertius iungens brokering also provides more psychological resources than *tertius separans* brokering. The creation of a direct relationship between alters contributes to generating a denser social structure that is conducive to accessing social and emotional support (Acock and Hurlbert 1993, Coleman 1988, Courtens et al. 1996, Lin 1999). Being seen to close the gaps in social networks can reduce the perception in the eyes of colleagues that the broker is untrustworthy (Iorio 2022). People engaging in *tertius iungens* brokering are likely to gain trust from their alters because facilitating connections promotes the perception of benevolence (Halevy et al. 2020). And *tertius iungens* brokering can replenish brokers' emotional energy (Furnari and Rolbina 2018) because direct meetings between brokers and disconnected alters increase the potential for shared emotional energy (Collins 2014).

By contrast, engaging in *tertius separans* brokering sustains the cognitive, social, and emotional demands placed on brokers in terms of information processing load, translation requirements, and the effortful maintenance of relationships with disconnected alters. The absence of direct connections between alters inherent to *tertius separans* brokering also implies fewer opportunities for psychological or emotional resource replenishment. Even brokers who engage in *tertius separans* brokering in order to help

disconnected alters may fail to gain sufficient emotional benefit to offset the taxing emotional labor of attending to and coordinating the diverse needs of different groups (Kellogg 2014).

In sum, *tertius separans* brokering, relative to *tertius iungens* brokering, requires brokers to sustain the demands placed on them by their informal role without providing sufficient opportunity to replenish resources, creating an imbalance of demands over resources that heralds burnout.

Hypothesis 1: *Brokers who engage in tertius separans brokering, relative to tertius iungens brokering, experience a higher level of burnout.*

Brokers' Burnout and Abusive Behavior

So far, we have argued that *tertius separans* brokering leads brokers to experience increased psychological costs in terms of burnout. We now turn to the consequences of brokering for colleagues of brokers. We suggest that brokering-related burnout is likely to lead to abusive behavior toward these colleagues.

Extensive research shows that a dimension of burnout (exhaustion) reduces people's ability to control their aggressive impulses resulting in an increased likelihood of aggressive and abusive behaviors toward coworkers (e.g., Barnes et al. 2014, Lam et al. 2017, Liu et al. 2014). We infer, therefore, that the burnout associated with *tertius separans* brokering may lead brokers to engage in abusive behavior toward their colleagues in the workplace.

Abusive behavior refers to the "display of hostile verbal and nonverbal behaviors" (Tepper 2000, p. 178) such as humiliating, belittling, and expressing anger. Although abusive behavior is considered a low base-rate phenomenon (Tepper 2007), the consequences of abusive behavior are significant. These behaviors have deleterious effects on abused employees including psychological distress, reduced self-esteem, and increased turnover (see Mackey et al. 2017, Martinko et al. 2013 for reviews). Abusive behavior also lowers the performance of those who work with the abusers (Walter et al. 2015) and can discourage them from seeking feedback from the focal actors (Whitman et al. 2014).

According to the demands and resources perspective (Hobfoll et al. 2018), resource-drained, burnt-out individuals engage in behaviors that protect themselves from losing more resources (Leiter et al. 2014) and resist spending scarce mental resources on controlling their abusive impulses (Ng et al. 2021).

Thus, when employees experience burnout, and their resources are exhausted, they are at risk of engaging in abusive and counterproductive work behavior toward others (Barnes et al. 2015, Bolton et al. 2012, Lin et al. 2016, Wheeler et al. 2013, Yam et al. 2016). Moreover, individuals' resource deprivation is also known to be a proximal cause of aggression (Baillien et al. 2011, DeWall et al. 2007). As *tertius separans* brokering (relative to *tertius iungens* brokering) is more taxing and resource-draining, it leads brokers to have less control over their expression of hostile behaviors in subsequent interactions with others at the workplace. Accordingly, we posit the following mediation hypothesis in which *tertius separans* brokering leads to abusive behavior as mediated by burnout.

Hypothesis 2: *Tertius separans brokering, relative to tertius iungens brokering, increases brokers' subsequent abusive behavior as a result of a higher level of burnout.*

----- Insert Figure 1 about here -----

Figure 1 summarizes the theoretical model predicting how the two different types of brokering behavior affect brokers' burnout and abusive behavior.

Research Overview

We tested our predictions across three studies. In Study 1, using email data collected over five months, we examined the effects of *tertius separans* brokering relative to *tertius iungens* brokering on burnout and abusive behavior for 1,536 employees of a South American university. In Study 2, we replicated Study 1 findings, using a multi-wave survey of 242 full-time employees of U.S. organizations who reported their daily brokering behaviors. In Study 3, an experiment conducted with 273 full-time employees of U.S. organizations, we manipulated the two types of brokering behaviors to examine the causal claim that *tertius separans* brokering leads to an increase in burnout, which then triggers individuals to engage in abusive behavior. The details of data, code, and online supplement are available through open science framework (OSF) at the following link:

https://osf.io/s6yeg/?view_only=ddf37aa2cf2a42e792a3f9a10f964a6b.

Study 1: Field Study

Data and Procedure

We collected data from the employees of a large private South American university. The main campus of the university was located in the second largest city in the country; the university had three secondary campuses in smaller cities. The university also operated a university hospital and a school. The data consisted of three components: email network data constructed from employees' email exchange records, burnout and abusive behavior data from employee surveys, and demographic data from the university's human resources (HR) department. This data collection occurred as part of a larger process, required by law, that measured employees' psychosocial working conditions. Participants received no compensation for their participation.

We monitored internal email communications between all employees in the organization to collect information about senders, recipients, and timing, but we did not access message content. We monitored emails over a five-month period, after which we measured employees' burnout and abusive behavior using online surveys. Detailed information about the collection and cleaning of the email data is available in the online supplement.

Our complete dataset contained information about email communications, burnout, and abusive behavior from 1,536 users (59% female; $M_{\text{age}} = 45.25$, $SD_{\text{age}} = 9.83$; 77% with a bachelor's degree or higher), out of 2,367 active email users (a 65% response rate).³ Among them, 56% had a permanent contract and 44% had fixed-term contracts. The organization was organized hierarchically into five levels, 4% of employees were executives, 10% were directors, 45% were professionals, 18% were assistants, and 23% had a support role.⁴ A total of 44% were educators (e.g., professors or teachers), 43% were in administrative roles (e.g., administrators, secretaries, receptionists), 2% were doctors and nurses, and 11% had other roles. A total of 68% of the employees were located on the main campus with the three other campuses accounting for 20%, 8%, and 4% of the population of employees. Most employees (88%)

³ There are some significant differences between respondents and non-respondents in terms of gender, rank and occupation. However, the differences are relatively small, and accounting for these biases does not substantively alter our results.

⁴ The hierarchical distinction between assistants and employees providing support is based on company records. Our results are robust to collapsing these two categories of employees.

worked at the university, 11% of the employees worked at the hospital, and 1% at the school. Over the five-month period, the average number of emails sent per employee was 416.45 ($SD = 564.76$; maximum: 7,609), and the average number of emails received was 413.41 ($SD = 512.99$; maximum: 4,519).

Measures

Tertius Separans Brokering (Relative to Tertius Iungens Brokering). We computed an indicator of tertius separans brokering relative to tertius iungens brokering using the temporal brokering measure proposed by Quintane and colleagues (2021). Because this measure is based on behavioral interaction traces left by employees as they engage with each other, it has the advantage of being unaffected by perceptual biases. The use of the measure requires no assumptions concerning whether or not people broker strategically or are aware of the structural holes around them. Furthermore, the measure captures the brokering process as it unfolds over time, accounting for the temporal sequence and timing of interactions.

