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Work-Related Rumination and Co-Rumination: An Interdisciplinary Perspective

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Supervisor: Prof. Dr. Christiane Schwieren

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1. General Introduction

1.1 Research Background

Research shows that almost 62% of US employed adults believe work as a major source of stress in their lives (American Psychological Association, 2020), and the latest Eurofound's European Working Conditions Survey (EWCS; Eurofound, 2022b) shows that almost one third of European workers report that work is risking their health and well-being. Well-being risks and work-related stress are indeed significantly costly to the employees, their organizations, and their families. A study by Hassard and colleagues (2018) estimated the total cost of stress per working person to range from $ 17.79 to a striking $ 1,211.84, and research consistently underscores that diminished employee mental health correlates with increased turnover and decreased performance (e.g., Page & Vella-Brodrick, 2009). These figures come in line with the notable increase in the number of studies addressing the mental health and well-being of employees. Indeed, there is a large body of research advocating the kind of HR policies and practices organizations can employ to promote workplace well-being (Guest, 2017), and numerous studies have explored organizational and institutional factors that can support employees' mental health (for a review, see Khalid & Syed, 2023). Similarly, organizations have opted for leveraging employee well-being through, for example, investing in mental health interventions (e.g., Coppens et al., 2023), implementing well-being improvement programs, and fostering organizational cultures supportive of employee well-being (e.g., Hamar et al., 2015).

Nonetheless, employees as well play a crucial role in protecting their own mental health and well-being (Bakker & de Vries, 2021). In fact, employees should not be viewed as merely passive reactors to workplace conditions; rather, they play an active role in shaping their working environment (Bakker & Demerouti, 2018). Indeed, researchers suggest that employee well-being is influenced by both personal and situational conditions (Illies et al., 2015). Self-initiated actions such as job crafting, self-goal setting and meditation have been proposed as means for preventing one's health and well-being (Bakker, 2017). In fact, a systematic review of 341 of studies on employee well-being, shows a growing interest in individual factors that influence employees' mental health and well-being (Khalid & Syed, 2023). One such individual factor, however, is emotion regulation (ER).

ER has been argued to constitute a process by which individuals control and manage their emotions (Gross, 1998, p. 275), and that this process maybe conscious or unconscious (Koole, 2009). Work on ER largely stems from psychology research, but the topic has recently gained interest among organizational scholars. In work setting, researchers focus on studying how employees regulate their emotional responses to stressful work situations (e.g., Diefendorff et al., 2008; Powers & Myers, 2020); because how well employees regulate their emotions can have significant implications for both the employees and the organizations where they work (Troth et al., 2018). Indeed, a prominent emotion regulation theory, the response styles theory (RST), underlines the importance of one's response to stress, arguing that stress responses may increase, decrease or maintain the feeling of one's

distress (Nolen-Hoeksema, 1991). The current dissertation aims to study one important response style to work stress, namely, rumination.

According to RST, rumination involves the "behaviours and thoughts that focus one's attention on one's depressive symptoms and on the implications of these symptoms." In organizational setting, when ruminating about stressful work events, employees have consistent and recurrent thoughts about these work events (Cropley & Zijlstra, 2011). Employees may ruminate about an event that already happened at work or an upcoming future goal they need to achieve (Cropley et al., 2016). Rumination has been linked to various health outcomes, including sadness (Dickson, et al., 2012), anxiety (Watkins, 2008), depression (Treynor et al., 2003), sleep impairment (Querstret & Cropley, 2012; Demsky et al., 2019), less helping behaviour towards colleagues (Calderwood et al., 2018), emotional exhaustion, customer sabotage and reduced well-being and job performance (Baranik et al., 2017).

1.2 Research Gaps

Despite such findings, to date, research on work-related rumination still involves significant gaps. For example, conceptualization and operationalization of work-related rumination is inconsistent among scholars (Weigelt et al., 2023), and researchers have mostly zoomed in on only one aspect of work-related rumination, namely affective rumination. In addition, how the different manifestations of work-related rumination compare against each other in relation to their associations with employee well-being remains obscure. Indeed, and up to our knowledge, there is a lack of research simultaneously examining the different manifestations of work-related rumination, although such practice can help us understand when can work-related rumination be an effective emotion regulation strategy, and when it can turn against one's well-being.

Further, while few studies (e.g., Boren, 2014; Haggard et al., 2018; Marmenout 2011; Knipfer & Kump, 2022) have shown that work-related rumination can take a social form when the distressed employee discusses their problems repeatedly and excessively with others, yet investigation of such work-related interpersonal manifestation of rumination, known as co-rumination, has gained modest attention from organization scholars (Haggard et al., 2018). This is quite surprising, given that co-rumination has been shown to associate with severe work outcomes, such as increased burnout (Boren, 2014) and decreased job satisfaction (Haggard et al., 2011). In addition, with the available research on work-related co-rumination, little is known about the effects of co-rumination on those who listen to the ruminative conversation of their distressed co-worker, despite the recent findings which suggest that co-rumination outcomes vary as a function of whether a person is disclosing or responding in a co-ruminative conversation (Tudder et al., 2023). Another gap in the existing literature on work-related co-rumination is that the studies available are only based on cross-sectional data, which makes it impossible to conclude causal relationships between co-rumination and the examined variables of interest.

1.3 The Projects

In response to these shortcomings, this thesis follows an interdisciplinary approach to reviewing the existing literature on rumination in diverse fields (e.g., clinical psychology, developmental psychology and organizational behavior) to come up with a new conceptualization of work-related rumination. In addition, this thesis integrates the different views of rumination to test the differential effects of various forms of work-related rumination on employee well-being. The current work, thus, aims at answering three important questions:

1. How does existing organizational literature conceptualize work-related rumination and how can we extend this conceptualization to include the much broader understanding of rumination offered by psychologists?
2. How do the various manifestations of work-related rumination differentially associate with employees' well-being?
3. Can the effects of work-related rumination extend to individuals other than the ruminating employee? If so, how?

To answer these three questions, we undertake three projects. The first project (Chapter 2) represents a conceptual work, in which we aim to bring together two largely separate strands of research on rumination from the organizational behavior and the developmental psychology literatures and to offer a typology for classifying work-related rumination based on the content and context of rumination about work. This typology helps us track the various manifestations of rumination as highlighted by different research fields and facilitates the realization of commonalities and differences across these fields regarding how they view rumination. This, in turn, enables the creation of a clear understanding of work-related rumination and its unique sub-types, which helps us answer our first research question.

In the second project (Chapter 3), myself and Professor Jan Rummel challenge the assumption that work-related rumination hinders employee well-being. Specifically, we investigate four different subtypes of work-related rumination, and we compare how they differentially relate to employee well-being both at work and at home by considering how these subtypes associate with employees' affect, burnout and work-interference with family. In clinical psychology, Bastin et al. (2014) extended the affective and cognitive components of intrapersonal rumination to its interpersonal manifestation. Our research starts at this point. Specifically, just as interpersonal rumination may take brooding and reflective forms outside work, we propose that this holds true for interpersonal rumination about work problems. We compare between the diverse forms of work-related rumination and how they differentially relate to employee well-being, with the aim of identifying if work-related rumination can sometimes be beneficial. We also test how indulging in work-related rumination may vary according to gender, work setting and country. Towards these aims, we conduct a survey study including a sample of employees working in one Western country and one Eastern country. As hypothesized, we found that not all forms of work-related rumination are detrimental to employee well-being; in fact, some forms

of rumination may enhance employees' perceived well-being. In addition, we found that the level of work-related rumination varies according to the gender and country of the employee. This project sheds light on the possibility that work-related rumination may indeed have positive outcomes, provided that employees' rumination is rather reflective.

In the third project (Chapter 4), myself and Professor Christiane Schwieren challenge the presumed positive well-being outcomes of social support, by exploring one form of social support: co-rumination. Though research has previously investigated effects of co-rumination in the workplace, yet there has always been a consistent focus on the person initiating the co-ruminative conversation, with little, if any, concern drawn towards the listener. Thus, in this project, we take a novel approach to simultaneously examine the intra- and inter-individual well-being effects that the listener might experience when being exposed to co-rumination conversations. An intra-individual approach enables us to examine the changes in well-being from one instance to the other within the same person (Illis et al., 2015). In our study, this approach helps us conduct within-person analysis of potential changes in employees' affect, organizational satisfaction and commitment as well as co-worker closeness after being exposed to one specific form of co-ruminative content. The inter-individual approach is then used to elucidate if different co-ruminative content results in varying post-test outcomes, which is reflected in between-person analysis. Results from this study show that co-rumination has significant effects on listeners' well-being, and that these effects vary according to the content of the co-ruminative conversation as well as the gender composition of the dyad.

1.4 The Guiding Principles

Noteworthy, this thesis follows three guiding principles: (1) reliance on the refined response styles theory and its connotations, (2) the multidimensionality of well-being, and (3) following an interdisciplinary approach to literature review. First, the three projects presented in this dissertation are based on the Response Styles Theory which suggests that one's response style to distress will determine whether their stress level is maintained, aggravated or diminished (Nolen-Hoeksema, 1991), and that rumination is a "response style" to distress, characterized by prolonged activation of cognition in response to an external threat. Nolen-Hoeksema (1987) originally argued that a ruminative response style focuses one's attention on their negative mood rather than active actions that may eliminate this mood (Nolen-Hoeksema, 1987), but has later refined her theory to distinguish between two components of rumination: brooding and reflection (Treynor et al., 2003). This perspective has also been adopted by organizational researchers who distinguish between the two components of rumination, naming these as affective and cognitive rumination. Our arguments in the coming three projects (Chapters 2, 3, 4) rely on such understanding of rumination to prove that employees can indeed reap well-being benefits from their ruminative response style to distress- if they just direct their focus to be more reflective.

The second connection between the projects, which is more apparent in Chapters 3 and 4, is that they are directed towards the aim of understanding how work-related rumination can have diverse effects on employee well-being; and for such quest, we hold a

multi-dimensional perspective of employee well-being. Specifically, decades of research on employee well-being resulted in a multi-dimensional view of the concept. For example, Illies et al. (2015) conceptualize employee well-being (EWB) as encompassing (1) employees' subjective job evaluations and emotions, (2) quality of their psychological experiences while at work, (3) the detrimental effects that excessive work demands can have on employees and (4) the influences that experiences and evaluations from the work domain have on employees' broader life experiences and evaluations. In their review of relevant EWB literature, Pagán-Castaño and colleagues (2020) also support the multidimensionality of employee well-being, arguing for three types of well-being at work, including (1) happiness well-being, which includes indicators such as emotional and psychological well-being, satisfaction and engagement; (2) health-related well-being, indicating for aspects such as burnout and stress; and (3) relationship well-being, referring to the quality of employee's relationship of interactions between employees, employees and supervisors or the organization. Therefore, one can conclude that employee well-being is a multidimensional construct, that encompasses psychological, health and social dimensions- and that is the view we adopt in this thesis. For example, in Chapter 2, we create a typology of work-related rumination with the aim of identifying, synthesizing and classifying the different forms of work-related rumination and suggesting that rumination can have different effects on employee well-being, depending on the level and content of rumination. Thus, in this thesis, we adopt the multidimensionality of employee well-being. In Chapter 3, we rely on the three indicators, employees' affect, burnout and work-interference with family, to account for the subjective, mental and social well-being outcomes of work-related rumination, respectively. In Chapter 4, we assume employee well-being to be a function of affect, organizational satisfaction, commitment, and perceived closeness to others.

The third, and final, connection between the three projects is the interdisciplinary literature we rely on to support our arguments. Besides using literature from organizational behavior and organizational psychology, much of our literature in the three projects relies on studies and findings from diverse fields such as clinical psychology, developmental psychology and health psychology. This is majorly because rumination has been extensively studied in such fields at a greater length and using deeper levels of analysis than is the current case of organizational psychology. This is not surprising since the notion originally comes from developmental psychology, and is primarily based on the works of clinical psychologist Suzan Nolen-Hoeksema who developed the response styles theory (RST; 1987) to explain how rumination can explain the gender differences in depression (Nolen-Hoeksema, 1991). Accordingly, our bibliographic sources in the three projects are not confined to organizational literature but also extends to include literature from various disciplines.

2. A Typology of Work-Related Rumination

Abstract

Work-related rumination refers to the excessive negative thinking about work problems. Previous research in organizational psychology shows that work-related rumination can be directed towards focusing on one's negative emotions (i.e., affective rumination) or on pondering upon the problem causing the negative event (i.e., problem-solving pondering). In addition, scant literature in organizational psychology argues that rumination can take a social form, where two or more members of the organization, dyadically or collectively, excessively discuss together work problems. Although researchers have, in-depth, examined intrapersonal work-related rumination and, to a much lesser extent, interpersonal work-related rumination, there have been surprisingly few attempts to integrate these two perspectives into a single conceptual framework of work-related rumination. This is important because literature reviews on work-related rumination continue to demonstrate how the outcomes of work-related rumination are ambiguous and inconsistent across studies. Accordingly, in our study, we draw upon existing literature in organizational psychology to develop a comprehensive typology that integrates and extends research on work-related rumination based on the affective-cognitive distinction and the intra- and interpersonal perspective of work-related rumination. As our main contribution, we organize the scant literature regarding work-related rumination, and we conceive a simplified conceptualization of work-related rumination by introducing a model that incorporates the emotional and cognitive aspects, as well as the intra- and interpersonal perspectives of rumination.

Keywords: Rumination, co-rumination, typology, coping

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2.1 Introduction

Intense and negative experiences at work cause stress to employees (Ebstein et al., 2018). How individuals respond to such stress is pivotal, as their response will affect whether this stress will be diminished, sustained or aggravated (Nolen-Hoeksema, 1991). Since organizational life is full of stressful situations, it is important for researchers and practitioners alike to understand which employee responses heighten stress and which can be potentially beneficial. In this paper, we study one response style to work stress, namely, rumination. Rumination is a stress-coping mechanism and is characterized by repetitive and excessive dwelling upon the causes and consequences of stressful situations (Nolen-Hoeksema, Wisco & Lyubomirsky, 2008). Though initially conceptualized as an intrapersonal process, more recently researchers started investigating its social manifestation; specifically, when individuals start sharing the stressful situation repetitively with another person (e.g., Haggard et al., 2011) or within a group (e.g., Marmenout, 2011). Indeed, in the face of distress, people usually like to share their experience with others, rather than going through it alone (Zaki & Craig Williams, 2013).

We specifically focus on rumination for multiple reasons. To begin with, literature reviews on work-related rumination continue to demonstrate how severe the outcomes of this phenomenon can be for employees and their organizations. In fact, work-related rumination has been linked to employees' sleep impairment (Demsky et al., 2019; Querstret & Cropley, 2012), less helping behaviour towards colleagues (Calderwood et al., 2018), emotional exhaustion, customer sabotage and reduced well-being and job performance (Baranik et al., 2017). Yet, despite such findings, efforts to study work-related rumination continue to demonstrate how the concept is viewed, at best, inconsistently and, at worst, ambiguously across researchers. For example, work-related rumination has long been studied as an intrapersonal process that manifests itself in the form of repetitive, excessive thinking of work problems (Cropley & Zijlstra, 2011); however, few research has shown that it can also take a social form. Indeed, as Weigelt and colleagues (Weigelt et al., 2023) have recently came to the conclusion that:

> *"Work-related rumination is studied pursuing disparate lines of research within and across disciplines (Weigelt, Gierer & Syrek, 2019 as cited in Weigelt et al., 2023). This state of affairs makes construct clean-up or more integrated and consistent research efforts within occupational health psychology and across disciplines challenging, if not impossible (Cortina et al., 2020 as cited in Weigelt et al., 2023)"*

Accordingly, we believe that introducing a typology of work-related rumination will help consolidate these different lines of research and integrate them into a single framework of ideal types based on unique characteristics. In such a way, the typology can have both theoretical and practical contributions. In addition to simplifying the concept of work-related rumination and integrating its various dimensions originating from multiple disciplines into one typology that maps to future researchers possible research venues on work-related rumination, the typology can also help practitioners plan for and design effective interventions specifically tailored to each form of work-related rumination. As such,

this paper is structured as follows: First, we define work-related rumination from psychology and organization standpoints. Second, we distinguish between the various perspectives of work-related rumination proposed by researchers along two important aspects: content and context. Third, we develop a typology of work-related rumination. Fourth, we discuss the theoretical and practical implications of such typology.

2.2 Defining work-related rumination

A review of the literature landscape on rumination was used to understand the definition and conceptualization of work-related rumination. In essence, the verb "ruminate" comes from the Latin verb ruminari, which means to chew the cud (Merriam- Webster, 2024). The verb has been defined as repeatedly going over in the mind, often slowly or casually; chewing repeatedly for a long period of time; or engaging in contemplation (Merriam-Webster, 2024). As the definitions imply, research on rumination emanates from various disciplinary areas including child psychology, cognitive therapy, public health, psychiatry, education, gender, organization and management. Still, the concept has been initially conceived by psychologists who conceptualized rumination as a response style to cope with distress (Lyubomirsky & Nolen-Hoeksema, 1993) that it is characterized by perseverative, repetitive and passive attention to one's symptoms of distress and the causes and consequences of such symptoms (Nolen-Hoeksema et al., 2008). When ruminating, individuals remain "fixated on the problems and on their feelings about them without taking action" (Nolen-Hoeksema et al., 2008).

Since the workplace is full of distressing problems, management scholars were interested to identify how rumination about work-related problems can affect employees' mental health. Ruminating about work is indeed a prevailing phenomenon; estimations show that approximately seventy percent of employees ruminate about work issues (Gallie et al., 1998 as cited in Cropley et al., 2016). Accordingly, organizational scholarship conceptualized the term work-related rumination, which refers specifically to "preservative thinking about work during leisure time" (Cropley et al., 2016). Ruminative thoughts are triggered as a response to stressful work situations, such as customer mistreatment (Song et al., 2018), workplace incivility (Vahle-Hinz, 2019) or unfinished tasks (Uhlig et al., 2023). Even when the distressing event that initially triggered rumination might have passed, ruminative thoughts continue to exist and are difficult to get rid of (Du et al., 2018).

Notwithstanding, one distinctive difference between organizational and psychology scholars defining rumination is their time-focus. In organizational research, work-related rumination is usually referring to the preservative work-related thoughts taking place after one's working hours. For example, the work-related rumination measure developed by Cropley & Zijlstra (2011) includes items such as "do you become tense when you think about work-related issues *during your free time*?" and "'I find solutions to work-related problems *in my free time*." Work-related rumination as per this view did not explain how the preservative thinking about problematic aspects of work can also occur during work time, and accordingly, how rumination in these times can affect work-related outcomes was not explored. For instance, Cropley et al. (2016) have shown that work-related rumination

depletes cognitive resources that could otherwise be utilized for completing tasks at hand. They argued that work-related rumination has the potential of increasing work errors or mistakes (Cropley et al., 2016). Despite this, the measures used only tackled rumination about work when not at work. Example items used to test for rumination include "*work rarely lets me go, it is still on my mind when I go to bed,*" and "*as soon as I get up in the morning I start thinking about work problems*" (Cropley et al., 2016). Nevertheless, from an organizational perspective, having employees with sustained negative thoughts about work during work time can be costly. In fact, Dane (2018) posits that mind wandering during work that involves ruminative thinking is likely to compromise overall job performance. In psychology, however, rumination is studied more broadly, without limiting rumination to specific time (e.g., Ruminative Response Scale (RRS); Nolen-Hoeksema & Morrow, 1991; Perseverative thinking questionnaire; Ehring et al., 2011). Example items from the RRS include "I go away by myself and think about why I feel this way" and "I think about how hard it is to concentrate" (Nolen-Hoeksema & Morrow, 1991). One potential explanation might be that psychologists studying rumination are concerned with understanding why and how rumination takes place, whereas organizational scholars are concerned with how rumination specifically precludes the process of recovery from work and how it relates to well-being (e.g., Cropley & Zijlstra, 2011; Demsky et al., 2018; Weigelt et al., 2018). Integrating these two lines of thoughts, we define work-related rumination using the broader definition of work-related rumination to encompass the repetitive and excessive thinking about work problems *after, before or during work time.*

2.3 Developing a typology of work-related rumination

Nonetheless, what is common among scholars in organization and psychology is the shared understanding that individuals may ruminate over various thoughts, and both disciplines have indeed explored diverse types of rumination; however, seldom have they grouped these into a single typology that reflects such ideal, unique types of rumination. With that said, the landscape of research on rumination seems scattered and inconsistent. Indeed, authors suggest that the concept of work-related rumination may be too broad; some argue that work-related thoughts should be distinguished based on purpose: problem-solving versus searching for meaning (Segerstrom et al., 2003), while others have differentiated between constructive versus destructive thoughts, where constructive thoughts interpret events as challenges whereas destructive thoughts are past-driven, worrisome and interpret events as threats (Dane, 2018). Further, research shows that ruminative thoughts can take affective or cognitive forms (e.g., Bastin et al., 2014), and can be manifested in one's intrapersonal thought process (e.g., Cropley et al., 2016) or shared with others in dyadic (e.g., Miller et al., 2020) or collective thinking (e.g., Knipfer & Kump, 2022). However, rarely has research on rumination integrated these perspectives together, and this may explain why rumination has been related to strikingly different outcomes. As such, in the following sub-sections we synthesize these different perspectives and integrate them into a single, comprehensive typology, based on the understanding that ruminating about work problems may vary in the *content* of the thought process as well as the *context* in which thoughts occur.

