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UNDERSTANDING WORKPLACE CYBERBULLYING

MORE THAN JUST AN OLD PROBLEM IN A NEW GUISE

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Summary

Cyberbullying – aggressive behaviour occurring through the use of Information and Communication Technologies (ICTs) (Smith et al., 2008) – has been substantially studied in research on childhood, adolescence and emerging adulthood. However, despite the impressive body of research on cyberbullying amongst youngsters as well as on offline workplace bullying, studies in the work context have largely neglected its electronic counterpart. We aim to address these lacunae by (a) defining the workplace cyberbullying construct, (b) proposing an Emotion Reaction model to predict workplace cyberbullying occurrence and by (c) testing this model in different contexts (at work and at home), using different designs (cross-sectional and longitudinal) and analytical methods (structural equation modelling and multilevel modelling). Furthermore, in doing so, we account for the current gaps in the traditional bullying literature by (a) focusing on both targets and offenders in the cyberbullying process, by (b) investigating longitudinal processes and by (c) testing the model on both between-person and within-person level.

This PhD dissertation consists of five studies. In *Study 1*, we integrate insights from the literature regarding traditional workplace bullying, cyberbullying amongst youngsters, computer-mediated communication, and emotions in building the Emotion Reaction model (ERM) of workplace cyberbullying. In *Study 2* we develop and validate a measure of workplace cyberbullying – the Inventory of Cyberbullying Acts at Work. In *Study 3*, we test the main propositions of the ERM regarding cyberbullying victimization on a between-person level. That is, we test the hypotheses that workplace stressors are associated with discrete negative emotions of sadness and fear, which in turn predict cyberbullying victimization. We also test whether this process is moderated by emotion regulation strategies of reappraisal and suppression. In *Study 4*, we investigate whether different groups of cyber-victims can be distinguished based on the negative acts they experience online and whether these groups have different associations with the emotion regulation strategies reappraisal and suppression. Finally, in *Study 5*, we test the main propositions of the ERM regarding cyberbullying perpetration on a within-person level in dual-earner couples. That is, we test whether daily work stressors are associated with daily feelings of anger and whether the latter in turn predict daily antisocial behaviours online in working men and women. Throughout this dissertation, we find that stressor-evoked emotions play a crucial role in our understanding of the workplace cyberbullying phenomenon, both from the victim's and the perpetrator's perspective.

Samenvatting

Cyberpesten – agressief gedrag gesteld door middel van Informatie- en Communicatietechnologieën (ICT) (Smith et al., 2008) – werd uitgebreid bestudeerd bij kinderen, adolescenten en jongvolwassenen. Ondanks de grote interesse in het fenomeen cyberpesten bij jongeren en in pesten op het werk, is het fenomeen cyberpesten op het werk tot op heden grotendeels onderbelicht gebleven. We willen deze lacune aanpakken door (a) een definitie voor te stellen van cyberpesten op het werk, (b) een Emotion Reaction-model te ontwikkelen dat het ontstaan van cyberpesten op het werk helpt verklaren en door (c) dit model in verschillende contexten te testen (op het werk en thuis), gebruikmakend van verschillende designs (cross-sectioneel en longitudinaal) en analytische methodes (structural equation modelling en multilevel modelling). Daarnaast houden we ook rekening met de huidige hiaten in de traditionele pestliteratuur op het werk door (a) zowel onderzoek te doen naar zowel slachtoffers als daders van dit negatief online gedrag, door (b) longitudinale processen bloot te leggen en door (c) zowel te kijken naar processen die zich afspelen tussen individuen (verschillen in stabiele kenmerken tussen mensen) als binnen individuen (verschillen in processen binnen een persoon).

Dit proefschrift bestaat uit vijf studies. In Studie 1 integreren we inzichten uit de literatuur over traditioneel pesten op het werk, cyberpesten bij jongeren, computer-gemedieerde communicatie en emoties door het uitwerken van het Emotion Reaction-model (ERM) van cyberpesten op het werk. In Studie 2 ontwikkelen en valideren we een meting van cyberpesten op het werk – the Inventory of Cyberbullying Acts at Work (ICA-W). In Studie 3 testen we de belangrijkste proposities van het ERM met betrekking tot het slachtofferschap van cyberpesten op het werk. We testen namelijk de hypotheses dat stressoren op het werk geassocieerd zijn met de discrete negatieve emoties verdriet en angst, die op hun beurt het slachtoffer zijn van cyberpesten op het werk voorspellen. We testen ook of dit proces wordt gemodereerd door de emotie-regulatiestrategieën herwaardering en onderdrukking. In Studie 4 onderzoeken we of verschillende types cyber-slachtoffers kunnen onderscheiden worden op basis van de negatieve handelingen die zij online ervaren en of deze groepen verschillen inzake de emotie-reguleringsstrategieën herwaardering en onderdrukking. Als laatste testen we in Studie 5 de belangrijkste proposities van het ERM met betrekking tot het dader worden van cyberpesten via van een dagboekstudie bij tweeverdieners. We testen daarbij of werkstressoren op dagniveau geassocieerd zijn met dagelijkse gevoelens van woede en of deze op hun beurt cyberpestgedrag bij werkende mannen en vrouwen voorspellen. Doorheen dit proefschrift vinden we steun voor de stelling dat door stressoren opgewekte emoties een cruciale rol spelen bij het ontstaan van cyberpesten op het werk, zowel vanuit het perspectief van het slachtoffer als dat van de dader.

Acknowledgments

I would like to start by saying that this section of my PHD dissertation is the only one not supported by empirical evidence or an extensive list of references. It is merely based on my personal observations and opinions, which is the complete opposite of the chapters that are yet to follow. So, while I finally get to chance to poor my heart out, bear with me through this couple of pages.

DISCOVER YOURSELF. START WITH THE WORLD.

This has been a popular campaign by the KU Leuven in the past years. However, in the light of my personal experience, I would rather change it to: 'Discover yourself. Start with a PhD'. Despite the popular notion that PhD revolves around getting really immersed into one particular topic – in my case, workplace cyberbullying – I would argue that there are actually two aspects salient within this journey, with a subject of even bigger inquiry being yourself.

During your PhD, you do not learn how to summarize large amounts of information, how to analyse complex sets of data, how to write well-structured papers or how to collaborate with different types of people. What you actually learn is how you deal with the overwhelming amount of information you are constantly confronted with, with failures of analyses that do not work out the way you want them to, with having to write and rewrite sections of a paper over and over again and with dealing with your own and other people's emotions in periods of great stress. Those are the challenges. But the silver lining in between that all is made up of all the great people who surround you and make this time worthwhile.

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~

Table of Contents

Artwork by Irena Orlov

Black and White Abstract Work - https://www.irenaorlov.com/

Chapter I

Workplace Cyberbullying: The New Kid on the Block

While research on 'traditional' workplace bullying has evolved rapidly, studies on its electronic counterpart have only recently emerged. However, the impact of modern technologies on our daily lives cannot be neglected. Currently, half of the world's population is connected through the Internet, with more than a third being active social media users (Smart Insights, 2018). Organisations have increasingly adopted Information and Communication Technologies (ICTs) since their introduction into the working life in the '80s. This gave rise to a virtual workplace characterized by a lack of traditional boundaries such as physical space and time, and in which core tasks and interactions are performed using various technologies (Broadfoot, 2001). An increasing number of organisations support virtual workplaces (Hertel, Geister, & Konradt, 2005). Empirical evidence even suggests that employees spend more time communicating through e-mail than they do face-to-face (Wajcman & Rose, 2011).

A challenge for organisations is adapting to the fast paced changes technology brings. The rapid tempo of development has intensified work processes, leaving workers constantly racing to keep up with the ever-evolving work environment (Korunka & Hoonakker, 2014). In addition, a new virtual environment has been established: one that creates its own social dynamics in how people express themselves, communicate with others and construct their own sense of identity (Suler, 2004). Unfortunately, this virtual environment also provides people with a new avenue for aggressive conduct. Cyberbullying – intentional aggressive behaviour, occurring repeatedly and over time through electronic technologies between a perpetrator and victim who are unequal in power (Smith et al., 2008) – is an important example of this.

Cyberbullying has been receiving considerable attention in the adolescent literature, in which prominent scholars have explored its antecedents, outcomes and explaining mechanisms, together with its impact on the surroundings involving among others bystanders, teachers and parents. It is therefore surprising that cyberbullying in the work context has not yet received much scholarly interest. There is still limited knowledge on its defining characteristics, its prevalence, predictors and consequences. This is an important lacuna, because both people facing this type of negative behaviour and professionals trying to remediate it are currently left without useful or theoretically sound guidelines. The main aims of this doctoral dissertation are therefore (a) to create an understanding of what constitutes cyberbullying at work by providing a comprehensive definition of this phenomenon, (b) to propose a theoretical framework regarding its emergence in the workplace, (c) to develop a reliable and valid tool for assessing its prevalence and (d) to empirically test the proposed framework and study its dynamics, transcending the mere work context. In doing so, we also wish to fill certain gaps prevalent in the traditional workplace bullying literature by (a) focussing on both targets and

perpetrators of cyberbullying behaviour at work, by (b) conducting longitudinal studies and by (c) looking at both between-person as well as within-person differences in processes leading to cyberbullying.

Additionally, this doctoral dissertation is situated within a joint project between members of the KU Leuven, specialising in work stress and bullying, and the University of Antwerp, specialising in adolescent cyberbullying. Because of this, specific attention is given to a cross-fertilisation between the two fields. This is visible in the integration of the two literatures when studying the phenomenon of cyberbullying, but also in one of the studies of this dissertation in which parallels are explicitly drawn between adults and adolescents by looking at the cyberbullying phenomenon in both samples.

We first discuss the current state of the workplace cyberbullying literature ('1. State of the art'). Next, drawing from contemporary knowledge, we highlight some important voids in our understanding of this negative online phenomenon and use them to determine the focus of this PhD dissertation ('2. Current voids and research directions'). Finally, we present the aims of this PhD dissertation and the questions we aspire to address throughout the different studies ('3. Asking the right questions').

1. State of the art[1]

The first studies on cyberbullying emerged at the beginning of the 21st century and were solely focused on adolescents. This field has known an enormous growth ever since. On the contrary, the phenomenon of workplace cyberbullying has only recently been gaining attention. In what follows, we provide an overview of the state of the art of this novel research field. Where necessary, we build on adolescent literature in order to create a more comprehensive picture. First, we tap into the specific characteristics of this online phenomenon and its relation with other related online constructs. Next, we review empirical evidence regarding its prevalence, its outcomes and its antecedents.

1.1 Workplace cyberbullying characteristics

In adolescent literature, cyberbullying has been defined as aggressive, intentional acts carried out in an electronic context (e.g., e-mail, blogs, instant messages, text messages) repeatedly and over time against a target that cannot easily defend him/herself (Smith et al., 2008). Workplace cyberbullying researchers so far have generally borrowed adolescent cyberbullying definitions such as this one. The following four core components can be extracted from these conceptualizations: (1) perceived intent,

[1]Based on : Vranjes I., Farley S., Baillien E., (2018). Harassment in the digital world: Cyberbullying. In S., Einarsen, H., Hoel, D., Zapf & C. L., Cooper, (in prep.) (Eds.). Bullying and harassment in the workplace: Developments in theory, research, and practice. (3rd ed.). Boca Raton: CRC Press.

(2) a repetitive and enduring nature, (3) a power inequality between the victim and perpetrator and (4) the electronic context (Kowalski, Limber, Limber & Agatston, 2012). The first three components are identical to those defining traditional bullying[2]: consequently, workplace cyberbullying has implicitly been perceived as an extension of 'traditional' workplace bullying to the online context (Privitera & Cambell, 2009). However, as some recent studies point out, workplace cyberbullying has additional characteristics that differentiate it from traditional bullying (D'Cruz & Noronha, 2017). For example, the perpetrator can remain anonymous, while certain acts can be seen by a greater audience and could be more intrusive. As a consequence, some criteria regarded as the backbone of traditional bullying (power imbalance and repetition) hold a different meaning online.

1.1.1 Anonymity

In some instances, perpetrators are able to conceal their identities online and remain anonymous (Staude-Müller, Hansen & Voss, 2012) for example by creating a false e-mail account, or by withholding identifying information when making calls. Anonymity of the perpetrator, if it occurs, is said to make cyberbullying more severe than traditional bullying (Mishna, Saini & Solomon, 2009), as it adds to feelings of helplessness and powerlessness in the target (Vandebosch & Van Cleemput, 2008). Notably, anonymity does not always encompass *objective* circumstances in which the perpetrator is unknown to their communication partners. It can also be *subjective,* such as when someone feels invisible because he can 'hide' behind the screen. Subjective anonymity may result in people committing acts online that they would not normally commit (i.e., 'the online disinhibition effect'; Suler, 2004). The absence of emotional feedback inhibits opportunities for empathy and cyberbullies might underestimate the damage they are causing (Kowalski et al., 2014). This can also reinforce continuation of cyberbullying (Dooley, Pyzalski, & Cross, 2009). Accordingly, anonymity (objective or subjective) is an important characteristic that can distinguish cyberbullying from offline bullying (Smith et al., 2008).

1.1.2 Viral reach

Viral reach refers to the volume of message viewing, sharing and forwarding by Internet users (Alhabash et al., 2013). Cyberbullying is considered to be particularly damaging due to its potential wide reach and instantaneous dissemination. This extends to multiple acts committed in the public online arena, such as social network sites (e.g., Facebook and Twitter), blogs, online forums and

[2]Traditional workplace bullying is defined as repeated negative acts carried on over a period of time by an individual or a group towards one or more other individual(s) who cannot easily defend themselves (Einarsen, 2000).

personal websites. Negative content posted in this context is relatively permanent and can be viewed repeatedly by many individuals (Griffiths, 2002). Once content is posted online, there is *very little control* over who views and shares it. This is why cyberbullying can be particularly painful and humiliating for targets (Slonje & Smith, 2008). However, as certain online acts leave an 'electronic footprint', this can also be used by targets as evidence when reporting the problem or seeking redressal (D'Cruz & Noronha, 2013). In other words, the opportunity to collect evidence can in some instances create advantage for targets of cyberbullying that they normally would not have.

1.1.3 Intrusive nature

Because work and social life are intertwined with modern technologies, it is hard for the targets to escape cyberbullying (Slonje & Smith, 2008). In other words, cyberbullying continues well beyond the physical workspace, with the possibility of individuals being targeted anytime and anywhere (West, Foster, Levin, Edmison & Robibero, 2014). Targets of workplace cyberbullying therefore refer to pervasiveness and boundarylessness of cyberbullying behaviour (D'Cruz & Noronha, 2013). In addition, aggressors may gain *access to sensitive information* that would not be obtainable otherwise. This information can then be used against targets, by threats of exposure or actual dissemination online. A famous example of this is the iCloud leak in 2014: an event in which more than 500 private pictures of various celebrities were hacked and spread online.

1.1.4 Power imbalance

Power imbalance between the target and the perpetrator is another important characteristic, with the online context providing new opportunities to achieve it (Langos, 2012). Online, power can relate to possessing more advanced technological skills (Vandebosch & Van Cleemput, 2008). However, online power more often relates to *technological opportunities*, defined by features of the content published on the Internet (e.g., viral nature) or features of computer mediated communication (e.g., anonymity) (Dooley et al., 2009). Indeed, the opportunity to hide one's identity, the viral reach and the intrusive nature of the Internet give power to otherwise powerless individuals. This is why in some instances, individuals who would normally not engage in offline bullying, do commit cyberbullying (Vandebosch & Van Cleemput, 2008), and why online targets often retaliate (Ybarra & Mitchell, 2004; Law, Shapka, Domene & Gagné, 2012).

1.1.5 Public/private behaviour

Cyberbullying can either happen in the public or the private domain of the electronic environment. The perpetrator can send electronic communication directly to the target using communication channels such as instant messaging or e-mail. This type of cyberbullying happens in the *private domain,* with the negative content being available to the target only. When cyberbullying is directed privately to the target, it tends to remain hidden from bystanders unless the target chooses to share it. This type of online bullying is also sometimes referred to as 'direct cyberbullying' (Langos, 2012). Cyberbullying can also occur in the *public domain* when negative content is posted via an electronic medium that is readily accessible to the public, such as a social networking site, a personal website, a blog or a forum. In this situation the perpetrator is aware that the negative content is visible to recipients other than the target. Once posted, the content can be viewed and shared by others, and has the potential to reach a large or even global audience. This type of online bullying, where the cyberbully does not direct the negative electronic communication at the target directly, is also sometimes referred to as 'indirect cyberbullying' (Langos, 2012).

1.1.6 Repetition

Repetition is a crucial component of the bullying definition: it distinguishes isolated cases of behaviour from more systematic aggressive acts that cause severe harm (Langos, 2012; Nocentini et al., 2010). In the offline context, repetition refers to the recurrent enactment of negative behaviour by the perpetrator against a defenceless target. In cyberspace, repetition can take an additional form. Private cyberbullying resembles traditional bullying in that repetition bears the same meaning; a target is subjected to a course of negative online conduct. Public cyberbullying can be viewed and shared by others (Dooley et al., 2009; Langos, 2012). Therefore, repetition does not refer to multiple behaviours conducted by the perpetrator, but rather to the amount of sharing and viewing conducted by others.

1.2 Related constructs

The electronic environment can host many types of misconduct. Whereas some at a glance seem to be closely related to cyberbullying, there are some differences. In Table 1, we describe how these different constructs are defined and whether they meet the four minimum requirements of the cyberbullying definition: (1) the electronic context, (2) perceived intent, (3) repetitive and enduring nature and (4) power inequality between the victim and perpetrator. We see that only cyberstalking meets the four criteria. This is because cyberstalking is described as a specific form of cyberbullying, which includes observing someone furtively and following and targeting people's online activities (Chandrashekhar, Muktha & Anjana, 2016). However, while cyberbullying often stems from negative group processes, cyberstalking more often happens in an 'one on one' relational context. Finally, while

trolling can also in some instances happen repeatedly and anonymously (giving power to the perpetrator), 'trolls' usually focus on random targets, while cyberbullying is said to be a more deliberate form of negative online behaviour.

Table 1

Related negative constructs in the cyber-environment

	Definition	Electronic context	Perceived intent	Repetitive and enduring	Power inequality
Cyberaggression	Intentional harmful behaviour performed by electronic means to a person or a group of people who perceive(s) such acts as offensive, derogatory and harmful or unwanted (Grigg, 2010).	✓	✓		
Cyberincivility	Rude/discourteous behaviours occurring through ICTs that violate workplace norms of mutual respect (Andersson & Pearson, 1999; Lim & Teo, 2009).	✓			
Flaming	Expression of strong and inflammatory opinions to others by electronic means, accompanied by the display of negative, antagonistic emotions in the form of insulting, swearing, offending, or hostile comments (Siegel, Dubrovsky, Kiesler, & McGuire, 1986).	✓	✓		
Trolling	Deliberate online provocation of others for one's own amusement (Hardaker, 2010; Sest & March, 2017).	✓	✓	(✓)	(✓)
Cyberstalking	Repeated pursuit of an individual using electronic means (Reyns, Henson, & Fisher, 2012). This can manifest itself in direct acts, such as harassment or threats online, or indirect acts, such as monitoring someone using electronic devices.	✓	✓	✓	✓

1.3 Prevalence

Farley, Coyne and D'Cruz (in press) reviewed the workplace cyberbullying literature for studies that referenced prevalence, identifying seven studies that included this information. All seven studies examined victimisation rates, rather than perpetrator rates.

Figure 1 shows the prevalence rates of workplace cyberbullying in the seven published studies. The graph shows the percentage of targets broken down by the two different measurement methods: the self-labelling approach and the behavioural experience method (Nielsen, Matthiesen, & Einarsen, 2010). In the self-labelling approach, individuals are directly asked the question whether they have been confronted with cyberbullying. This question is often preceded by an operational definition of cyberbullying. The behavioural experience method entails presenting individuals with a list of negative online acts and asking them to what extent they have been confronted with these acts over a well-defined period of time. Three of the studies (Coyne et al, 2017; Gardner et al, 2016; Privitera & Campbell, 2009) also measured traditional workplace bullying using the behavioural experience method, which allows for a comparison with cyberbullying.

The prevalence rates using the behavioural experience method range from 2.8 to 13.6%, while self-labelling prevalence rates range from 0.7 to 33.8%. Given the small number of studies, there is a need to be tentative about drawing firm conclusions. Studies that measure both forms of bullying using the behavioural experience method display a consistent pattern, as the proportion of people exposed to cyberbullying behaviours on a weekly basis is consistently lower than those exposed to traditional workplace bullying behaviours. Forssell (2016) also compared the proportion of respondents who labelled themselves as targets of workplace cyberbullying and traditional bullying, finding 0.7% self-labelled cyberbullying targets and 3.5% self-labelled traditional bullying targets. It therefore seems that workplace cyberbullying is less prevalent than traditional workplace bullying. However, as not all individuals regularly employ electronic means of communication and lower online activity limits the chance of becoming exposed to workplace cyberbullying, this could partially explain this difference in prevalence rates.

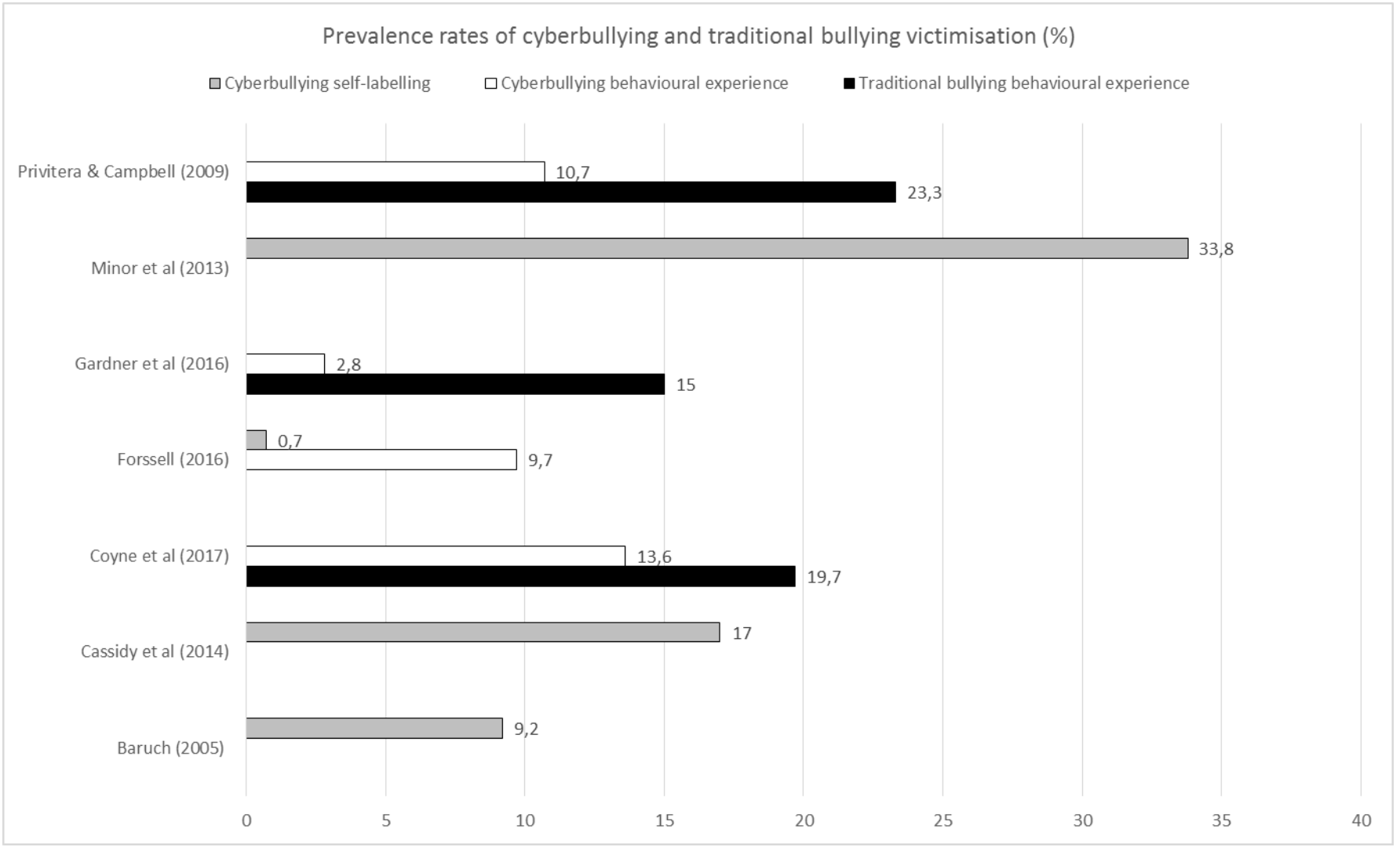

Figure 1. Prevalence rates of workplace cyberbullying and traditional bullying victimization

1.4 Outcomes

Although few studies investigated the outcomes of workplace cyberbullying, the negative effects seem comparable with those of traditional bullying (see Table 2). Some authors suggest that the aspects of anonymity, viral reach and intrusiveness could amplify its negative impact (Coyne et al., 2017). In line with this, empirical findings demonstrate that workplace cyberbullying exposure is associated with depression (Tennant, Demaray, Coyle & Malecki, 2015) and job dissatisfaction (Coyne et al., 2017) above and beyond traditional bullying. On the other hand, others argue that it is not whether bullying occurs online or offline which affects the severity of the behaviour, but rather the type of behaviour (e.g., name calling, exclusion) that is being enacted (Bauman & Neuman, 2013).

Table 2

Empirical findings regarding outcomes of workplace cyberbullying

	Authors	Outcome variables
Individual outcomes	D'Cruz & Noronha (2014); Heatherington & Coyne (2014)	Negative emotions
	Kowalski, Toth & Morgan (2017); Snyman & Loh (2015); Staude-Müller, Hansen & Voss (2012)	Stress
	Farley, Coyne, Sprigg, Axtell & Subramanian (2015)	Mental strain
	Nikolić et al. (2017)	Emotional wellbeing
	Muhonen et al. (2017)	Health and wellbeing
	Rosenthal, Buka, Marshall, Carey & Clark (2016); Kowalski, Toth & Morgan (2017)	Depressive symptoms
Organisational outcomes	Farley et al. (2015); Snyman & Loh (2015); Kowalski et al. (2017)	Decreased job satisfaction
	Kowalski et al. (2017)	Absenteeism
	Baruch (2005); Kowalski et al. (2017); Muhonen et al. (2017)	Turnover intentions
	Nikolić et al. (2017)	Lower organisational support
	Muhonen et al. (2017)	Decreased engagement
	Kowalski et al. (2017)	Counterproductive work behaviour
	Kowalski et al. (2017)	Lowered performance

Note. Some cautions is needed when interpreting these results as all of the studies on outcomes of workplace cyberbullying so far have been cross-sectional in nature.

1.5 Antecedents

1.5.1 Demographic and individual factors

Regarding demographic correlates, some researchers have found that males find themselves more often on the receiving end of workplace cyberbullying (Forssell, 2016), while others find no gender effects (Baruch, 2005; Gardner et al., 2016). There is also some evidence that, in contrast to traditional bullying, supervisors are more exposed to cyberbullying than subordinates (Forssell, 2016; Gardner et al., 2016). Additionally, one study in which employees of a large multinational were asked whether they experienced bullying via e-mail, found that age and hierarchy of the perpetrator were slightly higher than that of the online target (Baruch, 2005). This effect of age could be due to the differences in time spent online between different age groups; however, this has not yet been investigated. Lastly, a recent study found that low support from colleagues was linked to cyberbullying exposure in female managers, while low support from managers was significantly related to cyberbullying exposure in male managers, as well as male and female non-managers. Moreover, while in general age was a protective factor against cyberbullying, this did not apply to female managers (Forssell, 2018).

Targets of cyberbullying point out that certain personal factors can contribute to becoming a perpetrator (i.e., aggressive tendencies) or a target (i.e., personal vulnerability) (Heatherington & Coyne, 2014). In another study, trait anger was significantly associated with cyberbullying enactment through moral disengagement (Wang, L. Yang L., J. Yang, Wang & Lei, 2017).

1.5.2 Contextual factors

In qualitative studies, targets of workplace cyberbullying point towards situational and organisational factors, such as organisational structures, organisational politics and organisational change, as causes (Heatherington & Coyne, 2014). Quantitative findings further supported the role of a poor work context. Gardner et al. (2016) found that less organisational support and less effective organisational anti-bullying strategies were associated with more cyberbullying. Additionally, exposure to cyberbullying at work has been associated with a poor social climate (Forssell, 2018). These findings seem to indicate that the established “work environment hypothesis” (Leymann, 1996) in traditional workplace bullying research could be a path that advances insight in antecedents of workplace cyberbullying too.

2. Current voids and research directions

It is clear from the literature overview that the field of workplace cyberbullying offers many promising avenues for further research. For instance, this field could profit from more cross-national studies on prevalence rates of this phenomenon using representative samples. Also, one could look more deeply into the processes leading to negative outcomes in cyberbullied individuals. However, in this dissertation, we choose to contribute to this developing field by *theoretically and empirically investigating antecedents of this phenomenon*. This choice is motivated by the fact that: (a) in order to be able to prevent a negative behaviour from occurring, one must develop an understanding of its antecedents, (b) antecedents of workplace cyberbullying have not yet received much scholarly interest and (c) the few studies that have investigated antecedents of workplace cyberbullying are rather scattered and not based on a sound theoretical framework. The latter makes it difficult for researchers to build upon different findings and impossible for practitioners to develop sound guidelines needed for preventing this negative online behaviour. Therefore, we believe that the field of workplace cyberbullying could profit from a more thorough understanding of the processes leading to its emergence, both theoretically and empirically. Below, we describe in more detail the different steps that will be taken in order to fill this research void and research directions following from them.

2.1 Theoretical investigation of workplace cyberbullying and its antecedents

In order to investigate a particular topic, one must begin with a clear conceptualization of the phenomenon forehand. Until now, knowledge regarding workplace cyberbullying has been relatively sparse and this has lead pioneers in this domain to borrow conceptualizations from the adolescent literature. This approach, although necessary in an emerging field, fails to address the specific context in which workplace cyberbullying arises. In addition, the current conceptualization only captures the necessary components needed for defining cyberbullying (i.e. online context, repetition, duration and power distance), but does not capture some specific elements which characterize this phenomenon and make it different from its offline counterpart (e.g. anonymity, intrusiveness, viral reach, etc.). *Conceptualizing cyberbullying as simply the electronic version of traditional bullying may therefore overlook certain complexities of this phenomenon.* Indeed, just as traditional bullying, cyberbullying is an act of interpersonal mistreatment involving a power imbalance between the target and the perpetrator. However, the additional factors that make up the electronic environment can potentially aggravate the negative effect of this phenomenon on individuals and make its experience fundamentally different. *In other words, workplace cyberbullying is in need of a new, tailored*

definition. Therefore, we first wish to add to the workplace cyberbullying literature by proposing a new, comprehensive definition of this construct in which these factors are accounted for.

Next, studies on antecedents of workplace cyberbullying have been relatively sparse. Moreover, the few existing studies have not been grounded in a particular theoretical framework, but rather guided by authors' individual research interests, making it impossible to make conclusions on drivers of cyberbullying at work based on these findings. Consequentially, we believe that *this field could profit from a more thorough and theory based understanding of processes leading to the emergence of this negative online behaviour.* Therefore, we need to develop a sound theoretical framework regarding the antecedents of workplace cyberbullying that will guide hypotheses development of different studies. However, given the lacunae in the current state of the art (i.e. no tailored definition and scarce empirical evidence regarding the antecedents), we need to look past the mere workplace cyberbullying literature and build on different relevant research lines in developing this theoretical model, such as that of workplace bullying, adolescent cyberbullying and computer-mediated communication.

2.2 Empirical investigation of workplace cyberbullying and its antecedents

In order to empirically contribute to the field of workplace cyberbullying, it is essential to have a valid and reliable measure of this phenomenon that is in line with its specific conceptualization within the workplace. This ensures that the right construct is measured in a consistent way, increasing confidence in the results obtained using the measure. However, looking at the current literature, it is noticeable that most empirical studies on workplace cyberbullying so far have either applied (a) adolescent cyberbullying scales (e.g. Brack & Caltabiano, 2014), (b) self-assessment, one-item measurements of cyberbullying at work (e.g. Baruch, 2005) or (c) adapted NAQ measurements to the online context (e.g. Privitera & Campbell, 2009). These different approaches of measuring workplace cyberbullying have led to largely varying rates of cyberbullying victimization, as reported by different studies. Furthermore, they have also limited the ability to compare the obtained results. *But foremost, these previous approaches cannot guarantee that the construct is correctly captured and measured.* Therefore, we need to develop a valid and reliable measure that is able to correctly assess the occurrence of cyberbullying in the work context.

Having created a theoretical model of workplace cyberbullying and developed a measure in order to assess its occurrence, it is important to empirically test different propositions of the model. Furthermore, in order to find strong evidence for the proposed effects, it is important to test the model's propositions using different samples (e.g. private and public sector organisation), different study designs (e.g. longitudinal and daily diary) and different analytical methodologies (e.g. moderated

mediation, latent class and multilevel analyses). Therefore, we wish to conduct different studies in which we critically test whether theoretical propositions stemming from our model also hold in reality.

Altogether, in order to contribute to the workplace cyberbullying field, we wish to (a) develop a definition of workplace cyberbullying and a theoretical model regarding its antecedents, (b) create a validated measurement tool in line with the new definition and allowing empirical investigation of this phenomenon in the workplace and (c) test the different propositions regarding the antecedents of workplace cyberbullying, using different samples, designs and analytical techniques.

3. Asking the right questions

Considering the above-described focus, we formulate several questions that we wish to answer throughout this PhD dissertation (for a summary, see Table 3). These questions structure the dissertation and guide the subsequent studies.

3.1 Study 1: How can we define and explain workplace cyberbullying?

The first aim of this dissertation is to gain conceptual and theoretical understanding of workplace cyberbullying and the factors that lead to its emergence. Building on the existing knowledge we (a) provide a comprehensive definition of workplace cyberbullying and (b) propose a conceptual model (i.e. The Emotion Reaction Model) including antecedents of this phenomenon, as well as different mediators and moderators in this process. To do so, we build on multidisciplinary literature regarding workplace bullying and cyberbullying, youth cyberbullying, emotions and emotion regulation and computer-mediated communication.

Building on different research traditions, we uncover *emotions* as an important factor that can help us understand how cyberbullying at work comes to life. Cyberbullying follows the similar pattern as traditional bullying in that it emerges in stressful work environments (Forssell, 2018; Gardner et al., 2016). However, we believe that emotions are particularly important for cyberbullying as *the online environment allows for a more overt and uninhibited expression of emotions* (Derks, Fischer & Bos, 2008). As such, it is the translation from the work environment into discrete emotions within the employee that can help explain workplace cyberbullying. Anger – an outward focus emotion that drives people to react and aggress against others (Barclay, Skarlicki, & Pugh, 2005) – in response to the work environment will drive employees to engage in cyberbullying. Sadness and fear – emotions that drive withdrawal behaviour and are associated with weakness and helplessness (Lazarus, 1991; Tiedens, 2001) – in response to the work environment mould targets. Next, we believe there are two boundary conditions regarding the discrete emotions. First, whether an employee will experience anger as opposed to sadness or fear as a result from the work environment depends on the

employee's control appraisal. If the employee tends to see the cause of the stressful situation as external, he or she will be more inclined to experience anger; while the opposite is true for fear and sadness (Smith & Ellsworth, 1985). Second, the experience and expression of emotions depends on emotion regulation strategies. Employees tending to reappraise stressful situations (i.e. think of them in a more positive manner) will experience less negative emotions (Gross & John, 2003) and therefore be less involved in cyberbullying. In contrast, people using suppression (i.e. hiding their true emotions) will be more inclined to: (a) act aggressively towards others (Roberton, Daffern & Bucks, 2012) or to come across as less likable (Gross & John, 2003). This in turn will lead to more involvement in cyberbullying.

3.2 Study 2: How can we measure workplace cyberbullying?

The second aim of this dissertation is to construct and validate a measure of workplace cyberbullying – the Inventory of Cyberbullying Behaviours at Work (ICA-W) – that follows the new definition. To do this, we collected two-wave data with a six-months time lag in four organisations from the public and the private sector. We develop items for the measure based on a careful examination of the current workplace bullying and cyberbullying literature. This is to ensure that the items included are specifically focused on the work context and are relevant for the online environment in which this behaviour occurs. Additionally, we use the previously developed definition of workplace cyberbullying as a guide in selecting the final items and deciding on the measure's dimensionality. Finally, we include different theoretically relevant constructs in order to establish the congruent (i.e. workload, role conflicts, job insecurity, autocratic leadership, interpersonal conflicts, traditional workplace bullying and one-item cyberbullying measure) and predictive validity (i.e. mental well-being) of the ICA-W.