Specifically, the temporal brokering index represents the proportion of temporal structural holes that stay open around an individual as the individual communicates with others over time. Instead of being a count of the aggregated number of open versus closed structural holes over the full observation period, the temporal brokering measure considers the time and sequence of email communications to capture the process of brokering as it occurs through time. For each employee, the measure identifies the number of temporal structural holes, i.e., the number of sequentially ordered paths of length 2 that the employee mediates within 24 hours.⁵ The measure incorporates two important temporal considerations. First, emails need to occur in *a given order* to be considered as part of a brokering sequence. Second, emails need to occur within *a specific amount of time* of each other to be considered as part of the same sequence (Falzon et al. 2018). For example, Actor A sends an email to Actor B (the broker in this case), and, within 24 hours, Actor B subsequently sends an email to Actor C. In this example, there is an order

⁵ This amount of time defines emails that can be considered part of a sequence and thus that a broker can mediate (Kontoleon et al. 2013). Each email in the sequence marks the beginning of a new 24-hour period during which other emails that complete the temporal structural hole motif are counted. Our results are robust to values ranging from 12 hours to 5 days (see the online supplement for details).

of each path (first A to B and then B to C), and the second path occurs within 24 hours of the first path. This sequence thus characterizes a temporal structural hole centered around B. The temporal structural hole can stay open (if there is no email between A and C within 24 hours of the email from B to C) or close (if there is an email between A and C within 24 hours of the email from B to C).

To compute an employee's relative tertius separans brokering, we counted the number of temporal structural holes that stayed open and the number of temporal structural holes that closed over the full observation period for each employee (in the B position). Then, we calculated the *index of tertius separans brokering relative to tertius iungens brokering* by subtracting the number of closed temporal structural holes from the number of open temporal structural holes and dividing the result by the total number of temporal structural holes. The measure places the two types of brokering behaviors on a continuum ranging from -1 indicating complete tertius iungens brokering behavior to +1 indicating complete tertius separans brokering behavior.⁶ The scores were skewed, so we log-transformed them.

Burnout. We measured employees' burnout (0 = never to 4 = very frequently) using the Spanish Burnout Inventory (Gil-Monte et al. 2011) that has been validated for Spanish speaking employees (Gil-Monte and Zúñiga-Caballero 2010). The scale is composed of 15 items, divided into three subscales: emotional exhaustion (4 items, e.g., "I feel emotionally exhausted") ($\alpha = .87$); cynicism/disengagement (6 items, e.g., "I think some things I do at my work are useless") ($\alpha = .82$); and enthusiasm toward the job (5 items, reverse-scored, e.g., "I see my job as a source of personal accomplishment") ($\alpha = .86$). Following prior research (Gil-Monte et al. 2011), we averaged the fifteen scores ($\alpha = .90$) and log-transformed the composite measure to control for skewness. See the online supplement for the details of the measures used across the studies.

⁶ Tertius iungens and tertius separans are typically (e.g., Grosser et al. 2019) measured as different orientations toward brokering. In measuring these two orientations on a continuum, we follow prior observational research (e.g., Long Lingo and O'Mahony 2010) that captures within individual variation in brokering: Given exposure to a set of structural holes, the same person switches between different brokering orientations as needed. Thus, we capture the extent to which each individual relies on tertius separans relative to tertius iungens in dealing with the structural holes that the individual is exposed to. Our results are consistent when measuring tertius iungens and tertius separans separately (see the online supplement).

Abusive Behavior. Abusive behavior involves aggression toward others (Tepper 2007).

Accordingly, we measured participants' abusive behavior with the five-item aggressive reaction sub-scale (Londoño et al. 2006) that was adapted for Spanish speaking population from the Ways of Coping Scale (Folkman and Lazarus 1988, Sandín and Chorot 2003). Participants indicated how many times they had engaged in aggressive behavior (1 = never to 6 = always): e.g., "I discharge my bad mood on others," and "I behave in a hostile way toward others." We created a composite measure of abusive behavior by averaging the scores of the five items ($\alpha = .84$).

Brokerage Position. We controlled for employees' brokerage positions to verify whether tertius separans brokering behavior affected outcomes above and beyond their structural positions. To measure employees' brokerage position, we calculated constraint, the extent to which the alters of an employee are connected to each other (Burt 1992). First, we aggregated email communications between employees in the organization during the full observation period, resulting in a 2,367 by 2,367 matrix in which each cell (i, j) represents the number of emails that i sent to j . We then calculated constraint on this valued network using the igraph package (Csardi and Nepusz 2006) in R (R Core Team 2019). Our final measure of brokerage position for the 1,536 individuals in our sample was the log-transformed constraint variable (Burt 2004) to account for skewness in the distribution.

Demographics and Work Context. Previous research has shown that individual demographics may relate to the experience of burnout, such as gender (Purvanova and Muros 2010) (1 = female; 0 = others), age (Brewer and Shapard 2004) (in years), job status (Westman et al. 2001) (1 = permanent, 0 = others), rank (Korman et al. 2022) (1 = executives, 2 = directors, 3 = professionals, 4 = assistants, 5 = others; mode = 3), and education (Ahola et al. 2006) (1 = secondary school or below, 7 = master's or above; mode = 7).

Given that different work environments may affect employees' experience of burnout, we used dummy variables to control for the locations and units in which people worked, i.e. the four campuses as well as the university, hospital, and school. Because different occupations affect people's experience of burnout (Maslach et al. 2001), we controlled for occupation (1 = doctors and nurses, 2 = professors and

teachers, 3 = administrators, 4 = others; mode = 2).

The results presented below are robust to alternative samples that include only the employees of the university (excluding employees from the hospital and the school) or only employees from the main campus of the university. We also specified models without controls as well as models using controls for the volume of emails sent and received, the number of alters, and alternative measures of brokerage position (density and betweenness centrality). Our results, available in the online supplement, are robust to these different specifications.

Results and Discussion

----- Insert Tables 1 & 2 about here -----

Table 1 presents descriptive statistics and correlations among variables. Zero order correlations provide initial indication that employees who engaged more in tertius separans brokering were more likely to experience burnout at the end of the five-month observation period ($r = .11, p < .01$); and those experiencing burnout reported engaging more abusive behavior ($r = .36, p < .01$).

Results from ordinary least squares (OLS) regressions with robust standard errors (see Table 2) provide further support for Hypothesis 1's prediction that the more employees engaged in tertius separans brokering compared to tertius iungens brokering, the higher their level of burnout (Model 3, $b = 0.08, SE = 0.02, p < .01$) was.⁷ Among the controls, we note the significant effects on burnout of occupying a brokerage position ($b = 0.25, SE = 0.10, p < 0.05$), occupying a permanent position ($b = 0.06, SE = 0.02, p < .01$), and being younger ($b = -0.004, SE = 0.001, p < .01$).

Recall that Hypothesis 2 predicts that tertius separans brokering, relative to tertius iungens brokering, increases abusive behavior as a result of a higher level of burnout. The results support the hypothesis. We ran a mediation analysis using 10,000 bootstrapped resamples to calculate a 95 % confidence interval (CI) for the indirect effects of tertius separans brokering on abusive behavior via

⁷ In an additional analysis, we also found that brokers who engage in tertius separans brokering with alters across different (vs. the same) geographic or organizational units experience a higher level of burnout, which is consistent with our theoretical argument.

participants' burnout (Hayes, 2017: Model 4) controlling for brokerage position and the aforementioned controls. As depicted in Figure 2, the indirect effect of tertius separans brokering on abusive behavior via burnout was significant (effect size = 0.06, $SE = 0.02$; a 95% bootstrapped CI: 0.004, 0.10)⁸.