2.3.1 Content of Work-Related Rumination

Research on the content of work-related rumination is deemed ambiguous, and researchers still operationalize the construct in surprisingly different ways (Weigelt et al., 2019). For example, some researchers use the term rumination broadly to describe the preservative cognition about work-related problems, without specific reference to the content of the ruminative thoughts (i.e., affective vs. cognitive). In such case, items from rumination scales developed by psychologists are used to test for work-related rumination. For example, Song et al. (2018) explored rumination as a maladaptive psychological coping reaction to customer's mistreatment. To test for rumination, they used an 8-item scale by Wang et al. (2013) which was originally adopted from and modified by McCullough et al. (2007) who studied ruminative thoughts about episodes of transgression in undergraduate students. Likewise, Ingram (2015) conceptualized rumination as the repeated pondering of an offence, and measured rumination using items adopted from the Impact of Events Scale (Horowitz et al., 1979).

Conceptualizing work-related rumination as a single construct is problematic in two ways. First, when work-related rumination is dealt with as a single construct, it is often equated with repetitive thinking about only negative experiences such as offence, mistreatment or incivility (e.g., Song et al., 2018; Demsky et al., 2018; Mccullough et al., 2007; Ingram, 2015), disregarding that rumination can include content that is potentially beneficial (e.g., problem-solving pondering). Second, such conceptualization affects authors' choice of possible antecedents and outcomes. Since it is viewed as a negative cognitive process, researchers usually underscore the negative well-being outcomes of rumination and ignore potentially positive ones, by studying, for example, how work-related rumination can potentially harm sleep (e.g., Fritz et al., 2019), illicit negative mood and drive maladaptive shopping (e.g., Song et al., 2018). Accordingly, there is hardly any literature found on the potentially positive effects of work-related rumination. Similarly, the few authors who investigated possible antecedents of work-related rumination have exclusively focused on how rumination can be caused by negative constructs such as psychological contract violation (Ingram, 2015), workplace incivility (Demsky, 2018; Fritz et al., 2019), customer mistreatment (Song et al., 2018) and family hassles (Derks & Bakker, 2018). As such, there is shortage in literature that tackles the positive antecedents and outcomes of work-related rumination. That is, we do not know which aspects of work can potentially illicit the positive content of rumination, and what are the possible positive outcomes of work-related rumination.

Nevertheless, in other instances, researchers test for the same type of work-related rumination, but for which they provide a different terminology. For example, Demsky et al. (2018) study *negative work rumination*, but for which they use the affective rumination subscale developed by Cropley et al. (Cropley et al., 2012). In a similar vein, Vandevala et al. (2017), and as well using Cropley et al.'s (2011) affective rumination subscale, studied *psychological rumination* in intensive care professionals. Perhaps these varied terminologies of the same phenomenon could explain why some researchers (e.g., Weigelt et al., 2023) find the concept of work-related rumination inconsistent across organizational

literature. In addition to this, debates over what should be included or excluded as a facet of work-related rumination continue to date. For example, recent research supports a five-facet model of work-related rumination, including (1) psychological detachment, (2) affective rumination, (3) problem-solving pondering, (4) positive work reflection, and (5) negative work reflection; yet, the same authors suggest that some of these measures can still be used interchangeably (Weigelt et al., 2023).

As such, in the typology we propose in this paper, we attempt to create a more nuanced understanding of the phenomenon of work-related rumination. Specifically, we rely on a widely used distinction of work-related rumination based on the *content* of ruminative thoughts. Indeed, employees may ruminate about various aspects of work. For example, an employee who has received mistreatment from a customer may ruminate about such incident (Song et al., 2018). In such example, the employee may keep thinking about how the client has hurt their feelings, replaying the bad experience over and again in their mind- even when engaged in other tasks (Song et al., 2018). Strong feelings about the mistreatment event keep bubbling up in their mind, and images of it keep coming back (Song et al., 2018). A second example is how an employee who maintains an ambivalent relationship with their supervisor may have troubled sleep because of excessively thinking about the supervisor's behaviour (Ingram, 2015). Pictures and thoughts about their supervisor's behaviour keep popping in their head and they cannot escape such thoughts (Ingram, 2015). A third example is an employee trying to find solutions to work-related problems or reflecting on how to improve achievements (Hamesch et al., 2014). What is common among these examples is the repetitive, excessive form of thinking in the mind of the distressed employee, i.e., rumination. What is uncommon, however, is the *content* of rumination. In the first two examples, the employee's attention is fixated on *emotions* accompanying the negative experience they encountered at work, whereas in the third example, the employee has their attention focused on *solutions* to the problem/ challenge at hand.

Distinguishing work-related ruminative thoughts based on content has been firstly introduced to organizational scholarship by Cropley and Zijlstra (2011) who suggested that not all forms of work-related rumination are harmful; rather, they propose that some aspects of such preservative thinking may prove beneficial. Specifically, they distinguished between two forms of rumination: affective rumination and problem-solving pondering. Affective rumination refers to the negatively valenced, repetitive, and prolonged thoughts about work-related problems, whereas problem-solving pondering is a form of thinking which involves prolonged activation of thought and evaluation of work problems to find possible improvements (Cropley & Zijlstra, 2011). For these authors, the pivotal difference between affective rumination and problem-solving pondering is the emotional arousal: unlike affective rumination which involves an emotional process that sustains emotional and physiological arousal, problem-solving pondering does not involve such sustained arousal (Querstret & Cropley, 2012). Further, since it directs attention to solve work problems, problem-solving pondering lacks the negative emotional quality entailed by affective rumination (Weigelt et al., 2019). Accordingly, when affectively ruminating about work,

an employee directs attention to feelings related to work problems, whereas engaging in problem-solving pondering maintains focus on solutions to work problems (Kinnunen et al., 2019). This explains why some researchers term the affective component as emotional rumination, whereas the problem-solving component as cognitive rumination, describing the former as a maladaptive while the latter as an adaptive coping style (e.g., Hamesch et al., 2014).

Such understanding of rumination resonates with that of the response styles theory (RST) which was proposed and later refined by psychologist Nolen-Hoeksema (1991, 2003). The Response Styles Theory (RST) studies how individuals react to dysphoria, and it posits that a person's response to negative mood defines whether this mood will be maintained, aggravated or diminished (Hilt et al., 2010). Such response, thus, affects both the severity and duration of the negative mood (Bastin et al., 2015). According to the RST, rumination is a self-focused attention that involves two aspects: brooding and reflection (Treynor et al., 2003). Brooding is the passive comparison between a current and a desired state, and may entail a person in dysphoria repetitively thinking "What am I doing to deserve this?" or "Why do I have problems other people don't have?" (Treynor et al., 2003). On the other hand, reflection is the "purposeful turning inward to engage in cognitive problem solving to alleviate one's depressive symptoms," and involves thinking about reasons why a distressed person is feeling the way they do; for example, analyzing recent events to try to understand why a person is depressed or analyzing one's personality to find out why they are depressed (Treynor et al., 2003). In such a way, brooding and reflection correspond to affective and cognitive work-related rumination, respectively.

2.3.2 Context of Work-Related Rumination

Up until the beginning of this century, rumination was studied as an intrapersonal thought process taking place in the mind of the distressed person, and it was not until Rose's seminal paper (2002) on the concept of co-rumination that scholars started to examine the rumination in interpersonal contexts. Specifically, Rose (2002) defined co-rumination as "extensively discussing and re-visiting problems, speculating about problems, and focusing on negative feelings." In this sense, co-rumination was perceived to overlap with rumination as it involves consistently negatively focusing on troublesome issues and worrying about the potential negative consequences of problems- albeit in interpersonal interactions (Rose, 2002). Indeed, Rose (2021) asserts that although both constructs share the preservative negative focus on problems, yet the distinctive feature between rumination and co-rumination is the latter's social manifestation in the form of self-disclosure.

However, Rose (2002) was particularly interested to find out how the integration of the two constructs of self-disclosure and rumination into the single construct of co-rumination can explain gender differences in friendship and emotional adjustment in children and adolescents in specific. Consequently, her works mostly tackled how co-rumination relates to adolescent and youth well-being (e.g., Rose, 2002; Rose et al., 2007; Schwartz-Mette & Rose, 2012; Rose et al., 2014). It was not until 2011 when she embarked on an organizational study to examine and extend the concept of co-rumination to the field of

management. Specifically, Haggard, Robert & Rose (2011) proved the occurrence of co-rumination among working adults, where co-workers discuss work problems in a manner that is speculative, repetitive and extreme. In this sense, work-related co-rumination involves an effort to understand all aspects of a problem and its details: why it happened and what will happen consequently (Haggard et al., 2018). As an example of workplace co-rumination, Haggard, Robert & Rose (2011) provided the following:

> *"[...] an employee whose supervisor yells at her for missing a recent deadline. The employee might speculate repeatedly and in great detail with a co-worker friend about what led to the missed deadline, potential negative repercussions, and other possible causes of the supervisor's anger. Encouraged by the friend, the employee might dwell on her negative affect. The friends might continue to discuss the issue even after agreeing to stop talking about it."*

The example above shows that work-related co-rumination, just as rumination, involves dwelling on causes and consequences of work problems- albeit in dyads. Co-ruminating employees are, thus, engaging in *interpersonal rumination*, where they excessively and recurrently revisit work problems together with another person, usually a friend. Interpersonally ruminating involves talking in dyads about a problem at work for a long time, no matter what else can be done instead, discussing in length all the possible bad things that can happen because of the problem, and trying to figure out every detail about the problem (Haggard et al, 2011).

Co-rumination research builds largely on rumination literature (Rose, 2021), and this manifests itself in how psychologists have extended the brooding/ reflection subscales of intrapersonal rumination to its interpersonal manifestation of co-rumination (e.g., Bastin et al., 2014). In particular, Bastin et al. (2014) suggested that the content of co-rumination varies just as the content of rumination does, with co-brooding representing the social form of brooding and co-reflection representing the social form of reflection. More specifically, co-brooding involves dyads discussing problems in "a more passive, repetitive and catastrophizing manner," whereas in co-reflection, dyads discuss problems in "a more active, analysing, and reflective form" (Bastin et al., 2014). In line with this, Horn & Maercker (2016) distinguished between co-brooding and co-reappraisal in couples. For these authors, co-brooding involved having a partner express the same bothering issues over and over again, even when knowing this would not make any difference, and complain about the same things repeatedly. On the other hand, co-reappraisal involved having one partner discuss some issue with the other partner to gain a new perspective on things (Horn & Maerker, 2016).

In the context of work, this distinction has, nonetheless, never been extended to work-related co-rumination. The few organization literature concerned with co-rumination often relied on co-rumination measures developed by early works in psychology to test for co-rumination in the workplace. These early studies in psychology (e.g., Rose, 2002) treated co-rumination as a single construct and, thus, organization researchers have never explored the two-dimensional conceptualization of co-rumination. This is quite surprising for a

number of reasons. First, the bi-dimensional view of co-rumination proved that each co-rumination dimension is associated to different outcomes. For example, Bastin et al. (2018) found that co-brooding and co-reflection were associated with different outcomes in girls; specifically, co-brooding was associated with more depressive symptoms as opposed to co-reflection which was associated with less depressive symptoms and more positive friendship quality. Second, organization scholarship shows that co-rumination outcomes differ across genders and suggests that this might be due to the different co-rumination content that men and women use in their conversations; however, these studies seldom test for that (e.g., Haggard et al., 2011; Haggard et al., 2018).

In addition, although co-rumination was initially introduced as a dyadic process that occurs between two individuals (Rose, 2002), yet management scholars further extended the concept to the group level. Marmenout (2011) was the first to theorize the concept of *collective rumination* to describe how co-rumination can take place in social interactions between several interlocutors. She defined collective rumination as the repetitive and passive discussion of organizational problems and their negative consequences in groups of peers. Marmenout (2011) found that dysfunctional organizational outcomes occur when groups of peers shared the negative emotions related to a distressing organizational situation. In her study, work peers were "reiterating the same negative ideas, echoing each other's fears-" and that she described as collective rumination. The concept has been theorized to immerse individuals in negative affect and thoughts and to, thus, adversely impact organizational outcomes (Knipfer & Kump, 2022).

To date, collective rumination has received modest attention from organizational psychologists. Indeed, only two papers addressed this phenomenon (Marmenout, 2011; Knipfer & Kump, 2022). Further, similar to research on work-related co-rumination, the content of collective rumination was not yet addressed in current organizational literature; however, we suggest that extending the affective/ cognitive distinction to the collective rumination literature will enable future researchers identify potential antecedents and outcomes of such phenomenon. Accordingly, we adopt the theorizing of the affective/ cognitive distinction of intrapersonal rumination and extend it to collective rumination. In line with Bastin et al.'s (2014) definition of co-brooding and co-reflection, we thus define collective brooding as groups of employees discussing work problems in a manner that is 'passive, repetitive and catastrophizing;' whereas collective reflection involves a manner that is rather 'active, analysing and reflective.'

2.3.3 A typology of work-related rumination

Taken together, and given the inconsistency between researchers regarding what constitutes work-related rumination, we create a typology of work-related rumination. The typology of work-related rumination is intended to identify potential research gaps and practical challenges that need to be addressed by organizations. This relatively emerging, complex terrain of research has often been mostly explored at only one context (i.e., the case of intrapersonal rumination), unidimensionally (i.e., the case of co-rumination) or theoretically (i.e., the case of collective rumination). Specifically, we propose that the dis-

tinction between affective and cognitive work-related rumination, as well as intra- and interpersonal work-related rumination will interact to create a 2 X 2 typology of work-related rumination, presented in Figure 2.1. Based on the above synthesis of multidisciplinary literature, we chart rumination occurring at work across two important dimensions: content and context. The horizontal axis of the typology represents the content of work-related rumination, which can vary from affective rumination to cognitive rumination. The vertical axis, on the other hand, represents the context of work-related rumination, which ranges from intrapersonal to interpersonal. Using multidisciplinary literature, we summarize, with examples, the definition of each subtype of work-related rumination in Table 2.1.

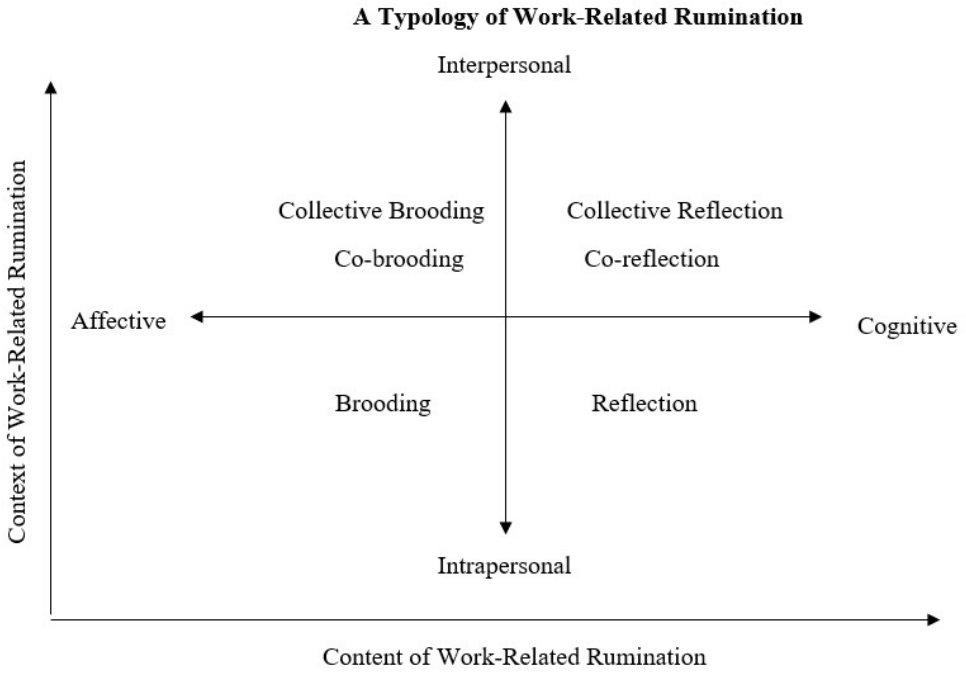

Figure 2.1: A Typology of Work-Related Rumination

2.4 Contribution and Implications

The typology presented in this paper offers unique opportunities for future research on work-related rumination in several ways. In this section, we shed light on the theoretical and practical contributions of our paper which can guide future directions and have important implications for the workplace.

Establishing an interdisciplinary perspective of work-related rumination

This paper combined the theorizing and findings of clinical, developmental and organizational psychology to come up with a more nuanced understanding of the phenomenon of rumination. Despite the remarkable empirical and theoretical investigation of rumination in these diverse fields, there is growing recognition of the importance of integrating insights

Subtypes	Definition and Example of subtypes of Work-related rumination
Brooding	**Definition:** Intrusive, recurrent thoughts that focus one's attention on negative affective state and is characterized by continued physiological arousal (Rose, 2002; Querstret & Cropley, 2012). **Example:** Being mistreated by a customer, an employee keeps thinking about how the client has hurt their feelings, replaying the bad experience over and again in their mind- even when engaged in other tasks (Song et al., 2018).
Co-brooding	**Definition:** Dyads discussing problems in "a more passive, repetitive and catastrophizing manner" (Bastin et al., 2014). **Example:** Dyads repetitively discussing all the bad things that might happen because of a problem and focusing on the negative emotional impact the problem had on one of them (Bastin et al., 2014).
Collective brooding	**Definition:** Groups of peers discussing work problems in a manner that is 'passive, repetitive and catastrophizing' (Marmetnout, 2011; Bastin et al, 2014). **Example:** Work peers confronted with a situation of organizational merger "reiterating the same negative ideas, echoing each other's fears" (Marmenout, 2011).
Reflection	**Definition:** Prolonged activation of thought and evaluation of work problems to find possible improvements (Cropley & Zijlstra, 2011). **Example:** An employee reflecting for a long period of time on how s/he can improve their work performance (Querstret & Cropley, 2012)
Co-reflection	**Definition:** Dyads repetitively discussing problems in "a more active, analysing, and reflective form" (Bastin et al., 2014). **Example:** Two friends talking about all the possible reasons why a problem, that one of them is having, might have happened (Bastin et al., 2014).
Collective reflection	**Definition:** Groups of peers discussing work problems in a manner that is 'active, analysing and reflective' (Marmetnout, 2011; Bastin et al, 2014). **Example:** Work peers confronted with a situation of organizational merger (Marmenout, 2011) reflecting on potential reasons for the mergers and reflecting on how to develop their skills to cope with the new merger.

Table 2.1: Definition and Illustrative Examples of Subtypes of Work-Related Rumination

from each to achieve a comprehensive perspective of rumination, especially in work setting. Accordingly, the main goal of this paper was to develop a comprehensive framework of work-related rumination based on the understanding of these different fields. Indeed, one major contribution of this paper is organizing and presenting the different manifestations

of rumination discussed in different disciplines into a single typology. In so doing, and instead of the predominant focus by organizational scholarship on affective intrapersonal rumination, this paper provides a starting point for future researchers to consider that work-related rumination is multi-faceted and can take different forms, with each relating to potentially different outcomes.

Nonetheless, this typology might also prove useful for psychological research. Interpersonal rumination research emanating from psychology has exclusively focused on dyadic rumination (e.g., Rose, 2002; Horn & Maercker, 2016; Bastin et al., 2018), while overlooking its collective form evidenced by scant organizational literature (see Knipfer & Kump, 2022; Marmenout, 2011). However, one distinctive feature between dyadic and collective rumination is that the latter involves interlocutors who are all affected by the adverse situation (Knipfer & Kump, 2022); whereas studies on dyadic rumination imply that only one partner of the co-ruminating dyad is facing distress (e.g., Boren, 2014; Haggard et al., 2011). As such, only outcomes for the dyad have been explored (e.g., Tudder et al., 2023), and no research to date has examined rumination outcomes on a collective level.

In addition, our paper has integrated the definitions of rumination from psychology and organizational perspectives to develop a broader understanding of the phenomenon of work-related rumination. In fact, the concept of work-related rumination has been classically studied from the perspective of work recovery, yet this view has largely neglected rumination occurring during work time which can potentially correlate with important work-related outcomes. For example, organizational scholars found that employees confronted with workplace incivility are likely to ruminate about such incident for prolonged times after work, and that such work-related rumination affects their sleep (Demsky et al., 2018; Fritz et al., 2018), negative mood and maladaptive shopping (Song et al., 2018). Accordingly, only work-related rumination occurring after the working hours- and its potential effects- was considered. What they did not explore, however, is how the employees' preservative thinking about such incident of incivility during work time can affect their work-related outcomes, such as engagement, commitment, work-related affect, performance and resilience. For instance, one might expect that in such case, an employee's engagement in work duties would decline due to being mentally and emotionally immersed in the incident of incivility, yet such warrants further research.