3.3 Study 3: What role do stressor-evoked emotions play in cyberbullying victimization?

Studies on predictors of cyberbullying so far have either focused on personal factors (e.g., age, gender and personality) or situational factors (e.g. organisational context). In the previously developed Emotion Reaction Model (ERM), we focus on both situational factors regarding work stressors and individual factors regarding experienced emotions and emotion regulation strategies. Having developed a theoretical model of workplace cyberbullying and a measurement tool in order to empirically assess its occurrence, in Study 3, we aim to empirically test the main propositions of the ERM regarding cyberbullying victimization. That is, we wish to investigate whether work stressors predict cyberbullying victimization through the experience of sadness and fear and whether emotion regulation strategies of suppression and reappraisal moderate this relationship. In order to do so, we collect longitudinal data in a large sample of Flemish employees and test between-person differences in relationships regarding work stressors, emotions, emotion regulation and cyberbullying.

3.4 Study 4: Are there different types of cyberbullying victims and can we differentiate them based on their emotion regulation strategies?

In Study 4, we take a side-path, as this study is driven by findings from Study 3. Namely, in Study 3 we are presented with inconsistent results regarding the association between emotion regulation and exposure to cyberbullying. That is, we find support for the hypothesized association between reappraisal and stressor-induced emotions and no support for the hypothesized association between suppression of negative emotions and cyberbullying. This is surprizing given that negative effect of suppression on individuals' functioning and well-being has been well-established (Butler et al., 2003; Gross, 2002). In order to better understand this finding, we implement an alternative analytical method to look at our data.

It has been previously argued that, when using the behavioural experience method for measuring workplace bullying (i.e. asking people to indicate whether they have been exposed to certain negative acts and how frequently), a latent class cluster approach should be applied (Notelaers, Einarsen, De Witte, & Vermunt, 2006). This method allows for empirically testing whether different target groups exist, based on their responses on the different items. This way, the complex nature of bullying can be captured. Additionally, this approach allows finding stronger effects between exposure to bullying and associated variables (Notelaers et al., 2006). With regards to cyberbullying, the ICA-W captures three types of cyberbullying acts – person related, work related and intrusive. This means that individuals could also strongly differ in types of negative acts they experience online. It is therefore possible that the emotion regulation strategy of suppression is relevant for certain types of cyberbullying victims, while its role is less prominent for others.

Until now, no attempts have been made to classify victims of cyberbullying. In this study, we aim to examine whether different types of cyberbullying targets at work can be identified based on the type of negative online behaviours they experience. Furthermore, given the joint-PhD nature of this project, we wish to extend this aim to the broader cyberbullying literature as well by additionally exploring whether comparable subgroups can be uncovered in adolescents. Finally, we aim to investigate the association between reappraisal and suppression and group membership based on cyberbullying experiences in both populations. We do this by conducting latent class analyses on a large sample of Flemish adolescents and adults.

3.5 Study 5: What role do stressor-evoked emotions play in cyberbullying perpetration?

There has been a predominant focus on targets both within the established field of workplace bullying and the novel field of workplace cyberbullying. However, in order to fully grasp the cyberbullying

phenomenon, we additionally need to understand the factors that drive individuals to engage in this negative online behaviour.

Therefore, the last aim of this dissertation is to empirically test the main propositions of the ERM regarding cyberbullying perpetration – that is, the proposition that work stressors predict cyberbullying perpetration through the experience of anger. As previous studies did not allow for testing of the immediate effects of stressors on emotions and emotions on cyberbullying, which is important given the highly fluctuating nature of discrete emotions, we conduct a daily diary study in which events and experiences are assessed as they unfold over time in their natural context. This allows us to study within-person processes, in addition to between-person associations, and to draw stronger inferences about associations between different variables. We conduct multilevel structural equation modelling in a sample of dual-earner couples and assess the spill-over of work stressors to emotions and online behaviour at home and the crossover of emotions and online behaviour in couples. Because we assess commitment of cyberbullying acts on a daily basis, which means that certain requirements of the cyberbullying definition are not necessarily met (i.e. duration, frequency or intrusion), in this study we therefore refer to antisocial online behaviours instead.

Table 3

Overview of the question guiding the PhD Proposal and the aims of the different studies

	Question	Aim	Method	Data
Study 1	How can we define and explain workplace cyberbullying?	Proposing a definition of workplace cyberbullying and an Emotion Reaction Model (ERM) of its emergence.	Literature review	/
Study 2	How can we measure workplace cyberbullying?	Constructing a valid and reliable measure of workplace cyberbullying.	Validation study: Exploratory and Confirmatory factor analyses, congruent and predictive validity tests	Study 1: N = 710 (dataset 1) Study 2: N = 1426 (dataset 2, wave 1) Study 3: N = 849 (dataset 2, wave 2)
Study 3	What role do stressor-evoked emotions play in cyberbullying victimization?	Testing the ERM regarding cyberbullying victimization on a between-person level.	Cross-sectional moderated mediation analyses and longitudinal cross-lagged panel analysis	Study 1: N = 1426 (dataset 2, wave 1) Study 2: N = 849 (dataset 2, wave 2)
Study 4	Are there different types of cyberbullying victims and can we differentiate them based on their emotion regulation strategies?	Disentangling different types of cyber-victims and their use of emotion regulation strategies.	Latent Class Analysis	Adolescents : N = 1715 (dataset 3) Adults : N = 1426 (dataset 2, wave 1)
Study 5	What role do stressor-evoked emotions play in cyberbullying perpetration?	Testing the ERM regarding cyberbullying perpetration on a within-person level.	Multilevel Structural Equation Modelling	N = 95 dual-earner couples (dataset 4)

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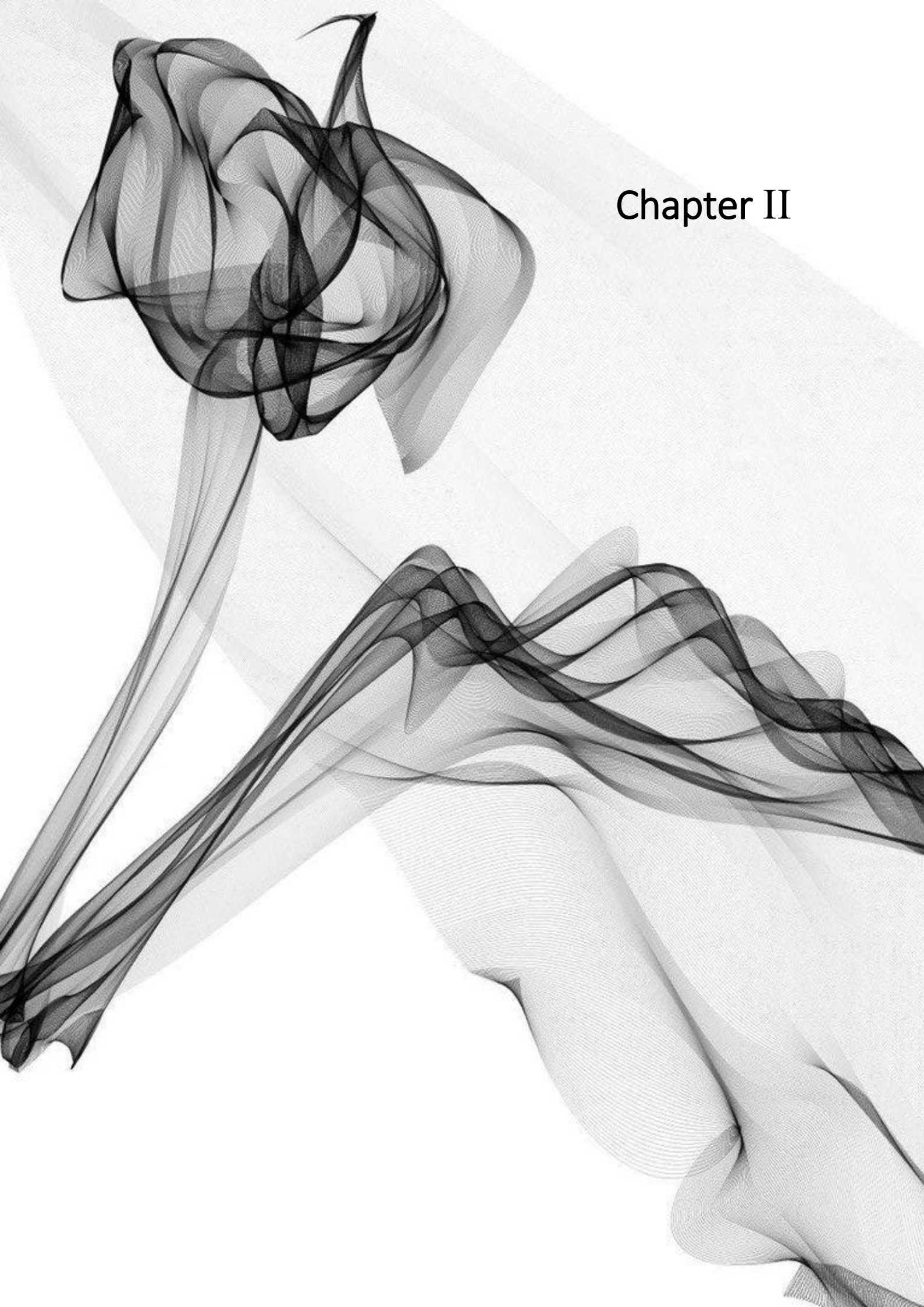

Chapter II

Study 1: The dark side of working online: towards a definition and an Emotion Reaction model of workplace cyberbullying[3]

Abstract

The introduction of new technologies created avenues for new forms of bullying. Despite an impressive body of research on cyberbullying amongst youngsters, studies in the work context have largely neglected its electronic counterpart. In this study, we define workplace cyberbullying and propose an Emotion Reaction Model of its occurrence. Our model aligns with the main proposition of the Affective Events Theory (Weiss & Cropanzano, 1996), that emotions evoked by certain work events may fuel emotion driven behaviours. However, in our model these relationships are further specified combining different literature traditions. Making inferences from the workplace bullying literature, we suggest work stressors to be the work events leading to cyberbullying. Furthermore, building on the literature on cyberbullying amongst youngsters, computer-mediated communication and emotions, we propose discrete emotions of anger, sadness and fear to play a significant role in explaining this stressor-cyberbullying relation. In addition, different moderators (i.e., control appraisal and emotion regulation) of this relationship are suggested and implications of the model are discussed.

[3]Vranjes I., Baillien E., Vandebosch H., Erreygers S., De Witte H. (2017). The dark side of working online: Towards a definition and an Emotion Reaction model of workplace cyberbullying. *Computers in Human Behavior, 69*, 324-334. doi: 10.1016/j.chb.2016.12.055

1. Introduction

Cyberbullying – defined as aggressive behaviour occurring through the use of Information and Communication Technologies (ICTs) (Smith et al., 2008) – has been substantially studied in research on childhood, adolescence and emerging adulthood. This is not surprising given the explosion in use of modern technologies for communication amongst youngsters (Livingstone & Brake, 2010). However, many current employees are confronted with at least some form of ICTs in their job too. Work processes that have previously been conducted through face-to-face contact are increasingly replaced by computer-mediated communication (CMC). Working with ICTs can potentially expose employees to harmful online activities, which are already found to be widespread amongst youngsters. It is therefore surprising that, to date, there have not been many contributions in the field of workplace cyberbullying. Especially given the many negative outcomes related to this form of online misconduct. In the youth literature, cyberbullying has been linked to various negative effects, such as anxiety, depression, substance abuse, suicide, sleeping problems and physical symptoms (see Kowalski, Giumetti, Schroeder & Lattanner, 2014). In addition, the few studies conducted in the work context find that workplace cyberbullying is related to perceived stress (Snyman & Loh, 2015), reduced mental and physical well-being (Coyne et al., 2016; Farley, Coyne, Sprigg, Axtell & Subramanian, 2015; O'Driscoll et al., 2015), emotional problems (Staude-Müller, Hansen & Voss, 2012), reduced job satisfaction (Baruch, 2005; Coyne et al., 2016; Snyman & Loh, 2015) and decreased performance (Baruch, 2005).

We aim to address the current void by (a) providing a comprehensive definition of workplace cyberbullying and (b) proposing a model including antecedents of this phenomenon, as well as different mediators and moderators in this process. In defining workplace cyberbullying, we acknowledge that the core of the 'traditional' bullying concept and its online counterpart is essentially the same: a negative social interaction between a bully and a victim who cannot easily defend him- or herself. However, we argue that – despite these apparent similarities – cyberbullying is a distinct phenomenon with its own specific characteristics as well. In building a theoretical model of workplace cyberbullying, we depart from the main premises of the Affective Events Theory (Weiss & Cropanzano, 1996). That is, we start from the proposition that certain affective work events evoke affective reactions that in their turn may lead to affect driven behaviours. We concretize this basic idea by building on the existing knowledge of and the most recent advancements in the workplace bullying literature and by integrating insights from the literature regarding cyberbullying amongst youngsters, cyber-psychology and emotions. In doing so, we construct an Emotion Reaction model of workplace cyberbullying. It is important to note that this model does not represent the only possible causal relationships in the cyberbullying process, but that it points out some critical mechanisms that can

come into play. The contributions of this paper are fourfold. First of all, we shed light on the phenomenon of workplace cyberbullying and its distinctiveness from the 'traditional' bully concept. Second, while many studies on traditional workplace bullying focus on victimization processes, only little is known about the processes leading to becoming the perpetrator of bullying behaviour. In building a theoretical model within a relatively new research domain, we do not wish to employ the same single sided focus. Therefore, in our model, we specify both the victimization and the perpetration path. Third, emotions have predominantly been examined as a consequence of workplace bullying and an indicator of strain. We propose that emotions and emotion regulation can play a respectively mediating and moderating role in the cyberbullying process. Finally, in our model, we account for both environmental and personal factors in predicting workplace cyberbullying. In doing so, we follow the recent trend in the field of traditional workplace bullying, being the application of the interactionists approach (Douglas et al., 2008).

2. Conceptualizing workplace cyberbullying

2.1 Traditional view on workplace bullying

Studies of traditional workplace bullying pioneered more than 20 years ago in the Nordic countries and quickly spread to the rest of the world (Einarsen, 2000). The ample tradition is especially apparent from the presence of various meta-analyses and reviews uniting the results of the studies conducted in this field (e.g., Bowling & Beehr, 2006; Branch, Ramsay & Barker, 2013; Nielsen, Matthiesen & Einarsen, 2010; Rayner & Hoel, 1997; Zapf & Einarsen, 2001). In general, workplace bullying – also referred to as 'mobbing' (Leymann, 1996), especially in the German research tradition – can be placed under the broad umbrella term of 'counterproductive workplace behaviours' (CWB). These are volitional behaviours harming individual employees and the organization (Spector & Fox, 2010). However, bullying distinguishes from other CWBs in that it is dynamic (i.e., repetitive), interpersonal and is usually studied from the target's perspective (Fox & Spector, 2005). Also, while the aspect of intentionality has been considered a necessary condition for many CWBs, this aspect has been generally left out of workplace bullying definitions, because bullying behaviours are considered ambiguous with regard to intent (Aquino & Thau, 2009). The latter underlines the subjective nature of the phenomenon. Workplace bullying scholars agree on the following five elements: (1) victim's experience of negative behaviour(s), (2) persistency of these behaviours, (3) victim's experience of harm (psychological and or physical), (4) power imbalance between the victim and the perpetrator and (5) actual perception of being bullied (Rayner & Keashly, 2004). These elements are combined in the generally accepted definition of workplace bullying as repeated negative acts carried on over a

period of time by an individual or a group towards one or more other individual(s) who cannot easily defend themselves (Einarsen, 2000).

2.2 Defining workplace cyberbullying

Conceptualizing workplace cyberbullying brings additional complications. In the youth literature, cyberbullying is defined as intentional aggressive behaviour, occurring repeatedly and over time through electronic technologies between a perpetrator and victim who are unequal in power (Kubiszewski, Fontaine, Potard & Auzoult, 2015; Smith et al., 2008). Although the previous definition seems to suggest that cyberbullying is merely a constriction of the traditional bullying concept within the online context, this is not quite so. Just as traditional bullying, cyberbullying is an act of interpersonal mistreatment that involves a power imbalance (Kowalski, Limber & Agatston, 2008; Olweus, 2013). However, the electronic environment in which cyberbullying occurs is compounded by additional factors that need to be taken into account in order to fully understand this phenomenon.

There are several theories trying to capture the essence of what makes online communication inherently different from face-to-face communication (for an overview see Walther, 2011). First, one of the most important aspects is the *lack of non-verbal cues* in online communication. This has been the focus of the cues-filtered-out theories (Culnan & Markus, 1987) that generally regard communication via computers as less 'rich' as it does not allow for all contextual information (i.e., non-verbal cues) to be transmitted in a similar way as in face-to-face interactions. Consequently, in view of bullying specifically, perpetrators could be less aware of the effect of their behaviour on the victim when bullying online as opposed to offline and this might further reinforce cyberbullying behaviour (Dooley, Pyżalski & Cross, 2009). Second, while in traditional bullying the perpetrator is usually known, online communication offers many opportunities for the perpetrators to stay *anonymous* (Staude-Müller, Hansen & Voss, 2012). This is problematic because it further hinders the targets of negative behaviour to take action against their abusers. It also limits the target's feeling of control over the situation, which can make this type of bullying uniquely harmful (Wingate, Minney & Guadagno, 2013). Additionally, given that the perpetrator of cyberbullying is able to stay anonymous, there have to be some indications in the negative acts themselves that the bullying arose in the work context. These indications may include the nature of the negative acts (e.g., making someone's work impossible), the context of acts (e.g., via work intranet) or the information disclosed (e.g., perpetrator makes reference to work related issues).

Another important aspect of online communication is its *intrusive nature.* Victims of traditional bullying can usually escape the bullying incidents from colleagues, supervisors, subordinates or third parties related to the work context (e.g., clients), while at home. However, online communication

allows the transgression of the private/public boundary: individuals can communicate everywhere (i.e., at work as well as at home) and any time (i.e., during and after work hours). Because of this, it may be much harder for the victims of cyberbullying to escape this behaviour (Slonje & Smith, 2008). Furthermore, online environment provides violators with the opportunity to access private information, previously unattainable in a face-to-face interaction. In support of the previous arguments, the aspects of pervasiveness and boundarylessness, which relate to behaviours invading into someone's personal life and making individuals feel pursued, were reoccurring themes in people's experience of cyberbullying at work (D'cruz & Noronha, 2013). Also, in a study by Heatherington and Coyne (2014), crossing of boundaries emerged as an important theme in cyberbullied workers, with one worker explicitly referring to the intrusive nature of this behaviour. Next, *power imbalance* (social, psychological or physical) between the target and the perpetrator is seen as a defining characteristic of bullying. However, the aspect of power imbalance changes meaning online. 'Power' in the online context is argued to stem from technological opportunities (i.e. availability of online content or characteristics of the CMC such as anonymity), allowing individuals low in power in a physical context to still be perpetrators of cyberbullying in the online environment (Dooley et al., 2009). Finally, both bullying and cyberbullying can be aimed both directly (e.g., insults) and indirectly (e.g., gossiping) at the victim. However, compared to traditional bullying, indirect cyberbullying behaviour has the potential of reaching a much larger audience (Langos, 2012). This relates to the *viral reach* of a negative cyber-act: the volume of message viewing, sharing, and forwarding by Internet users carried out either online or offline (Alhabash et al. 2013).

Following these distinct characteristics of the online environment, it has been put forward in the cyberbullying literature that, while repetition is a necessary defining condition with regards to traditional bullying, a single act of negative cyber-behaviour can sometimes suffice (Vandebosch & Cleemput, 2008). According to Langos (2012), repetition is a necessary condition for cyberbullying in the private context – that is, when electronic communication is directed towards the victim (e.g., text messages, e-mails and telephone calls). On the other hand, repetition is not necessary in the public context – that is, when electronic communication has been distributed to individuals other than the victim only (e.g., social media, public websites and blogs). When conducted as such, a one-time negative act (e.g., posting an embarrassing picture online), may pose an ongoing threat for the target of this behaviour through repetitive exposure to others (Dooley et al., 2009). However, we do not fully endorse this view as there are cyberbullying acts which do not meet these criteria, such as gossiping through the use of ICTs. Despite happening in the public context (i.e. distributed to other individuals than the victim), we argue – following the traditional view – that it still needs to meet the criterion of repetition. Another example is hacking of personal information: despite happening in the private

context (i.e., electronic communication directed towards the victim), we argue that this act does *not* require repetition. This is because even if committed only once and in a private context, it invades one's personal life in a way that is very threatening for the victim. Namely, it leads to a threat of private information being exposed online or more adversely, it results into an actual dissemination of individuals' private information, which is then available for repeated consultation by others.

We therefore argue that the nature of negative behaviour is what actually differentiates acts that require repetition from the ones that do not. It was already stated above that intrusion (i.e., transgression of the private/public boundary) is an important distinctive factor of cyberbullying. We argue that in order to meet the one-time requirement, the negative behaviour has to pose an intrusion into one's private life (e.g., hacking, identity theft, posting private photos or videos online). With this type of behaviour, individuals' private space becomes invaded, making them feel pursued and unable to escape. In addition, private information that was never meant for the public eye can subsequently become exposed to and consulted by a wide online audience. This invasion together with the constant threat of public exposure or its actualization makes this kind of acts especially distressing, even after a single occurrence. Furthermore, if made public, the negative behaviour committed once from the perspective of the perpetrator becomes repeated by others who are able to frequently access, view, share and repost this information.

A definition of cyberbullying applied to the specific context of work is still absent from the literature. The few studies investigating this issue mainly applied generalist definitions adapted from the youth context (e.g., Brack & Caltabiano, 2014). However, the very different setting (organization versus school) of this behaviour and the fact that one-time acts have generally not been taken into consideration in the previous definitions, calls for a clear-cut and comprehensive definition in the work context. Bringing together the above insights, we define workplace cyberbullying as *all negative behaviour stemming from the work context and occurring through the use of ICTs, which is either (a) carried out repeatedly and over a period of time or (b) conducted at least once but forms an intrusion into someone's private life, (potentially) exposing it to an wide online audience. This behaviour leaves the target feeling helpless and unable to defend.* While most cyberbullying behaviours from the school context, such as gossiping online and insulting someone via online messages, are applicable to the work context, only focusing on these behaviours would makes many important cyberbullying acts at work unaccounted for. Some examples of this behaviour are: purposely deleting someone's work files, forwarding someone's e-mails to third parties in order to harm him or her and ignoring someone's e-mails at work.

3. Developing the Emotion Reaction model of workplace cyberbullying

The much-applied Affective Events Theory (AET; Weiss & Cropanzano, 1996) explains how affective work events can lead to different work attitudes and affective driven behaviours through the experience of emotions, such as anger or fear. Originally intended as a theory of work satisfaction, AET integrated previous knowledge on emotions in order to provide some future directions for the work on emotions in the organizational context. However, AET presents a 'macrostructure' of emotions in the workplace, needing further concretization and clarification of the different processes that may come into play (Weiss & Beal, 2005). That is, the different premises of the model need to be made explicit and to be elaborated on, depending on the specific focus of the research in which they are applied. Following AET, we see emotions as the fuel behind cyberbullying behaviour and argue that the presence of work stressors will elicit emotions, which in their turn will give rise to workplace cyberbullying. However, given the comprehensive nature of the AET model, we use additional theories and empirical evidence from different fields (e.g., workplace bullying, emotions and computer-mediated communication) in order to concretize and substantiate the different building blocks of this model and the mechanisms that occur herein. In addition, we propose different moderators in the model that specifically focus on the emotions as the central construct in the model and have theoretical relevance in altering their experience and/or expression. In other words, we made a selection of moderating constructs necessary to better understand the condition under which emotions will be salient and lead to cyberbullying. In doing so we construct and propose an Emotion Reaction model of workplace cyberbullying (Figure 1). This model focuses both on the victimization as well on the perpetration path in this process. Traditionally, in the workplace bullying literature, a distinction has been made between the perpetrators and the victims. According to Glomb (2002), there are no mere perpetrators or victims in the workplace and one can become either one at various times. In line with this, it has already been demonstrated in the school context that there is a high correlation between the two roles (Kowalski, Giumetti, Schroeder & Lattanner, 2014) and this is even more so for cyberbullying (Law, Shapka, Domene & Gagné, 2012). This implies that similar mechanisms may be operating for the two roles, but in a different manner. Therefore, we build a single model in which both cyberbullying victimization and enactment are integrated. The two roles can be differentiated by the distinct realization of the variables represented. We point out that this model is not intended as an exhaustive representation of the variables and processes involved, but that it points out the most crucial elements in the cyberbullying process. We also acknowledge that causality may run in different directions, but we limit our discourse to the normal causation path.

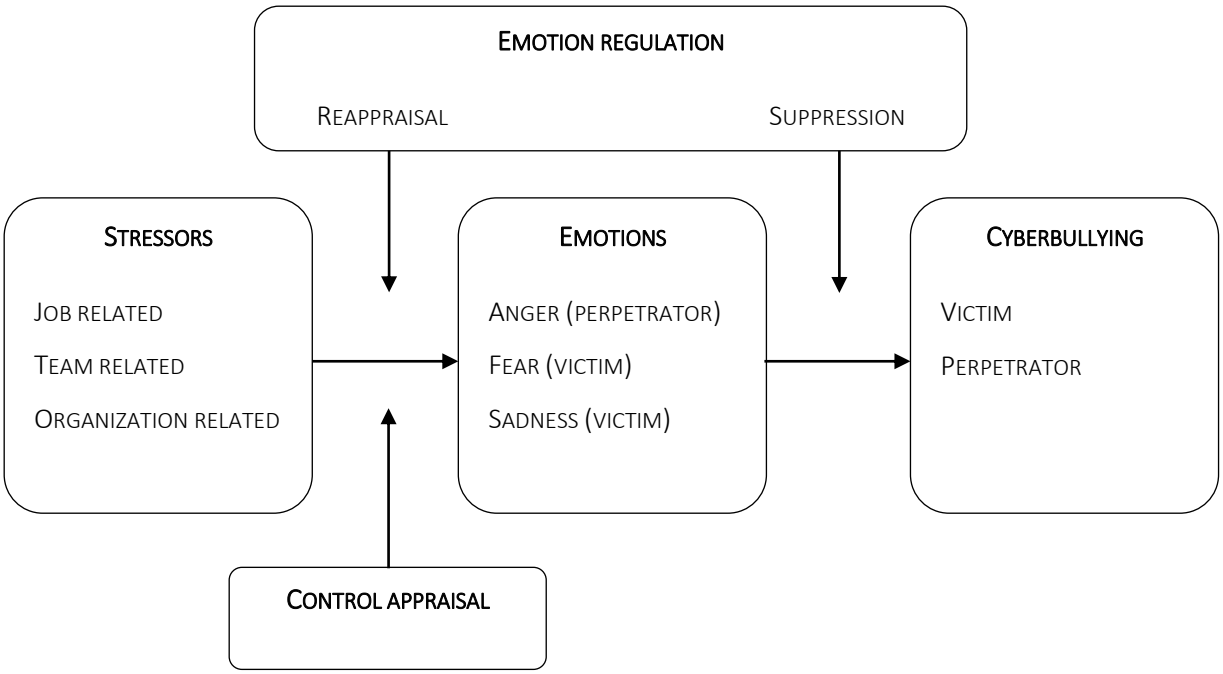

Figure 1: A Theoretical Model of Workplace Cyberbullying

3.1 Stressor-strain view of workplace cyberbullying

The stressor-strain premise has been the most widely applied framework in bullying studies. This idea posits that exposure to stressful work conditions (e.g., role conflicts) leads to physical (e.g., somatic complaints), psychological (e.g., anxiety) and behavioural (e.g., aggression) strain (Fox, Spector & Miles, 2001). Workplace stressors are thereby defined as the work-related environmental conditions that have the potential to decrease the health and well-being of workers (Hurrell, Nelson & Simmons, 1998). When trying to predict its occurrence, workplace bullying can be perceived as a behavioural strain caused by workplace stressors. This is also reflected in the most widely used and supported framework in explaining workplace bullying, the work environment hypothesis (Einarsen, Raknes & Matthiesen, 1994; Leymann, 1996), which emphasizes the importance of the psychosocial work environment as a precursor of bullying. In that respect, job related factors, such as role conflicts, role ambiguity and workload (e.g., Baillien & De Witte, 2009; Balducci, Cecchin & Fraccaroli, 2012; Notelaers, De Witte & Einarsen, 2010; Reknes, Einarsen, Knardahl & Lau, 2014), team related factors, such as conflicts and leadership (e.g., Baillien, Bollen, Euwema & De Witte, 2014) and organizational factors, such as organizational change and social climate (e.g., Baillien & De Witte, 2009; Baron & Neuman, 1996; Coyne, Chong, Seigne & Randall, 2003) have been found to predict workplace bullying victimization. This has also been supported in the few studies investigating relationship between work stressors such as workload, role conflicts and job insecurity and perpetrators' reports of bullying (Baillien, De Cuyper & De Witte, 2011; De Cuyper, Baillien & De Witte, 2009).

As the core of traditional bullying and cyberbullying is essentially the same (i.e., negative interpersonal behaviour that leaves the target feeling helpless), we follow this stressor-strain view in predicting incidences of workplace cyberbullying. We consider workplace cyberbullying as a form of behavioural strain following from similar predictors as offline bullying, being the presence of workplace stressors. This idea aligns with evidence in the youth literature that bullying and cyberbullying have common predictors (Casas, Del Rey & Ortega-Ruiz, 2013) and with the recent evidence that poor work environment predicts workplace cyberbullying as well as offline bullying (Gardner et al., 2016). Furthermore, we expect this to be the case both for cyberbullying perpetration and victimization. This is because of the considerable overlap in predictors of both experience and enactment of workplace aggression (Hershcovis & Reich, 2013). Also, the few studies that specifically investigated workplace bullying enactment, suggest the same antecedents for the two roles (Baillien, Neyens & De Witte, 2011; Hauge, Skogstad & Einarsen, 2009; Matthiesen & Einarsen, 2007).

Proposition 1 *Workplace stressors (job, team and organization related) will predict cyberbullying perpetration and victimization.*

3.2 Emotions at play

Previously, emotions have been largely discarded in the organizational context, owing to a focus on rationality and deliberate modes of performance in organizations (Domagalski, 1999). In recent years, however, there has been an increased interest in the implication of emotions for individual, group or even organizational performance (Elfenbein, 2007). Despite this increase in interest, emotion research lacks consistency regarding the definition and emotion terms applied. Hence, it is important to create clarity with regards to different labels used, the most prevalent ones being emotion, mood and affect. Reduced to its core components, an (discrete) emotion (e.g., anger, joy) can be described as an internal reaction to a stimulus, with a range of possible behavioural consequences (Frijda, 1988). It arises as a reaction to a situation perceived as relevant for our goals; and it also drives us to react (Gross & Thompson, 2007). Mood (e.g., depression, euphoria) can be distinguished from discrete emotions by the aspects of intensity, duration and diffuseness (Frijda, 1993). A mood is considered to be a less intense state, to have a longer duration and to lack specificity with regard to a particular object or response. It is a vague feeling individuals have and cannot fully grasp. Because of this, moods do not drive individuals to act in a certain way. Lastly, the concept affect can be considered as an overarching term, encompassing the above states (Gross & Thompson, 2007). So, when speaking of affect, one refers to all different kind of emotional states, both the specific ones (i.e., discrete emotions) and the more general and vague ones (i.e., moods). Affect has already started to receive some attention in the traditional bullying research with recent theoretical models proposing inclusion

of emotions in predicting occurrence of workplace bullying (e.g., Douglas et al., 2008; Samnani & Singh, 2015). However, it seems that emotions could have a particularly important role in the cyberbullying processes.

Workplace stressors are known to evoke negative emotions in individuals. For instance, interpersonal conflicts (Ayoko, Konrad & Boyle 2012), unjust treatment (Fitness, 2000) and unjust procedures at work (Weiss, Suckow & Cropanzano, 1999) have been found to elicit feelings of anger. In addition, in creating a taxonomy of affective events at work, Ohly and Schmitt (2013) identified 11 clusters of work events relating to both positive and negative affect. However, as much as people experience negative affect at work, the formal nature of the work environment and the fact that keeping one's job is of great importance, can prevent people from overtly expressing how they feel. However, this might not hold online.

Different theories propose that emotion expression is more overt online as opposed to offline. According to Noelle-Neumann's (1974) spiral of silence theory, individuals are driven by fear of isolation. This leads them to scrutinize their environment in order to assess whether or not it is safe to openly express their opinions. The online environment is characterized by reduced social presence, limited contact between the individuals, anonymity and reduced threat of negative sanctions by others. Because of these characteristics, individuals may be less inhibited in expressing how they truly feel in CMC (Ho & McLeod, 2008). In fact, according to the online disinhibition effect (Suler, 2004), people can express different selves online, that can be sometimes dissociated from their offline persona. In addition, Siegel, Dubrovsky, Kiesler and McGuire (1986) have proposed an equalization effect phenomenon. They argue that CMC reduces observable status differences, allowing people to feel more comfortable in speaking out in CMC. Also, the hyperpersonal perspective of CMC (Walther, 1996) proposes that the absence of nonverbal and identity cues, amongst other things, may prompt users to exchange more intimately online as opposed to face-to-face. Finally, there are fewer shared standards regarding online conduct (Kiesler, Siegel & McGuire, 1984). This further contributes to acting out and expressing one's negative emotions in cyberspace as opposed to face-to-face (Byron, 2008). The fact that individuals say and do things in cyberspace that they would not say and do in the face-to-face context, has been previously documented in the literature and described as the online disinhibition effect (Suler, 2004). In support, Ho and McLeod (2008) found that while fear of isolation inhibited opinion expression in face-to-face interactions, this effect disappeared in CMC. Also, Tidwell and Walther (2002) found that in CMC, individuals had more intimate exchanges, disclosing more to their conversation partners than face-to-face. Furthermore, in their review of studies regarding emotions in CMC, Derks, Fischer and Bos (2008) conclude that intense negative emotions are expressed more overtly in CMC as opposed to face-to-face. They owe this to the fact that CMC is likely

to reduce negative social appraisal (Manstead & Fischer, 2001), which refers to being aware of and paying attention to the potential negative consequences of one's emotional reactions.

Adding to that, empirical evidence from the youth cyberbullying literature suggests that emotions could play an important role in the cyberbullying process. Varjas, Talley, Meyers, Parris and Cutts (2010) found that high school students' motivation for engaging in cyberbullying was more often internal (e.g., to redirect feelings) as opposed to external (e.g., because of anonymity). Also, the most commonly reported motive for cyberbullying amongst youngsters was anger (Gradinger, Strohmeier & Spiel, 2009). With regard to victimization, there is evidence that youngsters experiencing emotional difficulties seem to be more prone to being cyberbullied (Cross, Lester & Barnes, 2015). This suggests that the presence of emotional difficulties may make these individuals easy targets. Another significant observation stems from Baroncelli and Cieucci (2014). They found that not being able to use emotions properly in social interactions (a component of the trait emotional intelligence) was an important factor in cyberbullying but not in traditional bullying. Hence, the above evidence seems to suggest that cyberbullying is related to individuals' emotions. This can be related to the specific context in which this behaviour occurs.

Taking together, the evidence suggests that (a) workplace stressors, which are argued to predict the occurrence of workplace cyberbullying, are an important source of emotions at work and that (b) emotions, being that they are expressed more overtly online, could play an important role in the cyberbullying process.

Proposition 2 *Emotions will mediate the relationship between workplace stressors (job, team and organization related) and workplace cyberbullying victimization and perpetration.*

3.3 Discrete emotions in cyberbullying

In predicting cyberbullying occurrence, we follow Weiss and Cropanzano (1996) in opting for a focus on discrete emotions rather than moods. First of all, mood impacts on cognition rather than action (Clore, Schwarz & Conway, 1994). Therefore, mood is a very good indicator of mental health and has been mostly studied as such. However, in our model, we see emotion as the driving force behind cyberbullying behaviour. This view corresponds with the definition of discrete emotions, as states that drive people to react. Second, we look at the situational predictors (i.e., work stressors) of affect, which aligns with discrete emotions being defined as a reaction to a specific situation or object.

There is still a dispute over which emotions should be considered as discrete or basic emotions. The list of discrete emotions includes from as little as five to as much as sixteen different emotions and there is much dispute with regards to whether or not certain affective terms, such as jealousy, guilt

and shame, should be included in this list. Reviewing the vast emotion literature, it is notable that the emotions of anger, fear, sadness, joy and love are the most reoccurring ones in various classifications, reaching the most consensus from different authors (e.g., Lench, Flores & Bench, 2011; Weiss & Cropanzano, 1996). In our model, we focus on the three negative emotions. Negative emotions arise when individuals are hindered in fulfilling their goals (Lazarus, 1991), which is the case when confronted with work stressors. Furthermore, negative emotions not only have a strong impact on interpersonal relationships, but they also have a stronger power in predicting behaviour than positive ones (Baumeister, Bratslavsky, Finkenauer & Vohs, 2001). In addition, the three negative emotions of anger, fear and sadness are the most substantiated ones with regards to the specific behavioural tendencies they evoke (e.g., Ayoko et al., 2012; Lazarus, 1991; Moons, Eisenberger & Taylor, 2010; Tiedens & Linton, 2001). For all these reasons, we specifically focus on these three discrete emotions in trying to predict cyberbullying occurrence.