----- Insert Figure 2 about here -----

In sum, Study 1 results suggest that employees experience burnout to the extent that they engage in tertius separans brokering relative to tertius iungens brokering, and that increased burnout mediates the relationship between tertius separans brokering and employees' abusive behavior. Further, we found that the relative effect of tertius separans brokering on burnout was above and beyond the significant effect of employees' brokerage position. The more participants occupied a brokerage position, the more they tended to experience burnout. But beyond this, brokering behavior that kept people apart (rather than bringing people together) increased burnout, and as a result, subsequent abusive behavior.⁹

Measuring brokering behavior with email data enabled us to capture how the brokering of information between people related to employees' experience of burnout and engagement in abusive behavior. In Study 2, we sought to replicate and generalize the validity of our results using standard perceptual scales (e.g., Obstfeld 2005, Soda et al. 2018) for brokering behaviors together with a different empirical context and source of data.

Study 2: Experience-Sampling Survey

Study 2 extends the results from *observed* brokering behaviors in Study 1 to the examination of whether individuals' *self-reported* brokering behaviors affected burnout and subsequent abusive behaviors. We collected experience-sampled data from 242 full-time employees drawn from multiple U.S. organizations.

⁸ The results remained consistent when we conducted the mediation analysis without controls.

⁹ As part of the legally mandatory survey on psychosocial working conditions, participants also indicated the extent to which they experienced their job as demanding. As our research theorizes different job demands for the two brokering behaviors, we conducted additional analyses to test our theoretical mechanism. We found that tertius separans (but not tertius iungens) had a significant effect on perceived job demands, which then affected brokers' experience of burnout (see Appendix H in the online supplement for additional information).

We pre-registered this study at AsPredicted.org (see the following link for details:

https://aspredicted.org/RR9_8ND).

Participants and Procedure

We recruited participants residing and working in the U.S. via CloudResearch

(<https://www.CloudResearch.com>) (see Litman et al. 2017 for subject details), which provides multiple screening tools to verify online workers and has been used in prior research (Campbell and Hahl 2022, Deeds Pamphile and Ruttan 2022). For mundane realism (McDermott 2011), we recruited only participants who (a) were fully employed in organizations that had multiple employees, (b) frequently interacted with their work contacts on a daily basis, and (c) had engaged in brokering behaviors at work. We included three qualification questions at the beginning of the Time 1 Survey, and only those who responded positively to all questions were allowed to proceed to the main parts of the survey. Regarding (c), we provided a definition of brokering behaviors (e.g., bridging between two unacquainted colleagues by connecting them or keeping them apart) and asked participants if they had recently engaged in these types of behavior. Moreover, following best practices in using online panels (Aguinis et al. 2021), we included an attention check question in the pre-survey so that participants failing the question could not proceed to the main parts of the pre-survey.

Aiming to have 250 participants in the final sample, we opened 320 positions at CloudResearch for the Time 1 survey considering attrition and exclusion rates reported in the literature. A total of 300 qualified participants provided demographic and work-related characteristics, reported the frequency of engagement in *tertius iungens* and *tertius separans* brokering behaviors on a given day, and reported how burned out they felt on that day. Daily-level job demands and resources can predict meaningful differences within individuals across time (see Schaufeli and Taris 2014 for a review).

We sent the Time 2 survey to the 300 participants who completed the Time 1 survey. A total of 251 participants (84% retention rate) reported the frequency with which they engaged in abusive behavior at work on the day. We measured abusive behavior (Time 2 survey) one day after measuring burnout (Time 1 survey) in order to rule out common method bias (Podsakoff et al. 2012). Participants were

compensated depending on the number of surveys that they completed (e.g., \$3.50 for completing both surveys).

Among the 251 participants, nine participants indicated that they did not engage in any tertius separans or tertius iungens brokering behaviors (i.e., indicated never to all 9 items) at Time 1 and were removed from the sample. The final sample included 242 full-time employees working in various organizations (45% female; $M_{\text{age}} = 36.68$, $SD_{\text{age}} = 10.90$; 67% White; 69% a bachelor's degree or higher; all residing and working in the U.S.). Thirty-one percent held mid-manager or higher positions, the average tenure in current role was 5.87 years ($SD = 5.67$), and 39% were employed in large organizations with more than 500 employees, with 12% employed in healthcare and medical, 7% in IT, and 7% in education.

Measures

Frequency of Tertius Iungens and Tertius Separans Brokering Behaviors (Time 1).

Participants indicated how many times (1 = never to 7 = six times or more), on this specific day, they engaged in tertius iungens brokering behavior by answering six items ($\alpha = .94$) adapted from the Tertius Iungens Scale (Obstfeld 2005): e.g., "I forged connections between them [two unacquainted work contacts] dealing with a particular issue." We measured the frequency (1 = never, 7 = six times or more) of engaging in tertius separans brokering behaviors on a given day, using three items ($\alpha = .93$) adapted from the Separation Orientation Scale (Grosser et al. 2019): e.g., "I kept them separate from one another," and "I kept them from interacting with one another."

An exploratory factor analysis (EFA) on the nine items used to measure tertius iungens and tertius separans brokering behavior showed, as expected, that the six tertius iungens items loaded onto one factor (eigenvalue = 5.94, item loadings > .69) and the three tertius separans items loaded onto another factor (eigenvalue = 1.37, item loadings > .85). Thus, we created and used a composite measure of tertius iungens and tertius separans brokering, averaging the six and three items respectively.

State Burnout (Time 1). We measured state burnout regarding participants' experience at work using the thirteen items ($\alpha = .96$) from the Maslach Burnout Inventory (MBI) scale (Maslach and Jackson

1981) that involve emotional exhaustion and depersonalization : e.g., “Today, I felt fatigued,” and “Today, I felt I would treat others as if they were impersonal objects” (1 = strongly disagree to 7 = strongly agree). By emphasizing “today” (see Heatherton and Polivy 1991 for a similar approach), the emphasis was on how burned out participants felt on that day.

Control Variables (Time 1). As in Study 1, we controlled for a set of demographic characteristics: gender (Purvanova and Muros 2010) (1 = female, 0 = others), age (Brewer and Shapard 2004) (in years), race (Dowler 2005) (1 = white, 0 = others), education (Ahola et al. 2006) (1 = bachelor’s degree or higher, 0 = others), and rank (Korman et al. 2022) (1 = mid-or senior positions, 0 = others). Following previous research (e.g., Soda et al. 2018) we also controlled for work variables that might affect the opportunities for brokering such as current tenure (in years), industry (three dummy variables for education, medical, and IT sectors), and organization size (1 = 500 employees or more, 0 = others).

Abusive Behavior (Time 2). We measured participants’ abusive behavior, adapting the eight items ($\alpha = .96$) from the abusive supervision scale (Tepper 2000). Participants indicated how many times (1 = never to 7 = six times or more) they had engaged in abusive behavior with any of their work contacts on that day: e.g., “I told a person that he or she was incompetent.”