Accordingly, in the definition adopted in our paper, we relied on a broader perspective of work-related rumination to refer to repetitive and excessive thinking about work problems that may occur at practically any time. A more nuanced measure of work-related rumination needs to be in place in order to capture rumination taking place not only during employee's free time, but also at other instances. Although creating a measure that fulfils the above-mentioned criteria is beyond the scope of our paper, we believe that our theorizing, together with the definitions and examples we provided in this paper, can help future researchers and practitioners develop coding manuals for observations or interview questions when studying rumination in organizations.

Highlighting new subtypes of work-related rumination

Our typology opens doors for different, and newly identified forms of work-related rumination to have a clear identification and uniqueness in the complex terrain of work-related rumination, based on the two proposed dimensions of content and context. For example, although the negative outcomes of the broad concept of collective rumination have been established by empirical work (e.g., Marmenout, 2011), yet its more specific manifestations in the forms of collective brooding and collective reflection were not explored previously. Further, instead of the predominant focus of organization scholars on affective rumination at the individual level, scholars can now easily map other subtypes of work-related rumination that require further investigation, such as co-brooding and co-reflection. Indeed, these phenomena have not been previously investigated in the context of work, despite their established impact on well-being in other contexts, such as the recognised effects of co-brooding and co-reflection occurring between spouses (Horn & Maercker, 2016) and between adolescent friends (Bastin et al., 2018). By pointing out these new forms of work-related rumination, our typology guides future researchers to potential research gaps that need further investigation.

In addition, considering that work-related rumination is multi-faceted in terms of content and context, future researchers may want to explore why employees at work might engage in one type of rumination and not the other; whether there are certain individual and/or organizational characteristics that trigger employees' affective versus cognitive rumination and intra- versus interpersonal rumination. Prior research shows that individuals may vary considerably in their tendency to ruminate according to their gender (e.g., Spendelow et al., 2017) or ethnicity (e.g., (Chang et al., 2010). What this previous research did not explore, however, is why these variations across individuals occur. Future researchers may rely on our typology to find out if specific subtypes of rumination emerge with specific individual differences. Not only that, but also outcomes of co-rumination where found to differ across genders (Haggard et al., 2011). As such, it seems rational to assume that the different types proposed in our typology may each have variable antecedents and consequences, which thus warrants further investigation.

Guiding organizational leadership to anticipate employee responses to distress

Distinguishing between the various types of work-related rumination as potential responses to organizational distress is important for organizational leadership. Acknowledging the different forms of work-related rumination, leaders can predict potential employee responses to different organizational actions. For example, layoffs are distressing, uncontrollable situations for employees. Before taking layoff decisions, management need to anticipate that employees- whether the laid off or the survivors- may engage in affective rumination. Indeed, Folkman (2013) suggested that people often switch between coping actions based on changes in the environment or situation; that is, in uncontrollable situations that need to be accepted, people often resort to employ emotion-focused coping strategies, whereas in controllable situations, they are more likely to use problem-focused coping strategies. During layoffs, thoughts such as "Can I pay the bills? Will I find a

new job? Will I have to take a pay cut or a demotion?" linger in the mind of the laid off, and they may ruminate about and re-live the experience of the layoff event (Mckee-Ryan et al., 2009). Survivors, on the other hand, may also experience ruminative responses, for instance, having repetitive thoughts of fear from the future and confusion over how to keep their place in the organization, or engaging in such thoughts collectively by echoing each other's fears (Marmenout, 2011). Our paper presents an opportunity for organizational leadership to understand and anticipate employees' potential ruminative responses to distressing situations, and act accordingly by, for instance, carrying out the necessary interventions for protecting the organization and its employees against the negative consequences of the potential response.

2.5 Conclusion

Diverse fields seem to be working in silos on the phenomenon of rumination, with each proposing different forms of the very same phenomenon. An interdisciplinary perspective of rumination was, thus, required. Specific to organizational scholarship, existing literature on work-related rumination includes a number of shortcomings: an inconsistent view of work-related rumination, an overstatement of affective intrapersonal rumination and an understatement of other forms of rumination. This is likely to create confusion among researchers interested to study work-related rumination. Further, from a practical standpoint, the current state of literature on work-related rumination might not be helpful in developing theory-driven interventions for preventing organizational life against the negative consequences of work-related rumination. As such, this paper presents a typology of work-related rumination that integrates the psychology and organization perspectives of rumination to come up with a more nuanced understanding of the concept and to explicate the different forms rumination might take- especially in the workplace. The typology shows how the forms of work-related rumination can vary in theoretically important ways, and can, thus, impact employee outcomes differently. In addition, it can help design interventions adapted to each type of rumination to reduce its detrimental effects. Finally, this typology has the potential to be extended to other related fields of psychology, such as developmental psychology.

3. To Ruminate or to Co-Ruminate: Affective and Cognitive Perspectives

Abstract

What happens when employees are left alone with thoughts about work problems as opposed to when they discuss these problems with others? We explore this novel question by drawing upon findings from developmental psychology that rumination can have mixed effects on the well-being of children and adolescents, depending on whether the ruminative content is affective or cognitive and on whether it is manifested intra- or interpersonally. In our study, we investigate four forms of work-related rumination (WRR), and we examine their potential impact on the employees themselves, their family, and their work organization. To this end, we conducted a survey study with 160 employees. Our results show that affective intrapersonal rumination about work problems was associated with work-related burnout, anxiety, depression, and work-interference with family, and negatively associated with work-related comfort and enthusiasm. Affective interpersonal WRR, on the other hand, was associated with work-related burnout, anxiety, depression, and work-interference with family, but not with work-related comfort or enthusiasm. Surprisingly, cognitive intrapersonal WRR was negatively associated with work-related burnout but positively associated with enthusiasm. Also, we found cognitive interpersonal WRR to be positively associated with work-related burnout and work-interference with family. Comparing all WRR subtypes, we concluded that the most detrimental form was affective WRR at the intrapersonal level. Work model, gender, and country differences are explored as well.

Keywords: Rumination, Co-rumination, Well-being, Work-Interference with Family, Affect, Burnout, Work Model

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3.1 Introduction

Workplace is a hotbed of stressful situations. Indeed, a European survey reports that 17% of European workers suffer from stress (ADP, 2019), and unless employees rely on effective stress-coping strategies, their well-being can be at stake (Montero-Marin et al., 2014; Rossi et al., 2023). Evidence shows that stressed employees may engage in excessive thinking about the stress inflicted upon them and have termed this stress response as work-related rumination (e.g., Cropley & Zijlstra, 2011; Wang et al., 2013). But rumination has also been found to take an interpersonal manifestation when the stressed employee excessively and repeatedly discusses one's problems with another work colleague, in a process known as co-rumination (Haggard et al., 2011). Research suggests that intrapersonal rumination represents a form of emotional suppression, whereby a person suppresses the experience of negative emotions (Liverant et al., 2011); whereas engaging in interpersonal rumination involves excessively verbalizing stress (Horn & Maercker, 2016). Extant literature proposes that suppression of emotions related to distressing experiences can be costly to well-being, whereas expression can be potentially beneficial (Cameron & Overall, 2018); however, to the best of our knowledge, this assumption has not been tested in work settings. Specifically, we do not know the implications of suppression versus expression of distress when these processes become excessive and repetitive. With this in mind, we carry out this study in order to explore the differential effects of the excessive suppression versus expression of work-related distress by relying on insights from Nolen-Hoeksema's (1991) response styles theory (RST). In addition, we explore the subtypes of intra- and interpersonal work-related rumination, based on the conceptualizations offered by developmental psychologists, to find out how such subtypes may influence important well-being outcomes. Our findings will help disentangle associations of different stress responses with employees' well-being.

3.2 Literature Review and Development of Research Questions

3.2.1 Work-related rumination: affective and cognitive perspectives

According to the RST, rumination involves the "behaviours and thoughts that focus one's attention on one's depressive symptoms and on the implications of these symptoms" (Nolen-Hoeksema, 1991). In such a way, engaging in ruminative thinking keeps the person locked up in thinking about the stressful event that occurred, its causes and potential consequences (Nolen-Hoeksema, 2004). Rumination has indeed been studied as a self-focused strategy (Bortolon et al., 2019) and an intrapersonal response style to stressful events (Bastin et al., 2014). Since work is full of stressful events, researchers in occupational psychology coined the term "work-related rumination." Work-related rumination refers to the repetitive thoughts directed towards work issues that usually occur when aspects of work become problematic (Cropley & Zijlstra, 2011). Indeed, stressful work situations, such as workplace incivility and customer mistreatment, seem to illicit employees' ruminative thinking (Vahle-Hinz, 2019; Wang et al. 2013).

However, research shows that work-related rumination is not necessarily maladaptive. Kinnunen and colleagues (2019), for example, found that only rumination that is focused on

feelings related to the work problem (i.e., affective rumination) was detrimental to well-being in the long run; whereas rumination focusing on finding solutions to work problems (i.e., cognitive rumination) was not related to any well-being outcome. In addition, Junker et al. (2021) investigated the different impacts of affective and cognitive rumination on employees' family role. Whereas they found that affective rumination related positively to work-family conflict and negatively to work-family enrichment, that was not the case for cognitive rumination (Junker et al., 2021). Interestingly, Junker and colleagues (2021) found cognitive rumination to increase only work-family enrichment and not work-family conflict. We aim to expand our knowledge on how the different forms of work-related rumination relate to employee well-being by examining associations of WRR with burnout and work-family conflict, and thus in line with the previous findings, we pose the following research question:
Research Question 1: Do affective WRR and cognitive intrapersonal WRR associate differently with employee well-being?

3.2.2 Work-related rumination: an interpersonal perspective

Nonetheless, and as the RST entails, rumination is not only an intrapersonal process that occurs *within* the self, but that it may also be displayed in observable behaviour. Specifically, co-rumination, which is rumination taking place in dyadic conversations, is a form of interpersonal rumination where the person excessively discusses the causes and consequences of distress with another person (Rose, 2002). The term has originally been used in the context of friendship between same sex school friends and has since then been a major topic of interest for researchers in developmental and child psychology (e.g., Stone et al., 2011; Rose et al., 2014; Bastin et al., 2014; Bastin et al., 2018). Research on early adolescents found co-rumination to increase friendship quality (Felton et al., 2019) and to buffer the negative effects of social anxiety on depressive symptoms (van Zalk & Tillfors, 2017).

Although researchers in organization studies attempted to explore the phenomenon of co-rumination at work, yet their efforts in this vein were limited (Haggard et al., 2018). To date, only few studies (e.g., Haggard et al., 2011; Boren, 2014; Agarwal, Avi & Wu, 2022) have examined co-rumination at work. They defined co-rumination as the repeated and excessive focus on discussions of work-related problems that is encouraged by both participants of the conversation (Haggard et al., 2011). In the scale they used for co-rumination, Haggard and colleagues (2011) describe co-rumination as talking about work problems for a long time, trying really hard to keep the work friend talking about the problem, and talking a lot about the problem to try to understand why it happened. They have, thus, conceptualized work-related co-rumination as a response style to stressful work situations. Nonetheless, little research has since then been conducted to explore this phenomenon at work. This is quite surprising, given that co-rumination has been linked to a number of detrimental outcomes, such as increased stress (Hankin et al., 2010) and depressive symptoms (Bastin et al., 2014) in adolescents, and greater work-to-family conflict (Haggard et al., 2011), job burnout and perceived work stress (Boren, 2014) for working adults.

Not only that, but also researchers in developmental psychology have developed a two-factor model of interpersonal rumination that parallels with the two-factor structure of intrapersonal rumination (e.g., Bastin et al., 2014). In this model, co-rumination is perceived to have an emotion-focused, maladaptive component known as co-brooding and a problem-solving focused, adaptive component known as co-reflection (Horn & Maercker, 2016). Specifically, co-brooding refers to the dyadic conversation that focuses on repetitive discussion over undesirable feelings and consequences of a problem, whereas co-reflection involves a dyadic conversation that focuses on understanding possible causes of a problem or parts of the problem that are not well understood (Bastin et al., 2018). In this sense, co-brooding represents the affective component of interpersonal rumination, while co-reflection involves the cognitive component of interpersonal rumination. Nevertheless, organization research has overlooked this distinction, and the scant literature available on work-related co-rumination studies co-rumination as a single construct that is exclusively of negative nature (e.g., Haggard et al., 2018; Haggard et al., 2011; Boren, 2014). This is surprising given that the affective and cognitive components of interpersonal rumination, when tested in non-work settings, have been correlated to different outcomes.

For example, interpersonal affective rumination in girls of age 9-17 was related to more concurrent and prospective depressive symptoms (Bastin et al., 2018). In addition, a study of interpersonal affective and cognitive rumination in couples found the affective form to significantly relate to symptoms of adjustment disorder and depression (Horn & Maercker, 2016). On the other hand, interpersonal cognitive rumination predicted positive friendship quality and lower levels of depressive symptoms (Bastin et al., 2018). Further, an adult sample of couples showed that interpersonal cognitive rumination was also associated with lower depressive symptoms, albeit in females only (Horn & Maercker, 2016). As such, one can assume similar patterns among working adults. Thus, we set forth the following research question:
Research Question 2: Do affective WRR and cognitive interpersonal WRR associate differently with employee well-being?

3.2.3 To ruminate or to co-ruminate at work?

The above discussion shows that rumination and co-rumination represent two sides of the same coin, where the former is the *intrapersonal* while the latter represents the *interpersonal* side of work-related rumination. We have also highlighted findings from previous research demonstrating how intra- and interpersonal rumination could be adaptive or maladaptive depending on the content of the rumination— be it in the mind or in dyadic conversation. The question now is which form is less detrimental to employee well-being: the intra- or interpersonal rumination? In other words, should employees be left alone with their excessive negative thoughts about work-related problems, or should they share these with others? In fact, although researchers have, in-depth, examined intrapersonal work-related rumination and, to a much lesser extent, interpersonal work-related rumination, there have been surprisingly few attempts to compare their associations with employee well-being. Previous research shows that intrapersonal rumination represents a form of

emotional suppression, whereby a person suppresses the experience of negative emotions (Liverant et al., 2011); whereas engaging in interpersonal rumination involves excessively verbalizing stress (Horn & Maercker, 2016). The existing body of literature on emotion regulation has consistently conceptualized emotional suppression to be associated with costs to well-being whereas expression to be linked with benefits (Cameron & Overall, 2018; Aldao et al., 2010; Gross, 2015). With this in mind, we expect that interpersonal work-related rumination will be less detrimental to employee well-being than intrapersonal rumination, and accordingly we ask the following research question:
Research Question 3: Is interpersonal WRR less detrimental to employee well-being than intrapersonal WRR?

3.2.4 Current Study

Taking into consideration the various manifestations of work-related rumination and their potential differential effects on employee well-being, the aim of our study is threefold. First, we examine how the different manifestations of work-related rumination associate with the well-being of employees. Past research has primarily focused on work-related rumination as an intrapersonal process, whereas interpersonal work-related rumination lacks the same degree of investigation. In addition, to our knowledge, this is the first study in organization literature to investigate the differential effects of intra- and interpersonal work-related rumination from cognitive and affective perspectives. In so doing, we will identify whether it is more helpful for employees to think alone about work-related problems or to discuss such problems with others. Following the footsteps of literature on emotional suppression and expression, we hypothesize that engaging in interpersonal work-related will be less detrimental to employees' well-being than engaging in intrapersonal work-related rumination. In addition, by exploring the content of intra- and interpersonal work-related rumination, we will be able to disentangle the adaptive and maladaptive components of work-related rumination as an emotion regulation strategy.

Second, we attempt to find if the different manifestations of work-related rumination vary according to gender, work modality, and country. By exploring how work-related rumination with its different facets can vary across different genders, work modalities and cultures, we will be able to identify employees who are potential victims to the harmful effects of work-related rumination. Indeed, previous literature suggests gender to play an important role in determining the intensity and outcomes of rumination and co-rumination. For example, researchers found that women tend to ruminate (Jose & Brown, 2007) and co-ruminate (Rose, 2002) more than men do. In adolescents, girls had a higher probability than boys to show elevated levels of depressive symptoms if they ruminated after the occurrence of a negative event (Abela et al., 2012), and co-rumination for girls is found to increase symptoms of depression and anxiety (Rose, Carlson, & Waller, 2007). Co-rumination for boys, on the other hand, was found to increase their positive friendship quality, but not their depression and anxiety (Rose, Carlson, & Waller, 2007). We expect to find a similar pattern across genders who engage in work-related rumination and co-rumination.

In addition, with the rise of remote work (Eurofound, 2022a), we posit that these results might even be more severe for teleworkers. Working from home entails that the boundary between work and family becomes blurred, where one domain is likely to encroach on the other as they co-occur in the same place and at the same time (Gajendran & Harrison, 2007). Indeed, researchers assume that having work and family responsibilities at the same location might trigger employees working from home to ruminate —affectively or cognitively— more than employees working from office (Junker et al., 2021; Cropley & Zijlstra, 2011). However, this assumption has not yet been tested. For this reason, we will examine rumination and co-rumination among both employees working from home and those working from office to find out if there is indeed any difference. Previous research suggests that how employees cope with work stressors differ across nations. Bhagat et al. (2010), for instance, studied coping styles in six different national contexts. They found that in individualistic cultures, such as New Zealand and USA which emphasize the value of self-reliance, problem-focused coping was a more helpful tool to mitigate the otherwise negative effects of work stress; whereas in collectivistic cultures, such as Spain and Japan, which appreciate interdependence, emotion-focused coping was more effective. In line with these findings, we aim at finding out which facet of rumination and co-rumination do employees rely on to regulate the work-related negative emotions in one individualistic culture (here, Germany) and one collectivist culture (here, Egypt). In addition, most published research on work-related rumination and co-rumination has been conducted in Western cultures, and we do not know whether findings will vary across different cultural groups. By collecting data from employees located in Germany and Egypt, we will be able to fill this gap. Based on this discussion, our final research question is:
Research Question 4: Which employees are more likely to engage in intra- and interpersonal work-related rumination?

3.3 Method

3.3.1 Participants and Procedure

We used a survey method. The survey was designed on Qualtrics. It was launched on April 10, 2021 and was open till June the 21st, 2021. The survey took an average of 7 minutes for participants to complete. Participants from Egypt and Germany were recruited via social media platforms, such as Facebook, Twitter and LinkedIn, through convenience sampling technique. 225 respondents accessed the survey; however, only 160 provided complete survey data. Participants who did not respond to the key variables of the study were removed from the final sample. Since we only received one response from a non-binary person, and gender is an important variable in our study, we excluded this response in our analysis to be able conduct reliable cross-gender analysis. Thus, our analyses are conducted on 159 respondents. 52% of participants live in Egypt, whereas 48% live in Germany. On average, participants were 37 years old (SD=10.5). Females represented 65% of the sample, whereas 35% were males. 42% of the sample classified their jobs as supervisory, whereas 58% were non-supervisory. 71% of the respondents indicated working

from home most of the time in the last two weeks, whereas 29% indicated they were mostly working from office.

3.3.2 Measures

Intrapersonal Rumination. Rumination was measured using the two subscales of the work-related rumination scale by Cropley et al. (2012). Examples for items reflecting affective rumination include "Do you become tense when you think about work-related issues during your free time?"), and for cognitive rumination "I find thinking about work during my free time helps me to be creative." Each subscale includes 5 items and is evaluated on a five-point Likert scale ranging from 1= Never to 5=Always). Participants were asked to indicate the frequency of experiencing each indicator over the past two weeks. Cronbach's alpha for the subscales were .913 and .813, respectively.

Interpersonal Rumination. Following Bastin and colleagues' (2018) approach of the two-factor model of co-rumination, we used 12 items of the Co-Rumination Questionnaire (CRQ; Rose, 2002) to capture the dimensions of affective and cognitive interpersonal rumination, originally termed co-brooding and co-reflection. Respondents had to rate how true they experienced each item over the past two weeks on a 5-point Likert scale, ranging from 1=not at all true to 5=really true. Example items include "we talked for a long time trying to figure out all of the different reasons why the problem might have happened," and "we spent a long time talking about how sad or mad the person with the problem feels." Cronbach's alpha for the two subscales was 0.881 for co-brooding and 0.891 for co-reflection.

Employee Affective Well-being. We used Warr's Job-Related Affective Well-Being Scale (1990) to measure the extent to which participants' jobs made them feel four types of affect: anxiety, depression, enthusiasm and contentment. Each type of affect was measured using three items (e.g., worried, tense and uneasy reflected anxiety score). Cronbach's alpha for each type of affect was: 0.765 for anxiety, 0.804 for comfort, 0.845 for depression and 0.845 for enthusiasm. Participants indicated their answers on a 5-point Likert scale ranging from 1=never to 5=always.