According to the appraisal-tendency framework (Lerner & Keltner, 2000), emotions are related to certain appraisals of goal-relevant events. Anger emerges as a consequence of an event appraised as threatening and is associated with the perception of dominance, individual control and other-blame (Lazarus, 1994). It makes individuals more prone to risky behaviour (Lerner & Keltner, 2001). Fear is also related to events appraised as unfavorable, yet combined with a sense of not being in control, insecurity and an uncertain threat (Lazarus, 1994). It leads to avoidance behaviour and risk aversion (Tiedens & Linton, 2001; Chorpita & Barlow, 1998). Both anger and fear are found to be evoked by stressful experiences, with anger mobilizing energy for confrontation and fear mobilizing energy for retreat (Moons, Eisenberger & Taylor, 2010). Lastly, sadness is related to blaming the situation (Tiedens & Linton, 2001) and to withdrawal behaviour (Lazarus, 1991). Sadness makes individuals come across to others as weak, submissive and in need of help (Tiedens, 2001).

3.3.1. Cyberbullying perpetration

From the perspective of the cyberbullying perpetrator: anger has been shown to result from stressful work experiences (e.g., Ayoko et al., 2012). Furthermore, anger is an outward-focused emotion that stimulates other-blame and retaliation (Barclay, Skarlicki & Pugh, 2005). That is, anger experienced as a consequence of workplace stressors will potentially lead one to act out against another individual. We expect this to be especially so in the online context, which is characterized by reduced social presence, limited contact between the individuals, anonymity and reduced threat of negative sanctions by others, stimulating more uninhibited self-expression (Ho & McLeod, 2008). First of all, emotions guide subsequent behaviour, sometimes even in response to objects or events that are unrelated to the actual cause of emotions (e.g., Gasper & Clore, 1998; Raghunathan & Pham, 1999).

This can be explained by the notion of displaced aggression (Dollard, Miller, Doob, Mowrer & Sears, 1939). Displaced aggression takes place when individuals experience anger, but they cannot express it against the eliciting stimulus because of fear for negative consequences, because of unavailability of the stimulus or because the source of frustration is intangible (Miller, 1941). In the work context, one may experience anger because of, for example, unreasonably high job demands. When perceiving oneself to be unable to cope with this emotion, anger could be displaced towards a more tangible target, being a co-worker or a subordinate. In support, displaced aggression has been found to be a very robust effect in many different contexts (Marcus-Newhall, Pedersen, Carlson & Miller, 2000). In addition to displacing aggression, online environment could also provide individuals with the opportunity to 'even the score' in situations in which one would normally fear retaliation. There are many instances in the work context in which aggression should not or cannot be displayed towards the original instigator. This is for instance the case when the instigator is one's supervisor. However, the possibility to stay anonymous in online communication can elevate the fear of retaliation and lead to subordinates acting out against their supervisors. In support, Forssell (2016) found that individuals in supervisory position were more often exposed to cyberbullying at work as opposed to people working in non-supervisory positions. In contrast, in the offline context, bullying has often been identified as a top-down phenomenon (e.g., Roscigno, Lopez & Hodson, 2009). Finally, anger has already been empirically related to cyberbullying behaviour within youngsters (Ak, Özdemir & Kuzucu, 2015; Patchin & Hinduja, 2010), underlying its importance in the cyberbullying process.

Proposition 3a *Discrete negative emotion of anger will mediate the relationship between workplace stressors and cyberbullying perpetration.*

3.3.2 Cyberbullying victimization

From the perspective of the cyberbullying victim: we expect that the experience of fear or sadness will be of importance. This is because, as described above, both fear and sadness are related to lack of power and withdrawal behaviour. Experiencing these emotions can make individuals easy targets of displaced aggression. This is in accordance with the biological model of approach/avoidance which suggests that individuals are motivated to approach situations benefitting them and to avoid situations with negative consequences (Ferris et al., 2011). Thus, angry individuals may be more motivated to act out against sad or frightful individuals, from whom they do not expect retribution. The notion that expression of certain emotions (i.e., fear and sadness) makes certain individuals more prone to becoming targets of displaced anger aligns with the emotions as social information (EASI) model (Van Kleef, 2009). According to EASI, emotions regulate social life, in that the expression of emotions informs the observer of these emotions on how to react. With regard to cyberbullying, we

argue that observing fear and sadness in others will make angry individuals more inclined to act out against these individuals. This can happen in two ways. First, a potential perpetrator could observe emotions of weakness in their potential victim in the face-to-face work context but choose to act on it in the 'safe' online environment. Second, as already stated, the absence of nonverbal cues online stimulates individuals to exchange more openly and intimately (Tidwell & Walther, 2002; Walther, 1996). Thus, people may overshare their negative emotions online, leading to others regarding them as easy victims. Alternatively, Cooper, Agocha and Sheldon (2000) found that negative emotionality motivates people to engage in risky behaviours in order to escape these aversive emotional states. Sad and fearful individuals might commit risky online behaviours, such as sharing personal information online, providing others with means to misuse this information. In support, Peluchette, Karl, Wood and Williams (2015) found that cyberbullying victimization was associated with risky online behaviour such as posting indiscreet or negative content online. Finally, anxiousness has already been shown to emerge as a consequence of workplace stressors (e.g., Rodell & Judge, 2009) and to be related to (cyber)bullying victimization (e.g., Rodríguez-Muñoz, Moreno-Jiménez, Sanz-Vergel, 2015). This also holds for the feeling of sadness (e.g., Espinoza, 2015; Gualdo, Hunter, Durkin, Arnaiz & Maquilón, 2015).

Proposition 3b *Discrete negative emotions of sadness and fear will mediate the relationship between workplace stressors and cyberbullying victimization.*

3.4 Moderators of the stressor-emotion-cyberbullying relationship

According to the AET, certain personal factor may alter the emotional experience of the individuals following the affective work events. In line with this, bullying scholars have recently stressed the importance of looking at the interaction between personal factors and factors related to the work environment in predicting workplace bullying (Einarsen, Hoel, Zapf & Cooper, 2011; Hershcovis & Reich, 2013; Samnani & Singh, 2015). However, studies on personality traits as predictors of bullying – as proposed by the individual dispositions hypothesis (Zapf & Einarsen, 2011) – report mixed findings. That is, in both the cyberbullying and workplace bullying literature there is little consistency regarding personality traits involved and their precise relationship with (cyber)bullying (e.g., Brewer & Kerslake, 2015; Coyne, Seigne & Randall, 2000; Glaso, Matthiesen, Nielsen & Einarsen, 2007; Persson et al. 2009). However, as indicated previously, individual's emotional life seems to be of particular importance for cyberbullying. In the following sections, we therefore select and propose personal factors particularly relevant for the experience of emotions as moderators of the stressor-emotions-cyberbullying relationship.

3.4.1 Control appraisal

Stressors at work have previously been argued to elicit negative emotions in individuals. These can be either feelings of anger, sadness or fear. The question that arises consequently is why some people would experience anger following certain workplace stressors, while others would experience fear or sadness. Identical situations can elicit quite different emotions across individuals, depending on how they are appraised (Siemer, Mauss & Gross, 2007). According to the appraisal theories of emotion (Frijda, 1986; Roseman, 1984; Scherer, 1988; Smith & Ellsworth, 1985), specific emotions are triggered by a two-step appraisal process. First, during the primary appraisals, an event is perceived as either being favoring or harming to the individual goals. Second, during the secondary appraisal, one's own resources to cope with the event are evaluated. Based on these appraisal processes, specific emotional experiences are triggered (Ellsworth & Smith, 1988; Roseman, Spindel, & Jose, 1990; Smith & Ellsworth, 1985). While anger, sadness and fear all arise following the appraisal of an event as harming (primary appraisal), they are associated with different appraisal of control (secondary appraisal). Whereas anger is associated with the appraisal of individual control for negative events, sadness and fear are associated with situational control for negative events (Smith & Ellsworth, 1985). That is, angry individuals will attribute workplace stressors to individual factors (e.g., work pressure as a consequence of an underperforming colleague), while sad or frightened individuals will attribute them to situational factors (e.g., work pressure as a consequence of restructuring). Consequently, we propose individuals to experience anger when perceiving work stressors to be under individual control and to experience sadness or fear when perceiving work stressors to be under situational control.

Proposition 4 *Control appraisal will moderate the relationship between workplace stressors and experience of discrete emotions. Individuals (a) who appraise workplace stressors to be under individual control, will experience anger and individuals (b) who appraise workplace stressors to be under situational control, will experience sadness and/or fear.*

3.4.2 Emotion regulation

Also important to consider is the way individuals deal with their emotions. When faced with stressful work experiences, some individuals exhibit significantly impaired functioning, while others thrive. According to Troy and Mauss (2011), it is the ability to regulate one's emotions that increases one's resilience when faced with a challenging work environment. Emotional regulation refers to a dynamic process by which either the experience or the expression of emotions is increased, decreased or sustained (Gross & Thompson, 2007). By applying adaptive emotion regulation strategies, experienced emotions can be readjusted appropriately. However, emotion regulation as such is not necessarily adaptive (Gross & Thompson, 2007).

The process model by Gross (1998), distinguishes between two emotion regulation strategies: antecedent focused and response focused. Antecedent focused emotion regulation strategies refer to strategies that are applied before the emotion response tendencies are fully activated. This is done by regulating the precursors of emotions (e.g., the situation or the appraisal). Response focused emotion regulation strategies are the strategies applied once an emotion is already evoked. Thus when emotions arise, these strategies modify the observable or physiological signs of emotions - the emotion expression. According to John and Gross (2004), most commonly used emotion regulation strategies, that also lend themselves to individual difference analysis and which represent antecedent and response focused strategies, are respectively reappraisal and suppression. Reappraisal refers to a cognitive change in how one thinks about a situation in order to decrease its emotional impact. This strategy is expected to alter the whole trajectory of the emotional response (i.e., experiential, behavioural and physiological). Suppression indicates an inhibition of ongoing emotion-expressive behaviour. It is expected that this strategy, while decreasing emotion expression, will in fact fail to decrease emotional experience and will even increase physiological responses in an individual due to the amount of effort required (Gross, 2002).

The distinctiveness of the two emotion regulation strategies has been demonstrated in many empirical studies. First of all, from a neurophysiological perspective, there is evidence that reappraisal and suppression have a different brain structural basis (Hermann, Bieber, Keck, Vaitl & Stark, 2014). But also from a psychosocial perspective, these two strategies seem to be related to different outcomes with regard to individuals' functioning. Reappraisal has been shown to increase the experience of positive and decrease the experience of negative emotions and to positively impact well-being and social functioning. Suppression was related to increased experience of negative and decreased experience of positive emotions, to lower well-being and to poorer cognitive and social functioning (Gross & John, 2003; Richards & Gross, 2000). In addition, while reappraisal leads to being more liked by others, having more close relationships and to a greater self-esteem, suppression is associated with feelings of inauthenticity, avoidance of others, less close relationships and a low self-esteem (Gross & John, 2003).

According to Proposition 3, the experience of negative emotions (i.e., anger, fear and sadness) resulting from negative work events, will be related to workplace cyberbullying. In other words, work stressors are expected to increase the experience of negative emotions (stressor-emotions relationship), whilst the latter are expected to give rise to cyberbullying behaviour (emotions-cyberbullying relationship). We believe that the use of emotion regulation strategies will moderate this relationship in two ways. Given that reappraisal weakens the experience of negative emotions, this strategy is expected to buffer the effect of stressors on subsequently felt emotions, both for the

victims and the perpetrators. Considering the evidence that suppression in fact increases the experience of negative emotions, we expect this strategy to predict an increase in cyberbullying perpetration and victimization. This is because, although an individual may inhibit a direct expression of anger, fear or sadness evoked by workplace stressors, the accumulation of negative emotions experienced as a consequence may actually lead this individual to convey these emotions in an alternative way. In the case of victimization, evidence exists that suppression of emotions evokes a stress reaction in both suppressors and people they interact with and that it limits formation of new relationships as well as maintenance and growth of existing ones (Butler et al., 2003). The stress reaction, reflected in the increased activity of the autonomic nervous system (Gross, 1998), in combination with the above-mentioned social isolation, make an individual vulnerable and thus an easy target of cyberbullying behaviour. In the case of perpetration, there is evidence suggesting that suppression results in less empathy (Pogrebin & Poole, 1995). Moreover, in their review of the relationship between emotion regulation strategies and aggression, Roberton, Daffern and Bucks (2012) conclude that over-regulation in the form of suppression makes individuals more prone to aggression. This conclusions has also been supported in studies examining the neurological underpinnings of suppression (Davidson, Putnam & Larson, 2000; Kim & James, 2013)

Proposition 5 *Reappraisal will moderate the Stressor-Emotions relationship, in that applying this strategy will buffer the experience of negative emotions (i.e., anger, fear or sadness) as a consequence of workplace stressors.*

Proposition 6 *Suppression will moderate the Emotions-Cyberbullying relationship, in that applying this strategy will boost the relationship between (a) anger and cyberbullying perpetration and (b) fear or sadness and cyberbullying victimization.*

4. Discussion

As our work environment evolves from a physical to an increasingly virtual one, we believe that the phenomenon of workplace cyberbullying will grow in importance. The virtual environment is one that offers an outlet for different emotions, while creating an electronic barrier that minimizes the awareness of the impact of online behaviour. Building on the comprehensive Affective Events theory and concretizing it using insights from multidisciplinary literature (e.g., the work environment hypothesis, the stressor-strain paradigm, appraisal-tendency framework, EASI model, etc.), we propose an Emotion Reaction model of workplace cyberbullying. By building this model, we expand the theoretical understanding of this little explored phenomenon and provide a starting point for further research in this area. In this model we propose that confrontation with workplace stressors will elicit negative emotions in workers and that these emotions will in their turn give rise to

cyberbullying behaviour. We also propose that this relation will be altered by control appraisal and the appliance of emotion regulation strategies. We do not claim that there are no other possible variables which can be of important in this process. However, we believe emotions to play a crucial part in the workplace cyberbullying development and therefore focus on the core variables necessary in explaining this relationship. Nonetheless, future research could, hopefully based on more empirical research in this area, further expand this model by proposing additional variables that can be of importance in this process. These can be demographic variables such as age and gender (e.g., Hinduja & Patchin, 2008; Kowalski, Giumetti, Schroeder & Reese, 2012), personality variables such as narcissism (e.g., Ang, Tan & Mansor, 2011), cognitive variables such as moral disengagement (e.g., Pornari & Wood, 2010) and other situational variables such as anonymity (e.g., Postmes & Spears, 1998). Also, while the focus of this paper was on the instigating factor of cyberbullying at work, the model could be supplemented to include outcomes of this behaviour as well. We thereby believe they will be similar to the outcomes that have already received much support in the youth literature (e.g., anxiety, depression, substance abuse and suicidal thoughts; Kowalski, Giumetti, Schroeder & Lattanner, 2014). In addition, we acknowledge the possibility that environmental and personal factors will not only affect the occurrence of workplace cyberbullying, but that this experience will also affect environmental and personal factors in return. In order to gain a better understanding in the cyberbullying dynamics, we therefore encourage researchers to apply longitudinal designs in testing this model.

This paper has different theoretical implications. First, in defining workplace cyberbullying we include a specific set of one-time behaviours. That is, one-time acts that pose an intrusion into one's personal life and a (potential) threat of public humiliation. This type of act underlines the important distinction between the online and the offline context. In the latter context, one-time negative behaviours are argued to represent related concepts such as hostility, incivility or aggression rather than bullying. This is not to say that in the online environment, all one-time negative behaviours will constitute cyberbullying. Cyberbullying as well can be distinguished from related concepts such as cybercrime and cyber incivility. These two constructs are different in that they are respectively: a negative behaviour that does not target a specific person and a more mild form of negative online behaviour that is not intrusive in nature. In sum, we see the one-time intrusive behaviours as an important part of the cyberbullying phenomenon and therefore encourage researchers to consider these acts when constructing and validating cyberbullying questionnaires.

Second, we recognize that there are similarities between the traditional bullying construct and its online counterpart. This offers us the unique opportunity to gain knowledge on the cyberbullying phenomenon at work by the already well-established domain of 'traditional' workplace bullying.

Building on this knowledge, we see workplace stressors as the instigating factors of negative workplace behaviour such as cyberbullying. We encourage future research to empirically validate this proposition. In that respect, it can be interesting to explore the most important workplace stressors and whether these will differ depending on the role one partakes in the cyberbullying process or depending on the type of bullying behaviour (e.g., online versus offline). However, it is also important to recognize the specific context in which cyberbullying occurs. This context – characterized by the lack of non-verbal cues, anonymity, intrusiveness and viral reach – creates its own dynamics. CMC has been shown to change the way individuals handle and express their emotions. We therefore propose that emotions could play a key part in the cyberbullying process. In doing so, we tie in with the call for more research on discrete emotions in the organizational context (Gooty, Gavin & Ashkanasy, 2009). Different theoretical models have already incorporated some form of emotional constructs when trying to predict workplace bullying. In the Three Way Model of workplace bullying, Baillien, Neyens, De Witte and De Cuyper (2009), suggested that the experience of frustrations due to individual, task, team and organizational characteristics can lead to workplace bullying, through inefficient coping. More recently, Samnani and Singh (2015) included moral emotions as predictors of workplace bullying. However, emotions are key with regards to cyberbullying, given that the online context enables an even more uninhibited and explicit communication of emotions. This overt expression of emotions online is partly responsible for the success of online help groups (Turner, Grube & Meyers, 2001). However, we argue that this aspect of the online environment can also have its downside.

Third, while there have been many contributions with regards to bullying victimization in the workplace bullying research, fewer efforts have been made to better understand bullying perpetration. We therefore probe into the little explored world of bullying perpetration in formulating different propositions in addition to looking at cyberbullying victimization. We propose that similar situational predictors will be of importance for the two roles, as both bullies and victims are subjected to the same organizational context. This is in accordance with the evidence from Balducci, Cecchin and Fraccaroli (2012) who found that role conflicts predicted both being bullied and bullying enactment at work while personal predictors for the two groups differed. However, we propose that depending on the emotions experienced and emotion regulation strategies applied, one will end up either on the delivering or the receiving end of aggression. Given the paucity of evidence regarding bullying perpetration at work, we strongly encourage the examination of the enactment path in future studies on workplace cyberbullying, in addition to the victimization path.

Finally, from a practical point of view, we hope this model provides organizational practitioners with a framework that can guide their actions in both preventing and eliminating cyberbullying in the workplace. Our model suggests both environmental factors (e.g., work characteristics) and personal

factors (e.g., emotion regulation strategies) which may contribute to the occurrence of workplace cyberbullying. Given the negative effect of cyberbullying on workers (Staude-Müller, Hansen & Voss, 2012), this indicates the need for managers to respond to this potential threat by investing in both the reduction of workplace stressors and the stimulation of adaptive emotion regulation strategies.

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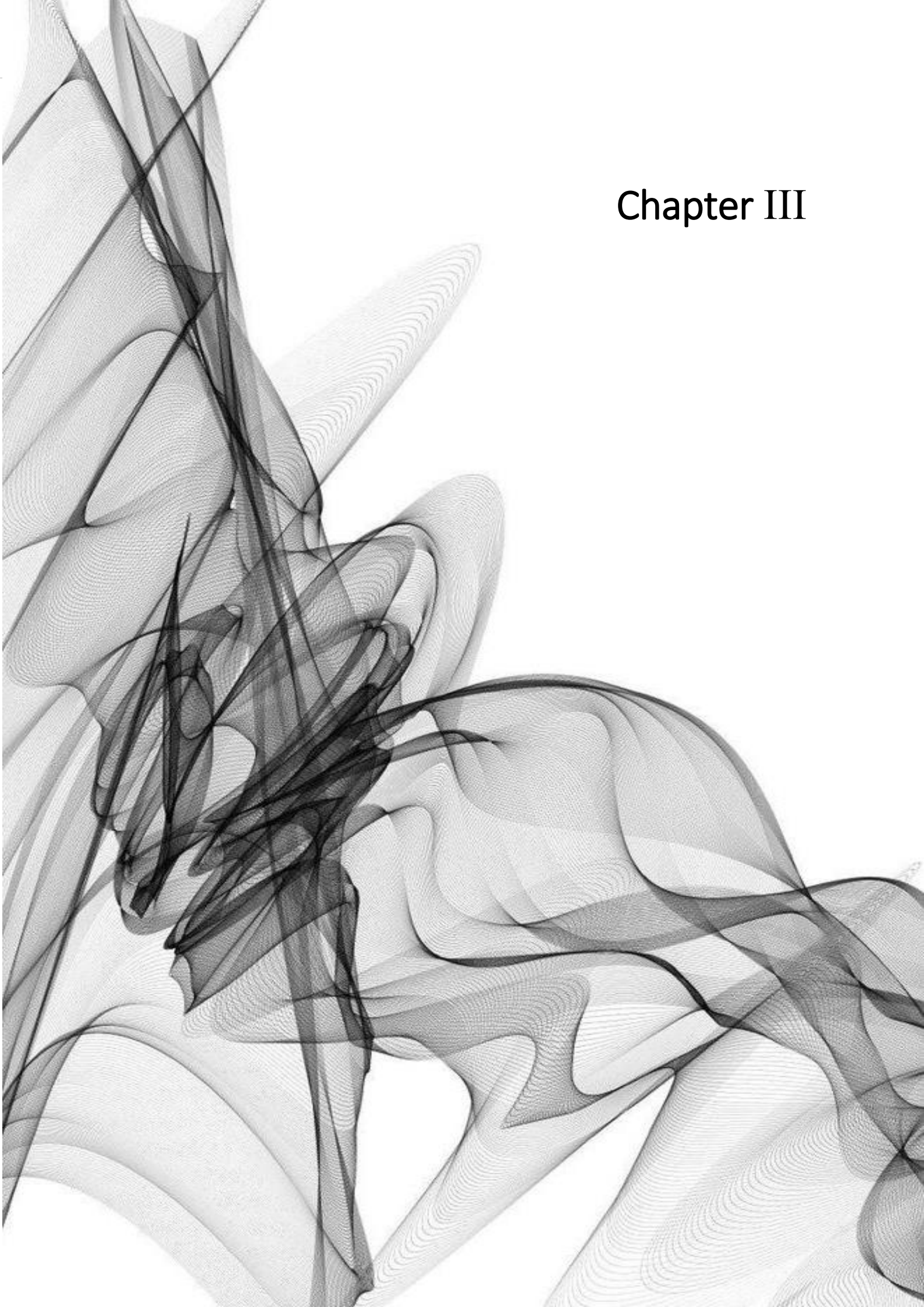

Chapter III

Study 2: When workplace bullying goes online: construction and validation of the Inventory of Cyberbullying Acts at Work (ICA-W)[4]

Abstract

There has been an increase in the use of Information Communication Technologies in the workplace. This change extends the scope of bullying behaviours at work to the online context. However, a generally accepted measure of workplace cyberbullying is still lacking. The purpose of the present paper is to construct and validate the Inventory of Cyberbullying Acts at Work, in order to contribute to this emerging field. Building on existing knowledge, we expected three types of cyberbullying behaviours to emerge in the work context: person related, work related and intrusive. First, the items of the scale were constructed and the three-dimensional structure of the scale was tested in two different samples. Then, the reliability and the convergent validity of the scale were assessed. Finally, we tested the predictive validity of the scale by assessing the impact of exposure to cyberbullying acts at work to individuals' mental well-being six months later. Our analyses confirmed the three dimensional structure of the scale. In addition, the scale was found reliable and valid. The construction of this scale offers an avenue for further research on cyberbullying in the work context.

[4]Vranjes I., Baillien E., Vandebosch H., Erreygers S., De Witte H. (2017). When workplace bullying goes online: construction and validation of the Inventory of Cyberbullying Acts at Work (ICA-W). *European Journal of Work and Organizational Psychology, 27*(1), 28-39. doi: 10.1080/1359432X.2017.1363185

1. Introduction

Information communication technologies (ICTs) are becoming an inherent part of people's working life. In Europe, the percentage of people working at least a quarter of their time with computers has increased from 39% in 2000 to 52% in 2010 (Korunka & Hoonakker, 2014, p. 15) – a number that is presumably even higher today. Besides the many advantages of online work, such as increased efficiency and flexibility (Hill, Miller, Weiner & Colihan, 1998), this new way of working also has the potential to give rise to a new form of workplace aggression – that is, workplace cyberbullying. Workplace cyberbullying refers to repeated aggressive online conduct with the intention to harm the victim (Tokunaga, 2010). This phenomenon has been receiving much attention in the school context, where it is stated to be a widely occurring form of aggression with victimization rates going up to 56.2% (Perren, Dooley, Shaw & Cross, 2010). Much less attention has been given to this form of online aggression in organizations. However, there is already some evidence that workplace cyberbullying is in fact present in the organizational context.

The studies looking into the phenomenon so far report varying victimization rates, going from 3.7% up to 46.2% (Farley, Coyne, Sprigg, Axtell & Subramanian, 2015; O'Driscoll et al., 2015). This is due to a lack of a generally accepted measure of workplace cyberbullying. Most of the studies on cyberbullying have been conducted in the context of schools (Berne et al., 2013). Consequently, the few studies that have examined cyberbullying victimization in the work context have either applied (a) youth cyberbullying scales (e.g., Brack & Caltabiano, 2014), (b) self-assessment, one-item measurements of cyberbullying at work (e.g., Baruch, 2005) or (c) adapted the most widely used offline bullying measurement, the NAQ-R (Einarsen, Hoel & Notelaers, 2009), to the online context (e.g., Privitera & Campbell, 2009). The first approach fails to address the specific context of work (i.e., work related negative online behaviours are unaccounted for). The second approach has been criticized for underestimating the true rates of bullying because of individuals' reluctance to admit being subjected to these behaviours (Galanaki & Papalexandris, 2013). In addition, one-item measurements do not lend themselves to reliability testing. Finally, the latter approach fails to take into account the very specific characteristics of the online as opposed to offline environment (e.g., anonymity and viral reach; Dooley, Pyżalski & Cross, 2009).

We aim to fill the current gap in the literature by building and validating an Inventory of Cyberbullying Behaviours at Work (ICA-W). This measure is constructed after careful examination of the current workplace bullying and cyberbullying literature. In order to account for the shortcomings of the current cyberbullying scales, we follow the dominant approach in the workplace bullying literature by applying a behavioural experience approach when measuring workplace cyberbullying. That is, a list of

negative online acts is presented. These acts are rated by individuals on frequency of their occurrence and victimization is determined by a predefined operational criterion. Usually either the criterion of one negative act per week over a period of at least 6 months is applied (Leymann, 1996) or the more conservative two acts criterion (Mikkelsen & Einarsen, 2001). This approach is argued to be more objective than self-labelling approaches as respondents' need for cognitive and emotional processing of information is reduced (Einarsen et al., 2009). In addition, the scale is based on a comprehensive definition of the cyberbullying construct and is specifically focused on cyberbullying victimization in the work context. That is, items are included which specifically assess negative online acts related to the work environment. Lastly, after reviewing the well-established cyberbullying at school literature, items are included which are specific for the online environment and tap aspects of e.g. viral reach and anonymity.

First, we define the concept of workplace cyberbullying and discuss its dimensionality, as this guides the scale and item construction. Next, we discuss the theoretical predictors and outcomes of workplace cyberbullying victimization, as well as related constructs. This guides our selection of the relevant variables for establishing the congruent, discriminant and predictive validity of the ICA-W.

1.1 Defining characteristics and dimensionality of workplace cyberbullying

Workplace bullying is defined as repeated negative behaviour carried on over a period of time towards one or more individuals who cannot easily defend themselves (Einarsen, 2000). With regards to the relation between the offline and the online bullying construct, it has been argued that while frequency of negative behaviour is a necessary condition for offline bullying behaviour, this aspect decreases in importance in the online environment (Vandebosch & Cleemput, 2008). This is because an act, committed once on the part of the perpetrator, can cause on-going harm and exposure through online sharing and reposting (Dooley et al., 2009). Moreover, the online environment creates opportunity for the perpetrators to invade someone's private life. This refers to the intrusiveness of cyberbullying behaviours (D'cruz & Noronha, 2013). Lastly, an online context yields many opportunities for the perpetrator to remain anonymous (Staude-Müller, Hansen & Voss, 2012). This makes cyberbullying victims even more unable to react against negative behaviour, increasing their sense of helplessness (Wingate, Minney & Guadagno, 2013).

In the youth literature, cyberbullying has been defined as: "an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself" (Smith et al., 2008, p. 376). The conceptualization of youth cyberbullying resembles the workplace bullying literature. The aspects of repetition and endurance of negative behaviour and the powerlessness of the victim are reoccurring in both fields. However, in the

work context, the aspect of intentionality by the perpetrator has been generally left out of the workplace bullying definitions because of the focus on the victims of this behaviour. So far, the few studies looking at the cyberbullying construct in the workplace have taken over the youth cyberbullying definitions. However, recently, a definition has been proposed specifically tailored to the work context and accounting for the unique characteristics of the online environment. Following Vranjes, Baillien, Vandebosch, Erreygers and De Witte (2017), we define workplace cyberbullying as all negative acts stemming from working relationships and occurring through the use of ICTs that are either (a) carried out repeatedly and over a period of time or (b) conducted at least once but form an intrusion into one's personal life, having the potential to expose private information to a wide online audience.

Building on the existing literature, we propose that workplace cyberbullying consists of three different types of behaviour: (a) person related, (b) work related and (c) intrusive. The former two correspond with the distinction that is made in the workplace bullying literature (Einarsen, 1999). More specifically, person related and work related negative behaviours refer to acts that respectively target a person (e.g. gossiping) and make someone's job difficult to perform (e.g. withholding information). They are also represented in the most widely used measure of offline workplace bullying, the Negative Acts Questionnaire Revised (NAQ-R; Einarsen et al., 2009). These categories can easily be generalized to the online context. For instance, in their cyberbullying victimization subscale at school, Hinduja and Patchin (2010) refer to behaviours such as being made fun of online and receiving upsetting messages. Regarding work related behaviours, for instance, not sharing work related information online is a work related negative online act, given that it mirrors the offline bullying behaviour of withholding work related information. The latter component – intrusiveness – relates to behaviours that may be typically enacted in the online environment. More specifically, D'cruz and Noronha (2013) found that pervasiveness and boundarylessness of negative behaviour was an important theme in people's experience of cyberbullying at work. This relates to behaviours which invade someone's personal life and make individuals feel pursued. Given that new technologies are prevalent in most aspects of our lives, both public and private, they create a constant, 24/7, availability of the victim, who cannot escape this negative behaviour (Slonje & Smith, 2008). In addition, new technologies can sometimes grant access to private information, previously unattainable in the physical context (Vranjes et al., 2017). These behaviours can be labelled as intrusive: even when only committed once from the perspective of the actor, they are invasive and can result into negative content being shared and reposted online countless times (Dooley et al., 2009). An example would be sharing embarrassing pictures online and hacking into personal information. Since this category is new and inherent to the online environment, it distinguishes cyberbullying behaviours at work from offline workplace bullying

behaviours. Moreover, we argue that a measurement of workplace cyberbullying should include the three categories described above.

Hypothesis 1: Workplace cyberbullying consists of three distinct dimensions (i.e. person related, work related and intrusive), which contribute to an overall construct of workplace cyberbullying.

1.2 Measurement approach

Two common methods for assessing bullying at work are the self-labelling approach and the behavioural experience method (Nielsen, Matthiesen & Einarsen, 2010). The former relates to a one-item question, sometimes preceded by a definition of workplace bullying, in which the participant is asked whether he or she has been subjected to bullying behaviour at work. The latter refers to an inventory of various negative behaviours that may occur at work and can be considered as bullying. The participant then indicates the extent to which he or she has been subjected to these behaviours. The self-labelling method can produce psychological defence mechanisms, as people may not feel comfortable identifying themselves as victims of bullying (Magley, Hulin, Fitzgerald & DeNardo, 1999). It may also pose a significant threat to self-esteem (van Beest & Williams, 2006). In contrast, respondents are more comfortable reporting being subjected to negative behaviour when the behavioural experience method is applied (Kokubun, 2007). Hence, the former method is more conservative. As a consequence, the two methods are often applied in conjunction. Previous studies did show that the two measurement methods are significantly correlated (e.g. Einarsen et al., 2009; Galanaki & Papalexandris, 2013; Simons, Stark & DeMarco, 2011). As our measure (i.e. the ICA-W) represents the behavioural experience approach, we expect it to be significantly correlated with a one-item measure of workplace cyberbullying.

Hypothesis 2: The ICA-W measure will be positively associated with a one-item, self-labelling measure of workplace cyberbullying.

1.3 Associated variables

Up to date, not much is known about variables associated with workplace cyberbullying. Personal factors, such as age and gender, provide mixed results with no clear trend both in the youth cyberbullying literature (Kowalski, Giumetti, Schroeder & Lattanner, 2014) and in the workplace bullying literature (Samnani & Singh, 2012). The same holds for personality characteristics in the work context (Aquino & Thau, 2009). In contrast, the workplace bullying literature has provided wide support for the work environment hypothesis (Einarsen, Raknes & Matthiesen, 1994; Leymann, 1996) claiming that workplace bullying stems predominantly from work related stressors. Studies have revealed that job related stressors (Balducci, Cecchin & Fraccaroli, 2012; Notelaers, De Witte &

Einarsen, 2010), team related stressors (Baillien, Bollen, Euwema & De Witte, 2014) and organizational stressors (Baillien & De Witte, 2009; Coyne, Chong, Seigne & Randall., 2003) are associated with workplace bullying. Of these stressors, workload, role conflicts, role conflicts, job insecurity and autocratic leadership have received most empirical support (Salin & Hoel, 2010; Van den Brande, Baillien, De Witte, Vander Elst & Godderis, 2016). It is plausible that the same holds for the online variant of this behaviour. In support, recent evidence by Gardner et al. (2016) shows that a poor work environment predicts both offline and online bullying. Finally, both in the youth (Modecki, Minchin, Harbaugh, Guerra & Runions, 2014) and the work literature (O'Driscoll et al., 2015), cyberbullying has been found to co-occur with offline bullying. That is, in most studies, victimized individuals report being subjected to both forms of negative behaviour.

Hypothesis 3: Workplace cyberbullying will be positively related to work related stressors of workload, role conflicts, job insecurity, autocratic leadership and interpersonal conflicts.

Hypothesis 4: Workplace cyberbullying will be positively and highly related to offline workplace bullying.

1.4 Outcomes of workplace cyberbullying

Workplace bullying carries a large cost for organizations. Studies have shown that outcomes such as organizational performance, culture, team effectiveness, job satisfaction and intention to leave – all of great importance for organizational effectiveness – are negatively affected by workplace bullying (Samnani & Singh, 2012). However, there are not many scientific contributions with regards to the outcomes of workplace cyberbullying. In the youth literature, cyberbullying has been linked to various negative effects including anxiety, depression, substance abuse, sleeping problems, suicide and physical symptoms (Mitchell, Ybarra & Finkelhor, 2007; Privitera & Campbell, 2009). Cyberbullying has also been linked to certain negative behaviours, such as absenteeism, dropping out of school and decreased performance (Beran & Li, 2007; Mitchell et al., 2007). In the few studies examining cyberbullying at work, cyberbullying has been found to predict reduced mental, physical and emotional well-being (Farley et al., 2015; O'Driscoll et al., 2015, Staude-Müller et al., 2012).

Hypothesis 5: Exposure to workplace cyberbullying will predict a decrease in individuals' well-being over time.

1.5 Overview of studies

For the validation of the Inventory of Cyberbullying Acts at Work (ICA-W), we follow the widely recommended steps for scale development (Hinkin, 2005; Worthington & Whittaker, 2006). That is, we depart from a well-defined construct, following the definition by Vranjes et al. (2017), and begin

with a theory driven item generation process in order to develop the measure. Second, we collect data and perform an exploratory factor analysis, in order to test the dimensionality of the measure (Study 1, Hypothesis 1). Next, we assess whether this three factor structure can be replicated in a different sample by means of confirmatory factor analysis (Study 2). In addition, the internal consistency of the measure is assessed (Study 1 and 2). Finally, we investigate the validity of the scale by both looking at the association of our measure with similar and related constructs (i.e. convergent validity; Study 2, Hypothesis 2, 3 and 4) and looking at the predictive power of our measure over time (i.e. predictive validity; Study 3, Hypothesis 5).

2. Study 1

2.1 Sample

The data collection took place in four different organizations from various sectors (public and private). In total, 710 employees participated in the study, with a response rate of 32%. The participants had a mean age of 44 (ranging from 19 to 63) and 52% of them were male. The sample consisted mostly of highly educated employees: 46% university degree, 29% higher, non-university degree, 23% secondary school diploma, 1% primary school diploma and 1% no diploma. Most of them, that is 58%, indicated to use some form of ICTs at work for more than 30 hours a week, whereas no-one reported to never use any ICTs at work.