Results

-----Insert Tables 3 & 4 about here-----

Table 3 presents descriptive statistics and correlations among variables. Participants tended to engage less in tertius separans brokering behavior ($M = 2.12, SD = 1.45$) than in tertius iungens brokering behavior ($M = 2.77, SD = 1.43$) on the surveyed day. The frequencies of engaging in both types of brokering behaviors were positively correlated with each other ($r = .60, p < .01$)¹⁰. Participants who reported

¹⁰ The positive correlation between TI and TS brokering behaviors measured via survey is consistent with prior research showing that brokers can engage in the two types of brokering behaviors across different triads (e.g., Long Lingo and O’Mahony 2010, Obstfeld et al. 2014). Grosser et al. (2019) report a correlation of .21 between TS and TI and of .66 between TI and mediation. The stronger correlation that we report between TS and TI may be due to our focus on brokering behaviors versus a focus on brokering orientation for Grosser et al. (2019).

engaging in tertius iungens ($r = .28, p < .01$) and tertius separans brokering behaviors ($r = .42, p < .01$) on a specific day also reported symptoms of burnout.

Hypothesis 1 Testing. Our regression analyses (Table 4) showed support for Hypothesis 1's prediction that brokers who engage in tertius separans brokering behavior, relative to tertius iungens brokering behavior, experience a higher level of burnout. Although both types of brokering predicted burnout (tertius iungens brokering in Model 5: $b = 0.27, SE = 0.06, p < .01$; tertius separans brokering behavior in Model 6: $b = 0.43, SE = 0.06, p < .01$), the coefficient for tertius separans brokering behavior was significantly different from that of tertius iungens brokering behavior, $\chi^2 = 8.09, p < .01$ (suest and test commands in Stata) (Rhee and Fiss 2014).

Next, in Model 7, we regressed burnout on both types of brokering behaviors simultaneously. Tertius separans brokering behavior ($b = 0.41, SE = 0.07, p < .01$), but not tertius iungens brokering behavior ($b = 0.04, SE = 0.07, p = .61$), positively predicted burnout. The test command (Rhee and Fiss 2014) showed that the two coefficients in the same model were significantly different from each other, $F(1, 229) = 8.41, p < .01$.

Hypothesis 2 Testing. To test hypothesis 2's prediction that tertius separans brokering, relative to tertius iungens brokering, increases brokers' subsequent abusive behavior as a result of a higher level of burnout, we ran a mediation analysis (Hayes, 2017: Model 4) with 10,000 bootstrapped resamples to calculate 95% CIs for the indirect and direct effects of tertius separans brokering on abusive behavior via state burnout. In the current analysis, we controlled for tertius iungens brokering as well as the aforementioned demographic and work-related covariates. As depicted in Figure 3, the indirect effect (effect size = 0.06, $SE = 0.03$, a 95% CI: 0.01, 0.12) of tertius separans brokering on abusive behavior via burnout was significant.¹¹ See Table 4 (Model 10) for results from regression analysis with all control variables.

----- Insert Figure 3 about here -----

¹¹ The results remained consistent when we conducted the mediation analysis without controls.

We conducted two robustness checks. First, we tested the indirect effect of tertius iungens brokering on abusive behavior via burnout, controlling for tertius separans brokering. The indirect effect of tertius iungens brokering on abusive behavior through burnout was insignificant (effect size = 0.01, $SE = 0.01$, a 95% CI: -0.02, 0.03). Next, we also created an index measure of tertius separans similar to the measure we used for Study 1 to ensure a more direct comparison between the studies. The analyses using the index measure also support Hypotheses 1 and 2 (see the online supplement for the details).¹²

Discussion

This study replicates the results of Study 1 in a different context and by measuring brokering behaviors with self-reported scales. Employees who engaged in tertius separans brokering on a given day, relative to those who engaged in tertius iungens brokering, experienced a higher level of burnout, which then led to more engagement in abusive behavior on the following days.

Study 3: Experimental Study

Thus far, two studies have provided evidence supporting Hypotheses 1 and 2. In Study 3, we ran an experimental study to examine the causal claim that tertius separans brokering (compared to tertius iungens brokering) leads to more engagement in abusive behavior via increased burnout. We designed the experiment to have three between-participant conditions: tertius separans brokering, tertius iungens brokering, and a control condition (the absence of a structural hole). This design enabled us to compare the effects of tertius iungens and tertius separans on burnout and abusive behavior and also to compare the effect of each brokering behavior against non-brokering activities (e.g., interacting with others in the absence of a structural hole). We pre-registered this study at AsPredicted.org

(https://aspredicted.org/TCG_213).

Participants

¹² To rule out the possibility that underlying differences in burnout conditions could affect our results, we also separately conducted a three-wave survey in which we measured participants' baseline burnout at Time 1, state-level burnout and brokering behavior at Time 2, and abusive behavior at Time 3. We performed the same analyses on a sample of 134 employees who completed all three surveys, including baseline burnout as a control. The results confirm our finding that engaging in tertius separans brokering behaviors is significantly associated with employees' state burnout and subsequent behaviors, above and beyond the effects of their chronic burnout on those outcomes.

We recruited participants via Cloud Research. We followed similar practices to the ones used in Study 2 to ensure the quality of the data. For example, we only recruited participants who were currently employed and working with multiple coworkers. Also, only participants who passed the attention check question at the beginning of the survey were able to proceed to the main survey.

We predetermined the sample size as 251, using G*power 3 (Faulkner et al. 2004) to detect a medium-sized ($f = .25$) effect with a power of .95. We opened 300 positions on the CloudResearch platform, and 273 participants (52% female; Mage = 36.51, SD age = 10.28; 71% White; 77% a bachelor's degree or higher; all residing and working in the U.S.) participated in the experiment in exchange for \$2.50. Among them, 34% held mid-manager or higher positions. 15% were employed in education, 14% in health and medical services, and 7% in IT.

Procedure and Measures

At the beginning of the experiment, participants were told that they would engage in a workplace interaction simulation. Following prior research (Soda et al. 2018), to immerse participants in vignettes, we asked them to recall and nominate (using initials or nicknames) two work contacts from among their coworkers, managers, subordinates, and customers. In the *tertius iungens* and *tertius separans* conditions, participants recalled two work contacts who were not acquainted with each other. Participants in the control condition recalled two work contacts who were acquainted with each other.

Brokering Manipulation. Next, participants were asked to imagine that they were working with the two nominated work contacts in a newly merged firm (see the online supplement for the full vignettes). We manipulated brokering type as follows. In the *tertius separans* condition, participants served as the primary barrier between the two unacquainted coworkers by keeping them apart. In the *tertius iungens* condition, participants served as the primary matchmaker between the two unacquainted coworkers by bringing them together. In the *control* condition, participants interacted with the two acquainted coworkers, in other words, in closure. To make participants immersed in the work situation, we asked them to write a short essay concerning what they would do to bring the coworkers together [keep the coworkers apart] [collaborate with the coworkers], and how they would feel during and after the

process. Previous research has used a similar approach to strengthen the manipulation (e.g., Galinsky et al. 2003).

Manipulation Check. As a manipulation check, we included seven items (see the online supplement for complete items), taken from existing scales, to measure *tertius separans* and *tertius iungens* brokering behaviors. Participants self-reported their *tertius iungens* brokering, using the four items ($\alpha = .93$) adapted from the *tertius iungens* scale (Obstfeld 2005), similar to what we used in Study 2: e.g., “In the situation, I introduced [Person A] and [Person B] to each other.” Participants reported their *tertius separans* brokering, using the three items ($\alpha = .95$) adapted from the Separation Orientation Scale (Grosser et al. 2019): e.g., “I maintained separation between [Person A] and [Person B].” In addition, we added three items ($\alpha = .83$) to measure participants’ activities in closure: e.g., “[Person A] and [Person B] and I knew each other before the merger.” All items were measured on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree).