Family Well-being. We used the Work-Family Conflict Scale by Netemeyer, Boles, & Mcmurrian (1996). Responses varied on a 5-point Likert scale from 1=never to 5=always. Example items include "The demands of my work interfered with my home and family life." Cronbach's alpha for this scale was .912.

Burnout. We used 7 items from the Copenhagen Burnout Inventory (Kristensen et al., 2005) to measure participants' work-related burnout levels. Example items include "Do you feel worn out at the end of the working day?" Participants provided their answers on a five-point Likert scale ranging from never to always. We followed the recommendations of Kristensen et al. (2005) by recoding the scale labels to the format of 1=0 (never), 2=25, 3=50, 4=75 and 5=100 (always). Cronbach's alpha for this scale was 0.875.

Measures		Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Gender	1.3500	0.47900	-												
2	Country	1.4800	0.50100	.076	-											
3	Work model	1.7100	0.45500	-.081	.063	-										
4	Intrapersonal affective WRR	14.3333	4.75962	-.204**	-.230**	.147	-									
5	Intrapersonal cognitive WRR	16.5849	3.39825	.040	-.052	-.009	.086	-								
6	Interpersonal affective WRR	16.6478	5.33099	-.182*	-.310**	-.048	.310**	.123	-							
7	Interpersonal cognitive WRR	17.8805	5.33363	-.134	-.085	-.098	.112	.212**	.780**	-						
8	Anxiety	2.9203	0.78797	-.126	-.046	.088	.592**	.038	.271**	.109	-					
9	Comfort	2.7317	0.79863	.122	.026	-.151	-.544**	.035	-.095	-.017	-.578**	-				
10	Depression	2.3375	0.92015	-.128	-.087	-.088	.538**	-.151	.303**	.120	.622**	-.516**	-			
11	Enthusiasm	2.9644	0.82130	.032	-.024	-.096	-.479**	.226**	-.121	.013	-.473**	.692**	-.610**	-		
12	Work-interference with family	13.1384	4.55831	-.086	-.298**	.154	.579**	.043	.245**	.161*	.480**	-.460**	.381**	-.330**	-	
13	Work-related burnout	42.2058	19.71303	-.107	-.263**	.037	.713**	-.045	.385**	.226**	.644**	-.558**	.647**	-.572**	.614**	-

Table 3.1: Means, Standard Deviations, and Correlations among Study Variables

*Note.*WRR= work-related rumination; Gender: 1=female, 2=male. Country: 1=Egypt, 2=Germany. Work model: 1= office, 2= home. **Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

3.4 Results

3.4.1 Descriptive statistics

All data analyses were performed using IBM SPSS Statistics (version 22). We report the descriptive statistics and bivariate correlations of all study variables in Table 3.1. Affective intrapersonal WRR was positively correlated with anxiety (r=.592, p<0.01), depression (r=.538 , p<0.01), work-interference with family (r=.579, p<0.01) and work-related burnout (r=713, p<0.01), but was negatively correlated with comfort (r=-.544, p<0.01) and enthusiasm (r=-.479, p<0.01). On the other hand, cognitive intrapersonal WRR correlated positively with cognitive interpersonal WRR (r=.212, p<0.01) and enthusiasm (r=.226, p<0.01). Affective interpersonal WRR correlated positively with its cognitive variant (r=.780, p<.01), anxiety (r=.271, p<.01), depression (r=.303, p<.01), work-interference with family (r=.245, p<.01) and work-related burnout (r=.385, p<.01). Finally, interpersonal cognitive WRR had positive correlations with both work-interference with family (r=.161, p<.05) and work-related burnout (r=.226, p<.01).

3.4.2 Inferential statistics

To answer our research questions, we used multiple regression models. Results are displayed in Table 3.2. We also tested for multicollinearity between the independent variables using the variance inflation factor (VIF). VIFs did not exceed the value of 2.9.

To answer the first research question, we compared how the two forms of intrapersonal work-related rumination associate with important employee well-being indicators. Specifically, we compared how affective and cognitive intrapersonal work-related rumination associate with self-reported depression, anxiety, comfort, and enthusiasm as well as with work-related burnout and work-interference with family. As expected, we found affective and cognitive WRR at the intrapersonal level to have different associations with well-being indicators. At the intrapersonal level, affective WRR had significantly positive relationships with depression (β = .0.555, p<.001), anxiety (β =.593, p<.001), work-related burnout (β =.722, p<.001) and work-interference with family (β = .580, p<.001), and negative associations with comfort (β = -.551, p<.001) and enthusiasm (β = -.503, p<.001). On the other hand, cognitive WRR significantly associated negatively with only depression (β = -0.199, p<.01) and positively with enthusiasm (β = .269, p<.001). Tackling

the second research question, we compared the associations of the two forms of interpersonal work-related rumination with the same well-being indicators, and we also found that these associations differ between the two forms. Affective interpersonal WRR associated significantly positively with self-reported depression (β = .536, p<.001), anxiety (β = .475, p<.001), work-related burnout (β = .535, p<.001) and work-interference with family (β = 0.306, p<.05), and negatively with enthusiasm (β = -0.336, p<.01). We found cognitive interpersonal WRR to significantly negatively associate with depression (β = -.298, p<.05) and anxiety (β = -.262, p<.05) and positively with enthusiasm (β = .276, p<.05). Although cognitive interpersonal WRR associated negatively with work-related burnout (β = -.192, p>.05) and work-interference with family (β = -.079, p> 0.05), yet these associations did not reach significance levels. To test if interpersonal WRR is less detrimental on well-being than does intrapersonal WRR, we compared their potential associations with each well-being indicator using a hierarchical regression model. Since the affective components of WRR at both the intra- and interpersonal levels had the strongest associations with well-being outcomes, we entered the affective components in the first step. As a second step, we entered cognitive intra- and interpersonal WRR. To find out if there are differential associations between affective work-related rumination at both the intra- and interpersonal levels (RQ3), we compared their potential associations with each well-being indicator, and we found the following. Holding affective interpersonal WRR constant, affective intrapersonal WRR associated positively with depression (β = .491, p<.001), anxiety (β = .562, p<.001), work-related burnout anxiety (β =.656, p<.001) and work-interference with family (β = .557, p<.001), and negative associations with comfort (β = -.569, p<.001) and enthusiasm (β = -.489, p<.001). Cognitive WRR at the interpersonal level, however, associated only significantly positively with depression (β = .151, p<.05) and work-relate burnout (β = .182, p<.01). Finally, we explored whether cognitive WRR at the intra- and interpersonal levels relate differently to wellbeing. Holding cognitive interpersonal WRR constant, cognitive intrapersonal WRR negatively associated with depression (β = -.184, p<.05) and positively with enthusiasm (β = .234, p<.01). Holding cognitive intrapersonal WRR constant, we found cognitive interpersonal WRR to associate positively with depression (β = .159, p<.05) and work-relate burnout (β = .246, p<.01).

T-Test Results. To answer our fourth research question, we ran independent samples t-test to find out if levels of each type of intra- and interpersonal work-related rumination differs across employees of different genders, work modalities and country. First, we compared levels of work-related rumination across genders (Table 3.3). Females in our sample engaged in affective rumination at both the intrapersonal (t = 2.617, df = 157, p = .010) and interpersonal (t = 2.313, df = 157, p = .022) levels significantly more than males in our sample. However, when it comes to cognitive WRR, no significant differences between genders were observed. We conducted similar analyses between those working from home and those working from office (Table 3.4); however, there were no significant differences between the two groups regarding levels of affective or cognitive rumination at both the intra- and interpersonal levels. Finally, Table 3.5 summarized the main differences between employees located in Egypt and those located in Germany regarding the extent to which

they engage in work-related rumination and co-rumination. In our sample, employees in Egypt had significantly higher scores than those in Germany regarding affective rumination at both the intrapersonal ($t = 2.994$, $df = 143.21$, $p = .003$) and interpersonal levels ($t = 3.29585$, $df = 157$, $p = .000$). We did not observe any significant differences between employees in Egypt and Germany regarding cognitive work-related rumination at both the intra- and interpersonal levels.

3.5 Discussion

Work-related rumination (WRR) refers to the repetitive thoughts directed towards work issues that usually occur when aspects of work become problematic; these thoughts can be affective or cognitive in nature (Cropley & Zijlstra, 2011). Previous literature on WRR has primarily considered rumination as an intrapersonal process, mostly neglecting its interpersonal manifestation, which was highlighted by developmental psychology (e.g., Stone et al., 2011; Rose et al., 2014; Bastin et al., 2014; Bastin et al., 2018). Even the few studies available have treated interpersonal WRR as a single construct, without reference to its affective and cognitive components (e.g., Haggard et al., 2011; Boren, 2014; Roeder et al., 2020). As such, the primary purpose of our study was to explore the different manifestations of work-related rumination (WRR) and how they associate with the well-being of employees at the individual, family, and organizational levels. To do so, we compared the associations of different forms of WRR with work-related affect, work-related burnout and work-interference with family. In addition, we aimed at identifying employees who are most likely to engage in work-related rumination. To this end, we investigated the extent to which employees of different genders, work modalities and countries may contrast over the different forms of work-related rumination. Taken together, from a theoretical standpoint, this study has four main contributions.

First, our research tests and confirms the convention that the content of rumination matters. Specifically, our results affirmed that work-related rumination has an affective and cognitive component, and that each relates differently to employee well-being. Indeed, Cropley & Zijlstra (2011) proposed that WRR could be affective or cognitive in nature. Affective WRR refers to the excessive focus on the negative emotional experience related to work problems, whereas cognitive WRR refers to the excessive, repetitive thinking about solutions to work problems (Cropley & Zijlstra, (2011). Nonetheless, in our study, we tested how affective and cognitive WRR relate to employee's perception of their own well-being at home and at work. Specifically, in our study, we tested how those two forms of WRR relate to employee's work-related affect, work-related burnout and work-interference with family. We found affective WRR to have detrimental associations with employee well-being. For example, in our sample, increases in affective WRR were associated with significant increases in self-reported depression, anxiety, work-related burnout and work-interference with family. Not only that, but there were also significant negative relationships between affective WRR and positive work-related affect. Specifically, as affective WRR increased, comfort decreased. This was also the case for enthusiasm; increases in affective WRR correlated with decreases in enthusiasm. However, these associations

	Depression			Anxiety			Comfort			Enthusiasm			Work-related burnout			Work-interference with family (WIF)		
	β	SE	t	β	SE	t	β	SE	t	β	SE	t	β	SE	t	β	SE	t
Research Question 1: Do affective and cognitive intrapersonal WRR associate differently with employee well-being?																		
Affective intrapersonal WRR	0.555***	0.013	8.425	.593***	0.011	9.149	-.551***	0.011	-8.215	-.503***	0.012	-7.487	.722***	0.231	12.96	.580***	0.063	8.845
Cognitive intrapersonal WRR	-0.199**	0.018	-3.015	-0.013	0.015	-0.205	0.083	0.016	1.23	.269***	0.016	4.013	-0.107	0.323	-1.92	-0.007	0.088	-0.103
Research Question 2: Do affective and cognitive interpersonal WRR associate differently with employee well-being?																		
Affective interpersonal WRR	.536***	0.021	4.476	.475***	0.018	3.911	-0.209	0.019	-1.643	-0.336**	0.019	-2.686	.535***	0.433	4.565	0.306*	0.106	2.47
Cognitive interpersonal WRR	-.298*	0.021	-2.491	-.262*	0.018	-2.158	0.145	0.019	1.145	.276*	0.019	2.204	-0.192	0.433	-1.637	-0.079	0.106	-0.634
Research Question 3: Is interpersonal WRR less detrimental to employee well-being than intrapersonal WRR?																		
Step 1																		
Affective intrapersonal WRR	0.491***	0.014	7.017	0.562***	0.011	8.327	-0.569***	0.012	-8.092	-0.489***	0.013	-6.619	0.656***	0.237	11.466	0.557***	0.066	8.133
Affective interpersonal WRR	0.151*	0.012	2.155	0.096	0.01	1.427	0.081	0.011	1.158	0.031	0.011	0.416	0.182**	0.212	3.171	0.072	0.059	1.058
Step 2																		
Affective intrapersonal WRR	0.491***	0.014	7.023	0.552***	0.012	7.907	-0.585***	0.012	-8.062	-0.499***	0.013	-6.84	0.674***	0.241	11.582	0.576***	0.068	8.151
Affective interpersonal WRR	0.233*	0.019	2.097	0.159	0.016	1.435	0.134	0.017	1.16	-0.023	0.018	-0.202	0.136	0.342	1.471	-0.025	0.096	-0.222
Cognitive intrapersonal WRR	-0.206**	0.018	-3.097	-0.014	0.015	-0.203	0.085	0.016	1.228	0.265***	0.017	3.825	-0.135*	0.321	-2.436	-0.029	0.09	-0.433
Cognitive interpersonal WRR	-0.073	0.019	-0.679	-0.075	0.016	-0.691	-0.074	0.017	-0.663	0.031	0.017	0.279	0.072	0.333	0.805	0.122	0.093	1.114

Table 3.2: Regression Models

Note. N=159. *p<.05, **p<.01, ***p<.001

Variables		N	Mean	Std. Dev.	Mean Difference	T	df	P-value
Affective Intrapersonal Work-Related Rumination	Egypt	82	15.39	5.41	2.18	2.99	143.21	.003
	Germany	77	13.21	3.67				
Cognitive Intrapersonal Work-Related Rumination	Egypt	82	16.76	3.29	.35	.65	157	.51
	Germany	77	16.40	3.52				
Affective Interpersonal Work-Related Rumination	Egypt	82	18.24	5.38	3.30	4.09	157	.000
	Germany	77	14.95	4.75				
Cognitive Interpersonal Work-Related Rumination	Egypt	82	18.32	5.50	.90	1.066	157	.288
	Germany	77	17.42	5.15				

Table 3.3: Differences by Gender

Variables		N	Mean	Std. Dev.	Mean Difference	T	df	P-value
Affective Intrapersonal Work-Related Rumination	Office	46	13.24	4.46	-1.54	-1.86	157	.064
	Home	113	14.78	4.83				
Cognitive Intrapersonal Work-Related Rumination	Office	46	16.63	3.37	.06	.107	157	.915
	Home	113	16.57	3.42				
Affective Interpersonal Work-Related Rumination	Office	46	17.04	5.61	.56	.596	157	.552
	Home	113	16.49	5.23				
Cognitive Interpersonal Work-Related Rumination	Office	46	18.70	5.57	1.15	1.232	157	.220
	Home	113	17.55	5.22				

Table 3.4: Differences by Modality of Work

Variables		N	Mean	Std. Dev.	Mean Difference	T	df	P-value
Affective Intrapersonal Work-Related Rumination	Females	103	15.05	4.58	2.03	2.617	157	.010
	Males	56	13.02	4.84				
Cognitive Intrapersonal Work-Related Rumination	Females	103	16.49	3.40	-.28	-.499	157	.618
	Males	56	16.77	3.41				
Affective Interpersonal Work-Related Rumination	Females	103	17.36	4.82	2.02	2.313	157	.022
	Males	56	15.34	5.99				
Cognitive Interpersonal Work-Related Rumination	Females	103	18.4078	4.89	1.50	1.701	157	.091
	Males	56	16.91	5.99				

Table 3.5: Differences by Country

were different when the content of WRR was cognitive.

Specifically, cognitive WRR associated negatively with self-reported depression. Increases in cognitive WRR were, thus, related to decreases in depression. Our results, thus, show that excessive thinking about work problems is not always detrimental to employee well-being; when such excessive, repetitive thoughts are focused on the negative emotions arising from work problems, employees tend to experience lower well-being at work and at home. This is reflected in increases in self-reported depression and anxiety, work-related burnout, and work-interference with family, as well as decreases in self-reported comfort and enthusiasm. On the other hand, as employees excessively and repetitively dwell over solutions to work problems, they tend to report significantly less depression and more enthusiasm towards work. These findings come in line with previous research (e.g., Kinnunen et al., 2019; Junker et al., 2021) which suggests that affective rumination tends to pose negative effects on the well-being of employees, whereas cognitive rumination influence well-being positively.

Second, we extended the affective/ cognitive distinction of intrapersonal WRR to interpersonal WRR and we tested how each form associates with employee well-being. Traditionally, organizational researchers (e.g., Haggard et al., 2011; Boren, 2014; Roeder et al., 2020) conceptualized interpersonal work-related rumination as a single construct, typically identified as co-rumination., which entails that an employee speculates excessively and repeatedly over a work problem with a colleague from work (Haggard, 2011). Developmental psychologists (e.g., Bastin et al., 2014; Bastin et al., 2018) found co-rumination to include two factors: affective and cognitive- just as the case with intrapersonal rumination. Nevertheless, this distinction has not been previously extended to interpersonal WRR in organization studies.

This is quite surprising given that previous developmental research (e.g., Bastin et al., 2018; Horn & Maerker, 2016; Bastin et al., 2014) proved such distinction to be essential as each form can be associated with different outcomes. Indeed, organization scholars have repeatedly called for research that explores content of co-rumination and its impact on well-being (e.g., Haggard et al., 2011; Haggard et al., 2018). Up to our best knowledge, the current study is the first to extend this distinction and to confirm its significance to organization research. In fact, adult employees in our sample show patterns similar to those found in child and youth samples in which the affective component of interpersonal rumination predicted increases in depressive symptoms, contrary to the cognitive component which predicted lower depressive symptoms (Bastin et al., 2018). In our sample, affective interpersonal WRR is associated with increases in self-reported depression, anxiety, work-related burnout and work-interference with family, as well as decreases in enthusiasm. These relationships were quite different when we considered the cognitive facet of co-rumination. Specifically, employees in our sample who engaged in cognitive interpersonal WRR were more likely to experience feelings of enthusiasm towards work and less likely to experience depression and anxiety. In this sense, employees who excessively discuss with a work colleague the negative emotional experience related to work problems are at risk of diminishing well-being, whereas those who excessively discuss solutions to

work problems are more likely to reap benefits to their well-being, in terms of increased positive affect and decreased negative affect.

Third, our results highlight that the context of rumination makes a difference. From an emotion regulation stand point, few studies have addressed emotional suppression and expression simultaneously (Cameron et al., 2018), and from an organizational behavior perspective, expression versus suppression of ruminative thoughts have not been previously investigated. Exploring such area is important to understand the distinct consequences of intra- versus interpersonal work-related rumination. In our study, we aimed to disentangle the differential associations of intra- versus interpersonal WRR with employee well-being indicators. Research on emotion regulation consistently suggests that emotional suppression can exert different effects on well-being than does emotional expression, where the former is usually associated with costs to well-being (e.g., Ruan et al., 2020; Catterson et al., 2017), while the latter relates to potential well-being benefits (Cameron & Overall, 2018). Since rumination is a form of emotional suppression while co-rumination is a form of emotional expression, we tested whether intrapersonal WRR can be more detrimental to well-being than does its interpersonal counterpart. That is to say, is it better, in terms of their well-being, that employees excessively think alone about their work problems or that they discuss these problems with others? Answering this question would help identify the costs and benefits of suppressing versus expressing employees' persistent work-related thoughts. To this end, we compared associations of each form of intra- and interpersonal WRR with well-being outcomes.

Interestingly, we found that associations of interpersonal WRR with well-being indicators are no longer salient when compared to intrapersonal WRR. For example, when all forms were compared together in one model, cognitive interpersonal WRR did not significantly relate to any well-being indicator, and affective interpersonal WRR only associated significantly positively with depression. On the other hand, it is remarkable that, compared to all other forms of WRR, affective intrapersonal WRR significantly related to all our negative well-being outcomes of depression, anxiety, burnout and work-interference with family. Not only that, but also increases in affective intrapersonal WRR were associated with decreases in feelings of comfort and enthusiasm towards work. In this sense, our study concludes that affective intrapersonal rumination is the most detrimental form of work-related rumination. Excessive negative thoughts about work-problems that activate employee's emotions seem to be more destructive to well-being than does the repetitive discussion of such thoughts with others. Indeed, our results, thus, confirm the classical assumption that emotional suppression endures costs to well-being whereas expression can be potentially beneficial. Cameron & Overall (2018), for instance, contend that when individuals suppressed their emotions, they experienced lower life and relationship satisfaction, greater depressed mood, and lower self-esteem; whereas individuals who expressed their emotions had higher self-esteem and relationship satisfaction. Our findings are, thus, in line with those of the literature on emotion regulation.