2.2 Procedure

After a careful inspection of the literature on offline workplace bullying, workplace cyberbullying and youth cyberbullying, we constructed a list of 16 cyberbullying acts at work. First, looking at items used in various youth cyberbullying scales (for an overview, see Berne et al., 2013), we made a list of items that were (a) most reoccurring in different scales, and (b) applicable to the work context. Second, we adapted items of the most widely used scale of workplace bullying (NAQ-R; Einarsen et al., 2009) to the online context, when possible, and added these to the list. Next, overlapping items were removed and similar items were combined into a single item. For parsimony reasons, we referred to general types of behaviours (e.g., *Rumours or gossips are being spread about you by means of ICTs*) as opposed to very specific occurrences (e.g., *Rumours are spread about you by means of ICTs, People gossip about you by means of ICTs, People talk behind your back by means of ICTs*). In addition, because technologies change rapidly, items were constructed without indicating specific forms of electronic communication (e.g., mobile phone, computer, etc.). In other words, we referred to ICTs (internet, mail, mobile phone, telephone, tablet, etc.) in general. An example is: *You are being insulted, threatened or intimidated by means of ICTs*. However, because e-mail is the most common form of electronic communication amongst workers (even more common than face-to-face

communication; Wajcman & Rose, 2011), three items specifically referred to this means of communication. An example is: *Your e-mails are forwarded to third parties in order to harm you*. Of these items, six could be classified as person related, five as work related and five as intrusive.

The 16 items were first pretested in a sample of 20 working subjects and were presented to two experts in the field of youth cyberbullying who assessed their face validity. After this pre-test, five items were omitted because they could not be conceptually disentangled from other related constructs such as cybercrime (e.g., *Someone sends you a virus or a malware*) and cyber harassment (e.g., *You receive e-mails with sexual or aggressive content*). The remaining 11 items (see Table 1) were used in the further data collection. All items were answered on a 5-point Likert scale with the following labels: never, one time, monthly, weekly, daily. These labels reflect the widely used labels within the workplace bullying and youth cyberbullying literature with the exception of the label "one time". However, the inclusion of this label is of importance, since it accounts for the fact that intrusive behaviours, such as sharing personal information online, do not necessarily require repetition in order to be categorized as cyberbullying (Dooley et al., 2009).

All participants were notified about the study by their employer. They were informed that their participation was voluntary and that they could withdraw from participating at any point. It was also stated that their data would be treated confidentially and would not be passed on to third parties. It was indicated that by continuing to the online questionnaire link, they consented to participating in the survey.

2.3 Analysis and results

2.3.1 Exploratory factor analysis

In order to investigate the underlying factor structure of the items, we conducted an exploratory factor analysis in IBM SPSS version 23. We applied one of the principal factor methods – principal axis factors – in SPSS for extracting the factor structure, because this method is well suited for data in which the assumption of multivariate normality is severely violated (Fabrigar, Wegener, MacCallum & Strahan, 1999). Also, since in social sciences some correlation between the factors seems obvious, an oblique rotation (oblimin with Kaiser Normalization) was performed (Worthington & Whittaker, 2006).. We follow the recommendation by Tabachnick and Fidell (2001), who cite a rule of thumb of .32 as a minimum required loading of an item, with 'crossloading items' being defined as items loading .32 or higher on two or more factors. Combination of the Kaiser criterion (factors with eigenvalues greater than one) and the scree test was used to determine the number of factors retained (Conway & Huffcutt, 2003).

First, Kaiser-Mayer-Olkin (KMO) and Barlett test for sphericity were calculated to test the suitability of the data for factor analysis. The KMO was .78, and the Barlett test for sphericity was significant ($p <$ .001), indicating that factor analytic procedures could be applied. The EFA yielded a three factor solution, explaining 58.46% of the common variance. One item was dropped because it did not significantly load on any of the extracted factors. The other retained items all loaded above .32 on their respective factors. In addition, the factor structure extracted by the EFA reflected the definitional dimensions of 'person related', 'work related' and 'intrusive' acts. One item – 'Your work is criticized publicly by means of ICTs' – displayed a small crossloading, loading significantly on the factors 'work related' (.55) and 'person related' (.32). With regard to this, according to statistical research, small cross-loadings allow constructs to be estimated using all of the relevant information present at the indicator level (Asparouhov, Muthén & Morin, 2015). In addition, their exclusion results in inflated factor correlations, modifying the meaning of the construct of interest. Given this evidence and because the crossloading in question just reached the predefined criterion of .32, we decided to provisionally retain this item for further analyses. Correlations between the scales occurred, which warrants the use of an oblique transformation. The highest correlation was between work related and person related cyberbullying (r = .38), while other correlations were lower ($r_{\text{person intrusion}}$ = .20, $r_{\text{work intrusion}}$ = .05).

2.3.2 Reliability

Next, we assessed the internal consistency of the scale. Cronbach's alpha exceeding .90 indicates excellent internal reliability; alpha between .70 and .90 indicates high internal reliability; alpha from .50 to .70 indicates moderate internal reliability, and alpha below .50 indicates low reliability (Hinton, Brownlow, McMurray & Cozens, 2004). The 10 item scale was reliable (α = .71). Cronbach's alpha for the 'work related' dimension was .74, for the 'person related' dimension .53, and for the 'intrusion' dimension .53 – indicating moderate to high internal consistency of the subscales.

Table 1

Study 1: Descriptive statistics and factor loadings (EFA) of the preliminary items of the ICA-W

During the last six months, how often have you been subjected to the following acts by means of ICTs (internet, mail, mobile phone, telephone, tablet, etc.)?		*Factor loadings*			*M*	*SD*	*Min.*	*Max.*
		1	2	3				
Work Related	1. Your e-mails, phone calls or messages are ignored at work.	**.72**	.02	.07	1.25	0.58	1	5
	2. Your e-mails are forwarded to third parties in order to harm you.	**.56**	.07	.04	1.09	0.36	1	4
	3. Your work is criticized publicly by means of ICTs.	**.55**	.32	.04	1.15	0.47	1	5
	4. Somebody is withholding e-mails or files you need, making your work more difficult.	**.61**	-.08	.02	1.18	0.50	1	5
Person Related	5. Rumours or gossips are being spread about you by means of ICTs.	.13	**.71**	-.01	1.05	0.26	1	5
	6. You are being insulted, threatened or intimidated by means of ICTs.	.23	**.32**	-.15	1.01	0.11	1	2
	7. Constant remarks are being made about you and your private life by means of ICTs.	-.03	**.65**	.07	1.01	0.10	1	2
Intrusion	8. Your personal information is hacked and used to harm you.	.21	-.06	**.78**	1.02	0.18	1	4
	9. Somebody shares photos or videos of you on the internet to make fun of you.	-.12	.28	**.34**	1.01	0.09	1	2
	10. Somebody takes over your identity.	.02	-.03	**.53**	1.00	0.05	1	2
% variance explained		31	15	12				

*Note. N = 710, *these items were removed because of low (<.32) and/or insignificant factor loadings.*

2.4 Discussion

Together, the results of the exploratory factor analysis provided first support for the hypothesized three-factor structure of the ICA-W. However, many cyberbullying behaviours displayed low prevalence rates in our sample, which translated in moderated reliabilities. Consequently, we needed to replicate the findings in an additional sample in order to confirm the three-factor structure. Also, some intrusive acts were infrequently reported by participants, with only two subjects reporting that photos or videos of them were posted online (Item 9). Since evidence indicates that any ratio less than a minimum of three participants per item is inadequate (Velicer & Fava, 1998), we wanted to supplement this subscale with an additional item. Specifically, we wanted to construct a more broadly formulated item, that would encompass the general meaning of Item 9 together with some additional negative behaviours that may occur online, in order to increase the response rate for this item. Finally, we wanted to further investigate the psychometric properties of the ICA-W instrument.

3. Study 2

3.1 Sample

For the second study we collected data in two different organizations – one in the public and one in the private sector. In addition, an open link was distributed through snowballing technique. A total of 1650 participants filled out the questionnaire, of whom 100 via the open link. The response rate for the organizations was 43%. The participants were primarily from the public sector (92%). The response rate for the open link could not be assessed. The mean age of the participants was 42 (ranging from 18 to 69) and 46% were male. The sample consisted mostly of highly educated employees: 38% university degree, 29% higher, non-university degree, 30% secondary school diploma, 1% primary school diploma,1% no diploma and 1% other. Most of them, that is 61.1%, indicated to use some form of ICTs at work for more than 30 hours a week, whereas no-one reported to never use any ICTs at work.

3.2 Procedure

First, the subscale Intrusion needed to be supplemented with an additional item. As previously stated, online bullying distinguishes itself from its offline counterpart because online negative behaviour is pervasive and boundless (D'cruz & Noronha, 2013), the victim is always available (Slonje & Smith, 2008), and private information can become publicly shared and viewed countless times (Dooley et al., 2009).). This refers to the intrusiveness of this behaviour (Vranjes et al., 2017). In that respect, the following item was added: "*Personal information about you is shared online or distributed via*

messages to others". Since technology is ever changing, this item was phrased broadly, encompassing different types of privacy invasive acts that would be harming to an individual.

First, we wanted to test whether the three-factor structure still holds in the new sample and whether this new item was a good addition to the (sub)scale. Next, we wanted to assess the reliability and construct validity of the new scale. For the convergent validity, we examined whether the constructs typically related to offline workplace bullying are also associated with our workplace cyberbullying measurement. We therefore selected some antecedents of workplace bullying that have received much evidence in the literature: workload, role conflicts, job insecurity and autocratic leadership (Salin & Hoel, 2010; Van den Brande, Baillien, De Witte, Vander Elst & Godderis, 2016). In addition, we wanted to inspect whether our workplace cyberbullying scale correlates significantly with a one-item, self-assessment measure of workplace cyberbullying. In the workplace bullying literature, these two types of measures are significantly correlated (e.g., Galanaki & Papalexandris, 2013; Einarsen et al., 2009; Simons et al., 2011). Finally, offline bullying is found to be highly correlated with cyberbullying, both in the youth literature (Modecki et al., 2014) and in the working population (O'Driscoll et al., 2015). We therefore expected the ICA-W to be correlated with a workplace bullying measure.

Again, all participants were notified about the voluntary nature of the study and the confidentiality of their data by their employer. It was indicated that by continuing to the online questionnaire link, they consented to participating in this survey.

3.3 Measures

All the constructs in the study were measured using validated scales. For measuring workload, role conflicts, job insecurity and autocratic leadership, 5-point Likert-type response scales were used ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Workload was measured with three items (α = .88) from the Short Inventory to Monitor Psychosocial Hazard (SIMPH) developed by Notelaers, De Witte, Van Veldhoven and Vermunt (2007). A sample item is: "Do you work under time pressure?". Role conflicts were measured with three items (α = .79) from the Working conditions and control Questionnaire (WOCCQ) developed by De Keyser and Hansez (2000), with a sample item: "I get contradictory orders at work". We measured the quantitative aspect of job insecurity with a four-item scale (α = .89; Vander Elst, De Witte and De Cuyper, 2014). A sample item is: "I am insecure about the future of my job". Autocratic leadership (α = .74) was assessed with six items by De Hoogh, Den Gartog and Koopman (2004). A sample items is: "My direct supervisor does not tolerate divergent opinions once he has taken a decision".

For our one-item measurement of workplace cyberbullying, we first presented the participants with a definition, after which they were asked to indicate to what extent they have been subjected to this kind of negative behaviour in the past six months. Interpersonal conflicts and workplace bullying were measured with a 5-point response scale ranging from 1 (*never*) to 5 (*daily*). Interpersonal conflicts (α = .89) were assessed with two subscales – task and relationship conflict – by Jehn (1995). A sample item for the task conflicts is: "How frequently are there conflicts about ideas in your work unit?". A sample item for the relationship conflicts is: "How much friction is there among members in your work unit?". Workplace bullying (α = .84) was measured with a short, nine-item version of the NAQ by Notelaers and Einarsen (S-NAQ; 2008). A sample item is: "Constant remarks are being made about your mistakes".

3.4 Analysis and results

3.4.1 Confirmatory factor analyses

The descriptive statistics of the different items, obtained with IBM SPSS version 23, are presented in Table 2. Having supplemented the Intrusion subscale with a new item, we assessed the fit of the three-factor model identified in Study 1 using confirmatory factor analysis (CFA) in Mplus 7.4 (Muthén & Muthén, 2015). We tested whether the three-factor solution – subscales representing work related, person related and intrusive cyberbullying behaviours – provided a good fit to the data. In addition, we conducted a second-order CFA to test whether or not the three factors could be placed under a general "workplace cyberbullying" factor. Because bullying variables produce highly skewed data (Einarsen et al., 2009), which was also the case for our data, maximum likelihood parameter estimates with standard errors and a mean-adjusted chi-square test statistic, both robust to non-normality (MLM), were used to examine the latent structure of the scale (Muthén & Muthén, 2015, p. 607).

Table 2

Study 2: Descriptive statistics of the final items of the ICA-W

During the last six months, how often have you been subjected to the following acts by means of ICTs (internet, mail, mobile phone, telephone, tablet, etc.)?		*M*	*SD*	*Min.*	*Max.*
Work Related	1. Your e-mails, phone calls or messages are ignored at work.	1.34	.68	1	5
	2. Your e-mails are forwarded to third parties in order to harm you.	1.08	.36	1	5
	3. Your work is criticized publicly by means of ICTs.	1.12	.42	1	5
	4. Somebody is withholding e-mails or files you need, making your work more difficult.	1.18	.52	1	5
Person Related	5. Rumours or gossips are being spread about you by means of ICTs.	1.06	.31	1	5
	6. You are being insulted, threatened or intimidated by means of ICTs.	1.03	.22	1	5
	7. Constant remarks are being made about you and your private life by means of ICTs.	1.03	.23	1	5
Intrusion	8. Your personal information is hacked and used to harm you.	1.02	.20	1	5
	9. Somebody takes over your identity.	1.02	.19	1	5
	10. Personal information about you is shared online or distributed via messages to others*	1.03	.28	1	5

*Note. N = 1650, *new item, added in Study 2.*

Following recommendations by Byrne (2010), multiple indices of goodness of fit of the CFA structural model were used: chi-squared divided by the degrees of freedom (χ^2/df), the comparative fit index (CFI), the Tucker–Lewis index (TLI), the standardized root mean squared residual (SRMR) and the root mean squared error of approximation (RMSEA). A model is considered to fit the data well when χ^2/df ≤ 4 and very good when χ^2/df ≤ 2 (Brooke, Russell, & Price, 1988), SRMR ≤ .08, RMSEA ≤ .06 (Hu & Bentler, 1999) and CFI and TLI > .90 or preferably > .95 (Byrne, 2010). In addition, in order to compare the non-nested models, Akaikes' information criterion (AIC) is reported. A lower value indicates a better fit of the model (Akaike, 1987), and a difference higher than 4 shows considerably more support for the model with the lower AIC (Burnham & Anderson, 2002).

To test for the most appropriate latent structure, five models were compared: (1) the expected three-factor structure (person related, work related and intrusive), (2) a two-factor model with work and person related behaviours collapsed into one factor and intrusion into another, (3) a two-factor model with items referring to intrusion and person related behaviours collapsed into one factor and work-related behaviours into another, and (4) an one-factor model in which all items loaded on one general latent factor. Inclusion of Model 2 refers to the distinction between the traditional bullying factors (i.e., work and person related) versus the newly introduced factor (i.e., intrusion). Model 3 pertains to the fact that intrusive behaviours also relate to the person as opposed to work. Model 4 is tested because different instruments in youth cyberbullying literature report a one-dimensional structure (e.g., Menesini, Nocentini & Calussi, 2011). Finally, we also tested (5) a second-order model in which the three factors (i.e., work related, person related and intrusion) were the indicators of a general cyberbullying factor. The error variances of items 1, 2 and 4 were allowed to covary, because all three items referred to the use of e-mail. Model 1 displayed a good fit to the data (χ^2/df = 2.01, RMSEA = .03, SRMR = .06, CFI = .94, TLI = .90, AIC = 1963.11). The item '*Somebody shares photos or videos of you on the internet to make fun of you*' did not significantly load on the Intrusion factor and was omitted. All the remaining items had significant factor loadings ranging from .51 to 89, with the new item loading .60 on the factor Intrusion. The three factors correlated significantly ($r_{\text{work intrusion}}$ = .57, p < .001; $r_{\text{work person}}$ = .70, p < .001; $r_{\text{person intrusion}}$ = .47, p < .05). These results are represented in Figure 1. Model 2 did not have a good fit and fitted the data worse than Model 1 (χ^2/df = 3.01, RMSEA = .04, SRMR = .07, CFI = .86, TLI = .80, AIC = 2204.16). The same held for Model 3, which fitted the data worse than Model 1 and Model 2 (χ^2/df = 7.08, RMSEA = .07, SRMR = .07, CFI = .58, TLI = .40, AIC = 2956.12). Model 4 again had the poorest fit and fitted the data even worse than Model 2 (χ^2/df = 7.11, RMSEA = .07, SRMR = .08, CFI = .57, TLI = .39, AIC = 3073.35). The second-order Model 5 displayed an equally good fit as Model 1 (χ^2/df = 2.01, RMSEA = .03, SRMR = .06, CFI = .94, TLI = .90, AIC = 1963.11), fitting better than the alternative models. All factors – work related (.91, p < .001),

person related (.76, $p < .001$) and intrusion (.62, $p < .001$) – loaded significantly on the second-order cyberbullying factor. Finally, the subscales – person related (α = .78), work related (α = .72) and intrusion (α = .78) – and the scale as a whole (α = .81), displayed high internal reliability.

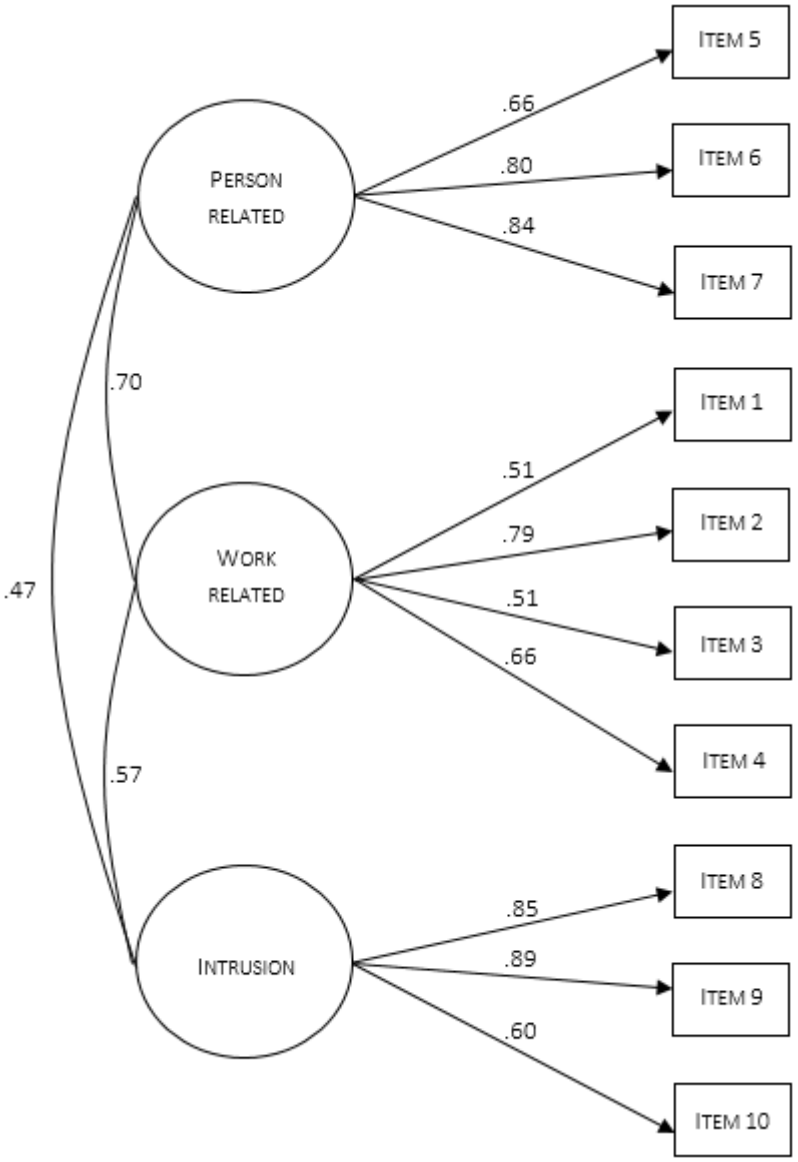

Figure 1. The confirmatory factor analysis (Model 1) of the ICA-W. Standardized results are reported. The error variances of items 1, 2 and 4 were allowed to covary.

3.4.2 Convergent validity

In order to test the convergent validity of the ICA-W, we calculated Pearson correlations between the ICA-W and the related constructs (workload, role conflicts, job insecurity, autocratic leadership, interpersonal conflicts and one-item measure of cyberbullying). Because of the non-normality of the ICA-W scores, we additionally report Kendall's Tau-b, which is a non-parametric correlation coefficient that does not require data to be normally distributed. These results are presented in Table 3. The ICA-W scale correlated significantly with all of the included variables. The correlations with workload and

autocratic leadership were rather low. However, the same could be observed with regards to offline workplace bullying, measured with the validated S-NAQ measure. Moreover, ICA-W measure (i.e., operational measure) and the one-item measure (i.e., self-assessment measure) correlated .38 (Pearson's *r*), which is comparable with other workplace bullying studies (e.g., *r* = .54, Einarsen et al., 2009; *r* = .38, Galanaki & Papalexandris, 2013; *r* = .21-.31, Simons et al., 2011). It also correlated highly and significantly with the offline bullying scale, both by Pearson's *r* (.59, *p* < .001) and by Kendall's Tau-b (.39, *p* < .001), which aligns with the findings from the cyberbullying in school literature (e.g., Olweus, 2012; Olweus, 2013; Sourander et al., 2010)

Table 3

Correlations table of the ICA-W and the related constructs

Measure	1	2	3	4	5	6	7	8
1. ICA-W	–	.06**	.23**	.15**	.08**	.21**	.17**	.39**
2. Workload	.04	–	.22**	.03	.07**	.11**	.01	.06**
3. Role conflicts	.23**	.30**	–	.19**	.11**	.26**	.06**	.31**
4. Job insecurity	.18**	.04	.25**	–	.10**	.09**	.09**	.15**
5. Autocratic leadership	.06*	.09**	.15**	.13**	–	.08**	.09**	.13**
6. Interpersonal conflicts	.26**	.12**	.35**	.14**	.12**	–	.09**	.38**
7. One-item measure	.38**	.04	.09**	.14**	.10**	.15**	–	.15**
8. Workplace bullying	.59**	.04	.36**	.25**	.15**	.51**	.32**	–

*Note. Pearson Correlations and Kendall's Tau-b correlation coefficients are shown in the lower and upper diagonal, respectively; *p < .01 **p < .001.*

3.5 Discussion

The results of the analyses confirmed that ICA-W is a reliable and valid scale. First, after supplementing the subscale Intrusion with an additional item, the predicted three-factor structure was again confirmed, with the new item displaying a high and significant loading on the intended factor. In addition, all three subscales had good reliability indices. Furthermore, there was evidence that the three subscales can be combined into one general measure of workplace cyberbullying, which was also found reliable. Second, we found that the ICA-W was significantly associated with different workplace stressors (i.e., workload, role conflicts, job insecurity, autocratic leadership and interpersonal conflicts), confirming its convergent validity. It is notable that the correlations with the constructs of workload and autocratic leadership were rather low. However, the same trend was visible in our data with regards to the validated offline bullying scale (S-NAQ). Thus, it is possible that in our sample these two construct were not good predictors of bullying behaviour in general (i.e., offline and online). Finally, the ICA-W was significantly associated with the self-assessment measure of workplace cyberbullying and in the similar order of magnitude as in the offline bullying literature.

4. Study 3

4.1 Sample

For the third study, an additional wave of data was collected from the sample of Study 2, six months later. A total of 849 respondents participated at both time points (response rate of 58%, relative to T1, 95% public sector). The mean age of the participants was 42 (ranging from 20 to 69) and 46% were male. The sample consisted mostly of highly educated employees: 39% university degree, 32% higher, non-university degree, 26% secondary school diploma, 1% primary school diploma, 0% no diploma and 2% other. Most of them, that is 61.8%, indicated to use some form of ICTs at work for more than 30 hours a week, while no-one reported never using ICTs at work.

4.2 Procedure

There is strong evidence that bullying is associated with negative outcomes for individuals, whether youngsters or adults (e.g., Bowling & Beehr, 2006; Gini & Pozzoli, 2009). With regards to cyberbullying, we find evidence both in the cyberbullying at schools literature as well as in the cyberbullying at work literature, that this negative online behaviour negatively impacts individuals well-being (Coyne et al., 2017; Farley et al., 2015; Kowalski et al., 2014). Therefore, we examined the predictive validity of the ICA-W by testing the relationship between cyberbullying at T1 and mental well-being at T2.

4.3 Measures

The ICA-W scale had a good reliability in both waves (α_{T1} = .81; α_{T2} = .72). We measured mental well-being (α_{T1} = .82; α_{T2} = .85) with a short, five-item version of the Mental Health Inventory (MHI-5; Berwick et al., 1991). The respondents were asked to indicate on a 6-point scale ranging from 1 (*never*) to 6 (*always*) how they felt in the previous month. An example item is: "How often have you felt very happy in the previous month?".

4.4 Analysis and results

Before conducting the analysis, we first checked for measurement invariance of the scales measuring the core study variables: mental well-being and workplace cyberbullying. For both variables, we found a good fit of the baseline model, the invariant factor loadings model and the invariant thresholds model. This confirmed the scalar invariance of the scales, indicating that same constructs are measured over time. In addition, we assessed whether systematic dropout of respondents could have affected the results. We performed a logistic regression analysis in IBM SPSS version 23 to test whether participation at both waves (N = 849) versus dropout after the first wave (N = 512) was predicted by the core study variables (i.e., exposure to workplace cyberbullying and mental well-being). We found that the Chi-square, $\chi^2(2) = 2.01$, $p = .36$, did not reach significance. Hence, dropout was not predicted by the core study variables.

A cross-lagged panel analysis was used to assess whether exposure to cyberbullying acts at T1 (i.e., ICA-W as a whole) was associated with mental well-being at T2. The structural model was fitted using Mplus 7.4 (Muthén & Muthén, 2015). Because of the skewness of cyberbullying scores, we ran 10 000 bootstrap samples to obtain 95% confidence intervals (CI) of the path coefficients (Efron & Tibshirani, 1993). The standardized results are presented in Figure 2. The structural model fits the data well (χ^2= 30.97, $df = 3$, $p < .001$, RMSEA = .10, SRMR = .04, CFI = .97, TLI = .94). The chi-square model fit statistic is reported, however, it should be noted that in the case of non-normal data, this statistic is inflated and therefore not reliable as a fit indices (Barrett, 2007). The autoregressive paths, together with the cross-lagged path were all significant. With regard to the cross-lagged path, we found that exposure to cyberbullying T1 significantly predicted a small decrease in mental well-being T2 (β = -.06, $p < .05$), with bootstrapped 95% CI of the path coefficients not containing zero (-0.53, -0.03).

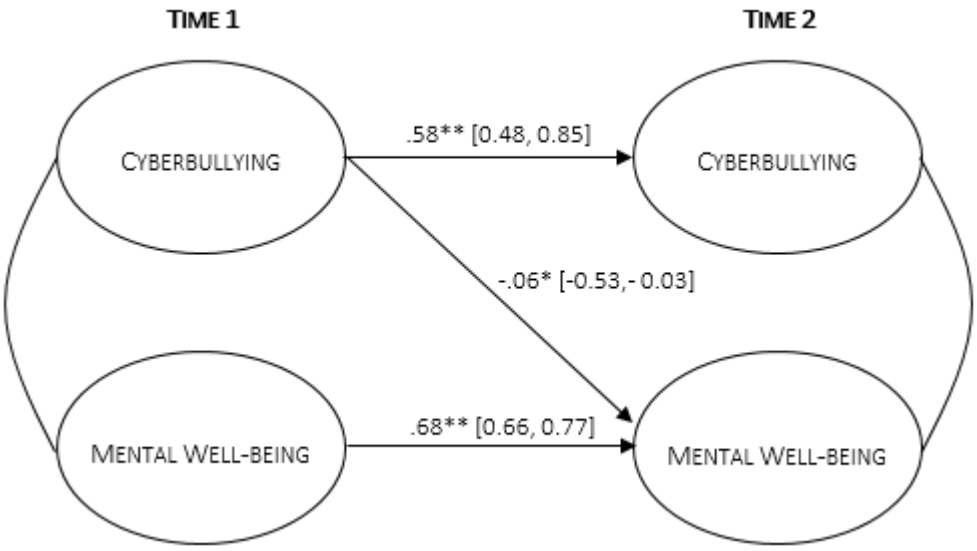

Figure 2. Cross lagged panel model with standardized regression coefficients testing the effect of cyberbullying on mental well-being. Bootstrapped 95% confidence intervals are reported in parentheses. *p < .05, **p < .001.

4.5 Discussion

Cyberbullying at work and in schools has been shown to have a negative impact on individuals. We therefore assessed whether ICA-W scores would predict a change in individuals' mental well-being across time. The results of Study 3 provided support for the predictive validity of the ICA-W scale. That is, exposure to cyberbullying acts predicted a small but significant decrease in individuals' mental well-being six months later.

5. General Discussion

5.1 Main findings

It is notable in the literature that the phenomenon of workplace cyberbullying has not received as much attention as its offline counterpart. However, recent studies suggest that cyberbullying is in fact present in organizations, which underlies the importance of correctly assessing this phenomenon. The aim of this study was to construct a psychometrically sound, yet compact, instrument for measuring cyberbullying victimization in organizations – the ICA-W. To achieve this goal, we combined knowledge from the workplace bullying as well as the youth cyberbullying literature in both constructing and validating the scale. The results of Study 1, 2 and 3 jointly provided evidence of good reliability and convergent and predictive validity of the ICA-W instrument. That is, the three-factor structure – work related acts, person related acts and intrusion – was confirmed in both Study 1 and 2 and was found to fit the data better than all alternative models. In addition, the analyses from Study 2 showed that

the three factors could be taken together to represent an overarching cyberbullying construct and that the three subscales and the scale as a whole were reliable. In addition, the ICA-W scale was further found to be significantly related to different workplace stressors found to predict offline bullying behaviour at work (i.e., workload, role conflicts, interpersonal conflicts, autocratic leadership, and job insecurity), to the workplace bullying scale (S-NAQ) and to the one-item measure of workplace cyberbullying. Furthermore, Study 3 also showed that ICA-W scores could significantly predict change in mental well-being over time.

5.2 Strengths and limitations

Some strengths and limitations of the study need to be addressed. A strength of this study is that we applied robust, non-parametric techniques for scale analysis and validation that work with non-normal data. This has often been overlooked in previous studies on workplace bullying and adds to the robustness of the results. In constructing and validating the scale, we conducted three different studies and tested the scale structure and fit in two different samples, one representing a variety of sectors and one consisting of predominantly public sector workers. Lastly, we collected two-wave data and performed a full panel, cross-lagged analysis with bootstrapped confidence intervals in order to test the predictive validity of the scale. Again, this analysis is often lacking in validation studies.

A limitation of this study is that the sample from Study 2 and 3 was mostly representative for the public sector, limiting the generalizability of the findings. However, the structure of the scale was confirmed in two different samples (Study 1 and 2), representing both the public and the private sector. In addition, there is no reason to believe that the association between workplace cyberbullying as measured by the ICA-W and workplace stressors and mental well-being would be less strong in other samples. On the contrary, we believe that given the characteristics of the public sector (i.e., older employees, working less long hours, and having more job security; Millard & Machin, 2007), the relationship between ICA-W and workplace stressors would be even stronger when measured in a more balanced sample of public and private sector employees.

Another limitation is the low occurrence of certain cyberbullying behaviours, especially regarding the dimension intrusion, which constrained the variability in our data and the power of our analyses. Despite this limitation, we were still able to observe meaningful relationships in the data, which further validates our findings. Also, it should be noted that we did not collect data in this sample regarding similar online constructs such as cyber aggression and cyber incivility. Cyber aggression relates to all intentional and harmful act online (Grigg, 2010). It is therefore a broader construct of online negative behaviour than cyberbullying. Cyber incivility, which is online behaviour that violates

workplace norms of mutual respect (Lim & Teo, 2009), refers to a mild form of negative online behaviour, that does not require the negative behaviour to be intentional, repeated or harmful. However, we did include an offline bullying scale as a related construct, since research has shown that these two types of bullying are often related (Modecki, Minchin, Harbaugh, Guerra & Runions, 2014).

Lastly, an important issue that needs to be addressed is the highly skewed distribution of workplace bullying (Einarsen et al., 2009; Nielsen, Notelaers & Einarsen, 2011; Notelaers & Einarsen, 2013). The same was applicable to our measurement of cyberbullying at work. To account for this, we applied various techniques throughout our different studies that are suited for data in which the assumption of multivariate normality is violated. In Study 1, we applied the principal axis factors method in SPSS for extracting the factor structure (Fabrigar, Wegener, MacCallum & Strahan, 1999). In Study 2, we used the maximum likelihood parameter estimates with standard errors and a mean-adjusted chi-square test statistic for assessing the latent structure of the scale (Muthén & Muthén, 2015, p. 607). In addition, when testing for convergent validity, we reported the non-parametric correlation coefficient, Kendall's Tau-b (Bonett & Wright, 2000). Finally, when testing for predictive validity in Study 3, we applied the bootstrapping procedure (Carpenter & Bithell, 2000). Also, there has been a long-standing controversy regarding applying parametric test to ordinal, Likert scale-data. However, statistical evidence suggest that parametric tests are generally more robust than nonparametric tests, even when certain statistical assumptions, such as a normal distribution of data, are violated (Norman, 2010).

5.3. Future studies

We have developed and validated the ICA-W measure, which we believe will provide great value to understanding the cyberbullying construct in the work context. However, as this is still a relatively new construct, more research is needed to better understand this negative phenomenon at work.

First, given the novelty of this construct and the low prevalence rates of certain acts in our samples, future research could test the ICA-W scale in a variety of organisational contexts in order to confirm the findings of our three studies. Next, it would be recommended to incorporate similar online constructs, such as cyber aggression and cyber incivility, when testing the ICA-W in order to establish the incremental validity of this measure. In addition, since cyberbullying is very prevalent amongst youngsters (Kowalski et al., 2014) and since jobs characterized by high levels of computer work are associated with higher violence risks (van den Bossche, Taris, Houtman, Smulders & Kompier, 2013), studies on cyberbullying at work should consider focussing on young employees working in high-tech sectors. Finally, as our own findings pointed out, there was a weak relationship between our cyberbullying measure and the stressors workload and autocratic leadership. This goes against

empirical evidence from the workplace bullying literature (Salin & Hoel, 2010; Van den Brande et al., 2016). One possibility is that cyberbullying could be somewhat differently related to work stressors than its offline counterpart. Future empirical studies should therefore tap into the association between online and offline bullying and their potentially distinctive predictors. Finally, recently the workplace cyberbullying measure (WCB) was developed and validated (Farley, Coyne & Axtell, 2016). While the aim of both WCB and the ICA-W is to measure the cyberbullying phenomenon at work, some differences can be pointed out. The WCB is a more lengthy scale (17 items) with a single-factor structure. We believe that the ICA-W scale adds to this instrument given that it enables parsimonious testing of the cyberbullying phenomenon and allows different types of negative online acts to be differentiated. However, future studies should examine the value of both scales in different contexts.

5.3 Practical implications

From a practical standpoint, the ICA-W offers the opportunity to evaluate cyberbullying in organizations efficiently through a parsimonious 10-item measurement instrument. In other words, because of its compactness, this scale is well suited for inclusion in general questionnaires in addition to other constructs of interest. The ICA-W enables a quick and easy evaluation of cyberbullying occurrence in the workplace without sacrificing psychometric rigor or limiting the analysis to one narrow dimension of this construct. It can be used either as a general instrument to assess the occurrence of cyberbullying behaviour at work or to tap into different types of cyberbullying behaviours that may occur – work related, person related and intrusive. With this scale, HR practitioners and researchers interested in the psychosocial well-being at work can assess whether negative online acts at work are present and whether employees are cyberbullied. It is suggested that online negative acts should either occur frequently and during a longer period of time or be performed once but form an intrusion into someone's life in order to be classified as cyberbullying (Vranjes et al., 2017). Therefore, we suggest that practitioners or researchers use this guideline for classifying employees. More specifically, we suggest that people reporting at least two negative online acts (i.e. the two act criterion; Mikkelsen & Einarsen, 2001) on a frequent and long lasting basis should be categorized as cyberbullied. However, we also suggest that if one of these acts is intrusive, an one-time occurrence of this act in combination with a second one-time intrusive or frequent person or work related online act is enough to classify someone as cyberbullied.