Burnout. We measured burnout using the same thirteen items ($\alpha = .98$) as in Study 2.

Abusive behavior. Next, participants imagined themselves in another work situation where one of their subordinates made the same type of mistake repeatedly. Participants indicated the extent to which they would engage in abusive behavior toward the person (1= not at all to 7 = very much). We adapted the eight items ($\alpha = .92$) from the abusive supervision scale (Tepper 2000) to measure behavioral intentions.¹³

Results

Manipulation Check. We ran a set of one-way (brokering type: *tertius separans*, *tertius iungens*, and control) analyses of variance (ANOVAs) on three manipulation check items, respectively. The main effect of brokering type was significant in all analyses ($F_s > 112.66$, $p_s < .01$). As shown in Table 5,

¹³ The mean score of abusive behavior was between 2.02 and 2.41. We speculate that social desirability response bias (Van de Mortel 2008) might have played some role as we used self-reported measures of abusive behavior across studies. Abusive behavior is considered a low base-rate phenomenon (Tepper 2007), and the mean scores of abusive behavior in our data are consistent with prior research (see Mackey et al. 2017 for a meta-analysis of the scale)

simple effects analyses showed that our manipulations were effective. For example, the higher score of participants in the tertius separans condition indicated that they tended to keep the two coworkers apart in the work scenario more than was the case for participants in the tertius iungens and the control conditions.

----- Insert Table 5 about here -----

Hypothesis 1 Testing. Hypothesis 1 predicts that those who engage in tertius separans brokering will experience more burnout than those who engage in tertius iungens brokering. This hypothesis was supported. A one-way ANOVA showed a main effect of brokering type on burnout, $F(2, 270) = 62.95$, $p < .01$, $\eta_p^2 = .32$. Simple effects analyses (see Table 5 for mean scores by condition) showed that participants' burnout in the tertius separans condition ($M = 4.75$, $SD = 1.55$) was higher than in the tertius iungens condition ($M = 2.51$, $SD = 1.66$), $p < .01$ (95% CI for difference: 1.78, 2.70). Burnout in the tertius separans condition was also higher than in the control condition ($M = 2.35$, $SD = 1.48$), $p < .01$ (95% CI for difference: 1.93, 2.86). The levels of burnout in the tertius iungens and control conditions were not significantly different, $p = .49$ (95% CI for difference: -0.29, 0.61).

Hypothesis 2 Testing. Hypothesis 2 states that tertius separans brokering, relative to tertius iungens brokering, increases brokers' subsequent abusive behavior as a result of a higher level of burnout.

To test Hypothesis 2, we ran a mediation analysis with 10,000 resamples to calculate bootstrapped 95% CIs for the indirect and direct effects of tertius separans brokering on abusive behavior via burnout (Hayes 2017: Model 4). As Hypothesis 2's prediction focuses on examining the comparative indirect effect of tertius separans (vs. tertius iungens brokering) on abusive behavior, we conducted a mediation analysis on the subsample ($n = 181$) excluding those in the control condition. As depicted in Figure 4 and Table 6, the indirect effect (effect size = 0.67, $SE = 0.18$, a 95% bootstrapped CI: 0.32, 1.04) of tertius separans brokering on abusive behavior via burnout was significant. But the direct effect of tertius separans brokering on abusive behavior was not significant (effect size = -0.31, $SE = 0.21$, a 95% bootstrapped CI including zero).

----- Insert Figure 4 and Table 6 about here -----

Sensitivity analyses for the mediation. One aim of Study 3 was to examine causal evidence of the relationship between tertius separans brokering and abusive behavior mediated by burnout. However, recent research (Hayes and Preacher 2014, Imai et al. 2011) has argued that even mediation analyses on experimental data do not always provide sufficient evidence for causal effects. Consequently, we conducted two additional tests that demonstrate the robustness of our mediation results and the validity of our claim of causal mediation. The details of these robustness checks are available in the online supplement (see Appendix G). The first test is based on the sensitivity analysis proposed by Imai et al. (2010) to account for the absence of randomization of the mediator. The second test focuses on the direction of the mediator-dependent variable relationship using the procedure highlighted by Laghaie and Otter (2020).

Discussion

Replicating the previous results, Study 3 showed that in comparison with tertius iungens brokering, tertius separans brokering increased participants' burnout and their subsequent likelihood of engaging in abusive behavior. Through the experimental design and a set of sensitivity analyses, the study helped provide evidence for the casual relationships that we theorized. Simple effects analyses showed that engaging in tertius iungens brokering, compared with interacting with others in the control condition, did not significantly increase burnout and subsequent abusive behavior. This finding is consistent with our theorizing that the demands associated with brokering unacquainted contacts may be reduced when the contacts interact directly with each other.

General Discussion

The three studies presented in this paper provide substantial empirical support, across different methods, measurement techniques, and empirical contexts, for the idea that employees who engage in tertius separans brokering, relative to tertius iungens brokering, experience higher levels of burnout, with a subsequent increase in abusive behavior. In Study 1, our dynamic analyses of five months of email data showed that the more employees at a South American university engaged in tertius separans brokering behavior (relative to tertius iungens brokering), the more they suffered from burnout at the end of the

five-month period and the more they displayed abusive behavior. In Study 2, we used time-separated data to test the relationships between the two types of self-reported brokering behaviors, burnout, and subsequent abusive behavior toward coworkers. For full-time employees based in the U.S., we found that people reported higher levels of burnout on days during which they engaged in *tertius separans* versus *tertius iungens* brokering; and this burnout led to higher levels of abusive behaviors toward their coworkers on the day that followed the reported burnout. Although causality is difficult to establish in network research given the multiple challenges of endogeneity (Borgatti et al. 2014, p. 20), in Study 3, we used an experimental design to identify the causal relationships between *tertius separans* brokering, burnout, and abusive behavior. We found that people assigned to the *tertius separans* brokering condition, relative to the *tertius iungens* brokering condition, reported higher levels of burnout and subsequently indicated a greater likelihood of engaging in abusive behavior. The combined results of the three studies support the theoretical model depicted in Figure 1.

Contribution to Theory and Research

Our research articulates the possibility that *tertius separans* brokering entails harm for those engaged in brokering and for those who surround the brokers. Our approach provides a complement to the almost universal emphasis on the positive benefits of brokerage (Halevy et al. 2019). Although the *tertius separans* brokering process has been examined in prior work (Burt 1992, Simmel 1950, Soda et al. 2018) there has been little theoretical or empirical attention to its *negative* effects on brokers. Given the importance of brokerage and brokering for organizations' functioning (Kellogg 2014, Reagans and McEvily 2003, Stovel and Shaw 2012) as well as the notable benefits of brokerage for individuals (e.g., Burt 1992), it is important to understand the potential psychological and behavioral costs of engaging in different types of brokering behaviors. Prior research has alluded to a potential negative side of *tertius separans* brokering, but without providing a clear theory or robust empirical evidence. We provide a theoretical account, and supporting empirical evidence, of the process by which *tertius separans* brokering leads to burnout and subsequent abusive behavior.