Finally, our findings suggest the relevance of considering the gender, work arrangement and culture where rumination and co-rumination are being studied. Since our data was

collected from male and female employees who were mostly working from home and who were located in two different countries, Egypt and Germany, our research provided a number of interesting insights regarding differences in work-related rumination across genders, work models and countries. Previous research does confirm that females ruminate (Johnson & Whisman, 2013) and co-ruminate more than males do in non-work settings (e.g., Rose, 2002). However, still unknown was whether this gender difference extends to rumination and co-rumination about problems in work setting. Accordingly, in our study we tackled this gap. We found that females in our sample engaged in affective WRR at both the intra- and interpersonal levels significantly more than males; whereas males were higher on cognitive intrapersonal WRR than were females— albeit not significantly. One potential explanation for the displayed gender differences in WRR is the fact that men and women tend to use different coping strategies, with women utilizing more emotional and less rational coping styles than men do (Matud, 2004).

Interestingly, and as opposed to previous theorizing (e.g., Cropley. & Zijlstra, 2011 2011; Junker et al., 2021), we did not find any significant difference between employees working from home and those working from office regarding the extent to which both groups engage in the different manifestations of WRR. Junker and colleagues (2021) have previously assumed that employees working from home might be more likely to engage in work-related rumination, however, this was not the case in our sample.

We also predicted statistically significant differences in WRR between employees in one Eastern culture, namely, Egypt, compared to those in one Western culture, namely, Germany. Research has exclusively tested work-related rumination in Western cultures, with no prior data collected in Eastern cultures. Collecting data on WRR from Eastern cultures, and comparing results with Western cultures can provide further explanation for the variation between how individuals from different cultures cope with work stressors. Indeed, previous research suggested that there are cross-cultural differences pertaining to coping styles, with individualistic cultures exhibiting more problem-solving coping style than collectivistic cultures, whereas collectivistic cultures showing more emotion-focused coping style than individualistic cultures (Bhagat et al., 2010). Since rumination is regarded as one coping style, we predicted to find similar patterns. In fact, consistent with these findings, our study confirms that intra- and interpersonal affective WRR are significantly higher for employees in collectivist Egypt compared to those in individualistic Germany.

3.6 Conclusion

Work-related rumination is an emotion regulation strategy that can have distinct effects on employee well-being at work and at home, based on the content and context of rumination. In general, affectively ruminating about work problems, whether alone or in dyads, is associated with detrimental outcomes on well-being; whereas cognitive rumination at the intra- and interpersonal levels is not only less detrimental, but can also relate to positive outcomes on employee well-being. Notably, since this research collected data for all variables using a single self-administered survey, we were only able to suggest trends

between variables rather than causal relationships. Despite that this practice may cause common method bias (Podsakoff et al., 2012), yet we believe that our variables of interest, such as burnout and affect, represent subjective experiences that are better captured by the employee themselves. Nonetheless, future studies may employ longitudinal or experimental designs to capture causality. All in all, our research findings should encourage employees to be aware of the strategy they use to regulate work-related affect, and that some strategies can have serious effects on their well-being.

4. Should I Lend an Ear? Examining the Trade-offs for Listening to Co-Rumination at Work Using an Experimental Approach

Abstract

Purpose. Co-rumination refers to the excessive negative talk about problems with another person. Although co-rumination received considerable research from developmental psychologists, yet little has been done to explore this concept among adults in the workplace, though its presence in work setting has been evidenced in few organizational research. In addition, the majority of research which examined co-rumination consistently focused on its outcomes on the discloser (i.e., the person with the problem), with little, if any, concern drawn towards the listener of the co-ruminative conversation. As such, our study integrates the affective events theory (AET; Weiss and Cropanzano, 1996) and the conservation of resources theory (COR; Hobfoll, 1989) to investigate how different co-rumination episodes about work problems across work dyads influence listener's work-related affect, organizational satisfaction, organizational commitment and co-worker closeness.

Methodology. An experimental design was followed. We recruited 51 work dyads. Each dyad answered a set of questionnaires, then they were assigned to one of two conditions: co-brooding/ co-reflection. Dyads completed post-test questionnaires to measure changes.

Findings. Co-rumination effects on listeners' organizational and individual outcomes vary across co-ruminative contents. After co-brooding, listeners experienced a decrease in organizational satisfaction and organizational commitment; whereas after co-reflection, listeners only felt greater closeness to the distressed co-worker. These effects varied also by the dyad's gender composition. Same-gender dyads experienced the hypothesized negative co-brooding effects and the positive co-reflection effects; whereas the opposite was true for dyads composed of different genders.

Originality. This paper is the first to use an experimental design to explore the phenomenon of co-rumination at work. It is also among the very few studies that focus on effects of co-rumination on the listener.

Keywords. Co-rumination, well-being, affect, organizational satisfaction, organizational commitment, dyadic gender composition

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4.1 Introduction

Co-rumination is a form of problem communication across individuals, and it specifically refers to the excessive, repetitive discussion of stressful situations (Rose, 2002). Co-rumination has been initially conceptualized by Rose (2002) to describe the dyadic process of "frequently discussing problems, discussing the same problem repeatedly, mutual encouragement of discussing problems, speculating about problems, and focusing on negative feelings" (Rose, 2002). Although the concept implies that co-rumination occurs between two individuals, yet previous research has largely ignored how co-rumination can affect the recipient of the problem talk (i.e., the listener). Indeed, co-rumination studies have either examined the general effects of co-rumination without specific indication to whether the person is the initiator or the receiver of the problem talk (e.g., Horn & Maercker, 2016; Bastin et al., 2014; Miller et al., 2020) or have exclusively focused on co-rumination effects for the person having the problem (e.g., Afifi et al., 2013; Ames-Sikora et al., 2017). In addition, the majority of these studies have been conducted in non-work settings, examining co-rumination occurring between children (e.g., Rose, 2002), adolescents (e.g., Miller et al., 2020), and couples (e.g., Horn & Maercker, 2016), with little of this controversy having permeated the literature on working adults.

Although co-rumination about work problems between working adults has been linked to important well-being outcomes, such as burnout, perceived stress (Boren, 2014), psychological safety (Agarwal et al., 2022), job satisfaction and work-to-family conflict (Haggard et al., 2011), yet existing knowledge on the topic remains limited, thus warranting further investigation (Haggard et al., 2011). In addition, co-rumination has been mostly studied cross-sectionally (e.g., Haggard et al., 2011; Haggard et al, 2018; Boren, 2014) and, to a lesser extent, longitudinally (e.g., Agarwal, Avey & Wu, 2022). Further, recent research highlights that co-rumination effects can vary according to whether the person was disclosing one's own problem or responding to this disclosure (Tudder et al., 2023). Nevertheless, much of the literature available on the topic investigates co-rumination as a form of social support and examines its effects for the person disclosing the problem (e.g., Afifi et al, 2013; Ames-Sikora et al., 2017; Behfar et al., 2020; Agarwal et al., 2022), without considering its potential effects on the listener. Indeed, most research on social support has almost only focused on the support recipient, rather than on the support provider (Patterer et al., 2023). However, understanding listener effects is essential; for co-rumination occurs between dyads, and thus exploring its impact on just one member of the co-ruminative conversation does not allow us to make cohesive conclusions regarding co-rumination outcomes. Not only that, but also literature on emotional venting underscores the vital role listeners play in the recovery of partners who disclose distress (Nils & Rimé, 2012).

Accordingly, the main aim of this study is to find out how co-rumination occurring between employee dyads can influence important work outcomes for the listener. Specifically, we focus on how co-rumination can impact listener's affect, organizational satisfaction, organizational commitment and perceived closeness to the problem discloser. The remainder of this paper progresses as follows: First, we review the literature on co-rumination to understand the contextual development of the paper. Second, we draw on the Affective

Events Theory (AET; Weiss and Cropanzano, 1996) and the Conservation of Resources theory (COR; Hobfoll, 1989) to establish a link between co-rumination, emotions, organizational satisfaction, and organizational commitment. Third, we present our methodology for collecting data. Fourth, we illustrate results from data analysis. Finally, we present discussions, implications and conclusions.

4.2 Literature Review & Hypotheses Development

4.2.1 What is co-rumination and why study it in the workplace?

When individuals experience heightened emotions, one way to regulate such emotions is to share it with others (Zaki & Williams, 2013). When this form of sharing is, however, repetitive and excessive, it can sometimes become maladaptive, and is known as co-rumination. Early co-rumination studies define co-rumination as dyads "frequently discussing problems, discussing the same problem repeatedly, mutual encouragement of discussing problems, speculating about problems, and focusing on negative feelings" (Rose, 2002). The works by Rose and colleagues have established the significance of studying the phenomenon of co-rumination, which they found to relate to a number of health and well-being outcomes, including increased stress hormone and cortisol (Byrd-Craven et al., 2008), greater internalizing symptoms (Rose, 2002), and heightened levels of depression and anxiety (Rose et al., 2007). Interestingly, what they also did find was that co-rumination improved friendship quality (Rose, 2002; Rose et al., 2007; Byrd-Craven et al., 2008).

Based on these findings, few organization researchers started to examine the notion of co-rumination among working adults. They defined co-rumination at work as the repetitive and extensive problem-focused talk encouraged by both participants of the conversation (Haggard et al., 2011). Partners who co-ruminate with each other engage in mutual encouragement of problem talk, despite other tasks that could otherwise be done (Haggard et al., 2018). Haggard and colleagues (2011), who were the first to examine co-rumination at work, found that when employees co-ruminate with each other, they feel greater relationship satisfaction with the colleague with whom they co-ruminate. Yet, they also experience elevated levels of work-to-family conflict (Haggard et al., 2011). Haggard and colleagues (2011) explained such trade-off by the nature of co-ruminative conversations, which primarily focuses one's attention on stressful situations, and thus makes salient aspects of work problems. This, in turn, drives increases in depression and anxiety; still, yet, co-rumination implies a process of self-disclosure between partners, which drives greater relationship satisfaction between co-ruminating partners (Haggard et al., 2018). Nonetheless, though perceived as a form of social support at work, Boren (2014) found that co-rumination between work colleagues to suppress the positive effects of social support on burnout and stress. Given such mixed positive and negative co-rumination outcomes, it becomes essential to find out when might co-rumination produce positive outcomes and when can co-rumination become potentially harmful?

To answer this question, we relate to literature on developmental psychology where researchers attempted to find out which aspects of co-rumination are adaptive, and which

can potentially become problematic. Indeed, an observational study of co-rumination in adolescents proved that some aspects of co-rumination are associated with positive outcomes, whereas others relate to negative effects (Rose et al., 2014). However, a clear distinction between the two subtypes of co-rumination was not noticeably established until Bastin and colleagues (2014) extended the intrapersonal constructs of brooding and reflection, that are inherently components of rumination (see for example, Treynor et al., 2003), to the interpersonal context.

In essence, co-rumination is rumination occurring in a social context (Rose, 2002). Rumination is an individual, cognitive process that involves excessive dwelling over problems and related negative feelings (Nolen-Hoeksema et al., 2008) and is found to have two dimensions: brooding and reflection (Treynor, Gonzalez, & Nolen-Hoeksema, 2003). Brooding is the "passive comparison of one's current situation with some unachieved standard," whereas reflection represents the "purposeful turning inward to engage in cognitive problem solving" (Treynor et al., 2003). In this sense, brooding is the maladaptive component, while reflection is the adaptive component of rumination. Following this distinction, and extending it to the interpersonal manifestation of rumination, i.e., co-rumination, Bastin and colleagues (2014) developed a two-factor model of co-rumination consisting of co-brooding and co-reflection. To test for co-brooding, Bastin and colleagues (2014) used measurement items that reflect excessive dyadic discussion that catastrophize "the consequences of the problem" or "negative feelings" related to the problem; whereas for co-reflection they used items that express dwelling over "causes of the problem" and "non-understood parts of the problem."

Based on this understanding, co-brooding represents the rather passive component, while co-reflection signifies actively trying to make causal references regarding why the problem occurred (Bastin et al., 2014). Using this distinction, Bastin and colleagues were able to elucidate some of the mixed findings inherent in the co-rumination literature. For example, while earlier studies highlighted that co-rumination generally has associations with both positive outcomes (e.g., friendship quality) as well as negative ones (e.g., stress levels) (Byrd-Craven et al., 2008), Bastin and colleagues found that these outcomes varied based on the co-brooding/ co-reflection distinction. For instance, they found that while co-brooding increased depressive symptoms, co-reflection decreased such symptoms (Bastin et al., 2014). In a more recent study, Bastin and colleagues (2018) found that whereas co-reflection predicted higher levels for all positive aspects of friendship quality, including companionship, help, security and closeness, co-brooding, on the other hand, predicted increases in the only negative component of friendship quality, which is conflict (Bastin et al., 2018). This distinction highlights that not all forms of co-rumination are maladaptive; rather, co-rumination does have a positive component, namely, co-reflection. Notably, all these previous studies mentioned above have examined co-rumination effects for the distressed person, with little, if any, concern drawn towards the listener of the co-ruminative conversation, despite the fact that previous research suggests the potential significant role that the co-ruminating partner plays in determining co-rumination outcomes (Ames-Sikora et al., 2017).

4.2.2 Using the Affective Events Theory and Conservation of Resources Theory to elucidate listener effects

We believe that we can better explore the effects of co-rumination for the listener on the basis of the Affective Events Theory (AET; Weiss and Cropanzano, 1996). At the core of AET, employees' affective reactions are thought to be shaped by momentarily events, rather than by stable evaluations of workplace features (Fisher, 2000; Weiss et al., 1999). The theory argues that events that happen at work, whether job related or non-job related, trigger employees' emotional reactions (Weiss & Beal, 2005). Positive or negative affective events, thus, illicit affective reactions which induce attitudinal and behavioral consequences (Weiss and Cropanzano, 1996). In line with AET, and since co-rumination entails an excessive dyadic problem-focused talk (Rose, 2002), we operationalize exposure to co-rumination as a significant event that is likely to illicit corresponding positive or negative affective and attitudinal outcomes for the listener according to the content discussed by the ruminating co-worker. Indeed, Grandey (2000) suggests that co-workers can act as a source of affective events. Thus, specifically, and in light of the AET, we hypothesize that co-rumination about work problems will be associated with listeners' affect, organizational satisfaction, organizational commitment and closeness to co-worker based on whether the listener is exposed to co-brooding or co-reflection about the disclosers' work problems (for a visualization of the conceptual framework, see Figure 4.1). Our stance is further supported by previous empirical findings that show how listening to problem talk can have various downstream consequences.

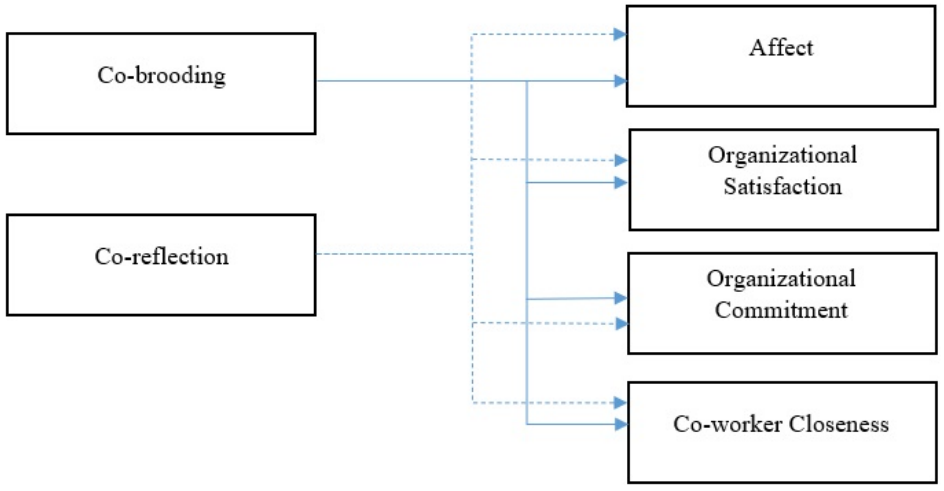

Figure 4.1: Theoretical Relationships between Co-Brooding and Co-Reflection and their Proposed Immediate Effects
(solid arrows indicate negative links and broken arrows indicate positive links).

For example, a recent study by Rosen and colleagues (2021) found that venting has an emotional cost to the listener of venting. Their research shows that leaders who lend an ear to those who vent daily in the organization are susceptible to experience negative emotions, and that such emotions have negative effects on leader's subsequent behaviors

at the end of the working day in the form of mistreating others at work (Rosen et al., 2021). We expect this negative effect to be even more salient when the listener is a co-worker in several ways. First, when co-brooding, peers catastrophize all the negative aspects and feelings relevant to a problem that one of them has had (Bastin et al., 2014). Though the listener in a co-brooding dyad is not experiencing the problem firsthand, yet, and in line with AET, such negatively valenced emotional experience is likely to influence listener's affect, organizational satisfaction and commitment. In fact, a study by Miller et al. (2020) shows that in friend dyads, being exposed to co-rumination predicted increases in depressive symptoms for the friend listening to the problem. In addition, research on peer interaction shows how complaining and commiserating are important organizational themes that can affect employees' levels of satisfaction and commitment. For instance, Fay & Kline (2011) suggest that acts of complaining and commiserating, for example about one's job, boss, or co-worker, that occur between work peers can significantly decrease organizational commitment and satisfaction. In their study, out of three different types of organizational talk, only complain talk emerged as a unique predictor of organizational commitment and organizational satisfaction, as such talk enacted negative evaluations about the organization and/or aspects of it (Fay & Kline, 2011).

Second, we expect that the negative connotations of co-brooding extend to the quality of relationship between the problem discloser and the listener. Indeed, Bastin et al. (2018) found that co-brooding correlated with decreased friendship quality over time- in terms of increased conflict. Though Bastin et al. (2018) did not specify whether the participants in their study were disclosers or listeners, we expect this outcome to hold true particularly for the listener. Specifically, according to the conservation of resources theory (COR; Hobfoll, 1989), individuals strive to maintain valuable resources and are threatened by the possibility to lose or the actual loss of such resources (Hobfoll, 1989). When co-brooding, individuals keep discussing, for a long time, the negative feelings the person with the problem has and remain circling around all the bad things that can happen because of the problem (Bastin et al., 2014). Co-brooding peers, thus, do not actually reflect on or solve the problem at hand. Rather, they passively focus on the negative content without constructive reappraisal (Horn & Maercker, 2016). Accordingly, for the listener, co-brooding perishes their valuable work time; and thus, from a COR perspective, a listener might feel such unconstructive conversations to threaten the time they would otherwise spend on completing work tasks. Indeed, Pillemer and Rothbard (2018) suggest that socioemotional intrusions by co-workers are detrimental to employee's ability to focus on instrumental work goals. Further, Bastin and colleagues (2018) found that co-brooding related to the only negative friendship indicator, which is conflict. They found that co-brooding predicted increases in conflict, translated in the form of increases in perceived annoyance, arguments and fights with the friend (Bastin et al., 2018). Accordingly, we set forth the following hypothesis:

Hypothesis 1: Co-brooding will have a negative impact on listener's (H1a) affect, (H1b) organizational satisfaction, (H1c) organizational commitment and (H1d) closeness to co-worker.

On the other hand, we expect that co-rumination can illicit positive outcomes to the listener when the conversation content is rather reflective; that is, when the discloser and the listener engage in co-reflection. In fact, previous research shows that co-reflection has positive well-being effects, as it predicted relative decreases in depressive symptoms (Bastin et al., 2014) and increases in committed positive actions amid setbacks (Starr et al., 2021). Though co-reflection involves repetitive and excessive problem talk, yet it implies an active dyadic attempt to find out why a problem has happened (Bastin et al., 2018). Co-reflection entails that peers spend a lot of time trying to understand parts of the problem that seem obscure and identifying all possible reasons why the problem has occurred in the first place (Bastin et al., 2014). As such, co-reflection involves less talk about the thoughts and feelings related to a problem, and greater understanding about the problem in general (Starr et al., 2021). Co-reflection, thus, enhances insight about a given problem (Starr et al., 2021). Adopting a reflective style in tackling work problems can help people learn from their experience, prevent future mistakes and solve their problems (Kross, Ong & Ayduk, 2023). Thus, time spent co-reflecting is not time lost for the listener; rather, it could be a time for learning and reflecting on other's problems and mistakes, which can help prevent falling in the same mistakes in the future. Thus, in light of the COR theory (Hobfoll, 1989), co-reflection between work dyads could be less costly than co-brooding for the listener. Additionally, one adaptive feature of co-reflection found in the literature is that it fosters positive friendship quality (Bastin et al., 2018). Indeed, co-reflection was found to positively relate to friendship closeness, help, security and companionship (Bastin et al., 2018). In light of this, and drawing upon the AET, we propose that co-reflecting with a colleague about a work problem is a positive event that is likely to impact listener's affect, organizational satisfaction, organizational commitment and closeness to co-worker, such that:

Hypothesis 2: Co-reflection will have a positive impact on (H2a) listener's affect, (H2b) organizational satisfaction, (H2c) organizational commitment and (H2d) co-worker closeness.