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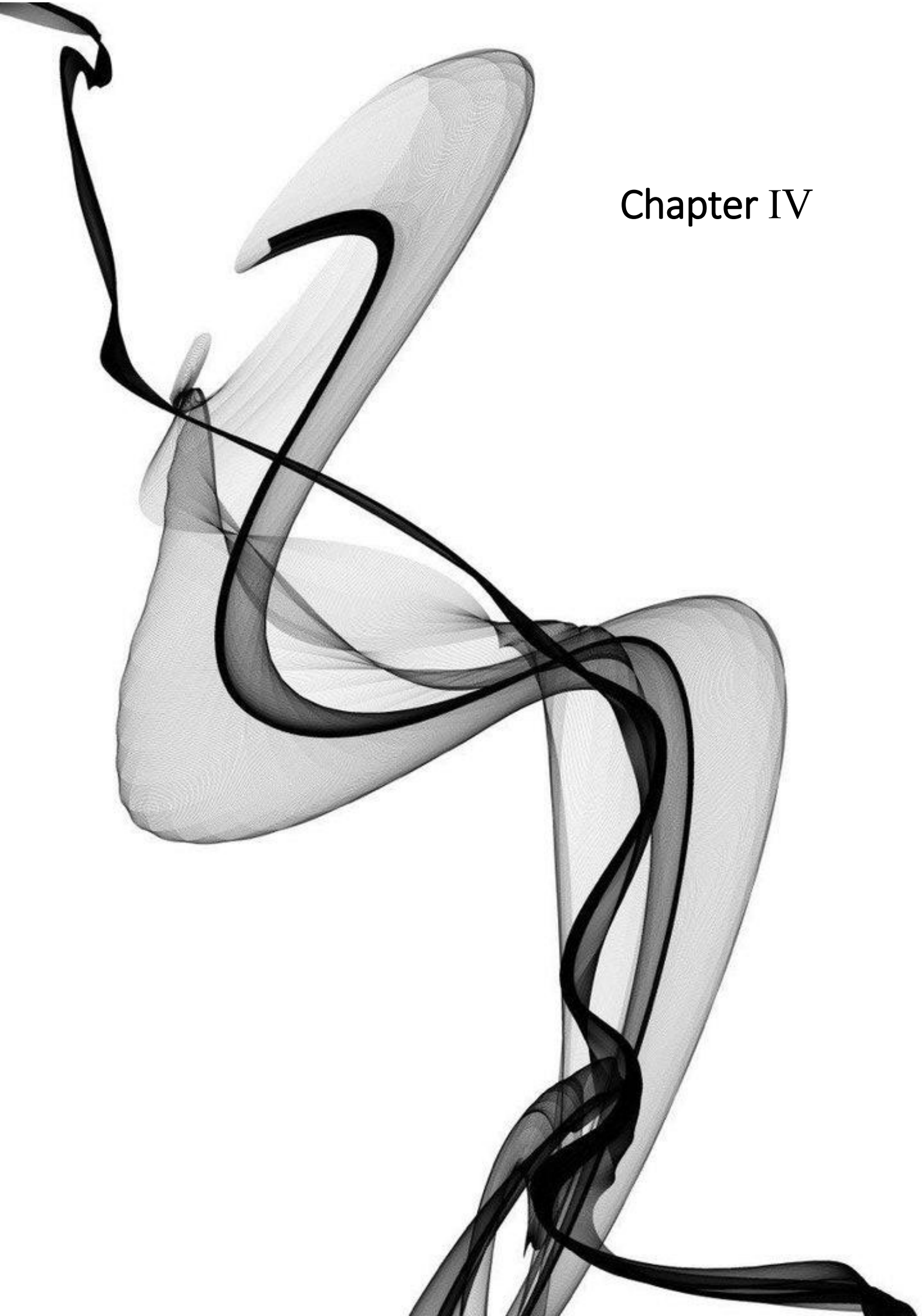

Chapter IV

Study 3: Kicking someone in cyberspace when they are down: Testing the role of stressor evoked emotions on exposure to workplace cyberbullying[5]

Abstract

New technologies at work broaden the scope of bullying behaviours to the online context, creating opportunities for a new form of bullying to arise – workplace cyberbullying. So far, knowledge on the factors contributing to workplace cyberbullying has been lacking. Within this emerging research line, the Emotion Reaction model (Vranjes, Baillien, Vandebosch, Erreygers, & De Witte, 2017a), specifically focused on workplace cyberbullying, was put forward. In this study, we test the model's main proposition regarding exposure to workplace cyberbullying; namely, that stressors evoked emotions predict exposure to cyberbullying and that this relation is moderated by emotion regulation strategies. The model was tested in two steps. First, the model as a whole was tested cross-sectionally. Next, the direction of causality between fear and sadness and exposure to cyberbullying was tested using a cross-lagged panel design. The results provide support for the central role of fear and sadness in the relationship between work stressors and cyberbullying exposure and the moderating role of reappraisal. No moderating effect of suppression was observed. In addition, support is found for the causal claim that fear and sadness predict cyberbullying exposure. The results and their implications are discussed.

[5]Vranjes I., Baillien E., Vandebosch H., Erreygers S., & De Witte H. (2018). Kicking someone in cyberspace when they are down: Testing the role of stressor evoked emotions on exposure to workplace cyberbullying. *Work & Stress.* Advance online publication. doi: 10.1080/02678373.2018.1437233

1. Introduction

The introduction of modern technologies in contemporary organisations has changed working life. A new virtual environment has been established; one which creates its own social dynamics in how people express themselves, communicate with others, and construct their own sense of identity (Suler, 2004). Unfortunately, this online environment also provides people with a new avenue for misconduct. Cyberbullying – negative behaviour occurring through the use of Information and Communication Technologies (ICTs) (Smith et al., 2008) – has been substantially studied in childhood, adolescence, and emerging adulthood. In contrast, knowledge regarding workplace cyberbullying has been relatively sparse.

While various models regarding aggression and violence in the workplace exist, the question arises whether these models can account for factors related to negative online behaviour. Different authors suggest that, while online and offline bullying are certainly two related phenomena, the online variant possesses certain new characteristics that need to be accounted for (e.g. anonymity of the perpetrator and viral reach; Kowalski, Giumetti, Schroeder & Lattanner, 2014). In an attempt to theoretically contribute to this little explored field, Vranjes, Baillien, Vandebosch, Erreygers and De Witte (2017a) proposed the Emotion Reaction Model (ERM), specifically focused on workplace cyberbullying. In this study, we wish to empirically test the main propositions of the ERM regarding exposure to cyberbullying. That is, we want to empirically test the hypothesis that stressor evoked negative emotions play an important role in predicting exposure to workplace cyberbullying. In addition, we want to test the moderating role of emotion regulation strategies in this process.

1.1 Workplace cyberbullying

Workplace bullying refers to a repeated and long-lasting exposure to negative acts, whereby the targeted individual has difficulties defending him or herself (Einarsen, Hoel, Zapf, & Cooper, 2011). It has been previously suggested that cyberbullying is merely an extension of this behaviour to the online context (Olweus, 2013). In that regard, the cyberbullying literature has generally applied similar conceptualizations as the traditional bullying research. However, cyberbullying possesses certain features that make this negative behaviour distinct from its offline counterpart. The most important ones are: (a) the potential anonymity of the perpetrator, (b) the high accessibility of the target, and (c) the large potential audience that can repeatedly view and share negative online content (Kowalski et al., 2014). With regards to the first feature, the online environment provides opportunity for aggressors to stay anonymous (Staude-Müller, Hansen & Voss, 2012), for instance by making fake online accounts, which can add to the feeling of powerlessness by the victim (Vandebosch & Cleemput, 2008). The second feature refers to the fact that victims cannot easily escape cyberbullying

behaviour and can be targeted anytime, anywhere (West, Foster, Levin, Edmison & Robibero, 2014). Lastly, negative content online can be viewed, shared and forwarded by a large online audience (Alhabash et al., 2013; Griffiths, 2002), which can be especially hurting and humiliating for the victim (Slonje & Smith, 2008). These characteristics make cyberbullying a distinct phenomenon, in need of its own, tailored research agenda.

Workplace cyberbullying can be defined as all negative behaviour occurring through electronic means of communication that is either repetitive and long-lasting, or occurs one-time but is intrusive, leaving the target unable to defend (Vranjes et al., 2017a). The inclusion of one-time acts is relevant since in the online context, certain unrepeated acts – such as posting an embarrassing picture online – harm the victim by the repetitive exposure to others (Dooley et al., 2009). Building on qualitative evidence from the workplace cyberbullying literature, Vranjes et al. (2017a) label these one-time negative online behaviours as intrusive (i.e. invading someone's personal life). Some examples of these behaviours are hacking and sharing private information online.

Recent empirical evidence suggests that workplace cyberbullying is prevalent within organisations (Baruch, 2005; Farley, Coyne, Sprigg, Axtell & Subramanian, 2015; Gardner et al., 2016). In addition, workplace cyberbullying has been related to several negative outcomes for the victims, such as poor physical health (Gardner et al., 2016), mental strain (Coyne et al., 2017), perceived stress (Snyman & Loh, 2015), and reduced job satisfaction and optimism (Coyne et al., 2017; Snyman & Loh, 2015). This underlines the importance of better understanding factors that contribute to this negative online behaviour. However, up to date, empirical studies in the field of workplace cyberbullying have been relatively scarce and no attempts have been made to empirically investigate the processes that may lead to exposure to cyberbullying in the workplace.

1.2 The Emotion Reaction Model

In order to theoretically contribute to our understanding of workplace cyberbullying, the Emotion Reaction model (ERM) was developed (Vranjes et al., 2017a). It is aimed at describing the process that may come into play in the emergence of this negative online behaviour. The model was grounded in interdisciplinary literature regarding traditional workplace bullying, adolescent cyberbullying and computer mediated communication. It is based on concrete propositions that lend themselves to empirical testing. Summarized, according to the ERM, emotions evoked by work stressors are a key factor in the cyberbullying process and their influence can be moderated by emotion regulation strategies. In what follows, we further elaborate on the main proposition of the model regarding exposure to cyberbullying.

1.2.1 Stressor evoked emotions

Emotions – the arousal states that emerge when environmental events are appraised as goal relevant (Gross & Thompson, 2007) – have mainly been investigated as an outcome of cyberbullying. In that regard, several studies empirically demonstrated the causal relationship between exposure to cyberbullying and negative affectivity and mood in both adolescent (Kowalski et al., 2014) and adult literature (Coyne et al., 2017; Farley et al., 2015). However, the ERM suggests a more central, preceding role of stressor evoked emotions in the process of negative online behaviour. This is because individuals act out their emotions online more often than offline (Suler, 2004; Tidwell & Walther, 2002; Walther, 1996). In addition, work stressors, which are already known to predict bullying behaviour at work (Bowling & Beehr, 2006), also evoke negative emotions in individuals (Ohly & Schmitt, 2013).

The proposition that stressors at work predict workplace bullying has received much support in the traditional bullying literature (Bowling & Beehr, 2006). In that respect, stressors of workload, role conflicts, job insecurity, and interpersonal conflicts are the strongest predictors (Van den Brande et al., 2016). The notion behind it is that negative behaviour thrives in stressful work environments, where people translate their tension into bullying. The few empirical studies conducted in the field of workplace cyberbullying also find evidence for the predicting role of the work context. During in-depth interviews with five cyberbullied workers, all of the participants indicated organisational factors, such as policy and change, as an important instigator of cyberbullying behaviour (Heatherington & Coyne, 2014). In addition, recent empirical evidence by Gardner et al. (2016) showed that work and organisational characteristics of leadership, team conflicts, and perceived organisational support were all significantly associated with cyberbullying three months later.

Work stressors can evoke several different negative emotions (e.g. Fida et al. 2015; Fitness, 2000). However, within the ERM, focus lies on discrete emotions of fear and sadness. First of all, authors of the ERM argue that in order to understand how emotions lead to cyberbullying exposure, the focus should lie on discrete emotions. This is because discrete emotions drive behaviour and are associated with specific behavioural tendencies (Gross & Thompson, 2007). Because of this, they lend themselves to concrete hypothesis testing. In that regard, fear and sadness are one of the most studied discrete emotions, with much evidence regarding specific behavioural tendencies they evoke (e.g., Ayoko et al., 2012; Lazarus, 1991). Second, emotions of fear and sadness have often been linked with cyberbullying victimization in the adolescent literature (e.g. Gianesini & Brighi, 2015; Hoff & Mitchell, 2009). Moreover, empirical evidence from adolescent literature reveals that sadness and fear are the

most frequently experienced emotions by cyberbullying victims (Caetano, Freire, Simão, Martins & Pessoa, 2016).

According to the ERM, experiencing fear and sadness as a consequence of work stressors will lead to individuals becoming exposed to cyberbullying at work. This is because fear and sadness are negative emotions associated with withdrawal behaviour that make people come across as weak and submissive (Tiedens, 2001; Lazarus, 1994). This could make individuals experiencing these emotions easy victims of online bullying enacted by those who observe their negative affect. That is, the online context could provide a 'safe' environment for perpetrators to act out their aggressive impulses because of the possibility to stay anonymous. Furthermore, recent evidence shows that people express their opinions (Ho & McLeod, 2008) and emotions (Derks, Fischer & Bos, 2007) more freely online. Also, empirical evidence suggests that those who post frequently on social media sites and who make posts encompassing negative affect are at more risk of becoming bullied online (Dredge, Gleeson & de la Piedad Garcia, 2014). Thus, alternatively, individuals experiencing and sharing these negative emotions online could increase the likelihood of evoking negative attention from potential perpetrators.

In sum, stressors at work are an important source of negative emotions and can lead to individuals experiencing fear and sadness in response. In turn, these emotion can lead to individuals becoming easy targets online. Following the previous arguments, we test whether negative emotions of fear and sadness will mediate the relationship between workplace stressors (i.e. workload, role conflicts, job insecurity, and interpersonal conflicts) and being exposed to cyberbullying at work (Hypothesis 1).

1.2.2 The moderating role of emotion regulation

While emotions may be triggered by contextual cues and may drive behaviour, people are able to control and alter different aspects of emotional processing (Gross, 1998). Emotion regulation has been defined as "the process of initiating, maintaining, modulating, or changing the occurrence, intensity, or duration of feeling states" (Eisenberg, Fabes, Guthrie & Reiser, 2000, p. 137). Research amongst children suggests that deficits in emotion regulation skills might contribute to bullying victimization (Cicchetti, Ackerman, & Izard, 1995). Accordingly, the ERM proposes that whether stressors will lead to negative emotions and whether these emotions will be translated into exposure to cyberbullying at work depends on the emotion regulation strategies applied.

According to the process model by Gross (1998), emotion regulation strategies can be divided into antecedent focused and response focused. Antecedent focused strategies are intended to prevent emotions from taking place, while response focused strategies are intended to modify emotional

expression of experienced emotions. The most commonly applied antecedent focused strategy of reappraisal alters the way individuals think about the emotion evoking situation. On the other hand, the most commonly applied response focused strategy of suppression inhibits the emotion-expressive behaviour resulting from the evoked emotion (John & Gross, 2004).

Reappraisal is said to be an adaptive emotion regulation strategy because it entails a cognitive change that modifies emotional impact and response even before it has taken place. Because it happens so early in the process, it requires few additional cognitive resources while producing socially appropriate interpersonal responses. In contrast, suppression is said to be maladaptive because it requires individuals to continually invest effort in managing their emotional response. Because of this, cognitive resources that would normally be deployed for optimal functioning are depleted, leading to socially impaired behaviour (John & Gross, 2004). In accordance with that, previous research has shown that reappraisal has many positive effects on individuals, amongst which a decreased experience of negative emotions, improved well-being, and better social functioning (Gross & John, 2003). It is therefore proposed in the ERM that reappraising work stressors will lessen their emotional impact. Suppression, on the other hand, has been found to increase the experience of negative emotions, to lower well-being, and to impair social functioning (Gross & John, 2003). It has also been found to evoke stress reactions in both the individuals applying suppression as well as in the people these individuals interact with, and to damage forming and maintaining of interpersonal relationships (Butler et al., 2003). Thus, while suppression might inhibit the initial, immediate expression of one's emotions, this strategy will actually lead to accumulation of fear and sadness which will then be conveyed in an alternative way (Vranjes et al., 2017a) – for instance by withdrawal behaviour or venting on line. The ERM therefore proposes that individuals who suppress their emotions on a regular basis will have an increased likelihood of becoming targeted online. We therefore test whether reappraisal will buffer the relationship between stressors and emotions of fear and sadness (Hypothesis 2a) and whether suppression will boost the relationship between fear and sadness and exposure to cyberbullying (Hypothesis 2b). Figure 1 summarizes the different hypotheses of this study.

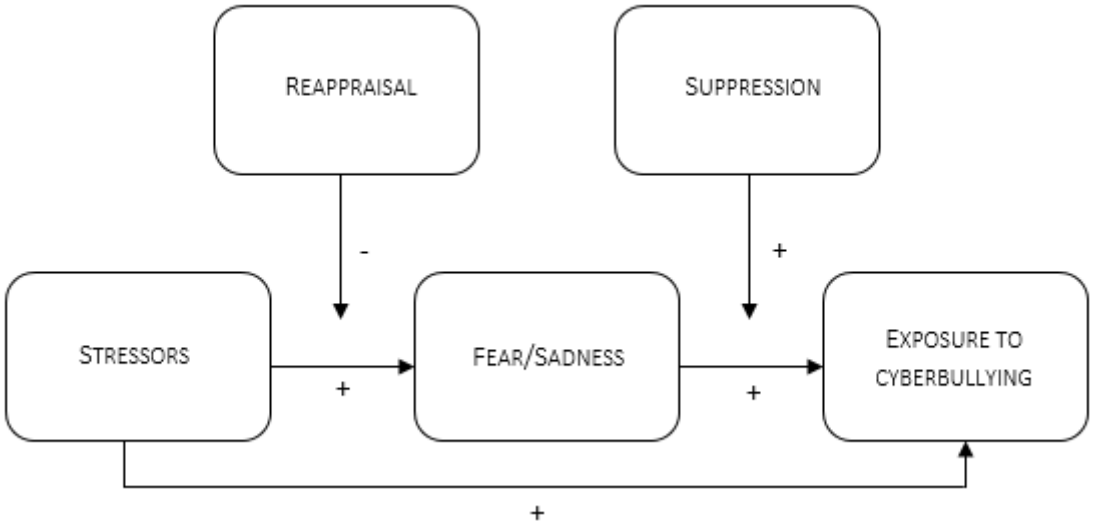

Figure 1. Model representing the hypothesized relationships of this study.

2. Cross-sectional test of the model

2.1 Method

The ERM places negative emotions central in the cyberbullying process. We test the different propositions of this model regarding the relationship between negative emotions and exposure to cyberbullying in two steps. First, we cross-sectionally test the model as presented in Figure 1. We examine the proposed mediating role of emotions in the relationship between work stressors and exposure to cyberbullying and the moderating role of emotion regulation strategies. Next, we longitudinally assess the relationship between emotions and exposure to cyberbullying. While the causal relationship between stressful experiences and negative emotions has been established both theoretically (Weiss & Cropanzano, 1996) and empirically (e.g. Fisher, 2002), the notion that emotions predict cyberbullying behaviour rather than vice versa is yet to be empirically demonstrated. In order to test the direction of the causality between these variables, we collected two-wave, full panel data and test for the normal, reversed, and reciprocal causation.

2.1.1 Sample

For the data collection, we collaborated with one public (92%) and one private (8%) sector organisation in Flanders, Belgium. The organisation motivated their employees to participate and provided researchers with corporate e-mail addresses of their employees. An online survey, created using Qualtrics software tool, was sent out to all employees. Additionally, we used the snowballing technique in order to recruit additional participants. This entailed sharing an open link online, through

social media. A total of 1426 participants provided usable data, of whom 100 via the open link. The response rate for the organizations was 43%. The participants had a mean age of 42 years (ranging from 18 to 69) and 46% were male. All participants were informed that their participation was voluntary and could be terminated at any time. In addition, it was guaranteed that their participation and data would be treated confidentially. The participants were mostly highly educated: 67% had a higher degree, 30% had a secondary school diploma and 3% had a primary or no school diploma. Most of them (61.1%) indicated using some form of information communication technology (ICT) at work for more than 30 hours a week. There were no participants who never used ICT at work. The study was approved by the Ethics Committee for the Social Sciences and Humanities of the [institution anonymized].

2.1.2 Measures

All the constructs in the study were measured using validated scales. Both items comprising the scales and scales within general survey sections (i.e. demographic variables, work context, interpersonal relationships and wellbeing) were counterbalanced in order to avoid order effects.

To capture the experience of work stressors, we used validated scales measuring workload, role conflicts, job insecurity, and interpersonal conflicts. They were all measured using 5-point Likert-type response scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Workload was measured with the three items (α = .88) of the subscale 'workload' from the Short Inventory to Monitor Psychosocial Hazard (Notelaers, De Witte, Van Veldhoven, & Vermunt, 2007). A sample item of the workload scale is: "Do you work under time pressure?". Role conflicts were measured by a selection of three items (α = .79) of the subscale 'work management' from the Working Conditions and Control Questionnaire (Keyser & Hansez, 2000), that referred to having conflicting or incompatible roles. A sample item is: "I get contradictory orders at work". We measured job insecurity with a four-item measure (α = .89) from Vander Elst, De Witte and De Cuyper (2014). A sample item is: "I am insecure about the future of my job". Interpersonal conflicts (α = .89) were assessed with a measure developed by Jehn (1995), which consists of subscales "task" and "relationship" conflicts. A sample item for task conflicts is: "How frequently are there conflicts about ideas in your work unit?". A sample item for relationship conflicts is: "How much friction is there among members in your work unit?". Here, the 5-point response scale ranged from 1 (*never*) to 5 (*daily*).

We measured discrete negative emotions of sadness (α = .80) and fear (α = .76) with a selection of the PANAS-X (Watson & Clark, 1999). Each negative emotion was measured with three items (i.e. afraid, scared and nervous for fear and sad, downhearted and alone for sadness). We selected the three highest loading items measuring sadness and fear from the PANAS-X, that had an equivalent in the

Flemish language. The respondents had to indicate on a 5-point Likert-type scale ranging from 1 (*not at all*) to 5 (*extremely*) whether they had experienced negative emotions during the previous week.

To measure exposure to workplace cyberbullying, we used an instrument developed and validated by Vranjes, Baillien, Vandebosch, Erreygers, and De Witte (2018), consisting of ten cyberbullying acts (α = .81): three person related (e.g., "You are being insulted, threatened or intimidated by means of ICTs"), four work related (e.g. "Your e-mails are forwarded to third parties in order to harm you"), and three intrusive (e.g. "Your personal information is hacked and used to harm you"). All items were answered on a 5-point Likert scale (i.e. *never*, *one time*, *monthly*, *weekly* or *daily*).

Finally, in order to measure emotion regulation strategies of reappraisal and suppression, we used the 10-item Emotion Regulation Questionnaire (Gross & John, 2003), answered on a 7-point Likert-type scale ranging from 1 (*completely disagree*) to 7 (*completely agree*). Reappraisal (α = .86) was assessed with six items such as: "When I want to feel less negative emotions, I change the way I'm thinking about the situation". Suppression (α = .85) was assessed with four items such as: "When I am feeling negative emotions, I make sure not to express them".

2.1.3 Procedure

To test the proposed model of cyberbullying victimization, we conducted a moderated mediation analysis in Mplus 7.4 (Muthén & Muthén, 2015). Because of the complexity of the model, we had to rely on manifest variables (mean scores). To create a composite score of workplace stressors, average scores of workload, role conflicts, job insecurity and interpersonal conflicts were calculated. These four scores were again averaged in order to establish the composite score. For other constructs (i.e. fear, sadness, and cyberbullying victimization), the indicator scores were averaged in order to get a mean score. One variable was created to represent the emotions of fear and sadness because these emotions were highly correlated (r = .67) and results of both exploratory and confirmatory analyses suggested that one factor, as opposed to two factors, represented the six items best. In addition, this increased the reliability of the emotion scale (α = .86).

First, simple mediation analyses were conducted to test the indirect effects of workplace stressors on exposure to workplace cyberbullying through negative emotions of fear and sadness (Hypothesis 1). We controlled for age and gender, given the empirical evidence that younger (Ševčíková & Šmahel, 2009) and male (Forssell, 2016) employees experience more cyberbullying at work. Next, we added to the mediation model the two moderation effects: (a) the Stage 1 moderation effect (stressors × reappraisal) of reappraisal on the relationship between workplace stressors and negative emotions of fear and sadness (Hypothesis 2a) and the (b) the Stage 2 moderation effect (fear/sadness ×

suppression) of suppression on the relationship between negative emotions of fear and sadness and exposure to workplace cyberbullying (Hypothesis 2b). Following the recommendation by Aiken and West (1991), the variables were standardized before calculating the interaction term.

We used full information maximum likelihood (FIML). In addition, the model was evaluated with the following fit indices: chi-square (χ^2), root mean square error of approximation (RMSEA), the standardised root mean square residual (SRMR) and comparative fit index (CFI) (Kline, 2005). With regards to the χ^2, an insignificant χ^2 value should indicate a good model fit. However, given that χ^2 is sensitive to sample size and even trivial discrepancies between a model and data can result in significant values, other measures of fit are to be preferred (Bollen, 1989). Still, χ^2 is reported, as this is common practice in social sciences. Additionally, a CFI of approximate .95 or above and a RMSEA and SRMR of 0.08 or lower, indicate good model fit (Hair et al., 2006; Hu & Bentler, 1999).

In mediation models, product coefficients used to evaluate mediation rarely meet the assumption of multivariate normality. It is therefore recommended that the significance of different effects in the mediation model are assessed using bootstrapping techniques (Preacher & Hayes, 2008). Additionally, this study's outcome variable of cyber-victimization did not meet the criteria for normality (Skewness > 1, Kurtosis > 3; Bulmer, 1979; DeCarlo, 1997). Traditional maximum likelihood methods assume that continuous variables in the model are multivariate normal, while bootstrapping allows to correctly estimate effects in non-normal data (Finney & DiStefano, 2006). To account for this non-normality presented in the outcome variable and in the mediation effects, all structural relations were assessed using bootstrapping with 10 000 sample replicates.

2.2 Analyses and results

The descriptive statistics of the study variables are presented in Table 1. In addition to the Pearson correlation coefficient, we also report Kendall's Tau-b. This is a non-parametric correlation coefficient that does not require data to be normally distributed.

Table 1

Descriptive statistics of Study 1 variables

	Range	M	SD	1	2	3	4	5	6	7
1. Age	18-69	42.29	10.97	-	-.09**	-.06**	-.03	-.01	.04*	.01
2. Gender	1-2	/	/	-.12**	-	-.05*	.03	.06**	-.15**	-.10**
3. Stressors	1-5	2.49	0.48	-.09**	-.07**	-	.32**	-.03	.03	.25**
4. Fear/Sadness	1-5	1.73	0.71	-.03	.03	.42**	-	-.02	.06**	.19**
5. Reappraisal	1-7	4.23	1.06	-.02	.07**	-.04	-.04	-	.16**	-.02
6. Suppression	1-7	3.69	1.22	.07*	-.17**	.06*	.11*	.25**	-	.04*
7. Cyberbullying exposure	1-5	1.10	0.23	.02	-.08*	.29**	.27**	-.01	.10**	-

*Note. Gender (1 = male, 2 = female). Pearson Correlations and Kendall's Tau-b correlation coefficients are shown in the lower and upper diagonal respectively; *p < .01 **p < .001.*

Simple mediation results

First we tested the mediation of fear and sadness in the relation between workplace stressors and exposure to cyberbullying. The structural equation model showed a good fit to our data (χ^2 (df = 2) = 6.92, CFI = .99, RMSEA = .04, SRMR = .01) In Table 2, a summary of the different effects in the structural equation model is given.

Of the two control variables, only gender had a significant effect on exposure to cyberbullying at work (β = -0.07, *p* = .01), indicating that male employees were somewhat more exposed to negative online behaviours than female employees. As summarized in Table 2, we found a significant positive effect of stressors on fear/sadness (β = 0.43, *p* = .00) and a significant positive effect of fear/sadness on cyberbullying exposure (β = 19, *p* = .01). In addition, we found a significant indirect effect of work stressors on exposure to cyberbullying through fear/sadness (indirect effect = 0.08, SE = 0.03, 95% CI [0.03, 0.14]), confirming Hypothesis 1. Additionally, there was also a positive direct effect of stressors on cyberbullying exposure (direct effect = 0.21, SE = 0.09, 95% CI [0.01, 0.35]). Altogether, the proposed relationships of the model explained 18% of the variance in fear/sadness and 12% of variance in exposure to cyberbullying.

Table 2

Summary of mediation analysis: standardised regression weights

	β	SE	p	95% BCI	R^2
Fear/Sadness					.18
Stressors	0.43	0.03	.00	[0.37, 0.48]	
Cyberbullying exposure					.12
Age	0.03	0.02	.22	[-0.02, 0.08]	
Gender	-0.07	0.02	.01	[-0.11, -0.02]	
Stressors	0.21	0.09	.02	[0.01, 0.35]	
Fear/Sadness	0.19	0.07	.01	[0.06, 0.34]	
	Effect	SE	p	95% BCI	
Total effect	0.29	0.07	.00	[0.14, 0.39]	
Direct Effect	0.21	0.09	.02	[0.01, 0.35]	
Specific Indirect effect	0.08	0.03	.01	[0.03, 0.14]	

Note. Gender (1 = male, 2 = female); β = standardized regression coefficient; SE = standard error; BCI = bootstrapped confidence interval (10 000).

Double moderated mediation results

In a following step, we examined the double moderated mediation in which the indirect effect of stressors on cyberbullying exposure through negative emotions of fear and sadness is moderated by the emotion regulation strategies of reappraisal and suppression. That is, we added the moderator variables reappraisal and suppression to the mediation model previously tested, in such a way that reappraisal moderated the stressors-emotions relationship and suppression moderated the emotions-cyberbullying exposure relationship.

The structural equation model again showed a good fit to our data (χ^2 (df = 2) = 13.19, CFI = .98, RMSEA = .05, SRMR = .01). As shown in Table 3, the bootstrapped confidence intervals of total, direct and specific direct effect again did not contain zero, indicating a significant mediation effect of stressors on cyberbullying exposure through fear and sadness. Furthermore, we found a small but significant negative interaction effect of stressors and reappraisal (β = -0.08, p = .04) on fear/sadness, in line with Hypothesis 2a. No direct effect of reappraisal on fear/sadness was observed (β = -0.04, p = .22). However, we did not find a significant interaction effect of fear/sadness and suppression (β = 0.19, p = .10) on cyberbullying exposure, meaning that Hypothesis 2b was not confirmed. There was also no significant direct effect of suppression on cyberbullying exposure (β = 0.06, p = .16).

Table 3

Summary of moderated mediation analysis: standardised regression weights

	β	SE	p	95% BCI	R^2
Fear/Sadness					.19
Stressors	0.43	0.03	.00	[0.54, 0.72]	
Reappraisal	-0.04	0.03	.22	[-0.06, 0.01]	
Str x Reapp	-0.08	0.04	.04	[-0.22, -0.01]	
Cyberbullying exposure					.16
Age	0.03	0.02	.16	[0.00, 0.00]	
Gender	-0.06	0.03	.01	[-0.11, -0.02]	
Stressors	0.23	0.08	.00	[0.04, 0.16]	
Fear/Sadness	0.13	0.04	.00	[0.01, 0.07]	
Suppression	0.06	0.05	.16	[-0.01, 0.03]	
FeSa x Supp	0.19	0.12	.10	[-0.00, 0.12]	
	Effect	SE	p	95% BCI	
Total effect	0.28	0.07	.00	[0.14, 0.39]	
Direct Effect	0.23	0.08	.00	[0.08, 0.36]	
Specific Indirect effect	0.05	0.02	.00	[0.02, 0.09]	

Note. Gender (1 = male, 2 = female); Str = Stressors, Reapp = Reappraisal, FeSa = Fear/sadness, Supp = Suppresion; β = standardized regression coefficient; SE = standard error; BCI = bootstrapped confidence interval (10 000).

To further examine the meaning of the significant Stage 1 interaction effect of stressors and reappraisal on fear/sadness, we used the Johnson-Neyman technique (Johnson & Neyman, 1936). This technique facilitates interpretation of interaction effects between continuous variables (Preacher, Curran, & Bauer, 2006). It entails testing the significance of the effect of the independent variable on the dependent variable for a large range of values of the moderator. Confidence intervals are plotted around the adjusted effects for all values of the moderator, producing confidence bands for the effects. The bold, solid line represents the values of the adjusted effect of stressors on fear/sadness for the full range of reappraisal values. As the reappraisal variable was grandmean centred for the analyses, the values range from -3.24 to 2.77. The dashed lines above and below represent the 95%-confidence bands around this adjusted effect. Reappraisal moderates the relationship between stressors and fear/sadness for the values of reappraisal where the confidence bands do not contain zero.

Figure 2 shows that the effect of stressors on fear/sadness is larger for the low values of reappraisal and that it decreases as reappraisal values get higher. In other words, we observe a buffering effect of

reappraisal on the relationship between stressors and fear and sadness, in line with Hypothesis 1a. Over the whole range of values of reappraisal, the confidence bands of the effect of stressors on fear/sadness remain significant, although they do come close to zero at the maximum value of reappraisal (2.77). This means that there is no value of reappraisal for which the effect of stressors on fear/sadness is zero, but that very high levels of reappraisal do strongly mitigate the effect of stressors on fear/sadness.

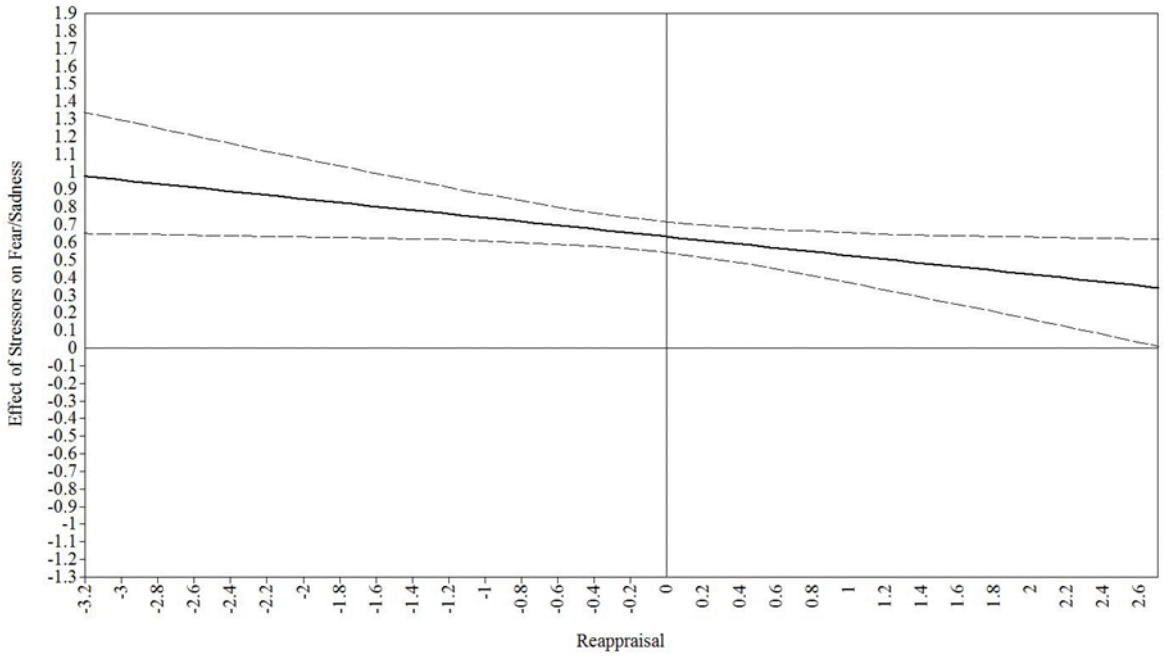

Figure 2. Adjusted effect of stressors on fear/sadness as function of reappraisal with a 95% confidence band.

3. Cross lagged test of the emotions-cyberbullying relationship

In order to determine the direction of causality in the relationship between fear and sadness and exposure to cyberbullying, we collected an additional wave of data six months later. This way we could longitudinally test whether emotions predicted cyberbullying exposure, whether cyberbullying exposure predicted emotions or whether there was a reciprocal relationship between these variables.

3.1 Method

2.2.1 Sample

It has been put forward that the minimum period for workplace bullying to develop is six months (Einarsen, Hoel, Zapf & Cooper, 2003; Leymann, 1996). Previous longitudinal studies investigating workplace bullying (e.g. Baillien, De Cuyper & De Witte, 2011; Balducci, Cecchin & Fraccaroli, 2012) and adolescent cyberbullying (Sticca, Ruggieri, Alsaker & Perren, 2013) have also applied this time lag. For this reason, a time-lag of six moth was applied. The participants' data were matched across time-

waves using e-mail addresses provided by the organisation or by participants themselves (when recruited through an open link). Of these respondents, 916 employees participated at both time points. The participants again had a mean age of 42 years (ranging from 20 to 69) and 46% were male. We assessed whether there was a systematic dropout of respondents over time. To do this, we inspected the correlations between dropout and core study variables (i.e., exposure to cyberbullying acts and experience of negative emotions of fear and sadness). In addition, we performed Chi-square tests in IBM SPSS version 23 and tested whether participation at both waves (N = 896) versus dropout after the first wave (N = 447) was predicted by each of the core study variables. Dropout was neither significantly related to cyberbullying exposure (r = -.02, p < .001; Kendall's Tau-b = .02, p < .001), nor to negative emotions of fear and sadness (r = .00, p < .001; Kendall's Tau-b = .02, p < .001). Furthermore, Chi-square and the likelihood ration test were non-significant with regards to both cyberbullying ($\chi^2(17) = 18.77$, p = .34) and emotions of fear and sadness ($\chi^2(37) = 24.34$, p = .95). Hence, the core study variables did not predict dropout in our sample.