We also provide a first attempt to articulate the neglected negative consequences of brokerage for colleagues of brokers (Halevy et al. 2019). In highlighting the negative spillover effects of separans brokering on coworkers via brokers' burnout, we show that the costs of this brokering behavior afflict not only the brokers themselves, but also those colleagues who surround them. Prior research has advanced the notion of social network brokers as informal leaders (Carter et al. 2015) who occupy central coordination roles in organizations (Kleinbaum and Stuart 2014) connecting across unconnected partners (Quintane and Carnabuci 2016). Given their centrality in informal networks, the consequences of brokers' abusive behavior resulting from burning out may ripple across the social structure to damage the morale of many individuals.

Clarifying the link between burnout and abusive behavior contributes to the further examination of the consequences of burnout on observable behaviors (Bakker et al. 2014) beyond well-established health- and work-related outcomes (e.g., withdrawal). Prior research has shown that exhaustion and drained resources lead to aggressive (Liu et al. 2014), abusive (Lam et al. 2017), and deviant behaviors (van Jaarsveld et al. 2010), but this research has tended to focus on exhaustion, which is only one of the dimension of burnout (Bakker et al. 2014). Overall, therefore, our research identifies the negative consequences of brokering on focal individuals and those they engage with; we extend the JD-R framework into the realm of informal roles, and we contribute to burnout theory and research a new focus on interpersonal relationships.

Finally, building on recent calls to move beyond WEIRD¹⁴ sources of data (Henrich et al. 2010, Kitayama 2017) we obtained evidence for our theory from different cultural contexts, including a mid-income developing country. Recent research also shows that empirical results are sensitive to measurement and analytical choices (Schweinsberg et al. 2021). Our three studies use different empirical designs, data sources, and measurements for our main variables. Our analytical choices also were tested using robustness checks (see online Appendix D). The triangulation of empirical evidence is important to

¹⁴ Individuals from Western, educated, industrialized, rich, democratic backgrounds (Henrich et al. 2010 p. 61).

demonstrate that our results do not depend on a specific form of measurement and can be generalized to other organizations and cultural contexts. However, each study required us to develop a measurement strategy internally consistent with the data structure and the empirical context. This leads to some differences between the studies, notably in the measurement of the independent variable. Our strategy has been to prioritize the internal consistency of each study while providing a sufficient overlap across studies to ensure that the results are comparable such as creating an index measure in Study 2 for compatibility with Study 1 (see online Appendix E for details).

Limitations and Future Directions

We stressed the psychological costs of engaging in *tertius separans* brokering but did not address the possibility that the activity of keeping parties apart in pursuit of organizational effectiveness may, under some circumstances, psychologically benefit actors and their alters. For example, community health workers with low expertise and weak professional identity experienced enhanced status when they engaged in *tertius separans* brokering roles between doctors and lawyers (Kellogg 2014) as they performed vital buffering work between professionals. This leads to the question of whether some individuals, relative to others, flourish in the *tertius separans* brokering role, experiencing mastery over the role in ways that are valuable to their organizations and to themselves. It also raises the question of whether some brokers may be able to use the informational and performance benefits provided by engaging in *tertius separans* as resources that would buffer the demands associated with their brokering activity. Future research could provide additional insights into these possibilities.

One unanswered question in our research is whether brokers who engage in both types of brokering (e.g., Long Lingo and O'Mahony 2010) might be protected against burnout compared to brokers who engage primarily in *tertius separans* brokering. Our test of this idea in Study 2, by interacting *tertius separans* and *tertius iungens* on burnout, proved nonsignificant, which suggests that engaging in parallel in both types of brokering would not help brokers engaging in *tertius separans* brokering to avoid experiencing burnout. The increase in demands and loss of resources associated with engaging in *tertius separans* may have a stronger effect on brokers' burnout compared to resource gains associated with

tertius iungens (Hobfoll and Lilly 1993). However, this does not eliminate the possibility that engaging sequentially between tertius separans and tertius iungens could allow tertius separans brokers to recover resources and thereby avoid the burnout that threatens their psychological well-being as well as that of their subordinates. Indeed, recent work shows that brokers gain advantage by periodically removing themselves from the tertius separans role in order to cluster within cohesive groups thereby enhancing their reputations and building trust (Burt and Merluzzi 2016).

In this study, we did not distinguish between tertius separans and go-between brokering that involves the transfer of information between disconnected parties (theoretically similar to Grosser et al. (2019)'s mediation brokerage; Obstfeld et al (2014)'s conduit brokerage). In terms of observable behaviors, tertius separans and go-between brokering behavior are indistinguishable as brokers bridge disconnected alters in both cases. Future research could explore in detail the patterns of interactions between brokers and alters to see if separans brokering and go-between brokering have different effects on brokers and their alters. Future research could also investigate brokers' intentions to see if these affected outcomes. For example, tertius separans brokering behavior with a pro-social motive may lead to lower levels of burnout than the same brokering behavior with selfish motives because prosocial motives are likely to provide brokers with psychological resources such as feelings of achievement and satisfaction from reaffirming a positive self-view. Future research can look into the role of brokers' motives as a potential moderator that affects the link between brokering behaviors and burnout.

Finally, the research design of Studies 1 and 2 does not eliminate the possibility that an omitted variable may affect both tertius separans behavior and abusive behavior. For example, the Machiavellianism personality trait has been found to be related to the separation brokering orientation (Grosser et al. 2019) and this personality trait is also likely to lead to abusive behavior (e.g., De Hoogh et al. 2021). Although the experiment in Study 3 provided support for our theorized model, future research might benefit from measuring the personality traits of brokers to gain a better understanding of the role of personality in the relationship between brokering, burnout, and abusive behavior.

Practical Implications

Brokering across structural holes is a high risk, high rewards activity. Given the strategic importance of brokers in organizations, our findings suggest that employees and managers should be aware of the potentially negative effects of tertius separans brokering on brokers and their contacts. Much brokering behavior is relatively invisible, connecting as it does across the gaps in social structure. Managers may have to be particularly astute in noticing and providing resources for brokering behavior, particularly in the case of those tertius separans brokers who bridge gaps in the service of organizational goals.

A way to subdue the negative consequences of tertius separans brokering could be to buffer brokers from burnout by providing them with opportunities to periodically disengage so that they can replenish their psychological resources. Individuals who oscillate back and forth between brokering behavior and engagement within closed networks may be more effective in their work than individuals who solely pursue either brokerage or closure (Burt and Merluzzi 2016) in part because they are able to avoid the negative psychological consequences related to the pressures of their informal role.

Organizations can encourage employees to take a break (Troughakos et al. 2008) after engaging in tertius separans brokering. Organizations can also enable brokers to understand the prosocial impact of their activities (e.g., Grant and Campbell 2007), thereby helping them to replenish depleted resources.

Conclusion

Despite the performance benefits associated with brokering across structural holes, our findings suggest that engaging in brokering behaviors may come at a cost to the brokers and to those who interact with them. Importantly, different types of brokering behavior are likely to be experienced quite differently by the brokers and by organizational colleagues who interact with brokers. If there is one overarching message from the current research it is that engaging in tertius separans brokering puts the broker at an increased risk of burnout and subsequent abusive behavior toward others in the workplace.