4.2.3 Dyadic Gender Composition

Research suggests that co-rumination outcomes differ according to the identity of the partner with whom the distressed person engages in co-rumination (Ames-Sikora et al., 2017). Calmes & Roberts (2008), for instance, found that only co-rumination with same-gender friends emerged as a predictor for depression, which was not the case for co-rumination with parents, roommates or romantic partners. Additionally, in a study by Barstead et al. (2013), co-rumination levels differed across dyads of same- versus cross-gender dyads, and a study by Waller & Rose (2010) demonstrated that girls co-ruminated with their mothers significantly more than boys did. Despite this, the majority of research to date has examined co-rumination in same-gender friendships (Rose, 2021). In fact, the Co-Rumination Questionnaire developed by Rose (2002), which is the most commonly used measure for co-rumination, originally assesses co-rumination with a same-gender friend. Nonetheless, researchers still call for examining co-rumination across different gender compositions of dyads (e.g., Bastin et al., 2018; Tudder et al., 2023). Accordingly, we believe

that our assumed co-brooding and co-reflection outcomes are likely to differ by the gender composition of dyads. Our third hypothesis, thus, is that:

Hypothesis 3: Co-brooding and co-reflection effects will significantly differ across varying gender compositions of dyads.

4.3 Methods

4.3.1 Participants and procedure

To examine the effects of co-rumination content on listener's well-being, we used a sample of employees working at a large private university located in Cairo, Egypt. This study was approved by the Institutional Review Board of the Faculty of Economics and Social Sciences at Heidelberg University, as well as the Ethics Committee of the private university where the experiment took place. This research followed an experimental design that involved three stages: (1) pre-test questionnaires, (2) face-to-face co-ruminative conversations involving two conditions, and (3) post-test questionnaires. The experiment was announced through the university's Experimental Lab, and participants signed up for the study via a registration link.

Eighty-eight dyads signed up through the registration link. They provided their emails and the emails of the co-worker whom they choose to join the experiment with, in addition to the time slot where they will both show up for the experiment. Emails were used to remind participants and their co-workers of their time slot and of the completion of the initial surveys. Participants voluntarily selected the co-worker with whom they prefer to discuss a stressful situation they encountered at work. Each dyad, thus, included the participant who initially signed up for the study and the chosen co-worker. Dyads filled in initial surveys which included consent to discuss a stressful work situation with co-worker, knowing that it is neither recorded nor attended by the experiment. On the selected day, dyads showed up for the face-to-face experiment at the lab. All surveys were administered using Qualtrics.

Table 4.1 provides a brief description of our sample. Only 51 dyads completed all parts of the experiment. Our sample included 68.6% female and 31.4% male listeners; whereas disclosers were 74.5% females and 25.5% males. Regarding the dyadic gender composition, 78.4% of dyads were composed of same gender co-workers (i.e., female-female or male-male), while the rest (21.6%) had different gender co-workers (female-male or male-female). Participants had the freedom to select any colleague for the experiment, as long as they both work together in the same university. Our sample was mostly composed of academics, with 62.7% of disclosers and 64.7% of listeners indicating they are classified in the university as academic staff members; whereas 37.3% of disclosers and 35.3% of listeners indicating they are administrative staff members. Regarding how they perceive their relationship with the discloser, 68.6% of listeners indicated they were close friends, 25.5% were just friends, and 5.9% were random colleagues. As a complement for their time and effort through all parts of the experiment, each participant was compensated with an equivalent of 10 euros. One participant had missing values for two variables; these

Variables	N	%
Dyadic Gender Composition		
Same Genders	40	78.4%
(Female-Female)	(31)	(60.8%)
(Male-Male)	(9)	(17.6%)
Different Genders	11	21.6%
Listeners' Gender		
Female	35	68.6%
Male	16	31.4%
Disclosers' Gender		
Female Disclosers	38	74.5%
Male Disclosers	13	25.5%
Disclosers' Job Classification		
Academic Staff	32	62.7%
Administrative Staff	19	37.3%
Listeners' Job Classification		
Academic Staff	33	64.7%
Administrative Staff	18	35.3%
Relationship with Co-Worker		
Close Friends	35	68.6%
Just Friends	13	25.5%
Random Colleagues	3	5.9%

Table 4.1: Brief description of sample

Note. N=51

Variable	Initial Questionnaire (T1)	Pre-co-rumination Questionnaire (T2)	Post-Co-Rumination Questionnaire (T3)
Affect		x	x
Organizational Commitment	X		x
Organizational Satisfaction	X		x
Co-Worker Closeness	X		x
Co-rumination Content (Co-brooding/ Co-reflection)			x

Table 4.2: Study variables administered at each time point

Note. Co-brooding and co-reflection items were only presented to the listeners as a manipulation check to assess discloser's adherence to the co-brooding/ co-reflection instructions

were substituted with variable means. However, another participant had missing values for more than two of the main study variables in the pre- and post-test questionnaires, and thus was excluded from our analysis. We explain below the experiment stages, and Table 4.2 shows the study variables administered at each time point of the experiment.

1. Pre-test questionnaires

   a) Initial questionnaire

      Upon signing up for the study, participants completed a short initial survey. The questionnaire included demographic questions as well as questions related to their relationship with the co-worker whom will join them in the experiment. At the end of the survey was a link the respondent had to send to their co-worker. This survey included questions on demographics and closeness to co-worker, organizational satisfaction, and organizational commitment. Participants who signed up represented the role of the discloser and their co-worker represented the role of the listener.

   b) Pre-co-rumination Questionnaire

      Disclosers and listeners filled a battery of questionnaires on showing up at the lab. Questionnaires measured listeners' positive and negative affect. Disclosers' questionnaire included questions on the nature, seriousness and frequency of occurrence of the stressful situation they encountered at work in the last two weeks. Disclosers also indicated the nature of the stressful work situation they will discuss with their co-worker. Stressful situations selected where problem with boss (27.5%), problem with colleague (37.3%), problem with client (3.9%) or problem with organizational policies and procedures (23.5%). 7.8% reported other work problems. On a scale from 1(not at all) to 5 (extremely), disclosers reported the seriousness (M= 3.47, SD= 0.902) and frequency of occurrence (M=3.18, SD=0.865) of the stressful work situation. 86.3% of co-ruminators have at least once previously discussed this stressful situation with the co-worker accompanied in the experiment. Table 4.3 provides a brief description of the problems discussed during the co- ruminative conversations.

Variables	N	%
Nature of Problem Discussed		
Problem with Boss	14	27.5%
Problem with Colleague	19	37.3%
Problem with Client	2	3.9%
Problem with Organizational Policies and Procedures	12	23.5%
Other	4	7.8%
Seriousness of Stressful Situation		
Extremely	6	11.8%
Very	19	37.3%
Moderately	20	39.2%
Slightly	5	9.8%
Not at all	1	2%
Number of Times Situation Previously Discussed		
More than two times	24	47.1%
Twice	8	15.7%
Once	12	23.5%
None	7	13.7%
Realism of Conversation		
Extremely realistic	25	49%
Very realistic	20	39.2%
Moderately realistic	4	7.8%
Slightly realistic	1	2%
Not realistic at all	1	2%

Table 4.3: Brief description of problems discussed during co-ruminative conversations

At the end of the survey, co-ruminators were randomly assigned to one of two different treatments: co-brooding (n=25 dyads) or co-reflection (n=26 dyads). They received detailed instructions on how to fulfill their role as a discloser. Instructions were based on the co-brooding and co-reflection items adopted from Bastin et al. (2014). After reading the instructions, the experimenter also debriefed the disclosers of their role and gave examples of how they should handle the discussion according to their assigned condition. Listeners were unaware of these instructions. They were only asked to engage in the conversation with the discloser as they normally would, without any specific instructions delivered to them.

Instructions for the Co-Brooding Condition

Your discussion with your work colleague should focus on the stressful work situation you mentioned earlier in the survey. In your discussion, you need to do the following:

a) try to figure out **every one of the bad things that might happen** because of the problem

b) talk a lot about **how bad you feel** because of the problem

c) talk a lot about all of **the different bad things that might happen** because of the problem

d) talk for a long time about **how upset you are** because of the problem

e) spend a lot of time talking about **what bad things are going to happen** because of the problem

f) spend a long time talking about **how sad or mad you feel** because of the problem

Instructions for Co-Reflection Condition

Your discussion with your work colleague should focus on the stressful work situation you mentioned earlier in the survey. In your discussion, you need to do the following:

a) talk for a long time trying to **figure out all of the different reasons why the problem might have happened**

b) spend a lot of time trying to **figure out parts of the problem that you can't understand**

c) talk a lot about the problem in order to **understand why it happened**

d) talk a lot about **parts of the problem that don't make sense to you**

e) talk about **all of the reasons** why the problem might have happened

f) try to figure out **everything about the problem**, even if there are parts that you may never understand

2. Face-to Face Co-Ruminative Conversation After completing the pre-co-rumination surveys, the discloser and the listener were escorted to a separate room, where they both engaged in the co-brooding or co-reflection conversation over the stressful work situation that the discloser had indicated. They were instructed that they have 10-15 minutes to discuss the stressful situation. A more detailed description of the stressful situations discussed between dyads during the experiment is outlined in Table 4.3.

3. Post-Test Questionnaires After the end of the co-rumination session, each of the discloser and the listener were directed to the main lab where each completed separate surveys, measuring affect, organizational satisfaction and commitment, and perceived closeness to co-worker. For the discloser, questions about the extent to which they fulfilled their role during the face-to-face co-ruminative conversation were provided. We describe this further in subsection 4.4.1.

4.3.2 Measures

Affect. To test for affect, we used the Positive and Negative Affect Schedule (PANAS) by Whatson et al. (1988). Participants were asked to indicate how they currently feel on a five-point Likert scale (1=very slightly or not at all; 5=extremely). The scale comprises 10 items for positive affect (e.g., interested) and 10 items for negative affect (e.g., guilty). The scale was administered at T2 (α= .827 for PA scale and α=.857 for NA scale) and T3 (α= .837 for PA scale and α= .849 for NA scale).

Organizational satisfaction. To measure organizational satisfaction, we used the Satisfaction with Organization Scale (SOS) by Kimball et al. (2002). On a scale from 1 to 6, where 1 represents strongly disagree and 6 represented strongly agree, participants were asked to indicate their level of agreement on each of the five items of the scale. Sample items include "In most ways, this organization is close to my ideal," and "In general, I am satisfied with this organization." Alpha reliability for T1 was .861, and .837 for T3.

Organizational commitment. To measure organizational commitment, we used 7 items from Meyer and Allen's (1984) affective commitment subscale and two items from the Organizational Commitment Questionnaire (Mowday, Steers,& Porter, 1979), ranging from 1, Strongly Agree, to 5, Strongly Disagree. In so doing, we followed recommendations of Eisenberger et al. (1990) to capture a clearer assessment of emotional attachment to the organization. Reverse scores were used for two negative statements. This questionnaire was administered at T1 and T3, and the alpha reliabilities were .894 and .849, respectively.

Co-worker Closeness. How close the listener feels towards the co-ruminator was measured using a single item "How close to your friend do you feel right now?" Closeness was measured twice: in the initial survey (T1) and after the co-ruminative conversation (T3).

Seriousness of Stressful Situation. On a scale of five, disclosers were asked to indicate the seriousness of the stressful work situation they will discuss with their co-worker using a single item "How serious do you think this stressful work situation is?" Responses ranged from 1 (not at all) to 5 (extremely). They found the situation to be moderately to highly stressful (Mean = 3.47, SD = .902). Previous Discussion of Stressful Situation. On a scale from 1 (none) to 4 (more than twice), disclosers were asked to report the number of times they have previously discussed the same stressful situation with the same co-worker they are accompanying in the experiment. Most of the participants (86.3%) indicated that they previously discussed the situation with the accompanying co-worker.

4.4 Results

4.4.1 Manipulation Checks

We had two manipulation checks in our experiment. First, disclosers had to rate their perceived role fulfillment on a scale from 1 (not well at all) to 5 (extremely well). The co-ruminators' ratings of their perceived role fulfillment averaged 4.20 (SD= .722). Since co-ruminators had fixed payments regardless of their performance, we believe they had no incentive to give misleading responses regarding their role fulfillment. Using an independent samples t–Test, we did not find any significant variance of these ratings across the two conditions $t(49) = .812$, $p = .421$).

As a second manipulation check, listeners completed the 12-item Co-Rumination Questionnaire (CRQ; Rose, 2002) at the final stage of the experiment to indicate the extent to which they think the conversation focused on co-brooding or co-reflection. We followed Bastin et al.'s (2014) approach where they computed six items to measure co-brooding and another six items to assess co-reflection. In the random assignment of dyads to treatments,

disclosers were either instructed to take the role of the co-brooder and were given the co-brooding items as instructions for how to handle the conversation. Or, they were assigned to the co-reflection treatment and were, thus, given the co-reflection items as instructions for how to handle the conversation with their partner. These 12 items were presented to the listener at the final questionnaire (T3) as a manipulation check that the discloser has successfully followed instructions. Alpha reliability for this scale was .855.Participants in the co-reflection condition differed from those in the co-brooding condition in that they perceived their discussion with their co-worker has involved significantly higher levels of co-reflection than co-brooding (t= -2.187, df= 25, $p < .05$).

4.4.2 Statistical Tests

The purpose of this research was to identify if there are significant differences in listeners' affect, organizational satisfaction, organizational commitment and closeness to co-worker before and after exposure to co-ruminative conversations of different content. In addition, we aimed to find out if the changes that occurred before and after each condition of co-rumination significantly differed from the changes occurring in the other condition. As mentioned earlier, participants in the co-brooding condition discussed the negative emotions related to the discloser's stressful work situation whereas those in the co-reflection condition discussed possible reasons for the occurrence of the stressful work situation. Data were collected from both groups before and after administration of the experiment and were analyzed using IBM Statistical Package for Social Sciences software version 23.0.

Before running our main analyses, we checked for the assumptions of normality and homogeneity of variances. Shapiro-Wilk Test results showed that all dependent variables measured before and after administration of the experiment were normally distributed ($p > .05$) across the two conditions, except for listener's post-test positive affect and co-worker closeness as well as pre-test co-worker closeness ($p < .05$). To check for the assumption of homogeneity of variances, we ran Levene's Test for Equality of Variances across the two conditions and found that the assumption of equal variances holds true for all variables ($p > .05$), except for listeners' pre-test positive affect scores where this assumption was violated ($p < .05$). Because of such results for our assumption checks, for normal variables, we decided to use paired samples t-test to compare pre- and post-test scores of our dependent variables within each condition independently and to use two-way Analysis of Covariance (ANCOVA) to compare post-test scores across the two conditions, while controlling for important covariates and pre-test scores. For variables violating the assumption of normality, we employed the non-parametric test Wilcoxon signed-rank test for within-subjects

Those in the co-brooding condition had high correlations between their co-brooding and co-reflection scores ($p = .000$). One potential explanation can be the wording of co-reflection items, such as "we talked a lot about the problem in order to understand why it happened." It is likely that listeners in the co-brooding condition scored high on such items as these items still infer talking about the problem at hand, which is what they do in co-brooding, but with a specific focus on the negative feelings disclosers have about the problem. Thus, we believe that listeners in the co-brooding condition might have perceived that their conversation involved both elements of co-brooding and co-reflection. Bastin et al. (2018) have reported a similar pattern in their study, where there was a strong correlation between co-brooding and co-reflection scores, suggesting that some items of the Co-Rumination Questionnaire might need to be rephrased to allow for larger distinction. Despite this, overall we can conclude that the manipulation was successful.

comparisons. Transformations were considered for non-normal variables, but significant deviations from normality persisted and, thus, we decided to use non-parametric tests for the non-normal data. For such data, and to conduct between-subjects comparisons, we used two-way ANCOVA with ranked dependent variables and co-variates, where required.

4.4.3 Within-Subjects Effects

Preliminary analysis of pretest measures revealed no significant difference between participants' scores on the dependent variables across the two conditions. Thus, we assumed that differences that may arise in post-tests would be due to the condition administered to participants and not due to random differences. We analyzed changes that might have occurred in listeners' affect, organizational satisfaction, organizational commitment, and closeness to co-worker before and after exposure to each condition.

Co-Brooding Effects

Descriptive statistics for the pre- and post-co-brooding conversations are presented in Tables 4.4 and 4.5 along with their respective results from paired samples t-test or Wilcoxon signed-rank test, as appropriate. For the co-brooding condition, the Wilcoxon signed-rank test indicated no significant difference from pre-test to post-test scores of listeners' positive affect (Z = -.244, p = .807, r = -0.0488). We also found that listeners experienced increases in negative affect after exposure to co-brooding, albeit not significantly (t = .084, df = 24, p = .057). Thus, H1a is rejected. On the other hand, paired samples t-test showed that listeners in the co-brooding condition experienced statistically significant changes in their organizational satisfaction and commitment after engaging in co-brooding with their co-worker. Specifically, organizational satisfaction significantly decreased (t = 1.95, df = 24, p = .025) from a pre-test mean of 15.15 (SD = 3.78) to a post-test mean of 13.72 (SD = 3.61), thus accepting H1b. Organizational commitment also significantly decreased after the co-brooding conversation (t = .074, df = 24, p = .012) from a pre-test mean of 31.40 (SD = 7.75) to a post-test mean of 29.08 (SD = 6.20), thus accepting H1c. Finally, the Wilcoxon signed-rank test (Table 4.5) indicated no significant difference from pre-test to post-test in co-worker closeness (Z = -.877, p = .380, r = -0.1754), thus rejecting H1d. As such, using our statistical results, we can partially accept our first hypothesis that:

Hypothesis 1: Co-brooding will have a negative impact on listener's (H1a) affect, (H1b) organizational satisfaction, (H1c) organizational commitment and (H1d) relationship satisfaction with the discloser.

Descriptive statistics for the pre- and post-co-reflection conversations are presented in Tables 4.6 and 4.7 along with their respective results from paired samples t-test or Wilcoxon signed-rank test, as appropriate. Lack of significant changes in affect also was present for listeners in the co-reflection condition, where tests showed insignificant increases in listeners' positive affect (Z = -.961, p =.336 , r = -0.188) and decreases in negative affect (t = .084, df = 25, p = .933) after exposure to co-reflection, thus rejecting H2a. Similarly, paired samples t-test showed that listeners in the co-reflection condition experienced

Variables		N	Mean	Std. Dev.	Mean Difference	T	df	P-value
Negative Affect	Before	25	19.44	7.63	-4.36	.084	24	.057
	After	25	23.80	7.79				
Organizational Satisfaction	Before	25	15.15	3.78	1.43	1.95	24	.025
	After	25	13.72	3.61				
Organizational Commitment	Before	25	31.40	7.75	2.32	.074	24	.012
	After	25	29.08	6.20				

Table 4.4: Paired samples t-test on Pre- and Post-test scores of Negative Affect, Organizational Satisfaction, and Organizational Commitment in the Co-Brooding Condition

Variables		N	Mean	Std. Dev.	Z	p	r
Positive Affect	Before	25	36.16	4.04	-.244[a]	.807	-0.0488
	After	25	34.56	7.77			
Co-worker Closeness	Before	25	4.41	.81	-.877[b]	.380	-0.1754
	After	25	4.56	.58			

Table 4.5: Wilcoxon Signed-Rank Test Results for Pre- and Post-test scores of Positive Affect and Closeness to Co-Worker in the Co-Brooding Condition
a Based on positive ranks. b Based on negative ranks. Co-Reflection Effects

increases in organizational satisfaction after exposure to co-reflection, yet not reaching significance (t = 1.947, df = 25, p = .063), thus rejecting H2b. Organizational commitment also seemed uninfluenced by co-reflection (t = .074, df = 25, p = .942), where pre-test scores of commitment had a mean of 30.42 (SD = 5.32) as compared to a post-test mean of 30.54 (SD = 6.31), thus rejecting H2c. The only dependent variable that was significantly impacted by co-reflection was co-worker closeness. The Wilcoxon signed-rank test (Table 4.7) indicated a significant increase in co-worker closeness from pre-test to post-test (Z = -2.194, p = .028). The sum of negative ranks was 9, while the sum of positive ranks was 57, suggesting a general increase in co-worker closeness among participants. Computed effect size for co-reflection was -.43, indicating a medium to large effect, thus accepting H2d. Accordingly, we can partially accept our second hypothesis that:

Hypothesis 2: Co-reflection will have a positive impact on (H2a) listener's affect, (H2b) organizational satisfaction, (H2c) organizational commitment and (H2d) relationship satisfaction with the discloser

4.4.4 Between-Subjects Effects

In all between-subjects analyses, we controlled for the seriousness of the stressful work situation discussed, the number of times dyads have previously discussed this situation and pre-test scores of the dependent variable of interest. In addition, we included dyadic gender composition as a fixed factor in all our two-way ANCOVA models since our study involves dyads of same (male-male or female-female) and different genders (male-female). Thus, our model included an interaction term between condition and dyadic gender composition to explore whether the effect of the co-ruminative conversation condition on our dependent variables varies across dyads of same versus different gender compositions. Between-

Variables		N	Mean	Std. Dev.	Mean Difference	T	df	P-value
Negative Affect	Before	26	21.46	7.67	.12	.084	25	.933
	After	26	21.35	7.70				
Organizational Satisfaction	Before	26	16.38	3.59	1.04	1.947	25	.063
	After	26	15.35	3.47				
Organizational Commitment	Before	26	30.42	5.32	.077	.074	25	.942
	After	26	30.35	6.31				

Table 4.6: Paired samples t-test on Pre- and Post-test scores of Negative Affect, Organizational Satisfaction, and Organizational Commitment in the Co-Reflection Condition

Variables		N	Mean	Std. Dev.	Z	P	r
Positive Affect	Before	26	33.5385	7.76263	-.961[a]	.336	-0.188
	After	26	34.7308	6.63058			
Closeness to Co-Worker	Before	26	4.15	1.008	-2.194[a]	.028	-0.43
	After	26	4.62	.697			

Table 4.7: Wilcoxon Signed-Rank Test Results for Pre- and Post-test scores of Positive Affect and Closeness to Co-Worker in the Co-Reflection Condition

a Based on negative ranks

subjects effects are summarized in Table 4.8. Positive Affect. A two-way ANCOVA test shows that the combination of our covariates (seriousness of situation, number of times the situation previously discussed and pre-test positive affect) together with our independent variables (condition and dyadic gender composition) explains a significant portion in the variance in post-test positive affect F(6, 44) = 2.984, p = .016, partial η^2 = .289.η^2 However, the interaction effect between condition and dyadic gender composition (Figure 4.2) was not significant F(1,44) = .001, p = .979, partial η^2 = .000, suggesting that the effect of co-rumination content on post-test positive affect did not significantly vary by dyadic gender composition. It seems that, after adjusting for the covariates, much of the variability in post-test positive affect was influenced by the dyadic gender composition F(1, 44) = 5.017, p = .030, partial η^2 = .102, rather than by the co-rumination condition F(1, 44) = .331, p = .568, partial η^2 = .007. Indeed, post-hoc comparisons using the Bonferroni correction indicated that the post-test positive affect adjusted mean score for dyads of same genders (M = 23.45, SE = 2.15) was significantly lower than that for dyads of different genders (M = 35.36, SE = 5.75).