2.2.2 Measures

The same validated measures were used as previously (for a detailed overview, see Study 1). The measures of negative emotions of sadness (α_{T2} = .78) and fear (α_{T2} = .78) and exposure to cyberbullying (α_{T2} = .72) all displayed good reliabilities. Again, the emotions of fear and sadness were combined, as they displayed a high correlation (r_{T2} = .65) and as exploratory factor analysis suggested that one, as opposed to two factors, represented these items best. In addition, this again increased the reliability of the measure (α_{T2} = .85).

2.2.3 Procedure

A cross-lagged panel analysis was used to assess whether fear/sadness T1 are associated with cyberbullying exposure at T2, whether the relationship is the other way around or whether it is reciprocal. The structural models were fitted using Mplus 7.4 (Muthén & Muthén, 2015). We used full information maximum likelihood (FIML) estimation to assess the fit of the cross-lagged structural equation models. Because of the skewness of the cyberbullying scores, we ran 10 000 bootstrap samples to obtain 95% confidence intervals (CI) of the path coefficients. The overall fit of the models was again evaluated with the following fit indices: chi-square (χ^2), root mean square error of approximation (RMSEA), the standardised root mean square residual (SRMR) and the comparative fit index (CFI). In addition, for comparing the competing models, we used the chi-square difference test for nested models (a significant chi-square difference indicating a better model fit) and the Akaikes' information criterion (AIC) for non-nested models (a lower value indicating better model fit; Akaike, 1987).

We estimated the fit of competing structural equation models in three different steps. First, we fitted a stability model with freely estimated auto-regressive paths and no cross-lagged paths (model M1; i.e. each variable predicting itself over time). Second, this stability model was compared to a model in which both auto-regressive paths were included as well as a cross lagged structural path from fear/sadness Time 1 to cyberbullying exposure Time 2 (Model 2). This model was intended to test whether fear/sadness at T1 predicted cyberbullying exposure T2. Third, to test for reversed causation, a model with auto-regressive paths and a cross lagged structural path from cyberbullying exposure Time 1 to fear/sadness Time 2 was fitted (Model 3). This model assessed whether cyberbullying exposure T1 predicted fear/sadness T2. Finally, in order to test for reciprocal effects, we included auto-regressive paths as well as both normal and reversed cross lagged structural paths (Model 4). This model was intended to assess whether fear/sadness and cyberbullying exposure mutually influenced each other, in that fear/sadness predicted cyberbullying exposure over time, which in turn again predicted fear/sadness, creating a negative cycle.

3.2 Analyses and results

Table 4 displays the descriptive statistics of the study variables over the two time waves. All variables were significantly correlated, warranting further analyses.

Table 4

Descriptive statistics of Study 2 variables

	M	SD	1	2	3	4
1. Fear/Sadness T1	1.73	0.71	-	.19**	45**	.18**
2. Cyberbullying exposure T1	1.10	0.23	.27**	-	.18**	.46**
3. Fear/Sadness T2	1.85	0.76	.61**	.20**	-	.18**
4. Cyberbullying exposure T2	1.09	0.19	.22**	62**	.25**	-

*Note. Pearson Correlations and Kendall's Tau-b correlation coefficients are shown in the lower and upper diagonal respectively; *p < .01 **p < .001.*

Cross-lagged panel model analyses

The results are presented in Table 5. The autoregressive model fitted the data well. However, the chi-square difference tests between M1 and all other models with cross-lagged structural paths were significant, meaning that cross-lagged models fitted the data better. In addition, the chi-square difference tests comparing M4 to M2 and M3 was also significant. This suggested the preference of the reciprocal model, M4, which also had the best model fit, over the normal and the reversed

causation model. However, inspecting the results of the reciprocal model, the cross-lagged path from cyberbullying exposure to fear/sadness did not reach significance (β = 0.30, *p* = .10). Comparing to two other two cross-lagged models, M2 outperformed, both in terms of fit to the data (higher CFI value) and parsimony (lower AIC value). Taking this into account, this led to a preference for M2 (i.e., normal causation). The standardized results of the best fitting model, M2, are presented in Figure 3. The cross-lagged effect of emotions on cyberbullying exposure reached significance (β = 0.08, *p* < .01), with the bootstrapped 95% CI of the cross-lagged path coefficient not containing zero (0.02, 0.14).

Table 5

Goodness-of-fit indices and chi-square difference tests of nested structural models

Model	χ^2	d.f.	CFI	RMSEA	SRMR	AIC	Comparison	$\Delta\chi^2$	Δd.f.
Autoregressive (M1)	29.40**	5	.98	.05	.04	3807.31			
Cross-lagged normal (M2)	18.37**	4	.99	.05	.03	3798.28	M1 vs. M2	11.03**	1
Cross-lagged reversed (M3)	21.14**	4	.98	.05	.03	3801.06	M1 vs. M3	8.26*	1
Cross-lagged reciprocal (M4)	12.13**	3	.99	.04	.02	3794.04	M1 vs. M4	17.27**	2
							M2 vs. M4	6.24*	1
							M3 vs. M4	9.01*	1

*Note. **p<.01, *p<.05.*

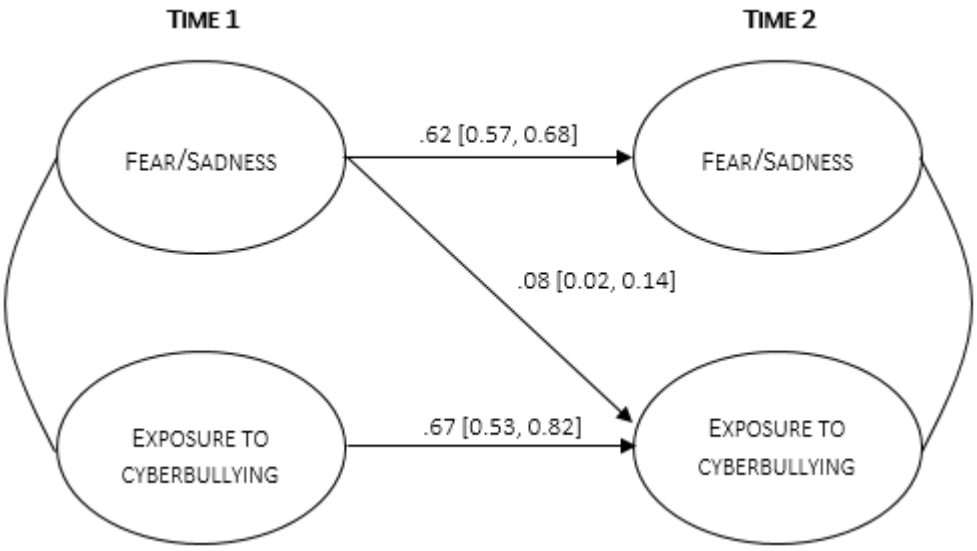

Figure 3. The best fitting cross-lagged panel model (M2) with standardised path coefficients and bootstrapped confidence intervals (10 000 replicates).

4. Discussion

This study finds empirical support for the main proposition of the ERM: stressor evoked emotions play a pivotal role in cyberbullying. Our results confirm the notion that cyberbullying exposure is related to workplace stressors. This is in accordance with the traditional workplace bullying literature (Hoel, Cooper & Zapf, 2002) and suggests that both forms of bullying (i.e. online and offline) prevail in stressful work environments. Additionally, for exposure to cyberbullying, we find that this relation is mediated by feelings of fear and sadness. These findings are consistent with other research, in which the link between feelings of anxiety and sadness and cyberbullying victimization amongst adolescents has been demonstrated (e.g. Hoff & Mitchell, 2009; Raskauskas, 2010). In one study that investigated the emotional profile of bullied adolescents, severe cyber-victims were characterized as "alone, defenceless and depressed" (Ortega, Elipe, Mora-Merchán, Calmaestra & Vega, 2009), supporting the notion of individuals experiencing these negative emotions as being an "easy" target of negative online behaviour. So far, empirical evidence on the antecedents of workplace cyberbullying has been lacking. However, in an empirical study of associated variables of workplace cyberbullying, an association with anxiety was also found (Baruch, 2005).

Furthermore, we also find support for one of the two hypothesized moderating relationships. ERM proposes that reappraisal buffers the relationship between work stressors and feelings of fear and sadness and that suppression boosts the relationship between these emotions and the exposure to workplace cyberbullying. We only found support for the buffering role of reappraisal. The more people reappraised, the less fear and sadness they experienced as a consequence of workplace stressors. This

means that not being able to adaptively regulate one's emotions when confronted with stressful experiences at work, can augment one's negative emotions that arise as a consequence. This is in accordance with the adolescent bullying literature, where it has been suggested that victims of bullying may lack skills in emotional regulation (Cicchetti, Ackerman, & Izard, 1995) and that they respond more emotionally to adverse conditions (Camodeca & Goossens, 2005).

No support was found for the boosting effect of suppression on the association between fear and sadness and exposure to cyberbullying. It could be that the adverse effect of suppression depends on the type of emotion that is experienced. Emotions of fear and sadness are associated with the perception of not being in control and withdrawal behaviour (Lazarus, 1994, Tiedens & Linton, 2001). Therefore, suppressing these emotions in a work environment, that dominantly focusses on performance, could be an adaptive strategy preventing these individuals from underperforming and being perceived as easy targets. Moreover, while suppression is an energy depleting strategy (Gross, 2002), that can exhausts individuals' resources and make them an easy target of negative behaviour, this strategy can also prevent their negative emotions of being observed by others that could harm them. These two processes could cancel each other out and result in no observed effect of suppression of fear and sadness on exposure to cyberbullying.

Finally, when testing the direction of causality between fear and sadness and exposure to cyberbullying, we found a significant effect of fear and sadness on cyberbullying exposure six months later. The reversed relationship did not hold. These results are in accordance with the theory of discrete emotions. Discrete emotions are evoked by specific events (Frijda, 1988) and arise immediately after the evoking stimuli (Gross & Thompson, 2007). In other words, the effect of exposure to cyberbullying on discrete negative emotions is expected to fade away over time. It is therefore not surprising that no effect of cyberbullying exposure on discrete emotions of fear and sadness was observed after six months. However, discrete emotions are also said to drive certain behavioural tendencies (Gross & Thompson, 2007). That is, discrete emotions could stimulate concrete behaviours, such as risky online behaviour and asocial conduct, that might put individuals at risk of becoming exposed to negative online behaviour over time. As bullying behaviour usually takes some time to develop (Einarsen, Hoel, Zapf & Cooper, 2003), this explains why discrete emotions at one point in time would predict exposure to cyberbullying six months later.

Limitations and future studies

This study has several strengths and limitations that should be addressed. First of all, the sample consists of respondents from mainly public sector institutions, which might limit the generalizability of our findings. Future studies should therefore replicate our findings in more diverse samples. Second,

we used self-reports for measuring the study variables, which can lead to common method bias (CMB). However, it has been argued that self-reports do not necessarily lead to an upward bias of the observed relationships, especially when (a) self-reports are appropriate for measuring the study variables, (b) the study uses scales with a good construct validity, (c) there is a lack of overlap in the items of different constructs and (d) measures such as protecting respondents' anonymity and counterbalancing question order are taken to minimize the risk of CMB (Conway & Lance, 2010). All of this was accounted for, which makes us confident that CMB was not of particular concern for this study.

Third, to test the ERM model, a cross-sectional design was applied, which means that these findings represent data from a single time point and that causality of the relationships can run either way. However, different studies find longitudinal support for the predicting role of stressors on workplace bullying (Baillien, De Cuyper & De Witte, 2011; Balducci, Cecchin & Fraccarol, 2012; Reknes, Einarsen, Knardahl & Lau, 2014). Studies investigating reversed relationships found weak or no effect of bulling on perceived stressors in addition to normal causation (Baillien et al., 2011; Reknes et al., 2014). Also, the predictive role of stressors on negative emotions in individuals has also already been demonstrated (Fisher, 2002). This gives us added confidence in our results. Furthermore, the not yet established causal relationship between negative emotions and exposure to cyberbullying was assessed longitudinally, providing a strong argument for the predictive role of emotions on cyberbullying as opposed to vice versa. While these findings present a first step towards empirically testing the ERM model, future studies could offer further insight in the short-term dynamic processes of the model – the immediate effect of stressors on emotions and emotions on behavioural tendencies -- by applying a dynamic, experience sampling design in which experiences of stress and emotions are assessed as they occur.

Next, in the case of exposure to cyberbullying at work, negative emotions seem to be of importance. There are different mechanisms that can explain this relationship. Emotions serve as a mechanism which sends out important information to people about how to react towards one another (Van Kleef, 2009). Experiencing sadness and/or fear could therefore inform others that this person is an easy victim. Alternatively, experiencing these negative emotions could lead people into engaging in more social sharing online (i.e. communicating emotions to others in a socially shared language; Rimé, Philippot, Boca & Mesquita, 1992), as a means of dealing with these emotions. Consequently, others could also observe sadness and/or fear online and act out against these individuals (Peluchette, Karl, Wood & Williams, 2015). Lastly, in order to deal with their negative emotions, individuals may engage in risky online behaviours (Cooper, Agocha & Sheldon, 2000), such as sharing private information. By doing so, they could provide others with information that can potentially be used against them (Zych,

Ortega-Ruiz & Del Rey, 2015). However, in this study we did not explicitly test the different mechanisms that may occur. Future research should therefore look into these mechanisms and try to find support for their occurrence.

Lastly, it is important to acknowledge that the effect size estimate for the interaction term in the model was rather small. However, it is well known that interaction effects are rather difficult to detect and are attenuated by the use of a unique form of measurement, such as self-reports (Busemeyer & Jones, 1983). In addition, it has been argued that finding significant interaction effects despite the potential influence of CMB in the data set should be taken as strong evidence that interaction effects exist (Siemsen & Oliveira, 2010).

Theoretical and practical implications

These findings uncover two things. First, work stressors, which have already been investigated in relation to traditional bullying, also show a significant and high association with workplace cyberbullying. This suggests that the two phenomena are related and implies that they could have similar antecedents. It is therefore important, both for researchers trying to uncover factors proceeding or following workplace bullying, as well as for practitioners trying to assess its prevalence in a certain organisational context, to include both forms of abusive conduct. Furthermore, it also underlines the importance of regularly assessing psychosocial risk factors (e.g. workload, role conflicts and job insecurity) at work, in order to deal with them timely and prevent both types of bullying from occurring. Next, experienced emotions seem to be one potential predictor of workplace cyberbullying. It is therefore relevant for scholars and practitioners to acknowledge the predicting role of emotions in interpersonal interactions, especially in an online context which allows for more overt and uninhibited expression of one's emotional impulses. Researchers should consider looking more deeply into the way victims of cyberbullying express themselves online. On the other hand, practitioners might consider providing their employees with training intended to help them deal more effectively with a stressful work environment and with regulating their emotions. For instance, changing cognitions and subsequently reinforcing active coping skills (i.e. cognitive–behavioural approach), has been shown effective as a stress management intervention (Van der Klink, Blonk, Schene & Van Dijk, 2001). Furthermore, mindfulness-based trainings have been shown successful in reducing negative affect (Jha, Stanley, Kiyonaga, Wong & Gelfand, 2010) and enhancing emotion regulation (Goldin & Gross, 2010).

Conclusion

This study offers some new insights into the processes leading to cyberbullying behaviour at work. It was previously suggested in the ERM that the work context and the emotions it evokes might play a

key role herein. However these propositions were yet to be empirically tested. With our two study design, we find support for the central role of stressor-related emotions in the process of cyberbullying exposure at work. In addition, we find support for the moderating role of reappraisal. The results suggest that applying this emotion regulation strategy might lessen the emotional impact of work related stressors. While this is only a first step in trying to understand this underexplored phenomenon, it might stimulate further research into this negative form of online behaviour.

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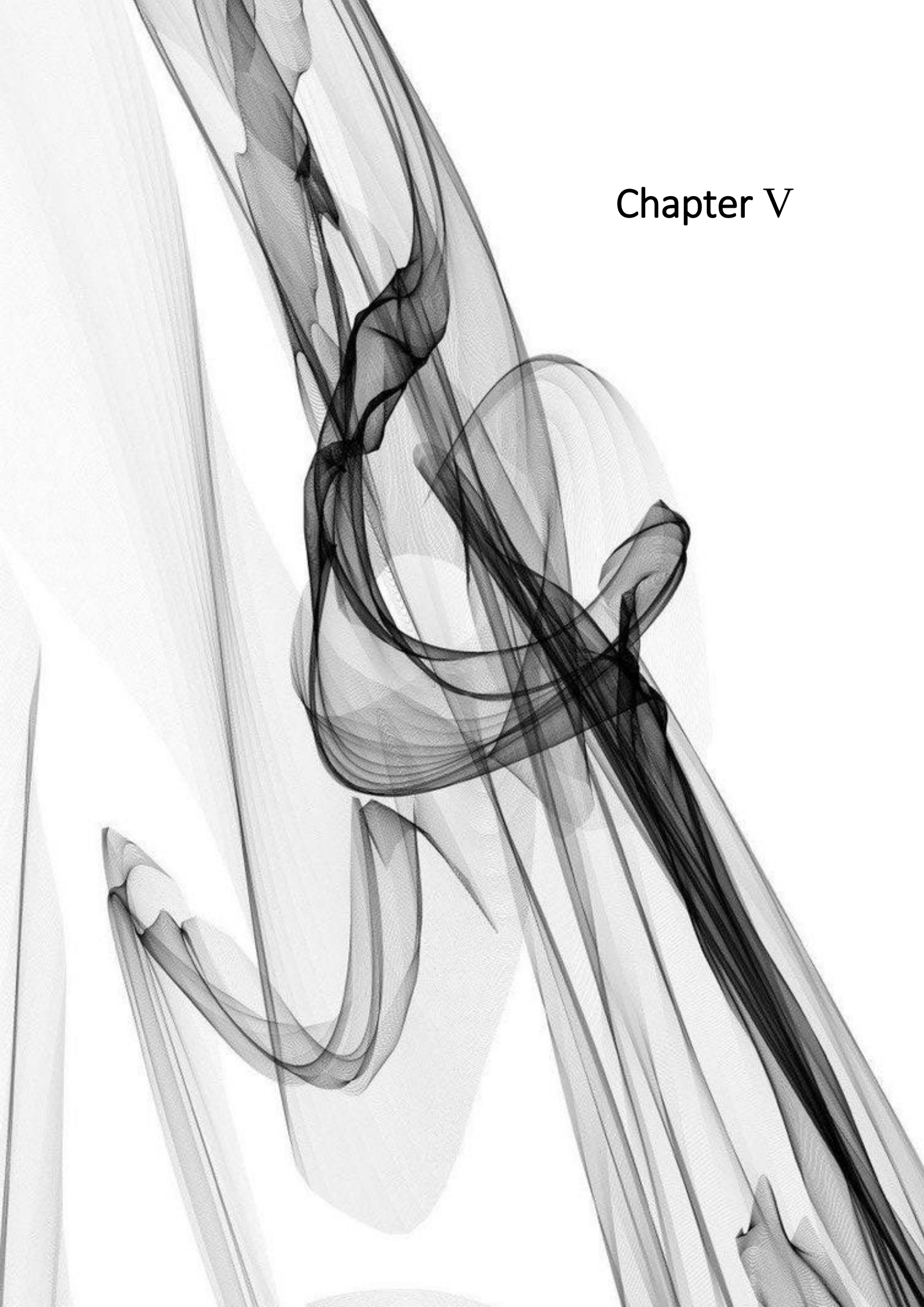

Chapter V

Study 4: Patterns of Cybervictimization and Emotion Regulation in Adolescents and Adults[6]

Research on cyberbullying has boomed in the past two decades. Findings from studies among adolescents suggest that they can be classified into distinct groups based on their cyberbullying experience, and that cyberbullying seems to be related to poor emotion regulation. So far, only a few studies have examined cyberbullying among adult workers and it is unclear whether cyberbullying develops similarly in that population. Therefore, in this study cyberbullying victimization was assessed in adolescents and adult workers simultaneously to address three aims: (1) to explore which groups can be distinguished based on their cyberbullying experience, (2) to analyze the associations of group membership with the way people regulate their emotions, and (3) to examine whether the results are comparable in adolescents and adults. Latent class analysis was used to analyze data from 1,426 employees and 1,715 adolescents in the first year of secondary education (12-13 years old). In each population, three profiles differing in their patterns of cybervictimization were identified: no cybervictimization (80%), work-related cybervictimization (18%), and pervasive cybervictimization (3%) for adults, and no cybervictimization (68%), similar-to-offline cybervictimization (27%), and pervasive cybervictimization (4%) for adolescents. Furthermore, these profiles differed in their use of emotion regulation strategies, with the most severely victimized groups suppressing their emotions the most. Future research is needed to clarify the role of emotion regulation in cyberbullying as an antecedent or consequent of victimization.

[6]Vranjes I., Erreygers S., Vandebosch H., Baillien E., De Witte H. (2018). Patterns of Cybervictimization and Emotion Regulation in Adolescents and Adults. *Journal of Aggressive Behavior*. Advance online publication. doi: 10.1002/ab.21790

1. Introduction

The past decades have been characterized by a digital revolution. This has led to information communication technologies (ICT) becoming an inherent part of people's daily lives. The increasing shift of our daily reality from the physical to the online context has led to a transformation of interpersonal phenomena as well. In that respect, cyberbullying – defined as "an aggressive, intentional act carried out by a group or individual, using mobile phones or the internet, repeatedly and over time against a victim who cannot easily defend him or herself" (Smith et al., 2008) – has been gaining attention. However, while research into adolescent cyberbullying has boomed since the beginning of the 21st century, efforts to understand adult cyberbullying have been less pronounced (Zych, Ortega-Ruiz, & Del Rey, 2015). Yet, evidence indicates that cyberbullying is a prevalent phenomenon in working adults as well (D'Cruz & Noronha, 2013; Forssell, 2016; Privitera & Campbell, 2009). Moreover, there is a dearth of research examining cyberbullying in both populations simultaneously, and it is unclear whether cyberbullying victimization is related to similar factors in children and adults.

Adolescents and adults differ markedly, not only in age but also in life experience, exposure to ICT, context, etc. Therefore, the first question of this study is whether cyberbullying victimization manifests itself similarly in these two populations or whether the nature of cyberbullying changes throughout the lifespan. This is relevant, as it can help us understand whether lines can be drawn between different age groups in this phenomenon or whether cyberbullying fundamentally changes over the lifecourse. Because of this, we investigate whether different groups of adolescents and adults can be distinguished based on their exposure to cyberbullyig acts. The second question pertains to whether similar factors relate to adolescent and adult cyberbullying. If similar factors are found to be associated with cyberbullying in different age groups, this would lend particularly strong support for their importance in the cyberbullying process. While many different varibles have been associated with cyberbullying victimization in adolescents, not all of these variables are expected to be equally relevant in adulthood. In this study we focus on the association between cyberbullying and emotion regulation. Emotion regulation has previously been linked with cyberbullying in the school context (Hemphill & Heerde, 2014; Hemphill, Tollit, Kotevski, & Heerde, 2015). Moreover, emotion regulation seems to play a uniquely important role for cyberbullying. Namely, evidence indicates that adolescents experiencing social and emotional difficulties are more likely to be cyberbullied and traditionally bullied, than traditionally bullied only (Cross, Lester, & Barnes, 2015). Furthermore, not being able to use one's own emotions in social interactions is a predictor of cyberbullying but not traditional bullying (Baroncelli & Ciucci, 2014). Finally, emotion regulation is a factor that remains important for individuals' social functioning irrespecive of their age or context (Aldao, Nolen-Hoeksema, &

Schweizer, 2010; Diamond & Aspinwall, 2003). This is why in this study we additionally investigate whether emotion regulation strategies are associated with different cyberbullying victimization patterns in adolescents and adults.

1.1 Cyberbullying Victimization: Differences in Experience

The majority of cyberbullying research has focused on children and adolescents, because many of them are confronted with this type of behavior during their school years (e.g., Tsitsika et al., 2015). In most cyberbullying studies, individuals are either considered to be victimized or not, based on their response to one or more questions on cyberbullying victimization experiences (Thomas, Connor, & Scott, 2015). However, the group of victims is highly heterogeneous, with victimization experiences ranging in type, frequency, and severity (Smokowski, Evans, & Cotter, 2014; Staude-Müller, Hansen, & Voss, 2012).

Identifying subgroups in cyberbullying victimization can be useful for understanding individual differences in adjustment and well-being (e.g., Schwartz, 2000). The fact that negative experiences can differ so profoundly is significant as it influences the prevention and remediation strategies applied. As such, identifying subgroups may help in developing tailored interventions: Interventions that are adjusted to the specific cyberbullying features individuals experience may be more effective in preventing bullying than standard interventions (Nocentini, Zambuto, & Menesini, 2015; Ryan & Lauver, 2002). It is therefore important to examine whether individuals who experience cyberbullying can be classified according to their victimization patterns.

To analyze whether subgroups of individuals can be distinguished based on similar patterns of cyberbullying experiences, person-centered approaches such as latent-class analysis can be used. In previous attempts to distinguish different groups of adolescents based on their involvement in cyberbullying, the relation between online victimization and perpetration has been examined (Festl, Vogelgesang, Scharkow, & Quandt, 2017; Schultze-Krumbholz et al., 2015), as well as the stability of cyberbullying victimization over time (Gámez-Guadix, Gini, & Calvete, 2015), and the relation between online and offline bullying behaviors (Pabian & Vandebosch, 2016; Wang, Iannotti, & Luk, 2012; Wang, Iannotti, Luk, & Nansel, 2010). However, subgroups based (solely) on cyberbullying victimization experiences have not been examined yet.

Recently, cyberbullying researchers have begun to examine cyberbullying in other populations, and a few studies have indicated that cyberbullying also occurs in the workplace (e.g., Coyne et al., 2016; Gardner et al., 2016). Workplace cyberbullying has been defined as “all negative behavior stemming from the work context and occurring through the use of ICTs, which is either (a) carried out repeatedly and over a period of time or (b) conducted at least once but forms an intrusion into someone’s private

life, (potentially) exposing it to a wide online audience. This behavior leaves the target feeling helpless and unable to defend" (Vranjes, Baillien, Vandebosch, Erreygers, & De Witte, 2017, p. 326). Until now, no attempts have been made to examine whether subgroups of individuals can be distinguished based on their involvement in cyberbullying behavior at work. However, in a study among Belgian employees (Notelaers, Einarsen, De Witte, & Vermunt, 2006), six latent classes of traditionally bullied employees were identified: "not bullied," "limited work criticism," "limited negative encounters," "sometimes bullied," "work related bullied," and "victims". Similar groups also emerged in a later study among Spanish employees by Leon-Perez, Notelaers, Arenas, Munduate, and Medina (2014).

Research has shown that the culture of the organization in which individuals are embedded (school or workplace) has an important influence on bullying behavior: Bullying is more prevalent in non-democratic and authoritarian organizations with a rigid hierarchy (Leymann, 1996; Roland & Galloway, 2002), and the presence or absence of explicit rules against bullying, implicit rewards for bullying (e.g., increased status), and organizational responses to bullying also play an important role (Monks et al., 2009). We might expect that adults experience more indirect and subtle, less obvious forms of cyberbullying, as there may be severe consequences to being identified as a bully in the workplace, such as being fired (Monks et al., 2009; Smith, Singer, Hoel, & Cooper, 2003). Additionally, we might expect less "traceable" forms of cyberbullying, such as text-or image-based cyberbullying, as these could be used as evidence against the perpetrator in disciplinary actions (Ariss, 2002).

1.2 Cyberbullying and Emotion Regulation

Emotions have an important function as they order the behaviors of people and help them position themselves in society (Cole, Martin, & Dennis, 2004). Additionally, experienced and expressed emotions are also a signal for others around on how to behave (Van Kleef, 2009). The way emotions are managed can therefore be of crucial importance in social interactions. The strategies individuals use to regulate their internal emotional arousal are defined as emotion regulation (Gross & Thompson, 2007).

According to the process model of emotion regulation, two broad categories of emotion regulation can be distinguished: antecedent-focused and response-focused (Gross, 1998a, 1998b). Antecedent-focused strategies alter the experience of emotions resulting from specific stimuli. Response focused strategies alter the emotional expression of the experienced emotions. In that regard, reappraisal (i.e., reinterpretation of the meaning of an emotion-eliciting event) and suppression (i.e., inhibition of emotion expression) are said to be the two most commonly used antecedent-focused and response-focused emotion regulation strategies respectively (John & Gross, 2004).

Difficulty managing and regulating emotional expression has been shown to be an important predictor of problematic peer relationships in children (Pakaslahti, 2000). Adolescent victims of traditional bullying display higher scores on emotion dysregulation than non-victims (Garner & Hinton, 2010; Schwartz, 2000; Spence, De Young, Toon, & Bond, 2009). Furthermore, when victims of bullying fail to adaptively regulate their emotions, this can provoke continuation of victimization (Cowie & Berdondini, 2002; Spence et al., 2009). With regards to cyberbullying, adolescent cyberbullying perpetrators seem to be less able to regulate and use their emotions compared to non-involved adolescents and traditional bullies (Baroncelli & Ciucci, 2014). They also make more use of negative emotion regulation strategies, such as self- or other-blaming, ruminating, and catastrophizing, to cope with anger (den Hamer & Konijn, 2016). Victims of cyberbullying also seem to show deficits in emotion regulation: Adolescents who are less skilled in controlling their emotions are at increased risk of cybervictimization (Hemphill & Heerde, 2014; Hemphill et al., 2015) and being victimized online increases later rumination (Feinstein, Bhatia, & Davila, 2014).

In adults, empirical evidence on the factors related to cyberbullying is scarce. However, recently, a theoretical model has been developed putting emotions and emotions regulation strategies forward as crucial factors in the cyberbullying process in the workplace (Vranjes et al., 2017). Emotion regulation difficulties may either be a risk factor for cyberbullying or a response to being cyberbullied, or both. Given that individuals who suppress their emotions tend to come across as less authentic and are therefore less likely to get social support (English & John, 2013), it could be that these individuals are easy victims for online aggression. However, it could also be that suppression is a strategy used by cyberbullying victims to cope with their negative emotions. In that regard, it has already been demonstrated that victims of cyberbullying often apply emotion-focused coping strategies (Raskauskas & Huynh, 2015) and that responses to cyberbullying are mostly passive (Hamm et al., 2015).

In this paper, we also focus on the emotion regulation strategies of reappraisal and suppression, given that they are the most widely used regulatory strategies with a clear link to different individual outcomes (John & Gross, 2004). We know that these strategies are applied by both adolescents and adults, although to a different extent – adolescents tend to use somewhat less reappraisal (Garnefski, Legerstee, Kraaij, van den Kommer, & Teerds, 2002) and more suppression (Gullone, Hughes, King, & Tonge, 2010) in comparison to older age groups. However, there is an abundance of evidence that in both adolescents and adults, reappraisal is linked to beneficial outcomes (Carthy, Horesh, Apter, Edge, & Gross, 2010; Garnefski, Koopman, Kraaij, & ten Cate, 2009; J. J. Gross & John, 2003; Richards & Gross, 2000), such as increased well-being and less anxiety, while suppression is linked to harmful outcomes, such as more depression, anxiety and aggressive behavior, and less positive mood (Betts, Gullone, & Allen, 2009; Butler et al., 2003; J. J. Gross, 2002; Jaffe, Gullone, & Hughes, 2010; Zeman,

Shipman, & Suveg, 2002). We therefore expect reappraisal to be associated with less exposure to cyberbullying, and suppression with more exposure to cyberbullying, in both adolescents and adults.

1.3 This Study

In this study, comparing an adolescent and an adult sample, we aim to examine whether different subgroups of individuals can be identified based on their cyberbullying victimization experiences. Because the two populations differ markedly, it is interesting to explore whether comparable subgroups exist among adolescents and adults. Additionally, we aim to investigate the association between reappraisal and suppression emotion regulation strategies and group membership based on cyberbullying victimization experiences in both populations.

2. Method

The data were collected in two samples: (1) an adolescent sample of high school students and (2) an adult sample of employees. The methods used in each sample were comparable but with some important adaptations to the specific population and context. Below we describe the methods for each sample separately.

2.1 Participants

Adolescents. The adolescent participants were 1,715 students (54% female) in the first year of secondary education (equivalent to US grade 7) from 13 randomly selected schools from the province of [province anonymized] in [country anonymized]. 89% of the students were in the general education program and 11% in vocational education. They were on average 13.6 years old (range 10-15).

Adults. The adult participants were 1,426 employees (46% male), who were recruited from [region anonymized for peer review] organizations. The majority was highly educated: 67% of the participants had more than a high school degree. 92% of them worked in the public sector. Their mean age was 42 years (range 18-69).

2.2 Measures

2.2.1 Adolescents.

Cyberbullying victimization. We used the 11-item European Cyberbullying Intervention Project Questionnaire (Brighi et al., 2012; Del Rey et al., 2015; Schultze-Krumbholz et al., 2015) to assess the adolescents' cyberbullying victimization experiences. For each of 11 statements about cyberbullying (e.g., "Someone said mean things about you online"), the participants were asked whether they had experienced these behaviors in the past six months, on a 5-point Likert-type scale ranging from *Never* to *Every day*. For the purpose of this study, the items were dichotomized such that all *Never*-answers

were coded as 0 and all others as 1 (indicating victimization). Dichotomizing ordinal variables is a common practice in latent class analysis to ensure interpretability of results (Collins & Lanza, 2010). With a Cronbach's alpha of .79, this scale's reliability was good.

Emotion regulation. The Affective Style Questionnaire (Hofmann & Kashdan, 2010) was used to measure adolescents' tendencies to habitually use two types of emotion regulation strategies: *Adjusting* (five items; e.g., "I can avoid getting upset by taking a different perspective on things") and *Concealing* (eight items; e.g., "I am good at hiding my feelings"). *Adjusting* refers to being able to readjust or balance emotions in response to contextual demands, and encompasses the habitual use of adaptive strategies such as reappraisal. *Concealing* refers to habitually suppressing and concealing emotions when they arise. The original scale has a third subscale, *Tolerating*, which was not used in this study because of its limited comparability to the adult emotion regulation subscales. On a 5-point Likert-type scale (from *Not at all like me* to *Totally like me*) participants reported how they usually behave. The subscales were reliable, as indicated by Cronbach's alpha values of .74 for *Concealing* and .77 for *Adjusting*.

2.2.2 Adults.

Cyberbullying victimization. Adults' cyberbullying victimization experiences were assessed with the Inventory of Cyberbullying Acts at Work (Vranjes, Baillien, Vandebosch, Erreygers, & De Witte, 2018). This 10-item scale measures cyberbullying victimization experiences at work on a 5-point Likert-type scale from *Never* to *Daily* and consists of three types of negative online acts: work-related (e.g., "Your e-mails are forwarded to third parties in order to harm you"), person-related (e.g., "You are being insulted, threatened or intimidated by means of ICT"), and intrusive (e.g., "Your personal information is hacked and used to harm you"). The scale's reliability was good (Cronbach's alpha of .81). For the purpose of this study, the items were dichotomized such that all *Never*-answers were coded as 0 and all others as 1 (indicating victimization).

Emotion regulation. The participants' use of emotion regulation strategies was assessed with the 10-item Emotion Regulation Questionnaire on a 7-point Likert-type scale from *Completely disagree* to *Completely agree* (Gross & John, 2003). This scale consists of two subscales: *Reappraisal* (e.g., "When I want to feel less negative emotions, I change the way I'm thinking about the situation") and *Suppression* (e.g., "When I am feeling negative emotions, I make sure not to express them"). The subscales showed good reliability in this sample (Cronbach's alphas of respectively .86 and .85).

2.3 Procedure

Adolescents. First, the school principals provided active written consent. Then, all the first year students and their parents received leaflets with information about the study. A passive informed consent procedure was followed for the parents, and the students themselves had to provide active consent. Only 14 students opted out. The study also received approval by the Ethics Committee for the Social Sciences and Humanities of the KU Leuven. Surveys were administered in classes during school hours, either on paper or electronically, in the presence of a researcher and/or well-informed school staff. The participants did not have to disclose their name and were assured that their data would be treated confidentially. They were encouraged to ask questions verbally if they had trouble understanding survey questions or instructions.

Adults. The majority of adults (86%) were contacted via their employing organizations and were provided information about the study by means of e-mail. The remaining participants (14%) were recruited via social media, using the snowballing technique. The response rate for adults recruited through the organizations was 43%. All participants were informed that their participation was voluntary and could be terminated at any time. Surveys were administrated electronically, either via the e-mail address of the participants (if contacted via organizations) or an open link (if recruited via social media). Participants were not asked to fill in any personal details and were assured that their data would be treated confidentially The study received approval by the Social and Societal Ethics Committee of the KU Leuven.