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Table 1. Study 1: Descriptive Statistics and Correlations

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Gender	0.59	0.49						
2. Age (years)	45.25	9.83	-.13**					
3. Job status	0.56	0.50	.04	.27**				
4. Brokerage position	0.86	0.08	.08**	.09**	.09**			
5. Tertius separans brokering ^a	0.57	0.24	.11**	-.02	.03	.44**		
6. Burnout	0.61	0.30	.01	-.08**	.00	.12**	.11**	(.90)
7. Abusive behavior	1.68	0.63	.03	-.02	.01	.02	-.02	.36** (.84)

Notes. $N = 1,536$ for all variables except for abusive behavior where $n = 1,433$. Cronbach alphas are indicated in parentheses where applicable. Gender: 1 = female, 0 = others. Job status: 1 = permanent, 0 = others. Two-tailed tests.

^aTertius separans brokering relative to tertius iungens brokering.

** $p < .01$

Table 2. Study 1: OLS Regressions of Tertius Separans Brokering Behaviors on State Burnout and Abusive Behavior

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Outcome		Burnout		Abusive Behavior	
Tertius separans brokering ^a	0.14** (0.02)		0.08** (0.02)	-0.15* (0.07)	-0.13 (0.08)
Burnout				0.76** (0.06)	0.79** (0.06)
<i>Control variables</i>					
Brokerage position		0.35** (0.09)	0.25* (0.10)		0.04 (0.21)
Gender		-0.002 (0.02)	-0.01 (0.02)		0.04 (0.03)
Age		-0.01** (0.001)	-0.004** (0.001)		0.003 (0.002)
Job status		0.06** (0.02)	0.06** (0.02)		-0.05 (0.04)
Rank		Included	Included		Included
Education		Included	Included		Included
School		Included	Included		Included
Hospital		Included	Included		Included
Occupation		Included	Included		Included
Campus		Included	Included		Included
<i>Constant</i>	0.53** (0.01)	0.35** (0.14)	0.40** (0.14)	1.29** (0.05)	1.42** (0.31)
<i>R</i> ²	0.01**	0.07**	0.07**	0.13**	0.16**
<i>Df</i>	[1, 1534]	[22, 1513]	[23, 1512]	[2, 1430]	[24, 1408]
<i>N</i>	1,536	1,536	1,536	1,433	1,433

Notes. Table presents unstandardized beta coefficients. Robust standard errors are in parentheses. Two-tailed tests.

^a tertius separans brokering relative to tertius iungens brokering.

* $p < .05$; ** $p < .01$

Table 3. Study 2: Descriptive Statistics and Correlations

	<i>Mean</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	
1. Gender	0.45	0.50											
2. Age (years)	36.68	10.90	-.09										
3. Race	0.70	0.47	-.04	.25**									
4. Education	0.70	0.46	.02	.06	-.05								
5. Rank	0.31	0.46	-.14*	.31**	-.02	.21**							
6. Organization size	0.39	0.49	-.06	-.06	-.07	.07	-.09						
7. Tenure	5.87	5.67	-.11	.49**	.18**	.07	.25**	.07					
8. Tertius iungens brokering	2.77	1.43	.003	-.15*	-.10	.01	.12	-.07	-.12	(.94)			
9. Tertius separans brokering	2.12	1.45	-.01	-.14*	-.17*	.06	.16*	.001	-.001	.60**	(.93)		
10. State burnout	3.06	1.45	.10	-.19**	.03	.10	.02	.02	.02	.28**	.42**	(.96)	
11. Abusive behavior	1.59	1.14	-.03	-.13*	-.17**	.07	.19**	-.02	-.04	.53**	.67**	.41**	(.96)

Notes. $N = 242$. Cronbach alphas are indicated in parentheses where applicable. Gender: 1 = female, 0 = others. Race: 1 = white, 0 = others. Education: 1 = undergrad degree or higher, 0 = others, Rank: 1 = mid-or senior positions, 0 = others, Organization size: 1 = 500 employees or more, 0 = smaller. Two-tailed tests.

* $p < .05$; ** $p < .01$

Table 4. Study 2: OLS Regressions of Tertius Separans and Tertius Iungens Brokering Behaviors on State Burnout and Abusive Behavior

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Outcome	State Burnout					Abusive Behavior				
Tertius iungens brokering	0.28** (0.06)		0.04 (0.07)		0.27** (0.06)		0.04 (0.07)		0.16** (0.05)	0.15** (0.05)
Tertius separans brokering		0.42** (0.06)	0.40** (0.07)			0.43** (0.06)	0.41** (0.07)	0.47** (0.04)	0.38** (0.05)	0.35** (0.05)
State burnout								0.13** (0.04)	0.12** (0.04)	0.15** (0.04)
<i>Control variables</i>										
Gender				0.18 (0.19)	0.17 (0.18)	0.16 (0.17)	0.16 (0.17)			-0.05 (0.11)
Age				-0.04** (0.01)	-0.03** (0.01)	-0.02* (0.01)	-0.02* (0.01)			-0.002 (0.01)
Race				0.19 (0.20)	0.24 (0.20)	0.37* (0.18)	0.36* (0.18)			-0.14 (0.12)
Rank				0.22 (0.22)	0.07 (0.21)	-0.03 (0.20)	-0.04 (0.20)			0.23 (0.13)
Education				0.28 (0.20)	0.29 (0.20)	0.23 (0.18)	0.24 (0.18)			0.01 (0.12)
Organization size				-0.03 (0.19)	0.01 (0.18)	-0.03 (0.17)	-0.02 (0.17)			0.01 (0.11)
Tenure				0.03 (0.02)	0.03 (0.02)	0.02 (0.02)	0.02 (0.02)			-0.01 (0.01)
Industry				Included	Included	Included	Included			Included
Constant	2.28** (0.20)	2.16** (0.15)	2.11** (0.19)	3.64** (0.38)	2.62** (0.44)	2.28** (0.39)	2.21** (0.42)	0.21 (0.13)	-0.02 (0.14)	0.12 (0.29)
R ²	0.08	0.18	0.18	0.11	0.18	0.28	0.28	0.47	0.49	0.51
Df	[1, 240]	[1,240]	[2,239]	[10,231]	[11,230]	[11,230]	[12,229]	[2,239]	[3,238]	[13, 228]
Overall F	19.69**	52.01**	26.05**	2.84**	4.50**	8.01**	7.34**	103.81**	75.97**	18.50**

Notes. $N = 242$. Unstandardized regression coefficients are displayed with standard errors in parentheses. Two-tailed tests.

* $p < .05$; ** $p < .01$

Table 5. Study 3: Mean Scores of the Variables by Condition

Variable	Tertius separans (<i>n</i> = 83)	Tertius iungens (<i>n</i> = 98)	Closure (<i>n</i> = 92)
Tertius separans manipulation check	6.65 _a (0.62)	2.08 _b (1.51)	2.22 _b (1.52)
Tertius iungens manipulation check	1.71 _a (1.28)	6.36 _b (0.60)	4.71 _c (1.14)
Closure manipulation check	3.00 _a (1.82)	4.05 _b (1.60)	6.29 _c (0.93)
Burnout	4.75 _a (1.55)	2.51 _b (1.66)	2.35 _b (1.48)
Abusive behavior	2.41 _a (1.31)	2.06 _b (1.17)	2.02 _b (1.13)

Notes. *N* = 273. Standard deviations are in parentheses. Means in the same row that do not share the same subscript(s) are significantly different from one another at $p < .05$. Two-tailed tests.

Table 6. Study 3: Hierarchical regressions of Tertius Separans Brokering Behaviors on Burnout and Abusive Behavior

Variables	Step 1	Step 2
Outcome	Burnout	Abusive Behavior
Tertius Separans brokering	2.24** (0.24)	-0.31 (0.21)
Burnout		0.30** (0.05)
Constant	2.51** (0.16)	1.31** (0.18)
R^2	0.33	0.17
Overall F	$F [1,179]$ = 86.22**	$F [2,178]$ = 18.17**

Notes. $n = 181$. Standard errors are in parenthesis.