Negative Affect. We found similar patterns for post-test negative affect, where our model was significant F(6, 44) = 2.617, p = .029, partial η^2 = .263, but the interaction effect was insignificant F(1,44) = 1.446, p = .236, partial η^2 = .032, indicating that post-test negative affect did not significantly vary by co-rumination condition, but rather by the dyad's gender composition F(1, 44) = 4.453, p = .041, partial η^2 = .092. Figure 4.3 visualizes the interaction effect. Post-hoc comparisons using Bonferroni correction showed that post-test negative affect adjusted mean score for dyads of same genders (M = 23.521, SE = 1.14) was significantly higher than that for dyads of different genders (M = 17.67, SE = 2.49).

Organizational Satisfaction. Our model was significant F(6,44) = 11.661, p = .000, partial η^2 = .614, indicating a significant effect for the combination of covariates and independent variables on post-test organizational satisfaction. Results show that there is a significant interaction effect (Figure 4.4) between co-rumination condition and dyadic gender composition F(1,44) = 4.717, p = .035, partial η^2 = .097, although the main effects for co-rumination condition F(1,44) = .209, p = .650, partial η^2 = .005 and dyadic gender composition F(1,44) = .119, p = .731, partial η^2 = .003 were separately insignificant. This means that the effect of condition on post-test organizational satisfaction varied by the dyad's gender composition. Post-hoc analysis using the Bonferroni correction showed that for same gender dyads, listeners exposed to co-brooding had lower post-test organizational satisfaction adjusted mean (M = 13.87, SE = .515) than listeners exposed to co-reflection (M = 15.45, SE = .576). Yet, for dyads of different gender composition, listeners engaging in co-brooding had higher post-test organizational satisfaction adjusted mean score (M = 16.19, SE = 1.422) than those engaging in co-reflection (M = 13.78, SE = .872).

Organizational Commitment. The overall model combining our covariates and independent variables was significant F(6,44) = 12.11, p = .000, partial η^2 = .623; yet, the main effects of condition F(1,44) = .023, p = .80, partial η^2 = .001 and dyadic gender composition F(1,44) = 011, p = .92, partial η^2 = .00 were insignificant. The interaction term, however, between condition and dyadic gender composition (Figure 4.5) was statistically significant F(1,44) = 4.778, p = .034, partial η^2 = .10. Post-hoc analysis using Bonferroni correction showed that for same gender dyads, listeners who were in the co-brooding condition experienced lower post-test organizational commitment (M = 28.44, SE = .870) than those in the co-reflection condition (M = 31.71, SD = .981). For dyads of different genders, listeners in the co-brooding condition experienced higher post-test organizational commitment (M = 31.79, SE = 2.47) than those in the co-reflection condition (M = 28.03, SE = 1.50).

Co-Worker Closeness. Although the model including the covariates and the two factors of co-rumination condition and dyadic gender composition proved to have a significant effect on listener's post-test co-worker closeness F(6,44) = 4.489, p = .001, partial η^2 = .380, yet the main effects of co-rumination condition F(1,44) = 1.980, p = .166, partial η^2 = .043 and dyadic gender composition F(1,44) = 1.677, p = .202, partial η^2 = .037 were both insignificant. Also the interaction term between condition and dyadic gender composition (Figure 4.6) was statistically insignificant F(1,44) = .054, p = .817, partial η^2 = .001. Much of this effect seems to be influenced by pre-test co-worker closeness F(1,44) = 18.377, p = .000, partial η^2 = .295.

Based on results of two-way ANCOVA, thus, we partially accept our third hypothesis that: *Hypothesis 3*: Co-brooding and co-reflection effects will significantly differ across varying gender compositions of dyads.

4.5 Discussion

Despite being a dyadic process that involves the excessive and extensive discussion, rehashing and speculation about one's problems (Rose, 2002), co-rumination outcomes are either

Dependent Variable	Source of Variation	df	F-value	p-value	Partial Eta Squared
Post-Test Positive Affect	Seriousness of Stressful Situation	1	5.135	.028	.105
	Times Issue Previously Discussed	1	1.499	.227	.033
	Pre-Test Positive Affect	1	2.633	.112	.056
	Co-Rumination Condition	1	.331	.568	.007
	Dyadic Gender Composition	1	5.017	.030	.102
	Co-Rumination Condition x Dyadic Gender Composition	1	.001	.979	.000
Post-Test Negative Affect	Seriousness of Stressful Situation	1	.001	.981	.000
	Times Issue Previously Discussed	1	2.742	.105	.059
	Pre-Test Negative Affect	1	2.762	.104	.059
	Co-Rumination Condition	1	.000	.984	.000
	Dyadic Gender Composition	1	4.453	.041	.092
	Co-Rumination Condition x Dyadic Gender Composition	1	1.446	.236	.032
Post-Test Organizational Satisfaction	Seriousness of Stressful Situation	1	1.194	.281	.026
	Times Issue Previously Discussed	1	3.894	.055	.081
	Pre-Test Organizational Satisfaction	1	41.022	.000	.482
	Co-Rumination Condition	1	.209	.650	.005
	Dyadic Gender Composition	1	.119	.731	.003
	Co-Rumination Condition x Dyadic Gender Composition	1	4.717	.035	.097
Post-Test Organizational Commitment	Seriousness of Stressful Situation	1	1.536	.222	.034
	Times Issue Previously Discussed	1	1.722	.196	.038
	Pre-Test Organizational Commitment	1	47.698	.000	.520
	Co-Rumination Condition	1	.023	.880	.001
	Dyadic Gender Composition	1	.011	.917	.000
	Co-Rumination Condition x Dyadic Gender Composition	1	4.778	.034	.098
Post-Test Co-Worker Closeness	Seriousness of Stressful Situation	1	.047	.829	.001
	Times Issue Previously Discussed	1	.006	.938	.000
	Pre-Test Co-Worker Closeness	1	18.377	.000	.295
	Co-Rumination Condition	1	1.980	.166	.043
	Dyadic Gender Composition	1	1.677	.202	.037
	Co-Rumination Condition x Dyadic Gender Composition	1	.054	.817	.001

Table 4.8: Tests of Between-Subjects Effects for Each Dependent Variable

studied for the problem discloser (Ames-Sikora et al., 2017) or without clarifying whether the subject of study was the discloser or the listener of the co-ruminative conversation (e.g., Miller et al., 2020). Additionally, co-rumination has been linked to mixed outcomes, including elevated friendship quality (Byrd-Craven et al., 2008) and perceived relationship satisfaction (Haggard et al., 2011), but also to heightened stress levels (Byrd-Craven et al., 2008) and burnout (Boren, 2014). These mixed findings led researchers to examine if co-rumination is composed of two dimensions: co-brooding and co-reflection, having differential effects on well-being outcomes (Bastin et al., 2014). Though results of previous research validated this assumption (e.g., Bastin et al., 2014; Bastin et al., 2018), yet it was only tested in non-work settings, such as romantic couples (e.g., Horn & Maerker, 2016) and adolescents (e.g., Miller et al., 2020).

Acknowledging the importance of co-rumination and its well-being effects in work setting and its potential impact on the listener of the co-ruminative conversation, we aimed at understanding the differential effects of work-related co-brooding and co-reflection on listener's affect, organizational satisfaction, organizational commitment and co-worker closeness. Our first hypothesis assumed a negative impact for co-brooding whereas our second hypothesis assumed a positive impact for co-reflection. To test for our hypotheses, we ran an experiment where work dyads were allocated randomly to either a co-brooding or co-reflection condition, with only the discloser (i.e., the distressed employee) aware of and trained to lead the discussion in a way that is characterized by co-brooding or co-reflection. Listeners, on the other hand, were only instructed to engage in the conversation with the discloser as they normally would, without any specific instructions to follow. Their pre- and post-test scores for affect, organizational satisfaction, organizational commitment and co-worker closeness were recorded before and after engaging in the co-ruminative conversation.

Our initial analysis suggested that the experimental manipulation we used worked; after engaging in the co-ruminative conversation, listeners in the co-reflection condition perceived greater reflective, rather than brooding, component in their discussion with the distressed co-worker. Notably, using an experimental approach to study effects of different co-ruminative conversations that occur in the workplace is important as existing co-rumination research in work setting is exclusively cross-sectional (e.g., Haggar et al., 2011; Boren, 2014; Haggard et al., 2018). None of the previous co-rumination studies in the workplace have manipulated neither co-rumination, more broadly, nor co-ruminative content, more specifically. While experimentation is indispensable to establish causality which helps generate practicable applications for organizations (Hauser et al., 2017), yet the use of experiments in organizational psychology is indeed limited (Eden, 2017). Thus, results from our experiment can help us gain greater understanding of the causal relationship between co-rumination, with its sub-factors, on specific work outcomes.

Our study is the first to explore potential changes in employees' affect, organizational satisfaction, organizational commitment and closeness to co-worker when they listen to co-ruminative conversations with a distressed co-worker. Using our experimental design that involved collection of data about listeners' organizational and individual outcomes

before and after introducing our manipulation, we aimed at extending the application of the Affective Events Theory (AET; Weiss & Cropanzano, 1996) to test whether momentarily experiences of co-rumination at work can indeed impact employees' affective reactions when they are involved in co-ruminative conversations of differing content. As hypothesized, our analysis revealed that co-brooding was related to a significant decline in listeners' organizational satisfaction and organizational commitment. In addition, after co-brooding, listeners experienced an increase in negative affect, albeit only marginally significant ($p = .057$). Decreases in listeners' post-test positive affect and co-worker closeness were also observed, but were well above the conventional significance threshold. On the other hand, after co-reflection, listeners did not experience significant changes in their affect, organizational satisfaction or organizational commitment. Interestingly, the only dependent variable witnessing changes after co-reflection was closeness to co-worker. Listeners in the co-reflection condition experienced a significant increase in their feeling of closeness towards their distressed co-worker- a result that matches with our assumptions.

Our research, thus, reveals that even when an employee has not experienced a stressful work situation firsthand, yet the mere act of listening to the work problems of others can potentially harm one's satisfaction with and commitment to their work organization, especially when the distressed employee discusses the matter extensively and excessively in an emotional fashion (i.e., engages in co-brooding). It is plausible that when employees invest their work time in listening to their co-workers repeatedly brood about the same work problem over time, without reaching a resolution, that they lose such valuable work resource which could otherwise be utilized in finishing work tasks. Such depletion of resources, according to the Conservation of Resources theory (COR; Hobfoll, 1989), can result in negative consequences, in our case it is in the form of reduced organizational satisfaction and organizational commitment. To avoid such negative consequences, listeners might divert disclosers to talk in a way that is more reflective, solution-focused. In such a way, listeners would garner the benefits of greater relational closeness to the distressed person, without putting their own well-being at stake. Indeed, according to our results, co-reflection can be an adaptive way for co-ruminating about work problems. Although the insignificant changes that occurred after co-reflection were counter to our initial assumptions, yet these results are still remarkable. Lack of significant changes after co-reflection still indicates that, unlike co-brooding, co-reflection does not harm listeners' affect, organizational satisfaction or organizational commitment, supporting the view that not all co-rumination is maladaptive (e.g., Starr et al., 2021; Bastin et al., 2018). Not only that, but also co-reflection has brought the listener to find a closer attachment to their co-worker after the co-ruminative conversation they had had with their co-worker. Indeed, when co-reflecting, dyads dwell on an analysis of the problem with the aim of gaining a deeper understanding of why it has happened (Bastin et al., 2014). Thus, instead of the passive, unconstructive focus on stressor-related thoughts and emotions, dyads engage in a more constructive exchange of perspectives about the broader context of the stressor (Starr et al., 2021). Doing so, listeners might feel they are providing instrumental support to their co-worker by actively helping them solve their problem. In fact, research shows that provision of social support to co-workers is linked to positive outcomes to one's feeling

of mattering and well-being (Zeijen et al., 2023), especially in our experiment where there was no formal obligation on the listener to do so. Thus, based on the premises of the AET, one can conclude that co-brooding is a negative work event that has negative implications on employees- even when they are only listening to their co-workers brooding about their problems; whereas co-reflection is a positive work event that has positive implications- at least on enriching workplace relationships.

However, we still wanted to understand if the effects of co-brooding and co-reflection about work problems may vary across different compositions of work dyads. In fact, previous research shows that different gender compositions of dyads involve varying levels of co-rumination (e.g., Waller & Rose, 2010) and that co-rumination can have different effects according to the gender composition of dyads (e.g., Calmes & Roberts, 2008). As such, we wanted to test for this assumption in our sample of employees. Specifically, we wanted to identify how listeners in varying dyadic gender compositions may be influenced by different co-ruminative content. To answer this question, we simultaneously used both co-rumination condition (i.e., co-brooding vs. co-reflection) and dyadic gender composition (i.e., same genders vs. opposite genders) as predictors in our model. As expected, adding an interaction term between co-rumination condition and dyadic gender composition provided interesting insights regarding changes in organizational satisfaction and organizational commitment, which significantly varied across different compositions of dyads. Post-hoc analysis revealed the maladaptive nature of co-brooding, which was specifically noticeable for listeners' organizational satisfaction and organizational commitment, and this was particularly salient for listeners in dyads composed of similar genders, whether two males or two females. Conversely, the adaptive nature of co-reflection was observed in listeners' post-test scores for organizational satisfaction and organizational commitment, where these scores were significantly higher for listeners in same-gender dyads than opposite-gender dyads. Put differently, co-brooding seems more detrimental for listeners in same-gender dyads than opposite-gender dyads; whereas co-reflection appears to be more advantageous for listeners in same-gender dyads than opposite-gender dyads. Research on peer interactions may provide a plausible explanation for such finding. For example, Rose & Rudolph (2006) suggest that males and females have different goals in peer interactions, whereas females are inclined to have more connection-oriented goals in dyadic interactions, males have more agentic-oriented goals (Rose & Rudolph, 2006). As such, it might be that, when engaging together in a co-reflective conversation about the discloser's work problems, males in opposite-gender dyads demonstrated more dominance in offering explanations for problems, whereas females showed more empathy. Having differing reflective orientations between the distressed person and the listener, a male listener with a female discloser might have felt they are losing control of the discussion; whereas a female listener with a male discloser might have felt her disclosed reflections about the problem are not well-understood, leaving listeners in opposite-gender dyads feeling negatively about the co-ruminative conversation. This may explain why listeners in opposite-gender dyads scored lower than listeners co-reflecting in same-gender dyads on post-test organizational satisfaction and commitment.

Remarkably, and up to our best knowledge, all research that distinguished the effects of co-brooding and co-reflection across friends had respondents reporting on their co-brooding and co-reflection with only same-gender friends (e.g., Bastin et al, 2014; Bastin et al., 2018). Our results concerning listeners in same-gender dyads seems to correspond to results of previous research, where co-brooding is regarded as the maladaptive component of co-rumination, whereas co-reflection as the more adaptive one. Nonetheless, what distinguishes our results is that our focal unit of analysis was the listener. Previous research has examined co-rumination effects exclusively for the distressed person in order to understand if co-rumination, as a social support mechanism, helps with emotional relief (e.g., Afifi et al., 2013; Ames-Sikora et al., 2017) or regardless of the role of the respondent in the co-ruminative conversation (e.g., Bastin et al., 2021). In fact, items in the Co-Rumination Questionnaire (CRQ; Rose, 2002) do not really capture the identity of the respondent (i.e., whether discloser or listener), where items start with "When we talk about a problem that one of us has," and this may explain why much of the previous research examines co-rumination outcomes in general without specifying the role of the respondent in co-rumination.

Taken together, our results suggest that examining co-rumination as a two-factorial construct helps to capture the specific costs and benefits of co-rumination to the listener of the co-ruminative conversation across different compositions of work dyads. Additionally, using a sample of working adults, results of our study seem to suggest that co-brooding is even more detrimental to organizational outcomes, (i.e., organizational satisfaction and organizational commitment) than it is for individual outcomes (i.e., affect and co-worker closeness). These results underscore the importance of studying co-rumination as one of the informal communication mechanisms in organizations that can have significant impact on employee outcomes. Further, our results extend the application of the Conservation of Resources Theory (COR; Hobfoll, 1989) and Affective Events Theory (AET; Weiss & Cropanzano, 1996) to conceptualize co-rumination as an affective work event that can have positive or negative attitudinal and behavioral outcomes based on the content of co-rumination.

4.6 Limitations and Implications

Given the novelty of this study, it has paved the way for various potential gaps in literature that yet need to be considered by future researchers. Despite this, our research is not without limitations, which we discuss in this section. First, in our research, we tackled co-rumination as a linear process that starts with the discloser's co-rumination content and affects the listener. Although this conceptualization helped us elucidate listener effects by comparing their pre- and post-test scores, yet it limited our ability to consider co-rumination as a bi-directional social process of emotional co-regulation. Future research needs to study co-rumination as a dynamic social process that influences both co-workers of the dyad (i.e., the discloser and the listener). Second, and despite the fact that this is the first study to consider the social consequences of co-rumination in work setting, our investigation entailed that only one co-worker was involved in the co-ruminative conver-

sation, which might give a limited understanding of co-rumination outcomes. However, a study by Marmenout (2011) points out at the occurrence of co-rumination across multiple disclosers and listeners. It is plausible, thus, that when more disclosers and more listeners are involved in the co-ruminative conversation that outcomes differ, especially at the team and/ or organizational levels - a potential gap that future research needs to address. Third, a limitation of this study is the absence of a control group. Due to limited access to enough participants from an employee sample who can complete all parts of the experiment, we preferred to only have the two conditions we are testing without including a control group. Including a control group would help understand co-rumination outcomes above and beyond normal work-related talk. Fourth, although our analysis revealed that changes in affect after the co-brooding and co-reflection conversations were in the expected direction, where positive affect decreased and negative affect increased for those in the co-brooding condition while the opposite was true for those in the co-reflection condition, yet the observed p-values did not meet the conventional threshold for statistical significance. These results suggest that co-brooding and co-reflection might have a potential impact on listeners' affect, but that either the method used or the sample employed were not adequate to capture such changes in affect. Thus, for future studies, we suggest using larger sample size in addition to complementary measurement tools to assess affect, such as observer feedback or FaceReader to understand the subtle changes in affect that might have occurred as a result of co-rumination that might not have been captured by the PANAS. Fifth, our findings suggest that opposite-gender dyads might have co-rumination patterns different from those of same-gender dyads. Future qualitative studies might delve into that possibility. Finally, though our respondents included both academic and administrative staff, yet generalizing results of this study should be done with caution as our sample was explicitly drawn from a single private university in Egypt.