2.4 Data analysis

We conducted latent class analysis (LCA) with covariates in Mplus 7.4 (Muthén & Muthén, 2015). LCA is a person- and variable-centered technique for examining relationships among observed variables, which allows to assign individuals to groups or classes based on similar patterns of responses. To explore whether different groups or classes could be distinguished based on their cyberbullying victimization experiences, LCA models were computed for adolescents and adults separately with up to 5 latent classes (see Table 1 & 2). To determine the "true" number of classes, model fit indices and interpretability were evaluated for each model. Six criteria were used: Akaike information criterion (AIC; smaller values are better), Bayesian information criterion (BIC; smaller values are better), the Vuong-Lo-Mendell-Rubin likelihood ratio test (VLMR LRT; if significant, the model fits better than a model with 1 class less), the bootstrap LR difference test (bootstrap LRT; if significant, the model fits better than a model with 1 class less), entropy (a measure of classification accuracy; the closer to 1, the better), and size of the smallest class (classes with few individuals may raise generalizability

issues). For each sample, a model was selected based on a combination of model fit statistics and interpretability.

To examine the association of class membership with emotion regulation strategies, we used the 3-step procedure for auxiliary variables in Mplus to include emotion regulation strategies (mean subscale scores) as latent class predictors (Asparouhov & Muthén, 2014). The first step of this procedure consists of estimating the latent class model using only latent class indicator variables. The latent class posterior distribution from the first step is used to create the most likely class variable in the second step. The third step involves regressing the most likely class on predictor variables (i.e., mean subscale scores of emotion regulation strategies) while accounting for the misclassification in the second step.

Table 1

Fit Indices of the Latent Class Models for the Adolescent Sample

Classes	1	2	3	4	5
AIC	13019.903	11231.692	10979.877	10904.958	10872.488
BIC	13079.222	11356.977	11170.528	11160.975	11193.871
VLMR LRT *p*	n/a	<.001	.015	.002	.041
Bootstrap LRT *p*	n/a	<.001	<.001	<.001	<..001
Entropy	n/a	.826	.863	.828	.810
Smallest class size	1715	503	74	65	64

Note. AIC = Akaike information criterion; BIC = Bayesian information criterion; VLMR LRT p = p-value of the Vuong-Lo-Mendell-Rubin likelihood ratio test; Bootstrap LRT p = p-value of the bootstrap likelihood ratio test.

Table 2

Fit Indices of the Latent Class Models for the Adult Sample

Classes	1	2	3	4	5
AIC	5920.553	5245.171	5151.112	5132.013	5137.095
BIC	5973.179	5355.686	5319.516	5358.306	5421.277
VLMR LRT *p*	n/a	<.001	.004	.100	0.714
Bootstrap LRT *p*	n/a	<.001	.004	.102	0.718
Entropy	n/a	.827	.817	.849	.873
Smallest class size	1426	212	38	13	16

Note. AIC = Akaike information criterion; BIC = Bayesian information criterion; VLMR LRT p = p-value of the Vuong-Lo-Mendell-Rubin likelihood ratio test; Bootstrap LRT p = p-value of the bootstrap likelihood ratio difference test.

3. Results

3.1 Model Selection and Number of Classes

Adolescents. For the adolescents, based on the entropy, the three-class-model would be preferred, but the BIC favored the four-class-model and the AIC, VLMR LRT, and bootstrap LRT the five-class-model. The difference between the three- and four-class-model was that a small number of adolescents from the largest class formed a separate, fourth class, which mimicked the pattern of endorsement of cybervictimization items of the second largest class, but at a higher probability. The model with five classes included an extra class with medium endorsement of the same items as the second largest class. Because it was difficult to interpret and label the pattern of these classes and to make the distinction between these classes and the second largest class, the three-class-model was preferred (see Figure 1 and Table 3). Most adolescents (68%) displayed a pattern of low probability of endorsing any of the victimization items; therefore this class was labelled the *no cybervictimization* (NC) group. The second largest class (27%) displayed a relatively high probability of endorsing the items on verbal victimization and social exclusion and a relatively low probability on the other items. Because these types of victimization are not specific to the use of digital technologies and also often occur offline, we labelled this class the *similar-to-offline cybervictimization* (StO) group. Finally, a small proportion of the adolescents (4%) had a high probability of endorsing all the cybervictimization items; therefore this class was labelled the *pervasive cybervictimization* (PC) group.

Table 3

Class Response Percentages for the European Cyberbullying Intervention Project Questionnaire (Adolescent Sample)

Item	No CV	StO CV	Pervasive CV
1. Someone said nasty things to me or called me names using texts or online messages	0.101	0.848	0.836
2. Someone said nasty things about me to others either online or through text messages	0.091	0.908	0.837
3. Someone threatened me through texts or online messages	0.008	0.216	0.485
4.. Someone hacked into my account and stole personal information (e.g. through email or social networking accounts)	0.009	0.013	0.690
5. Someone hacked into my account and pretended to be me (e.g. through instant messaging or social networking accounts)	0.014	0.008	0.627
6. Someone created a fake account. pretending to be me (e.g. on Facebook or MSN)	0.006	0.017	0.350
7. Someone posted personal information about me online	0.046	0.204	0.516
8. Someone posted embarrassing videos or pictures of me online	0.025	0.127	0.376
9. Someone altered pictures or videos of me that I had posted online	0.041	0.103	0.475
10. I was excluded or ignored by others in a social networking site or internet chat room	0.056	0.317	0.439
11. Someone spread rumours about me on the internet	0.063	0.513	0.552

Note. *CV = cybervictimization; StO = similar to offline.*

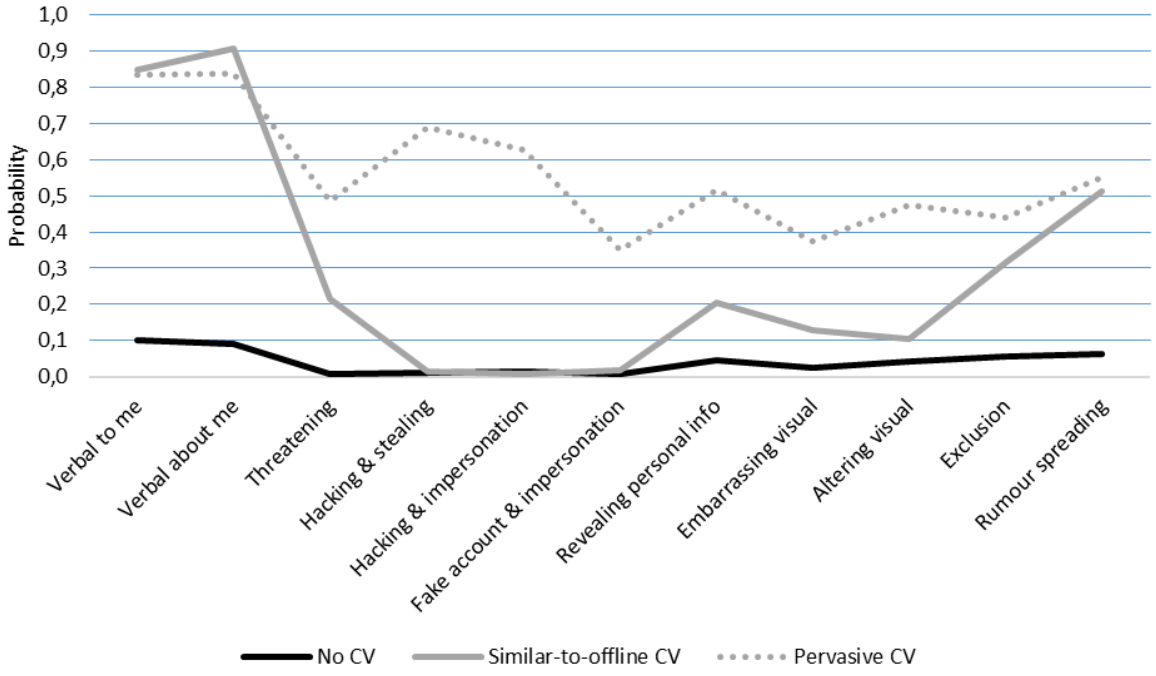

Figure 1. Probabilities of being victimized online per item of the European Cyberbullying Intervention Project Questionnaire for the three classes identified in the latent class analysis in the adolescent sample.

Adults. For the adults, the AIC and entropy values were in favor of a five-class-model, but the VLMR LRT and bootstrapped LRT of this model were not significant, indicating that this model did not fit better than the model with three classes. Also, the five-class model had one very small class (only 16 individuals). Therefore, the model with three classes was selected (see Figure 2 and Table 4). This model had the best BIC value, a good entropy value and significant VLMR LRT and bootstrapped LRT values. The largest class (80%) displayed a low probability of endorsing any of the cybervictimization items; therefore this class was labeled as the *no cybervictimization* (NC) group. The second largest class (18%) displayed a high probability of endorsing the items specifically indicating work-related aggressive behaviors (e.g., "Somebody is withholding e-mails or files you need, making your work more difficult"), but a low probability of endorsing the other items on cybervictimization; therefore this group was labelled as the *work-related cybervictimization* (WRC) group. Finally, about 3% of the adults had a higher probability of endorsing all the items than the two other classes. They had an especially high probability of endorsing the items "rumor spreading", "e-mails, phone calls or messages ignored", "e-mails forwarded to third parties", and "work criticized". Therefore, we labelled this class as the *pervasive cybervictimization* (PC) group.

Table 4

Class Response Percentages for the Inventory of Cyberbullying Acts at Work (Adult Sample)

Item	No CV	WR CV	Pervasive CV
1. Your personal information is hacked and used to harm you	0.004	0.028	0.161
2. Somebody takes over your identity	0.007	0.005	0.158
3. Personal information about you is shared online or distributed via messages to others	0.005	0.041	0.298
4. Rumours or gossips are being spread about you by means of ICT	0.019	0.030	0.800
5. You are being insulted. threatened or intimidated by means of ICT	0.000	0.032	0.407
6. Constant remarks are being made about you and your private life by means of ICT	0.005	0.008	0.552
7. Your e-mails. phone calls or messages are ignored at work.	0.030	0.496	0.676
8. Your e-mails are forwarded to third parties in order to harm you.	0.005	0.250	0.639
9. Your work is criticized publicly by means of ICTs.	0.113	0.727	0.761
10. Somebody is withholding e-mails or files you need. making your work more difficult.	0.026	0.342	0.553

Note. CV = cybervictimization; WR = work-related.

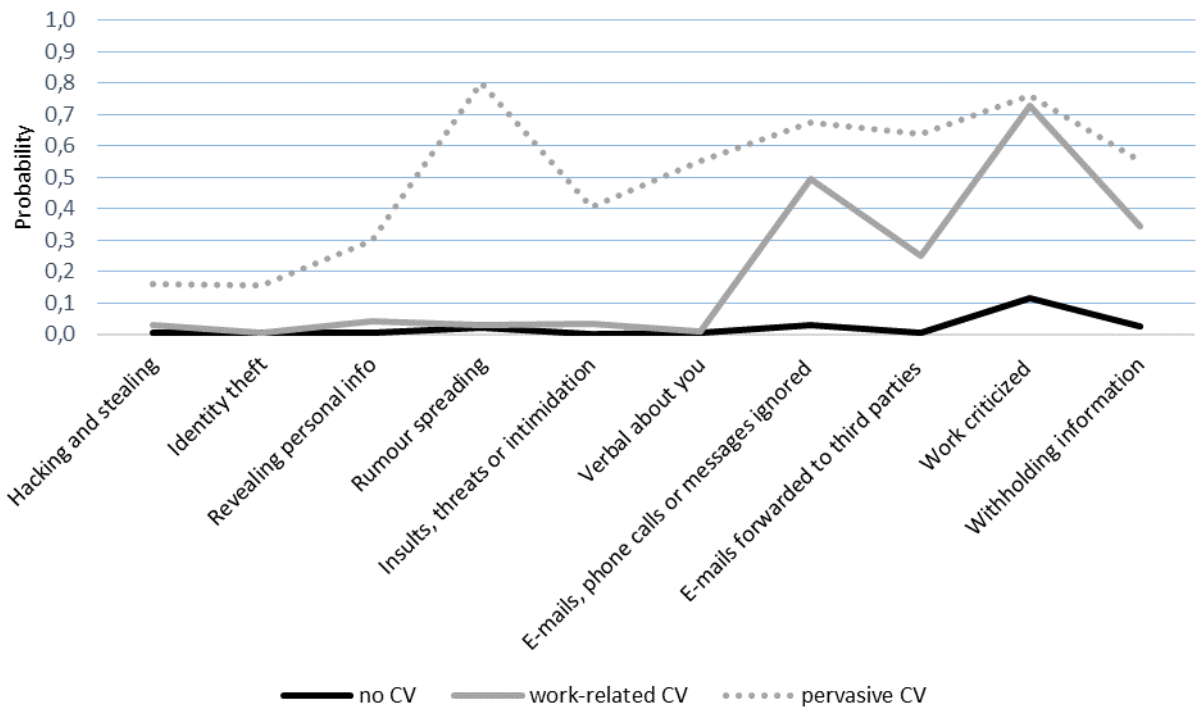

Figure 2. Probabilities of being victimized online per item of the Inventory of Cyberbullying Acts at Work for the three classes identified in the latent class analysis in the adult sample.

3.2 Association of Class Membership with Emotion Regulation

Adolescents. Both classes of cyberbullied adolescents concealed their emotions more often ($b_{PC\ vs\ NC}$ = 0.682, $p < .001$; $b_{StO\ vs\ NC}$ = 0.932, $p < .001$) and less often used adjusting ($b_{PC\ vs\ NC}$ = -0.932, $p < .001$; $b_{StO\ vs\ NC}$ = -0.587, $p < .001$) regulating styles than non-cyberbullied adolescents. Pervasively cyberbullied adolescents seemed to conceal even more ($b_{PC\ vs\ StO}$ = 0.290, $p = .127$) and adjust even less ($b_{PC\ vs\ StO}$ = -0.346, $p = .110$) than the similar-to-offline cyberbullied adolescents, but these differences were not significant.

Adults. Pervasive cyberbullied adults appeared to suppress their emotions significantly more than the other two groups ($b_{PC\ vs\ WrC}$ = 0.154, $p = .007$, $b_{PC\ vs\ NC}$ = 0.170, $p = .001$). There was no difference in suppression between the other two groups ($b_{WrC\ vs\ NC}$ = 0.016, $p = .436$). And there was no effect of reappraisal ($b_{PC\ vs\ WrC}$ = -0.024, $p = .562$, $b_{PC\ vs\ NC}$ = -0.040, $p = .288$, $b_{WrC\ vs\ NC}$ = -0.015, $p = .334$).

4. Discussion

This study aimed to explore whether groups of adolescents and adults can be distinguished based on their patterns of cybervictimization and whether membership of these groups is associated with the use of particular emotion regulation strategies. The results of latent class analyses revealed three distinguishable profiles of cybervictimization in both populations: no cybervictimization (80%), work-related cybervictimization (18%), and pervasive cybervictimization (3%) among adults, and no cybervictimization (68%), similar-to-offline cybervictimization (27%), and pervasive cybervictimization (4%) among adolescents. These profiles differed in their use of emotion regulation strategies. In adults, only suppression differed significantly between groups with pervasive cyberbullying victims displaying significantly higher suppression rates than work-related victims and non-victims. In adolescents, the cyberbullied groups suppressed their emotions the most, while the non-victimized group displayed the most use of reappraisal.

As for the similarities, we found that the two populations could both be classified into three groups based on their cybervictimization experiences. Both adults and adolescents contained a no cybervictimization and a pervasive cybervictimization group. In addition, the work-related cybervictimization group in adults and the similar-to-offline cybervictimization group in adolescents both shared the characteristic that the type of acts they experience are also possible in traditional bullying behavior. Additionally, the prevalence rates for the pervasive cybervictimization groups were quite similar (3% of adults and 4% of adolescents). Finally, we found that in both populations the emotion regulation strategy related to not showing one's authentic emotions (suppression or concealing) was associated with cyberbullying victimization.

As for the differences, firstly, the prevalence of cyberbullying victimization differed between the samples: Considerably fewer adults than adolescents reported experiencing cybervictimization (20 % versus 32%), which might be related to differences in exposure to and use of ICT. However, this could also relate to the different measurement instruments used and the fact that the adolescent scale also measures cyberbullying behavior not related to the school context, while the adult scale is focused on work related relationships. Secondly, although the adolescent similar-to-offline cybervictimization group and the adult work-related cybervictimization group were similar in that they both experienced behaviors that could also occur offline, in adults these behaviors interfere with work performance, whereas this is not necessarily the case for adolescents' school functioning. Thirdly, in the adult sample there was no significant association of the emotion regulation strategy of reappraisal with group membership of any subgroup. However, we did observe meaningful differences in the adolescent sample with regard to the emotion regulation strategy of adjusting. That is, cyberbullied adolescents used significantly fewer adjusting emotion regulation strategies that non-cyberbullied adolescents. Overall, the associations with emotion regulation appeared to be stronger for adolescents than for adults, which might be an indication that emotion regulation has a stronger link with cyberbullying involvement in adolescence than later in life.

Because we aimed to select the most suitable and age-appropriate measures for each population, a limitation of our study is that the measures of cyberbullying and emotion regulation were not entirely equivalent, although, there was a large overlap in the constructs and the meanings of the items. The measure of adult cybervictimization contains items on work-related cybervictimization, whereas the measure of adolescent cybervictimization does not contain school-related cybervictimization items. In fact, measures of adolescent (cyber)bullying generally do not include task-related bullying experiences; they only focus on the social aspects of bullying. However, previous research has shown that victims are cyberbullied most frequently by a student at school, and that perpetrators most frequently cyberbully another student at school (Kowalski & Limber, 2007). Moreover, both the adult and adolescent bullying literature have largely developed around the work and school context respectively. This is because most adults are employed and spend considerable time at work (Major, Klein, & Ehrhart, 2002) and because adolescents in industrialized countries spend the majority of their time in school-related activities (Larson & Verma, 1999).

For emotion regulation, the concepts of reappraisal and adjusting, and suppression and concealing are not fully equivalent, but they have been shown to be highly correlated (r = .54 and r = .60; Hofmann & Kashdan, 2010). Furthermore, the authors of the Affective Style Questionnaire explicitly define concealing as "suppression and other response-focused strategies aimed at concealing and avoiding emotions after they arise" (Hofmann, Sawyer, Fang, & Asnaani, 2012, p. 412) and in a study on the

validation of the ASQ in a Japanese population, they link adjusting and reappraisal by stating that "one aspect of adjusting is express emotion in accordance with the circumstances. This ability is considered to be required to reappraisal and flexibility" (Ito & Hofmann, 2014, p. 2). The small differences in operationalization of the concepts might be reflected in the results. However, it can be considered a strength that despite these differences, we still found large similarities in the patterns of both samples.

These findings have several implications. First of all, we observed similar patterns of cybervictimization in the adult and the adolescent sample. This is an important finding as it suggests that, despite their very different context, some similarities in this phenomenon exist: Either individuals are not cyberbullied at all, they experience similar to traditional cyberbullying behaviors, or they experience almost all types of negative online behaviors. Future studies could include traditional bullying behaviors to investigate how these relate to their online counterpart in both samples, as has previously been done in the adolescent literature (Wang et al., 2012, 2010).

Second, in both samples, we found an association between emotion regulation and cyberbullying victimization. This adds to the literature as emotion regulation strategies have mostly been investigated in relation to cyberbullying perpetration (Baroncelli & Ciucci, 2014; Kokkinos & Voulgaridou, 2017). However, while empirical evidence suggests that emotion regulation plays a uniquely important role for cyberbullying as opposed to traditional bullying (Baroncelli & Ciucci, 2014; Cross et al., 2015), no explanations have been put forward so far in the literature as to why this relationship would exist. We suggest that this might be related to dysfunctional emotion-driven behaviors committed online by individuals who are not capable of effectively regulating their negative emotions. In support, several recent studies have found that posting messages regarding negative affect and posting indiscrete or negative content puts individuals at risk of becoming cyberbullied (Dredge, Gleeson, & de la Piedad Garcia, 2014; Peluchette, Karl, Wood, & Williams, 2015). Furthermore, negative emotionality motivates people to engage in risky behaviors in order to escape these aversive emotional states (Cooper, Agocha, & Sheldon, 2000) and these behaviors again increase the chance of becoming victimized online (Erdur-Baker, 2010; Li, 2006; Wolak, Mitchell, & Finkelhor, 2007; Ybarra & Mitchell, 2004).

However, due to the cross-sectional nature of this study, the direction of causality cannot be established. Empirical evidence suggests that reappraisal is an adaptive emotion regulation strategy, related to greater experience and expression of positive emotions, and less experience and expression of negative emotions (Gross & John, 2003; Larsen et al., 2012). Suppression on the other hand is found to have negative effects, such as reduction of positive affect, weakening of social ties, and avoidant,

diverted, and anxious relational behaviors (Gross & John, 2003; John & Gross, 2004; Larsen et al., 2012). We therefore believe that individuals who often suppress their emotions are at greater risk of becoming victimized, while reappraisal acts as a protective factor (Vranjes et al., 2017). However, some empirical evidence also suggests that in order to cope with cyberbullying, many victims use passive emotion-focused coping strategies (Lodge & Frydenberg, 2007; Mahady Wilton, Craig, & Pepler, 2000). Additionally, this type of coping is generally ineffective (Mahady Wilton et al., 2000), making individuals even more vulnerable to abuse. This would explain why the pervasively cybervictimized group displayed the highest levels of suppression. Future studies should therefore apply longitudinal or experimental designs in order to test the direction of causality in the link between suppression and cybervictimization.

Conclusion

Among adolescents as well as adults, three groups of people can be distinguished based on their pattern of cyberbullying victimization experiences: no cybervictimization, similar-to-offline (for adolescents) or work-related (for adults) cybervictimization, and pervasive cybervictimization. The use of suppressing emotion regulation strategies is associated with severe cyberbullying victimization in adolescents as well as in adults. Thus, suppressing emotions seems to be related to cyberbullying involvement in adolescence as well as in adulthood, and considering emotion regulation strategies might be a useful addition for cyberbullying prevention and intervention approaches.

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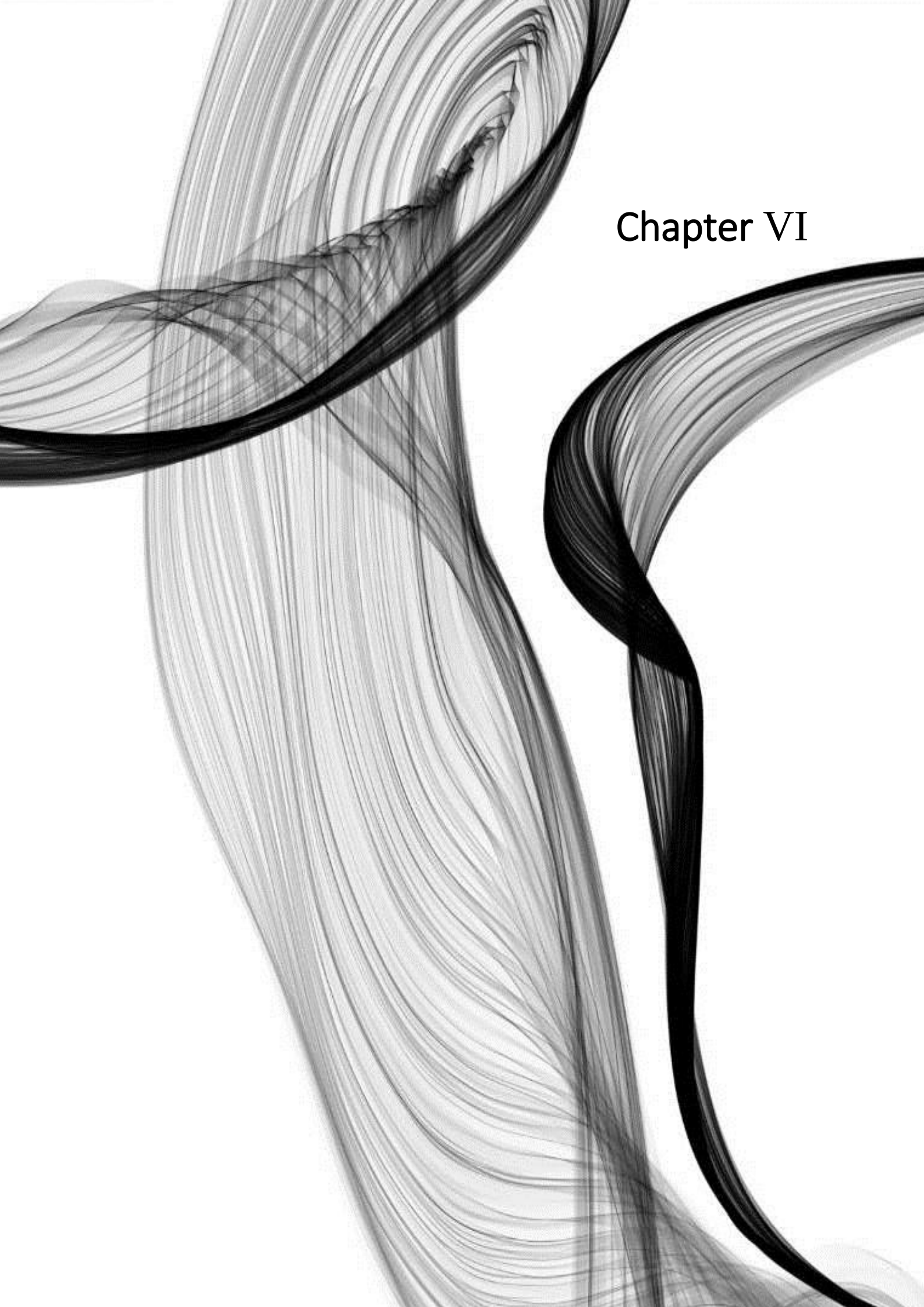

Chapter VI

Study 5: You Wouldn't Like Me When I'm Angry: Work-Induced Emotional Strain and Antisocial Online Behavior in Dual–Earner Couples[7]

Modern technologies can aid working processes as well as provide employees with an opportunity to connect and form interpersonal relationships. However, they can also create a context for mistreatment that goes well beyond organizational boundaries. Following the Emotion Reaction Model and the Spillover-Crossover Model, we examine whether negative work experiences of dual-earner couples spill over to the home context in the form of anger and whether this anger triggers their subsequent antisocial online behavior (AOB) throughout the evening. Additionally, we examine the crossover of anger and AOB in couples at home. A diary study was conducted amongst 95 dual-earner couples, twice a day, during five consecutive working days. Results regarding day-level relationships confirmed that men's work stressors spill over to their home context in the form of anger after work and AOB throughout the evening. Women's anger at home following work stressors was not translated into AOB throughout the evening. Furthermore, while men's anger at the end of the day was influenced by their partners' anger after work, there was no crossover of partners' anger to men's AOB. Additionally, neither anger nor AOB crossed over from women to their partners. These results demonstrate important gender differences in coping with work-induced strain at home.

[7]Vranjes I., Erreygers S., Vandebosch H., Baillien E., De Witte H. (2018). It's Been a Hard Days' Night: Spillover and Crossover in Families of Emotional Strain and its Effect on Online BehaviorPatterns of Cybervictimization and Emotion Regulation in Adolescents and Adults. Etmaal van de Communicatiewetenschap Conference. Gent, Belgium, 8-9 February 2018.

1. Introduction

The need for efficiency and cost reduction has made modern technologies increasingly prevalent in organizations (Mano & Mesch, 2010). Following this trend, researchers have shown heightened interest in the effect of electronic means of communication on interpersonal processes in the work context. Despite the initial optimism regarding the various advantages and possibilities enabled by electronic means of communication, scholars and practitioners alike have more recently become aware that these new technological means can also provide context for antisocial online behavior. Antisocial online behavior (AOB) is all behavior committed online that falls outside the normative consensus regarding what is socially acceptable (based on Catalano & Hawkins, 1996). While research on AOB is rather novel, the most studied forms in the work context so far have been cyberbullying, defined as intentional negative behavior occurring through the use of electronic communication (Smith et al., 2008), and cyber incivility, defined as discourteous online behaviors that violate workplace norms of mutual respect (Andersson & Pearson, 1999; Lim & Teo, 2009). From these emerging lines of work, we know that AOB is widely occurring in the work context. For instance, workplace cyberbullying studies have found prevalence rates ranging from 2.8 to 33.8% (Coyne et al., 2017; Forssell, 2016; Gardner et al., 2016; Minor et al., 2013; Privitera & Campbell, 2009), while cyber incivility studies have found that 91% of employees report experiencing cyber incivility from their supervisors (Lim & Teo, 2009). AOB is not only prevalent in working adults, but is also found to have many negative outcomes. Namely, AOB has been associated with both negative individual outcomes, such as reduced well-being and depressive symptoms, and negative organizational outcomes, such as turnover intentions and deviance against the organization (D'Cruz & Noronha, 2014; Kowalski et al. 2017; Lim & Teo, 2009).

Given these observations, it is somewhat surprising that research on antecedents of AOB has been generally lacking (for some notable exceptions, see Francis, Holmvall & O'Brien, 2015, Gardner et al., 2016 and Krishnan, 2016). Furthermore, online mistreatment studies have mostly focused on targets, while less is known about individuals committing this behavior. In other words, we still lack knowledge on why individuals would engage in negative online behaviors in the first place. This is an important lacuna, as knowing what factors predict AOB is a first step in preventing this negative online behavior. Finally, while one of the important characteristics of AOB is that it can occur anywhere and anytime (Dooley, Pyzalski, & Cross, 2009), studies so far have mostly focused on one particular context – the work context. We therefore lack knowledge regarding the interplay between different contexts and the way this impacts working adults' AOB.

In this study we wish to fill these voids in the literature by investigating work and home related processes that contribute to the commitment of AOB by working adults. Following the Emotion Reaction Model (Vranjes, Baillien, Vandebosch, Erreygers & De Witte, 2017), we examine the role of emotions (i.e. anger) originating from the work context (i.e. work stressors) as a driving force behind working adults' AOB. Given the centrality of emotions in this model and their highly fluctuating nature, we apply a daily diary design to test within-person processes that lead to commitment of AOB. Additionally, considering that emotions can spillover from work to home and crossover between partners (Bakker, Demerouti & Burke, 2009), we transgress the mere work context and investigate the way work stressors influence individuals' emotions and AOB in their private lives. The contribution of this study to the field of adult AOB is twofold. First, this study adds to the rapidly emerging research line on AOB by being one of the first to examine its antecedents in working adults. Moreover, it is one of few studies to capture drivers of AOB perpetration. Second, while most studies investigating AOB so far have limited their focus to the work context, we add to this line of work by investigating the interplay between work and home experiences.

2. Theory overview and hypotheses development

2.1 Stressors, emotions, and antisocial online behavior

Several theories, such as the Affective Events Theory (Weiss & Cropanzano, 1996) and the Stressor-Emotion-Control/Support-Model (Spector & Fox, 2005), have been developed to explain the associations between work-related events, emotions, and behavior. They state that the relationship between stressors and behavior is mediated by emotions, as emotions are the short-term reactions to stressors and motivate psychological, physical and behavioral changes (Fox, Spector, & Miles, 2001; Weiss & Cropanzano, 1996). Research has generally supported these theories, showing that stressors experienced at work play a significant role in predicting workplace aggression (Hershcovis et al., 2007) and that the relationship between work-related stressors and negative behavior is mediated by negative emotions (e.g., Fox & Stallworth, 2010; Glasø, Vie, Holmdal, & Einarsen, 2011; Hauge, Skogstad, & Einarsen, 2009).

However, the experience of contextual stressors and emotions has particularly important implications for online behavior. This is because limited contact between individuals, anonymity and reduced threat of negative sanctions by others in computer-mediated communication make individuals less inhibited in expressing how they truly feel (Ho & McLeod, 2008). Consequently, people often turn to the Internet following negative experiences, either for distraction and stress relief (Lavoie & Pychyl, 2001) or for venting their negative emotions on social network sites (Wendorf & Yang, 2015). In that regard, Vranjes, Baillien, Vandenbosch, Erreygers & De Witte (2017) developed

the Emotion Reaction Model, underscoring the importance of stressors and emotions in predicting online bullying behavior. The model proposes that workplace stressors give rise to discrete negative emotions which fuel cyberbullying. Discrete emotions are defined as internal reactions to a stimulus perceived as relevant for our goals, with a range of possible behavioral consequences (Frijda, 1988; Gross & Thompson, 2007). Anger is proposed to mediate the relationship between stressors and AOB as it fuels other-blame and retaliation (Barclay, Skarlicki, & Pugh, 2005). The model ascribes an important role to negative emotions in cyberbullying because computer-mediated communication enables a more overt expression of negative affect. Individuals tend to behave less restrained online than they would offline (the so-called *online disinhibition effect*; Suler, 2004), and people often turn to computer-mediated technologies to express and vent their negative feelings (Derks, Fischer, & Bos, 2008; Wendorf & Yang, 2015). So far, no studies have empirically tested these propositions of the ERM regarding adult cyberbullying perpetration. However, some studies in the field of AOB have already demonstrated the predicting role of work context on the commitment of negative online behavior at work (Francis, Holmvall & O'Brien, 2015; Gardner et al., 2016).

2.2 Spillover and Crossover of Emotional Strain

As work serves an important function in individuals' lives, creating a sense of purpose, belonging and identity (Walsh & Gordon, 2008), the impact of work-induced stressors is not confined within the organizational boundaries. In fact, scholars in the broader field of organizational behavior defined two ways in which experiences can be carried over from the work to the family domain, being spillover and crossover (Bakker, Westman & van Emmerik, 2009). Spillover refers to the transmission of the (same) individual's experiences from one life domain to another (e.g. from work to home), while crossover refers to the transmission of experiences from one individual to another (e.g. from one partner to another). This idea generally corresponds with Bronfenbrenner's (1979) ecological systems perspective which proposes that individuals and families are embedded in a multilayered contextual system in which different contexts influence each other, and with the family system perspective (Cox & Paley, 1997), that sees family members as interconnected, influencing each other's well-being and behavior.

Regarding the interrelatedness between the work and family context, Bakker, Demerouti, and Burke (2009) proposed the Spillover-Crossover Model stating that work-related experiences spill over to the home domain and cross over to significant others. This model has already received support for a range of work-related experiences, such as happiness and engagement (Rodríguez-Muñoz, Sanz-Vergel, Demerouti, & Bakker, 2014) and emotional labor (Sanz-Vergel, Rodríguez-Muñoz, Bakker & Demerouti, 2012). Also, recent crossover research designs have focused on partner dyads (e.g.

Demerouti, 2012; Ferguson, Carlson & Kacmar, 2015; Liu, Ngo & Cheung, 2016). For instance, Bakker, Shimazu, Demerouti, Shimada and Kawakami (2013) found that individuals' workaholism predicted work-family conflict, and in turn had an indirect negative effect on own and partner's family satisfaction. Another study found an indirect relationship of surface acting at work with daily well-being through daily surface acting at home and a bi-directional crossover of surface acting at home and well-being between both members of the couple (Sanz-Vergel, Rodríguez-Muñoz, Bakker & Demerouti, 2012).

2.3 Present Study

In this study we test the main proposition of the ERM: the notion that stressors at work evoke anger that is subsequently vented in the form of AOB. Given that emotions are short-lived experiences, associated with specific, immediate action tendencies (Lazarus, 1991), a daily measurement approach is applied for measuring aggressive tendencies enacted online as an immediate response to stressor-evoked emotions. Finally, in addition to testing the ERM regarding AOB on a daily basis, we test a spillover-crossover model of stressor-induced anger and subsequent online behavior. That is, we investigate whether stressors at work translate into anger and AOB at home (spillover) and whether working couples influence each other in terms of experienced emotions and subsequent negative online behavior (crossover).

There is evidence that work stressors can bring about behavioral effects mediated by negative emotions (e.g. Fox & Stallworth, 2010; Vranjes et al., 2018). However, these studies have exclusively focused on between-person differences in experienced stressors, emotions and negative behavior. This is an important gap, given that emotions are highly fluctuating states (Zohar, Tzischinski & Epstein, 2003) and should therefore preferably be investigated within individuals, using shorter time-frames. In addition, none of these studies investigated the effect of stressors and emotion on commitment of AOB. Yet evidence suggests that negative emotions are expressed more easily online as opposed to offline (Derks, Fischer & Bos, 2008). It would therefore be valuable to investigate whether working adults vent their work-related anger online in the form of antisocial online behaviors on a daily basis.

Furthermore, a growing body of research documents that strain can spill over from the work to the family context (e.g., Flook & Fuligni, 2008; Lawson, Davis, McHale, Hammer, & Buxton, 2014). Researchers have identified numerous mechanisms that may account for this work-family link. For instance, individuals sometimes simply transfer certain behaviors from the work to the family context. In other occasions, individuals respond to dissatisfaction in one domain by pursuing tangible or intangible rewards in another. Also, emotions evoked in one domain can influence emotions and

performance in the other domain (Edwards & Rothbard, 2000). In support, it has already been shown that individuals bring their negative affect back home from work (Doby & Caplan, 1995). Further, evidence exists that people's emotional states at the end of their working day are reflected in their subsequent behavior at home, influencing their marital interactions and leisure activities (Crouter, Perry-Jenkins, Huston & Crawford, 1989). However, no study so far has investigated the spillover of work stressors to subsequent negative online behavior at home. Following ERM and different findings, we hypothesize a spillover effect of work stressors on individuals' anger at home and subsequent venting of anger in the form of AOB.