^atertius separans brokering (vs. tertius iungens brokering).

** $p < .01$.

Figure 1. Theoretical Model

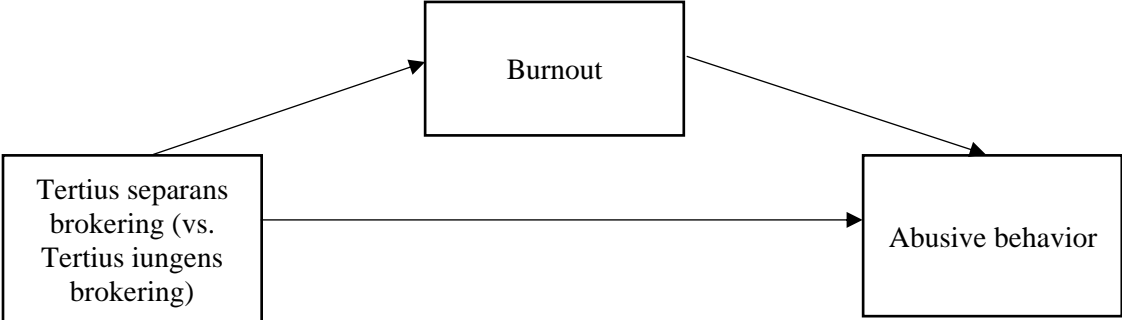
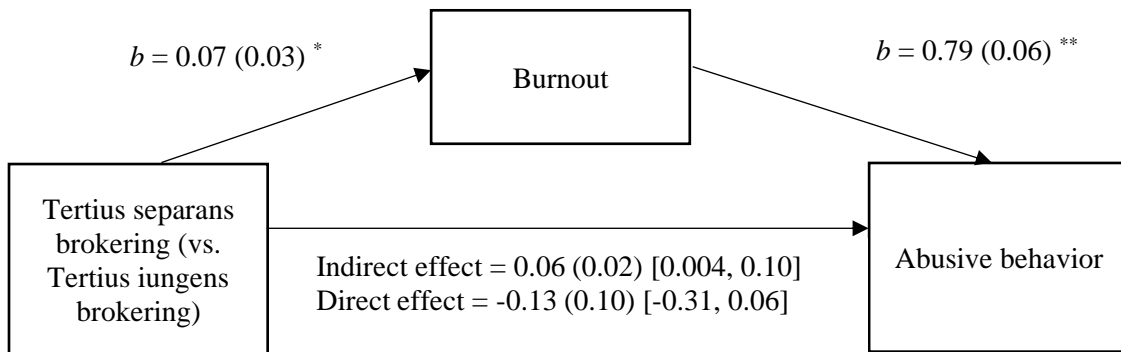


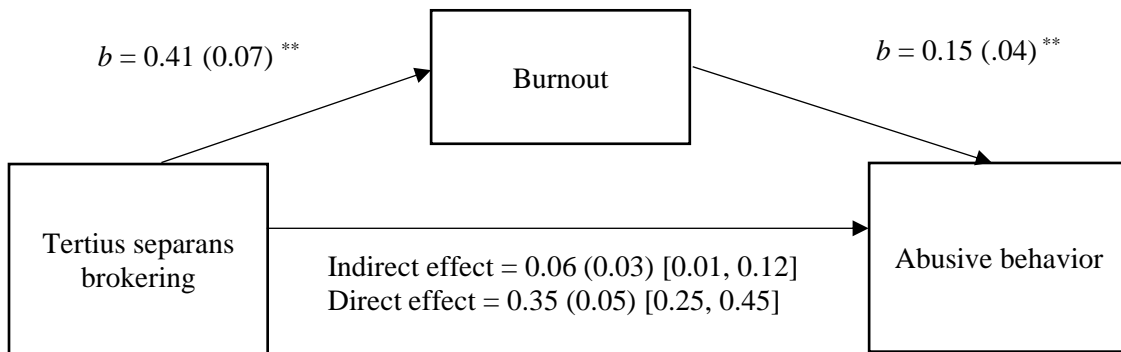
Figure 2. Study 1: The Relationship between Tertius Separans Brokering and Abusive Behavior as Mediated by Burnout



Notes. $N = 1,433$. Unstandardized coefficients are presented with robust standard errors in parentheses and 95% confidence intervals in brackets. The model includes the same control variables as in the regression model in Study 1: gender, age, job status, rank, education, occupation, locations, brokerage position.

* $p < .05$; ** $p < .01$

Figure 3. Study 2: The Relationship between Tertius Separans Brokering and Abusive Behavior as Mediated by Burnout

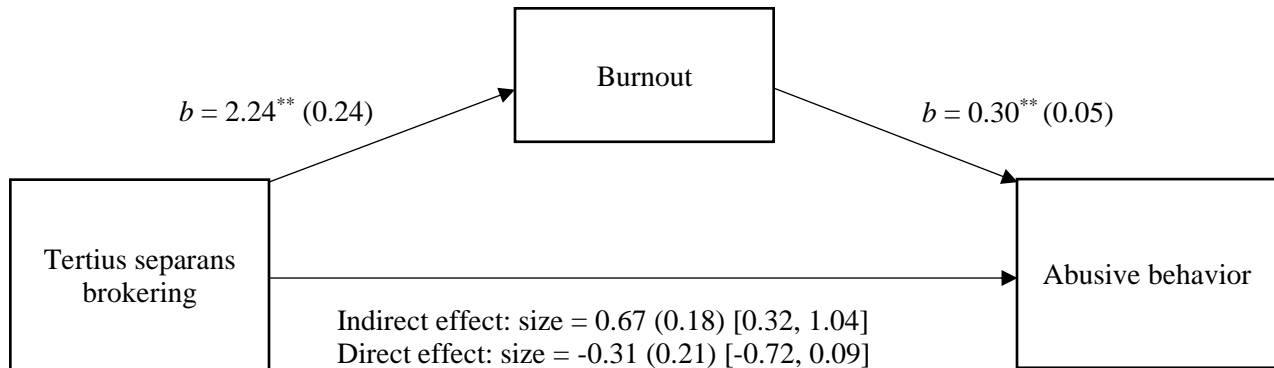


Notes. $N = 242$. Unstandardized coefficients are presented with standard errors in parentheses and 95% confidence intervals in brackets. The model includes the same control variables as in the regression model in Study 2: gender, age, race, rank, education, organization size, tenure, industry, as well as tertius iungens.

** $p < .01$.

Figure 4. Study 3: The Relationship between Tertius Separans Brokering and Abusive Behavior as Mediated by Burnout

We used the subsample (excluding those in the control condition) in this analysis to examine whether and how the comparative effect of TS (vs. TI) brokering behavior on abuse would be mediated by burnout. Supporting Hypothesis 2, the indirect effect (effect size = 0.67, $SE = 0.18$) of burnout was significant whereas the direct effect of TS brokering was not significant (effect size = -0.31, $SE = 0.21$, $p = .13$).



Notes. $n = 181$ (excluding the control condition). 95% confidence intervals in brackets. Unstandardized coefficients are presented with standard errors in parentheses and 95% confidence intervals in brackets. Tertius separans brokering was dummy coded (1 = tertius separans, 0 = tertius iungens brokering)

** $p < .01$.