4.7 Conclusion

Employees face daily stressful work situations, and many resort to co-ruminate about their distress with work colleagues. This study sought to contribute to the analysis of co-rumination outcomes in work setting with a specific focus on the listener of the co-ruminative conversation. Our study underscores the significant effects co-rumination can have on employees who merely engage in listening and discussing problems faced by a distressed co-worker, even when not experiencing the problem firsthand. Additionally, our results provide support for the two-factorial structure of co-rumination and found that each factor relates differently to listeners' organizational and individual outcomes- though the latter was quite weak. It is important to recognize that these effects vary across different gender compositions of dyads. Organizations need to pay attention to co-rumination as a significant form of communication that at times has severe outcomes, but can also be an informal mechanism for leveraging employees' satisfaction with and commitment to their organizations.

Appendix

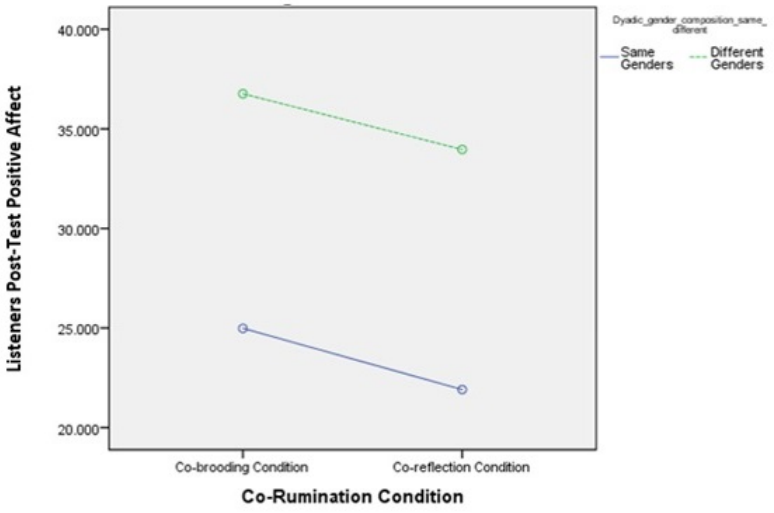

Figure 4.2: Interaction Effects of Co-Rumination Condition and Dyadic Gender Composition on Post-Test Positive Affect

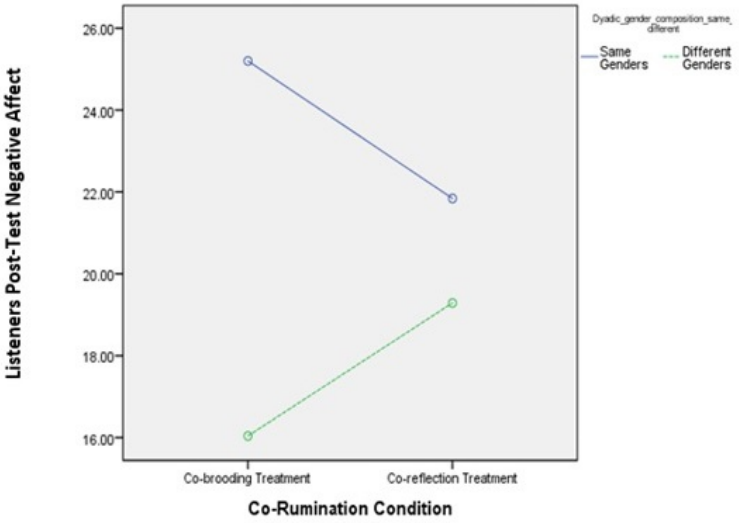

Figure 4.3: Interaction Effects of Co-Rumination Condition and Dyadic Gender Composition on Listeners Post-Test Negative Affect

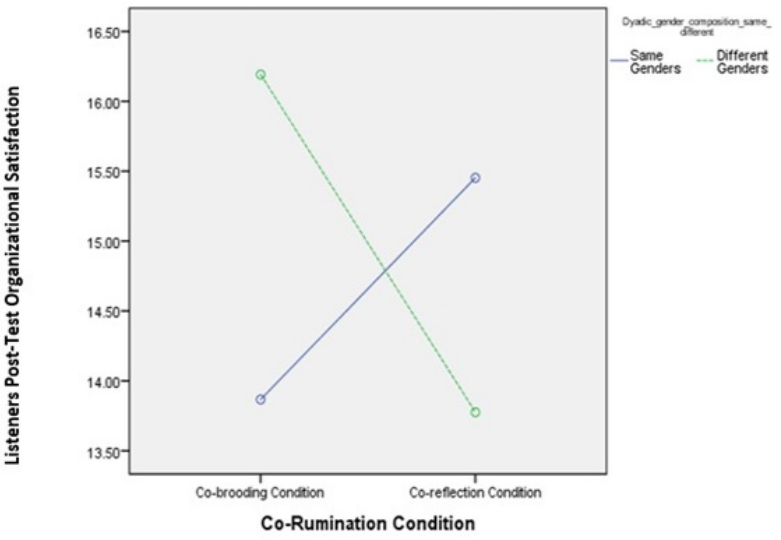

Figure 4.4: Interaction Effects of Co-Rumination Condition and Dyadic Gender Composition on Listeners Post-Test Organization Satisfaction

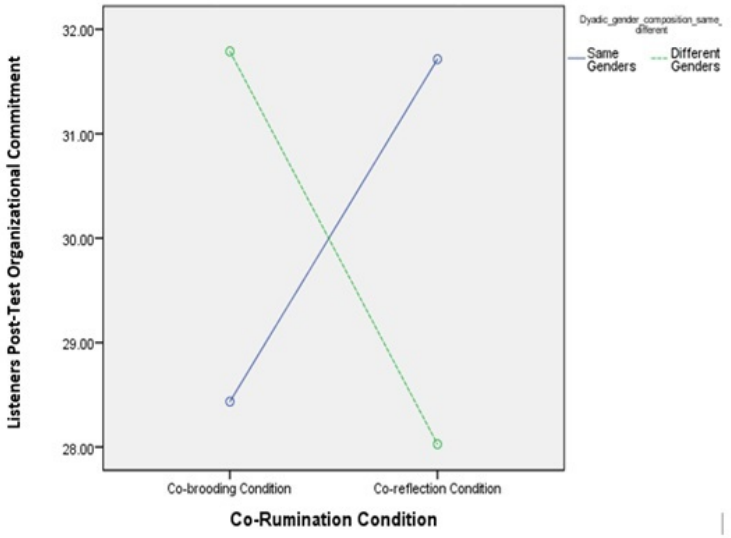

Figure 4.5: Interaction Effects of Co-Rumination Condition and Dyadic Gender Composition on Listeners Post-Test Organizational Commitment

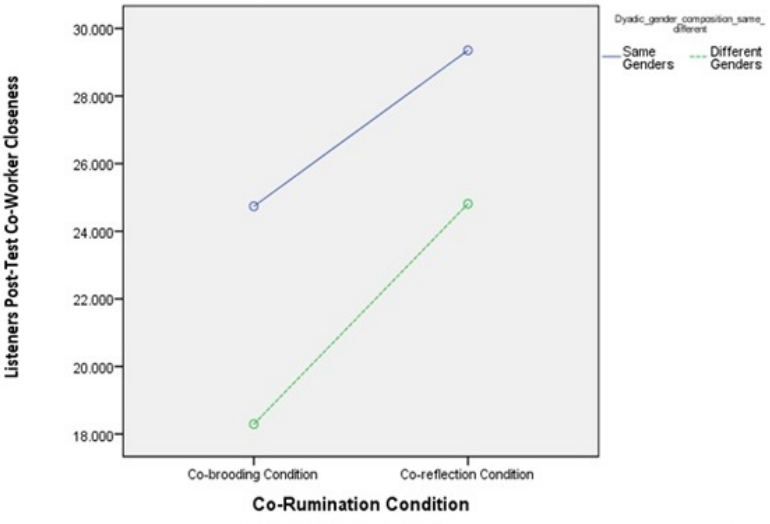

Figure 4.6: Interaction Effects of Co-Rumination Condition and Dyadic Gender Composition on Listeners Co-Worker Closeness

5. Conclusion

In this concluding chapter, I present the key takeaways from the projects in this dissertation. I will specifically outline the main findings of each project in light of the research questions expressed in the introduction of this dissertation, and I will give special attention to the implications of the results from a broader perspective.

5.1 Overview of Main Findings

In this dissertation, we aimed at refining our understanding of the concept of work-related rumination. To do that, we examined the clinical and developmental psychology literatures, which have both studied rumination in length— albeit in child and adolescent samples. In Chapter 2, thus, we took a novel perspective to study work-related rumination. We considered work-related rumination as an overarching construct that includes intra- and interpersonal manifestations as well as affective and cognitive components. This view helped us bridge the gap between psychology and organization research on the topic of rumination. Our literature review revealed that certain forms of rumination have been overlooked by organization scholars (e.g., co-brooding and co-reflection), whereas other types were studied in work settings but have not been extended to psychological research (e.g., collective rumination). To consolidate these dispersed lines of research on rumination and to create a common understanding of the concept, we created a typology of work-related rumination based on psychology and organization literatures. The contribution of this paper lies in organizing the extant literature of rumination based on both fields (i.e., psychology and organization) and classifying the types of work-related rumination in a single typology based on two important dimensions: rumination content and context. Additionally, new specific types of work-related rumination emerged (i.e., collective brooding and collective rumination). This synthesis, in turn helped update current knowledge on the topic of work-related rumination, identify potential gaps in the literature, and offer insights for practitioners.

We then aimed at understanding how these different types of work-related rumination compare against each other in terms of well-being: we questioned the possibility if there are types which are more detrimental than others and if there are forms of rumination that could be potentially beneficial. In Chapter 3, thus, we looked at the costs and benefits of four different types of work-related rumination. Although previous research explored two types of intrapersonal rumination in work-setting, namely, affective (e.g., Zoupanou & Rydstedt, 2019) and cognitive rumination (e.g., Baranik et al., 2017), yet a parallel of this distinction has not been applied before to the interpersonal variant of work-related rumination (i.e., co-rumination). Along with the unidimensional view of work-related rumination, there is limited research examining co-rumination between working adults (Haggard et al., 2018). Additionally, a comparison between these different manifestations

of work-related rumination has not been conducted before. Accordingly, Chapter 3 examined work-related rumination at the intra- and interpersonal levels, while considering the affective and cognitive content each entails. We tested whether the different forms of work-related rumination associate differentially with three well-being indicators: affect, burnout and work-interference with family. We found that associations to well-being indicators did vary by type: increases in affective intrapersonal rumination associated with increases in feelings of depression and anxiety, burnout and work-interference with family and decreases in comfort and enthusiasm towards work, whereas increases in cognitive intrapersonal rumination associated with decreases in burnout and increases in enthusiasm towards work. Regarding interpersonal work-related rumination, affective content associated with increases in burnout, anxiety, depression, and work-interference with family, whereas cognitive content associated with both decreases in burnout and work-interference with family and increases in enthusiasm towards work. However, when we compared the costs and benefits of all four types of work-related rumination in one model, affective intrapersonal rumination emerged as the most detrimental to well-being. This asserts findings regarding suppression versus expression of emotions, where the former is usually found to relate to well-being costs whereas the latter to potential benefits (Cameron & Overall, 2018).

In Chapter 4, we opted to examine how the effects of work-related rumination can extend beyond the individual employee by considering its potential effects for co-workers. To this end, we examined how exposure to two contents of co-ruminative conversations at work can potentially have differential impact for employees exposed to such co-ruminative conversations. We found that employees who listened to co-ruminative conversations of affective content experienced negative outcomes, including lower organizational satisfaction and organizational commitment. On the other hand, those exposed to co-ruminative conversations of cognitive content felt a greater sense of closeness to their distressed co-worker.

5.2 Novel Perspectives

Based on our findings, we believe this dissertation offers novel perspectives to the study of work-related rumination in multiple ways. First, although previous organization research has investigated co-rumination occurring in the workplace, yet no study has considered its two-factorial structure, and thus it has only been studied as a single-construct with mixed outcomes. In this dissertation, we suggest using the co-brooding/ co-reflection distinction which has been used in clinical psychology literature. This distinction helped us understand the specific components of co-rumination that are maladaptive and those that are potentially not. Based on theoretical and empirical grounds, we found that co-brooding was related to negative outcomes for the employee, their families (Chapter 3), their organizations and their co-workers (Chapter 4). On the other hand, we found co-reflection, when compared to co-brooding, either had no significant associations to positive and negative well-being indicators (Chapter 3) or had only positive effects on well-being indicators (Chapter 4).

Second, this dissertation highlighted not only individual, but also social outcomes of work-related rumination by considering how its effects extend to the employees' family, co-workers and organizations. For example, we found that affectively ruminating and co-ruminating about one's work distress may contribute to one's feeling that work is interfering with their family responsibilities (Chapter 3) and that co-rumination of affective content may also come at the expense of co-workers drawn to such co-ruminative conversations (Chapter 4). We have shown that even the act of listening to distressed co-workers verbally ruminating about their work distress can potentially decrease one's satisfaction with and commitment to their work organization. We, thus, shifted the focus from the employee ruminating or co-ruminating about their own problems to those in their close social circle.

Third, in this dissertation we used three methodological designs to answer our research questions. In the first project (Chapter 2), we proposed a conceptual model, a typology, to explore the dimensionality of work-related rumination. In a single, integrated typology, we mapped out the different types of work-related rumination by cross-tabulating rumination content versus rumination context. Relying on both psychological and organizational sciences, we tracked six potential unique types of work-related rumination. In Chapter 3, we explored four of those unique types using a cross-sectional study where we collected data about employees' levels of rumination and co-rumination about work at a single point in time, and we compared how each of those four types uniquely associated with employee well-being indicators. In Chapter 4, we undertook an experimental study to test the causal associations of two types of work-related rumination with listeners' well-being indicators. We opted to such variation in methodologies because our aim in this dissertation was to explore the topic of work-related rumination as per the understanding of multiple disciplines: the conceptual design enabled bridging the gap between disciplines, the cross-sectional design tested the hypothesized associations as suggested by various disciplines, and the experimental design validated the existence of presumed causal relationships and the significance of a new experimental manipulation that can be extended to other disciplines.

Fourth, previous research on work-related rumination and co-rumination have exclusively utilized Western samples (Rose, 2021), and co-rumination studies have primarily focused on same-gender friendships. In this dissertation, we challenged those two conventions by testing our assumptions on work-related rumination and co-rumination using a partially non-Western sample (Chapter 3) and a completely non-Western sample (Chapter 4). This practice proved beneficial and provided important insights to the study of work-related rumination. In fact, it seems quite reasonable now to say that findings of work-related rumination research cannot be generalized for employees across all countries, and that co-rumination outcomes vary by the gender composition of dyads. Our findings showed that the intensity of rumination and co-rumination varied between employees in two different countries (Chapter 3), and that the specific gender composition of work dyads significantly had an impact on co-rumination outcomes (Chapter 4). These findings suggest the importance of studying work-related rumination in other non-Western cultures and using

different gender compositions (in case of co-rumination).

5.3 Avenues for Future Research

This dissertation entails a number of potential avenues for future research on work-related rumination. First, we have presented a typology of work-related rumination (Chapter 2) where we identified six unique types of work-related rumination based on content and context of rumination. Despite testing for the interpersonal domain of work-related rumination using the variants of co-brooding and co-reflection, yet we did not test for other types of interpersonal work-related rumination such as collective brooding and collective reflection. In fact, two previous studies (Marmenout, 2011; Knipfer & Kump, 2021) highlighted the significance of studying the broad phenomenon of collective rumination in work setting, proposing that collective rumination might affect organizational resilience (Knipfer & Kump, 2021) and employees' mood (Marmenout, 2011). Yet research in this area is still lacking. Relatedly, there are no existing scales to capture collective rumination and its two sub-factors. We, thus, suggest that future researchers draw more attention towards the study of collective work-related rumination and its two sub-factors.

Second, prior conceptualization presumes intrapersonal work-related rumination to take place only during non-work time. The most widely used scale measuring work-related rumination by Cropley & Zijlstra (2011), which we relied on to conduct our exploratory study in Chapter 3, captures employees' rumination during only their free time. Despite the importance of this understanding in studying hindrances to recovery from work, yet it precludes the examination of rumination that might occur directly after occurrence of stressful event or that occurs before going to work, and how this might impact important outcomes such as employee performance and commitment. The development of scales that measure such broader understanding of work-related rumination occurring at potentially any time of the day- not necessarily only during one's free time- can provide important insights.

Third, we have found significant associations between work-related rumination and co-rumination (Chapter 3), and previous clinical research has indeed suggested that episodes of co-rumination are associated with occurrence of rumination (e.g., Aldrich et al., 2019; Felton et al., 2019; DiGiovanni et al., 2022). Despite the significance of such finding in helping organizations identify individuals who might be more prone to engage in ruminative thinking through the more observable co-ruminative behavior, yet organization research has not previously investigated such interlink between work-related rumination and co-rumination and how this relationship operates in working adults. We believe this is an important next step for researchers to consider worth of studying.

Fourth, while we have shown that work-related rumination and co-rumination can have adaptive and maladaptive well-being consequences according to the ruminative content incurred (i.e., affective versus cognitive), yet we did not explore whether and how an employee might alter the content of their ruminative thoughts and discussions to be less emotion-focused and more problem-solving-focused. Few research exists in this area, and

has, indeed, pointed out to the possibility of reducing one's work-related affective rumination through Cognitive Behavioral Therapy (Querstret et al., 2013) and practicing mindfulness (Querstret et al., 2017). However, given the severe impacts of affective intra- and interpersonal work-related rumination, we believe this area of research warrants further investigation.

Fifth, our research has responded to calls of previous scholars for research that considers cultural differences in co-rumination (Rose, 2021). In Chapter 3, we have shown how affective interpersonal rumination differs in intensity across the Egyptian and German contexts, and in Chapter 4 we examined co-rumination effects on listeners in an under-investigated population, a Middle –Eastern population (Rose, 2021). Despite the importance of such investigations, yet since, up to our best knowledge, no prior research has examined work-related co-rumination effects on listener, we believe that our findings in Chapter 4, await replication in Western cultures as well. In fact, research shows that emotion regulation strategies that worsen psychological health of individuals in one culture might actually prove beneficial for individuals in other cultures (Tamir et al., 2023; Chang et al., 2010). As such, further investigation of the role of culture in the association of work-related rumination and co-rumination with outcomes is warranted.

5.4 Practical Implications

This dissertation has been initially woven to investigate how employees can, themselves, harm their own well-being when they adopt certain response styles to distressing work situations. Certainly, I am in no position to allege that work stress is mainly induced by employees themselves; however, I intended to find out if employees can have more adaptive response styles to stress that can potentially safeguard their own well-being when work stress is inflicted upon them. In my quest, I was inspired by the understanding that employees are not passive reactors to their work environment (Bakker & Demerouti, 2018) and that they play an active role in protecting their own well-being and mental health (Bakker & de Vries, 2021). In light of this, I believe that the first practical implication for the current work is for employees to be mindful of their response style to distress, to note which thoughts they dwell on, and which talks they're drawn to at work. Ruminative thoughts and talks focused on the negative emotions inherent to the stressful work situation will only produce a series of undesirable consequences for the self, the others, and the organization at large. By adopting thoughts and talks that help one gain greater insight and understanding of why a stressful work situation has occurred, employees can potentially prevent themselves against the harmful effects of the maladaptive component of work-related rumination, namely, affective rumination and co-rumination.

Additionally, while friendships at work can be rewarding, yet they can still have downside effects (Pillemer & Rothbard, 2018). In light of the findings of the current work, employees need to be aware that some friends at work can pose risks to one's well-being, and these are the brooders. Certainly I am not suggesting that one refrains from interacting with them at work; rather, one should be aware of when a conversation is becoming excessive, repetitive and emotion-laden, and, at this point, attempt to divert the conversation style.

In practical terms, this might mean changing the conversation style to be more reflective, solution-focused. Also another practical solution would be to replace the co-ruminative talk with pleasant activities (Schwartz-mette & Rose, 2012). When this works not, perhaps changing one's relational boundaries (known as job crafting; Wrzesniewski & Dutton, 2001) would be a third option. This may entail reducing the amount of interactions with frequent brooders.

To facilitate employee efforts, practitioners need to design interventions that create awareness about work-related rumination and co-rumination and that, ideally, enable employees change the content of their rumination and co-rumination to be more reflective. Despite the scarcity of research in this area, there are few studies that propose some potential mechanisms to reduce affective intrapersonal rumination, such as cognitive-behavioral therapy workshops (Querstret et al., 2013) and mindfulness-based interventions (Querstret et al., 2017). Importantly, practitioners need to consider carefully the implementation of such interventions in order to illicit the desired outcomes. Existing literature (e.g., Knudsen et al., 20124) already provides detailed explanations of factors that facilitate, as well as those that inhibit, successful implementation of mindfulness programs in organizations. Additionally, since we found that females engage in the maladaptive forms of rumination and co-rumination at significantly higher levels than males, such mechanisms are specifically important to be in place for female-dominated organizations, such as healthcare, education and childcare (Limani & Sodergren, 2023). Further, inclusion of onsite and remote-workers is recommended since we found that both groups of employees had similar patterns of rumination and co-rumination.

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