Hypothesis 1 (Spillover Hypothesis): There will be an indirect effect of stressors experienced at work on online antisocial behavior committed at home through individuals' anger after work.

Empirical research supports the notion that individuals' experience of work stressors can lead to emotional distress between family members (i.e. 'emotional crossover'; Repetti, 1989; Schulz, Cowan, Pape Cowan, & Brennan, 2004) and that emotions crossover in couples (e.g. Rodríguez-Muñoz, et al., 2014; Shimazu et al., 2011). This can be explained by the fact that couples spend considerable time together, making direct crossover between the two possible through empathic processes (Westman, 2006). Moreover, the study of emotional crossover parallels the emotional transmission paradigm (Larson & Almeida, 1999). According to this paradigm, "emotional transmission occurs when events or emotions in one family member's immediate daily experience show a consistent predictive relationship to subsequent emotions or behaviors in another family member" (Larson & Almeida, 1999, p. 6). Although the existence of emotional crossover between partners has been well-established in the literature, its effect on concrete behaviors has rarely been investigated. More so, to our knowledge, no study so far has investigated the impact of transferred emotions on individual's online behavior. We hypothesize that anger will be transferred in couples and that transferred anger will also be associated with AOB. In other words, not only stressor evoked anger, but also anger transferred between partners will influence partners' online behavior.

Hypothesis 2 (Crossover-hypothesis): There will be an indirect effect of partner's anger after work on own online antisocial behavior throughout the evening, through own (transferred) anger.

Finally, we test these processes separately for men and women as previous research has indicated differences in spillover and crossover processers for female and male participants. However, the direction of effect is not always clear as some studies find stronger spillover and crossover effects in men (e.g. Hammer, Cullen, Neal, Sinclair & Shafiro, 2005), while others find the

opposite to be true (e.g. Keene & Reynolds, 2005). We therefore do not postulate specific predictions regarding the direction of spillover-crossover effect for men and women.

3. Method

3.1 Procedure

To test the different hypotheses, we conducted a daily diary study. Diary methods allow to capture events and experiences as they unfold over time in their natural context (Bolger, Davis, & Rafaeli, 2003). They are therefore well suited for examining daily work experiences, emotions and online antisocial behavior. Another advantage of the diary design is that it limits the likelihood of retrospection by reducing the time span between the survey and the event or experience of interest (Bolger et al., 2003). Finally, because of the repeated-measures design in which individuals are followed and repeatedly measured over the course of time, it becomes possible to study within-person processes in addition to between-person associations (Bolger et al., 2003). In other words, it becomes possible to establish a temporal sequence of experiences and events of an individual, while simultaneously taking into account that individual's prior levels of the dependent variables. This allows for stronger inferences about associations between different variables.

In a time based-design, participants reported on their experience of stressors at work, emotions, media use and online behavior. Participants were assessed twice a day during five consecutive working days (Monday–Friday) for a period of one working week. They completed the diary once right after work (T1) and once at the end of the day (T2). At T1, the diary assessed their experience of work stressors during the workday, together with their emotions after work. At T2, we again measured the participants' emotions and we assessed their time spent on social media while at home and their AOB committed throughout the evening. AOB was only assessed at T2, as for this study we were only interested in AOB committed at home. Participants completed the diaries electronically using their smartphone or their computer. Before the start of the study, they were contacted by telephone and thoroughly informed by the researchers about the whole process (i.e. the duration of the study, how to access the diaries and when to complete them). They also received a trial link to inspect the compatibility of the questionnaire with their device. During the data collection week, the participants received daily reminders via text message or email to complete the diaries at a time point indicated by themselves as most appropriate given their weekly work schedule. Finally, in addition to the diary questions, participants also completed a pre-measurement containing general demographic information, such as age, gender and work background. Anonymity of all individual responses was guaranteed. The study was approved by the Ethics Committee for the Social Sciences and Humanities of the [Anonymized].

3.2 Participants

The sample consisted of 95 dual-earner couples who filled out the diary during five consecutive work days, two times a day, providing 950 data points. The participants were on average 44 years old (male average = 45, female average = 43). To be eligible for the study, both members of the couple had to be employed at least part-time. 95% of males and 45% of females worked full-time, while the remainder worked part-time, which is in line with the general Belgian working population (Statbel, 2016). Initially, 36 couples were recruited by launching an appeal in different schools, universities, and on social media. To reach a higher number of participants, additional couples were recruited via a market research agency. Participants received a monetary incentive of € 100 per couple, if both partners completed at least 80% of the diaries.

Most participants completed all the diaries at both times points. A few missing values could be attributed to technical issues (i.e. not receiving a reminder to complete the diary in time). Further, not all diary entries were completed at the requested time points. For T1 (right after work), diaries that were completed less than one hour before T2 (at the end of the day) were omitted. For T2, diaries that were completed the following morning were omitted. This resulted in the following missing data rates: 34 (8%) of the females', and 20 (4%) of the males' entries at T1; and 34 (8%) of the females', and 33 (7%) of the males' entries at T2.

3.3 Measures

As daily diary studies are demanding for participants, scholars have advised to use brief measures (Cranford et al., 2006). Our diary therefore consisted of short or one-item measures.

Work stressors (T1). Work related stressful events during the day were assessed with seven items from the Daily Hassles and Uplifts Scale (DeLongis, Coyne, Dakof, Folkman & Lazarus, 1982). For each item, participants had to indicate whether or not (0=no; 1=yes) they had experienced the work related stressor (e.g. work pressure or hassle with a colleague) that day. For each day, a stress index per person was created by calculating the sum of the items. The work stressor index displayed a good reliability (ω = .62). We used the omega indicator of reliability, which does not assume that all items have the same item-construct relations and equal item covariances and is said to be a more accurate approximation of a scale's reliability than Cronbach's alpha (Revelle & Zinbarg, 2009).

Anger (T1 and T2). Participants were asked to rate their current level of anger on a Likert-type scale from *Not at all* (1) to *Very strong* (5).

Online antisocial behavior (OAB; T2). Participants' daily online antisocial behavior (e.g., "Posting a negative comment to a message, image or video", "Putting shameful images or videos of

others online or sharing these with others") was assessed with five items from the European Cyberbullying Intervention Project Questionnaire (Brighi et al., 2012; Del Rey et al., 2015; Schultze-Krumbholz et al., 2015) which we modified for diary use. On a Likert-type scale ranging from *Not at all* (1) to *Very much* (5), participants were asked to rate how often they had committed these behaviors at home after work hours. For each day, an antisocial online behavior index per person was created by calculating the sum of the items. The reliability of this index was rather low (ω = .36). However, this was expected as only limited amount of antisocial online behaviors were assessed (i.e. reflective measurement) and antisocial online behaviors generally have low prevalence rates (e.g; Baruch, 2006; Forssell, 2016; Gardner et al., 2016; Privitera & Campbell, 2009), which are only expected to drop when negative online behavior is assessed daily. Finally, abbreviated scales, which typically display lower reliabilities, are acceptable in diary studies as long as they have face- and content-validity and correlate with other variables as they should (Fisher & To, 2012).

Time spent on digital media (TSDM; T2). Participants were asked to rate their time spent on digital media (e.g. GSM, smartphone, computer, tablet) for social use during the period between work and sleep on a 5-point Likert-type scale from *Not at all* to *A lot (2 hours or more).*

3.4 Analyses

Due to the nested two-level nature of the daily diary data (i.e. repeated measures nested within couples), multilevel analysis was used. The proposed mediation model (H1 and H2) was tested by mediation analyses in Mplus 8.0 using a 1-1-1 multilevel structural equation model (MSEM) with fixed slopes (Preacher, Zhang, & Zyphur, 2011; Preacher, Zyphur, & Zhang, 2010). Thus, predictor, mediator, and outcome variables were all assessed on the day level (Level 1). As can be seen from Figure 1, we also estimated the mediation paths at the second level of analysis (between person). MSEM uses a robust maximum likelihood estimation method, which does not assume normality. It further accommodates missing data and unbalanced clusters and generates robust parameter estimates (Preacher et al., 2010).

Whereas traditional multilevel regression modeling using manifest variables combines between-subject and within-subject effects in estimating the indirect effect, thereby conflating or biasing the estimate (Preacher et al., 2010), in MSEM the Level 1 predictor and mediator variables are decomposed into two uncorrelated latent variable parts. The latter can be viewed as an implicit, latent group-mean centering of the latent within-level covariate (Muthén & Muthén, 2017) that allows for between-person variation to be removed from the within-person estimates (Enders & Tofighi, 2007). In other words, pure within-person relationships at Level 1 and pure between-person relationships at Level 2 are estimated. Additionally, our data were clustered within couples to take into the account

the nested nature of our data (i.e. men and women nested within a couple) and the fact that women's and men's data were interdependent.

With this model we test (1) whether the participant's mean level of stressors is associated with his/her average level of anger and antisocial online behavior (between persons), and whether (2) the participant's daily variations from his/her own mean level of stressors are associated with their anger and antisocial online behavior (within person). Each time, we controlled for the general time spent on digital media for social use. Furthermore, we derive path estimates – aw, bw, cw and aw*bw (Level 1) and ab, bb, cb and ab*bb (Level 2) – that quantify independent relationships and indirect effects at the within-person and the between-person levels respectively (see Figure 1). Furthermore, as our hypotheses are directional, for the indirect effects we therefore interpreted the 90% confidence intervals to correspond to one-tailed, $\alpha < .05$ hypothesis test, as recommended by Preacher, Zyphur and Zhang (2010).

Finally, we also tested whether anger experienced by one member of the couple at T1 predicted anger experienced by the other member at T2, controlling for the other member's initial anger at T1 (H3) and whether this transferred anger T2 was significantly associated with individual's AOB measured at T2 (H4). Again, both within-subjects (i.e. whether someone's daily variation in anger impacts their partner's daily variation in anger and AOB) and between-subjects effect (i.e. whether someone's mean level of anger influences their partners mean level of anger and AOB) were modeled.

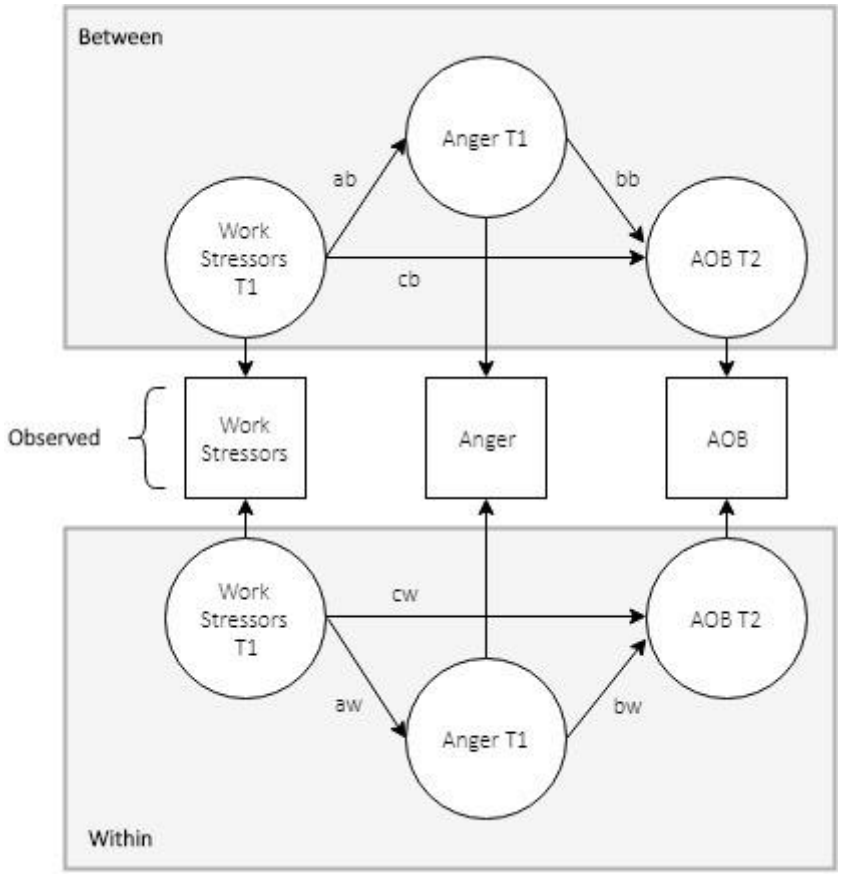

Figure 1. Time spent on digital media is controlled for in all the models. For simplicity, this covariate is not depicted in the figure.

4. Results

Table 1 shows the means, standard deviations and intercorrelations of the study variables averaged over 5 days. Intraclass coefficients (ICC) were estimated based on an unconditional random coefficient model in order to estimate the relative amount of between-person and within-person variance. They revealed that TSDM, stressors, anger T1, anger T2, and AOB respectively displayed 33%, 66%, 81%, 79% and 68% of within-person variation for men and 45%, 45%, 71%, 78% and 80% for women.

Table 1

Means, Standard Deviations and Intercorrelations Between the Study Variables

	M (M/W)	SD (M/W)	1	2	3	4	5
1. TSDM	2.63/2.78	1.15/0.94	-	.16**	-.00	.04	.19**
2. Stressors	.93/1.02	1.24/1.18	-.05	-	.39**	.17**	.12*
3. Anger T1	1.30/1.31	0.73/0.64	-.02	.27**	-	.52**	.18**
4. Anger T2	1.19/1.27	0.50/0.64	.06	-.03	.32**	-	.19**
5. AOB	5.10/5.09	0.52/0.46	.27**	.08	.18**	.06	-

Note. M = men, W = women, TSDM = time spend on digital media, AOB = antisocial online behavior. Intercorrelations of men and women are presented below and above the diagonal respectively.
** p < .05 ** p < .01.*

4.1 Testing alternative models

As some variables in our study design were assessed at the same point, which hinders us from inferring causality, we examined alternative versions of the hypothesized models and compared them to the original hypothesized models in terms of fit (see Table 2). First, we estimated an alternative spillover model for both men and women in which the effect of anger T1 on AOB T2 was mediated by work stressors T1. Next, we estimated an alternative crossover model for both men and women in which the effect of partner's anger T1 on own anger T2 was mediated by own AOB T2. In order to examine which model fitted the data best, we compared the Bayesian information criterion (BIC) value of our hypothesized model to the BIC value of each alternative model (for a similar approach see Meier & Spector, 2013). The comparison revealed that our hypothesized models offered the best fit to the data (i.e. lowest BIC value) for both men and women. We therefore continue with the discussion of the results of our hypothesized models.

Table 2

Comparing BIC values of hypothesized and alternative models for men and women.

Model tested	BIC men	BIC women
Hypothesized spillover model (stressors T1 – anger T1 – AOB T2)	3371.46	3061.98
Alternative spillover model (anger T1 – stressors T1 – AOB T2)	3595.64	3616.94
Hypothesized crossover model (partner's anger T1 – anger T2 – AOB T2)	3715.90	3904.72
Alternative crossover model (partner's anger T1 – AOB T2 – anger T2)	3719.91	3923.61

Note. AOB = antisocial online behavior, BIC = Bayesian information criterion. Lower BIC values indicate a better fit.

4.2 Test of the Spillover Effect

With regards to men (Table 3), we find that daily experienced stressors associated significantly with daily experienced anger right after work. Furthermore, daily variations in anger marginally predicted antisocial online behaviors, when controlling for TSDM. Daily TSDM also had a significant effect on daily AOB. Furthermore, inspecting the 90% confidence intervals corresponding to one-tailed, $\alpha < .05$ hypothesis test (Preacher et al., 2010), we find an indirect effect of work stressors on AOB through anger, on a daily basis. Thus, H1 for men was confirmed. There were no significant effects on the between-person level.

With regards to women (Table 4), we find that their daily work stressors associated with their daily anger after work (within-person effect). However, anger after work did not predict OAB in females on a daily basis. Additionally, there was no daily indirect effect of work stressors on AOB through experienced anger. Hence, H1 was not confirmed in women. On the between-person level, we find that women's average experience of work stressors is significantly associated with their

average anger levels after work. Finally, we find that women who on average spend more time on digital media, display higher levels of AOB in general.[8]

Table 3

Results of the 1-1-1 Mediation Model with Fixed Slopes (MSEM) for Men

	Estimate	*SE*	*p*	90% CI
Within-person level				
Anger T1				
Stressors T1 (aw)	**0.17**	**0.05**	**0.00**	**[0.08, 0.25]**
AOB T2				
TSDM T2	**0.15**	**0.07**	**0.04**	**[0.03, 0.27]**
Stressors T1 (cw)	0.00	0.03	0.95	[-0.05, 0.06]
Anger T1 (bw)	**0.13**	**0.07**	**0.06**	**[0.02, 0.24]**
Indirect effect (aw*bw)	**0.02**	**0.01**	**0.10**	**[0.00, 0.04]**
Between-person level				
Anger T1				
Stressors T1 (ab)	0.05	0.07	0.51	[-0.07, 0.17]
AOB T2				
TSDM T2	0.10	0.06	0.13	[-0.01, 0.20]
Stressors T1 (cb)	0.06	0.06	0.31	[-0.04, 0.15]
Anger T1 (bb)	0.05	0.10	0.61	[-0.11, 0.22]
Indirect effect (ab*bb)	0.00	0.01	0.67	[-0.01, 0.01]

Note. AOB = antisocial online behavior, TSDM = time spent on digital media. Significant effects are printed bold.

[8]Because the majority of men (95%) and only half of the women (45%) worked full-time, we additionally tested the spillover model, controlling for employment (full-time versus part-time). However, controlling for employment did not alter the findings.

Table 4

Results of the 1-1-1 Mediation Model with Fixed Slopes (MSEM) for Women

	Estimate	*SE*	*p*	90% CI
Within-person level				
Anger T1				
Stressors T1 (aw)	**0.20**	**0.04**	**0.00**	**[0.13, 0.27]**
AOB T2				
TSDM T2	0.08	0.07	0.21	[-0.03, 0.19]
Stressors T1 (cw)	-0.10	0.10	0.31	[-0.25, 0.06]
Anger T1 (bw)	0.05	0.03	0.14	[-0.01, 0.11]
Indirect effect (aw*bw)	0.01	0.01	0.21	[-0.00, 0.02]
Between-person level				
Anger T1				
Stressors T1 (ab)	**0.26**	**0.10**	**0.01**	**[0.10, 0.42]**
AOB T2				
TSDM T2	**0.16**	**0.07**	**0.03**	**[0.04, 0.28]**
Stressors T1 (cb)	0.06	0.09	0.45	[-0.08, 0.21]
Anger T1 (bb)	0.34	0.24	0.17	[-0.06, 0.74]
Indirect effect (ab*bb)	0.09	0.07	0.24	[-0.03, 0.21]

Note. AOB = antisocial online behavior, TSDM = time spent on digital media. Significant effects are printed bold.

4.3 Test of the Crossover Effect

With regards to men (Table 5), we find that partner's anger after work positively predicted their own anger at the end of the day on a daily basis, even after controlling for their own anger after work. However, there was no significant association between their anger at the end of the day and their AOB. There was also no indirect effect of partner's anger on own AOB through transferred anger, meaning that H2 was not confirmed for men. On a between-person level we find that men's average level of anger at the end of the day was negatively predicted by their partner's average anger levels after work and positively predicted by their own average anger after work.

With regards to women (Table 5), we find only an effect of their own anger but not their partner's anger after work on their own anger at the end of the day (within-person effect). There was no association between their own daily anger at the end of the day and their AOB. There was also no significant indirect effect on the within-person level. In other words, H2 was also not confirmed in

women. When looking at the between-person level, we find a significant effect of their own anger T1 on their anger T2 and of their own anger T2 on AOB T2.

Table 5

Results of the Crossover Model

		Estimate	SE	p	90% CI
Men	Within-person level				
	Anger T2				
	Anger partner T1	**0.07**	**0.03**	**0.03**	**[0.02, 0.13]**
	Own anger T1	0.09	0.06	0.16	[-0.01, 0.18]
	AOB T2				
	TSDM T2	**0.14**	**0.07**	**0.05**	**[0.02, 0.25]**
	Anger T2	0.08	0.06	0.15	[-0.01, 0.17]
	Indirect effect	0.01	0.01	0.22	[-0.01, 0.01]
	Between-person level				
	Anger T2				
	Anger partner T1	**-0.15**	**0.05**	**0.00**	**[-0.21, -0.07]**
	Own anger T1	**0.85**	**0.09**	**0.00**	**[0.71, 0.99]**
	AOB T2				
	TSDM T2	0.10	0.07	0.14	[-0.01, 0.20]
	Anger T2	0.03	0.20	0.90	[-0.30, 0.35]
	Indirect effect	-0.01	0.03	0.90	[-0.05, 0.04]
Women	Within-person level				
	Anger T2				
	Anger partner T1	0.04	0.06	0.50	[-0.05, 0.14]
	Own anger T1	**0.35**	**0.10**	**0.00**	**[0.18, 0.51]**
	AOB T2				
	TSDM T2	0.08	0.05	0.14	[-0.01, 0.16]
	Anger T2	0.05	0.05	0.34	[-0.03, 0.13]
	Indirect effect	0.01	0.02	0.53	[-0.02, 0.05]
	Between-person level				
	Anger T2				
	Anger partner T1	-0.17	0.14	0.25	[-0.50, 0.10]
	Own anger T1	**0.53**	**0.28**	**0.06**	**[0.45, 1.09]**
	AOB T2				
	TSDM T2	**0.14**	**0.06**	**0.01**	**[0.05, 0.23]**
	Anger T2	**0.57**	**0.30**	**0.06**	**[0.08, 0.98]**
	Indirect effect	-0.13	0.12	0.31	[-0.33, 0.08]

Note. AOB = antisocial online behavior, TSDM = time spent on digital media. Significant effects are printed bold.

5. Discussion

5.1 Main Findings

In this study, we aimed to investigate whether stressors at work can spill over and influence emotions and online behavior at home and whether negative emotions cross over from one partner to another throughout their interactions after work. In order to test this, a daily diary study was conducted in dual-earner couples, in which their experience of work stressors, their anger and their online antisocial behavior were assessed during two different occasions: right after work and at the end of the day. Both within-person variations as well as between-person differences were investigated.

With regards to the spillover hypothesis, we found that men that experienced work stressors during the day felt angry upon arrival at home and committed antisocial online behaviors throughout the evening. There were no between-person differences in these effects, suggesting that daily fluctuations as opposed to general tendencies are of importance for men's antisocial online behavior. Furthermore, we found that women that experienced work stressors during the day also felt angry upon arrival at home. Still, their anger was not translated in antisocial online behaviors throughout the evening. However, we observed that women spending on average more time on social media, committed on average more antisocial online behaviors after work. Apparently, in women, opportunity makes a thief: their average time spent online engaging with other people is a predicting factor of their general engagement in antisocial online behaviors.

With regards to the crossover-hypothesis, we found that men's anger at the end of the day was positively predicted by their partner's anger right after work. However, there was no association between the transferred anger and men's reporting of antisocial online behavior. For women, we found no crossover of emotions and no association between their anger at the end of the day and their antisocial online behavior. The finding that anger crossed over from women to men but not the other way around is in accordance with some previous research that show differences in crossover between men and women. For instance, Zhang, Foley and Yang (2013) found in their study that work-family conflict crossed over from wives to husbands but not the other way around. Also ten Brummelhuis, Haar & van der Lippe (2010) found different patterns of crossover between male and female partners. More specifically, they observed that feelings of time deficit and energy deficit crossed over from the man to the woman, whereas feelings of distress crossed over from the woman to the man. Our own results revealed that, both in men and women, the average levels of anger after work predicted anger experienced at the end of the day, which is not surprising given that people differ in their general tendencies towards experiencing negative affect (Watson & Clarck, 1984).

However, surprisingly, men's average anger at the end of the day was negatively predicted by their partner's average anger after work. A possible explanation could be that men confronted with partners who often experience anger after work develop coping strategies over time intended to deflect these negative emotions. In support of this, it has already been found that individuals confronted with adversity and stress could develop coping strategies of self-aggrandizement, unrealistic optimism, and even exaggerated perceptions of control (Taylor & Armor, 1996). Furthermore, other family members, such as couple's children, could also potentially have influenced emotional processes in dual-earner couples. However, this was not accounted for in this study.

5.2 *Theoretical implications and future directions*

The results of this study seem to suggest an important gender effect both in the spillover effect of work stressors to emotions and online behavior at home, as well as in the emotional crossover between partners. First, these findings show that working men take home their negative work experiences in the form of feelings of anger and that they express this anger by venting it online. In other words, antisocial online behaviors could be a coping strategy for men to deal with their daily work stressors and subsequent negative emotions. The findings also suggest that, although female employees are also emotionally impacted by their daily stressors upon arrival at home, they do not express these the same way as their male partners. In other words, their daily antisocial behaviors are unrelated to their daily work stressors and emotions. Second, the findings that men's anger after work is influence by their partner's anger, but not the other way around, could suggest that women communicate their work related anger more towards their partners upon arrival home than men, for instance by becoming irritable or angry or by taking their frustrations out on their partners. Alternatively, men might experience anger after work but not display it towards their partners, instead choosing to vent the negative emotions online.

These findings are in accordance with studies indicating that men and women differ in stress and coping processes (Watson, Goh & Sawang, 2011). While women more often seek social support and use emotion-focused coping, men report using relatively more problem-focused coping than women (Ptacek, Smith & Dodge, 1994). Men also use emotional inhibition or suppression (Gross & John, 2003; John & Gross, 2004; Matud, 2004), which has been linked with various negative outcomes, such as decreased experience of positive emotions and a lower well-being (Gross & John, 2003; Richards & Gross, 2000), but also with increased aggressive tendencies (Roberton, Daffern &Bucks, 2012). Indeed, men are found to more often act behaviorally on their experienced emotions (Brody, 1996) and to have a greater propensity for externalizing behaviors such as aggression (Rosenfield, 2000). Thus, men might inhibit their work-related anger at first, but subsequently act out their

aggressive tendencies online. Women on the other hand could have alternative ways of dealing with their anger, such as rumination, looking for social support or venting of anger in partner interactions. In support, it is well documented that women tend to endorse more emotion–focused coping strategies and support seeking for dealing with stressful events (e.g. Eaton & Bradley, 2008; Matud, 2004; Ptacek, Smith & Dodge, 1994; Ptacek, Smith & Zanas, 1992).

The finding that transferred anger has no effect on antisocial online behavior of men has important implications as it suggests that the source of anger is important in the prediction of daily antisocial online behavior. Apparently, stressor-induced anger, but not partner-induced anger is of relevance when trying to understand daily antisocial online behavior in men. This is in line with the notion of displaced aggression (Dollard, Miller, Doob, Mowrer, & Sears, 1939), which occurs when expressing anger towards the eliciting stimulus is not possible because the stimulus is intangible, absent or because of fear for negative consequences (Miller, 1941). First, it is possible that work stressors are perceived as less controllable and would stimulate more displaced aggression in the form of AOB at home, while partner-induced anger could lead to more direct aggression towards the partner. Second, as by the arrival home the eliciting factors from the work context are not available anymore, men could therefore be more inclined to express their anger online throughout the evening. Lastly, as openly displaying anger is not always desirable in the work context in the interest of continuing positive working relationship, men could also choose to vent their anger online.

As this study was one of the first to investigate antecedents of AOB on the daily basis, we focused on a particular predicting process regarding work stressors and emotions, as proposed by the ERM. An interesting future avenue would be to investigate the way working women regulate their work related anger at home – that is, whether they indeed engage in more emotion focused coping and support seeking than men. In addition, it would be interesting to see whether expression of anger happens differently online for women as opposed to men. As people regularly use updates on their social networking sites for emotional disclosure (Manago, Taylor & Greenfield, 2012), it could be that women experiencing anger after work would rather engage in online communication in order to disclose their emotions and seek support, rather than to vent their anger. In that regard, evidence shows that Internet use can decrease loneliness and depression, while increasing social support and self-esteem (Shaw & Gant, 2002). Furthermore, it would also be interesting to explore boundary conditions for women engaging in AOB at home following work-related anger. In that regard, studies find that men engage in impulsive behavior of flaming (extreme negativity, insulting, swearing, offending or hostile comments online, often directed towards strangers) more than women (Alonzo & Aiken, 2004). On the contrary, no gender effects are found in more deliberate forms of AOB, such as cyberbullying (Kowalski, Giumetti, Schroeder & Lattanner, 2014). It could therefore be that while men

engage more in impulsive venting of anger online, there are no differences in gender regarding the more deliberate forms of online aggression.

5.3 Limitations

The results of this study should be evaluated in the light of its strengths and weaknesses. First, the scale of antisocial online behavior displayed an internal consistency below the preferred value. However, it is a custom in diary studies to use adapted and abbreviated scales, which results in lower reliabilities (Sonnentag, Kuttler & Fritz, 2010; Smith, McCarthy & Anderson, 2000). Moreover, scholars argue that in order to measure daily fluctuations, it is necessary to use adapted scales (Ohly et al., 2010). Additionally, as daily diary studies are quit demanding on the participants, it is important to use abbreviated measures which minimizes interference with the day flow and maximize response rate (Reis & Gable, 2000). Finally, the low internal consistency did not appear problematic in our study as this would normally reduce the likelihood of obtaining statistically significant results (Lance, Butts & Michels, 2006).

Next, in testing the spillover and crossover hypotheses, we measured certain variables at the same time point in time (i.e. stressors and anger at T1 for the spillover model and anger and AOB at T2 for the crossover model). This means that the true direction of the causality between these two variables could not be established. With regard to the association between stressors and anger, the predictive power of stressors on anger has been quite established in different studies and contexts (e.g. Ayoko et al., 2012). With regards to the relationship between anger and AOB, it could be argued that the direction of effect could go both ways. However, we tested alternative models in which we changed the direction of effects and compared them to the hypothesized models. In all cases, the hypothesized models were to be preferred based on the model fit, which adds to the confidence in our results.

Lastly, although we collected data at two different time points in the evening, allowing us to test different causal processes, we did not assess the spillover and the crossover hypotheses simultaneously. In order to do so, the participants should have ideally reported on their experiences after work at three different time points: This would have allowed us to test whether work stressors that day (T1) predicted subsequent anger (T2), whether anger crossed-over between partners (T2) and whether this anger subsequently predicted AOB (T3). However, testing the crossover separately as we have, should have yielded stronger effects, as there were less confounding variables in play (i.e. the spillover effects). Still, only the crossover of women's anger on men was observed.

5.4 Practical Implications

This study has important implications as it underlines the impact of work on people's daily lives and even in their intimate relationships. We find that experiencing daily work stressors spills over to the home context in the form of anger in both women and men. Furthermore, we find that in men this work-induced anger might further translate in antisocial online behaviors at home. Lastly, we find that men are negatively impacted by their partner's anger after work. That is, their partner's anger after work predicts their own anger at the end of the day. These results suggest societal responsibility organizations have in creating healthy work environments for their employees; poor work environments might not only impact functioning and well-being of employees, but also that of other people outside the organizational context (i.e. partners and people exposed to negative online behavior). Furthermore, this study underscores that men might cope with their daily work stressors by taking their frustration out online. In studying negative online phenomena, it can therefore be useful to take into account the more general work context, as well as individual's emotional reactions to it.

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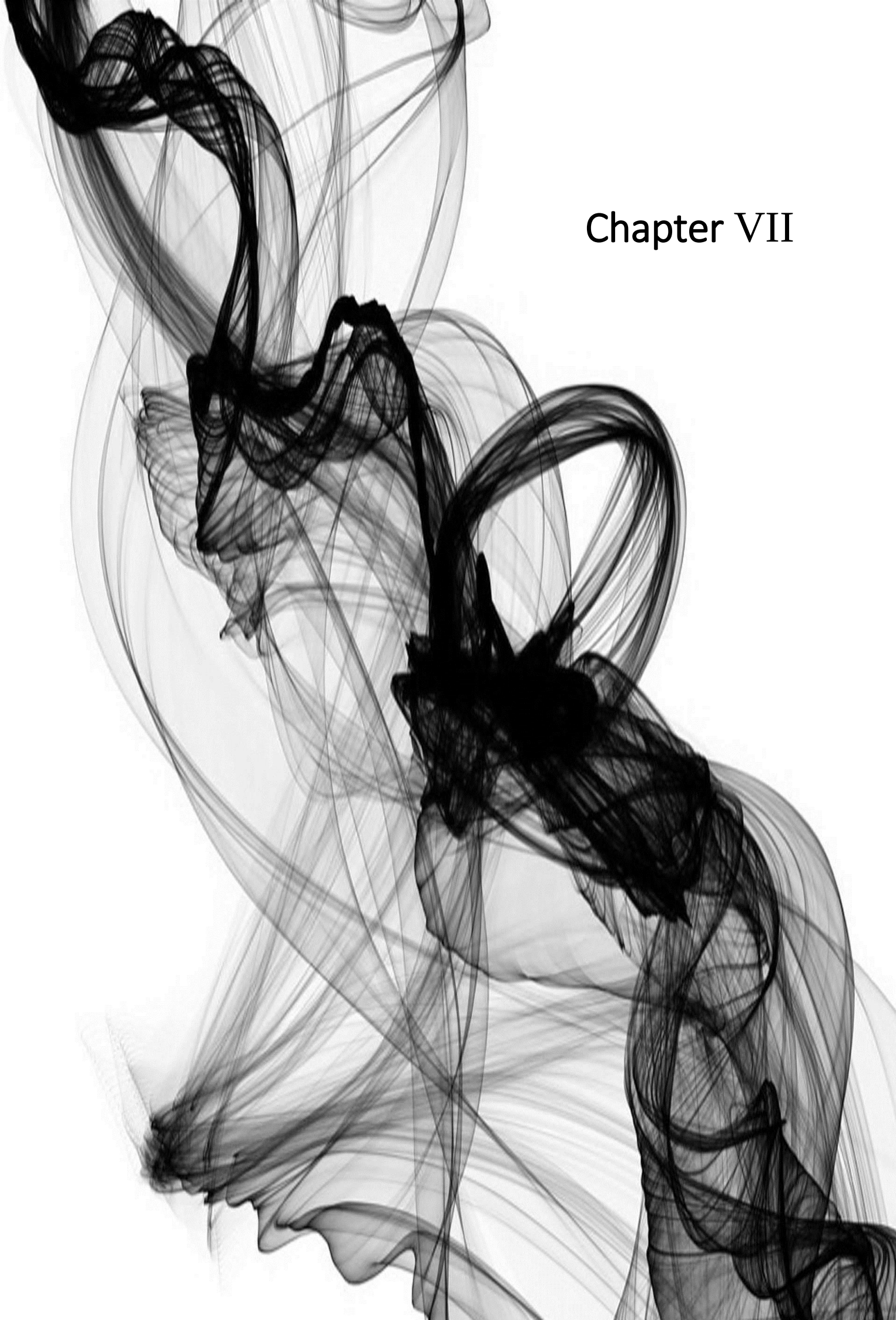


Chapter VII

What do we know and where do we go from here

In this PhD dissertation, we expanded the emerging field of workplace cyberbullying in several ways. First, we developed a conceptualization of workplace cyberbullying in which we accounted for this construct's new and unique characteristics. This definition takes into account both the work context from which this behaviour emerges and new types of negative acts - the intrusive acts (e.g. hacking and identity theft) - specifically related to the online environment and which can be harmful after a single occurrence. Second, we proposed a theoretical model of workplace cyberbullying – the Emotion Reaction Model – building on interdisciplinary literature and taking into account both cyberbullying victimization and perpetration. In this model, we give a central role to stressor-evoked emotions in predicting workplace cyberbullying. Next, we developed and validated a measurement tool for assessing the occurrence of workplace cyberbullying. This compact measurement allows a distinction between the more traditional acts (person and work related) and the rather cyber-typical acts (intrusive), while still being able to reliably measure the workplace cyberbullying construct as a whole. Finally, we empirically tested the propositions of the Emotion Reaction Model, using different samples and analytical techniques (cross-sectional, longitudinal and daily diary studies). We find evidence that work stressors play an important role in creating a context in which workplace cyberbullying behaviour can emerge. Furthermore, we find that stressor-evoked discrete emotions of fear and sadness play an important role in predicting workplace cyberbullying victimization, while the stressor-evoked discrete emotion of anger plays an important role in predicting workplace cyberbullying perpetration. Additionally, we find that three different types of cyber victims can be distinguished based on the negative online acts they experience: the non-cyber-victims, the similar-to-offline cyber-victims and the pervasive cyber-victims. We also highlight the potentially important role of emotion regulation strategies in workplace cyberbullying by finding some evidence that reappraisal can help to lessen the emotional impact of stressors on the negative emotions of sadness and fear and that pervasive cyber victims are more inclined to supress their emotions than similar-to-offline cyber-victims and non-victims.

In what follows, we discuss in more detail the main contributions of this PhD dissertation pertaining to the definition, the theoretical model, the measurement tool and the empirical insights regarding the processes contributing to the emergence of workplace cyberbullying. We do this in the light of the new literature that has emerged since the beginning of this project. Next, we critically reflect upon some potential limitations of this dissertation and present several promising avenues for future research. To conclude, we offer some practical implications for organisations that can aid in combating this negative online behaviour.

1. Main contributions

1.1 The definition

The first contribution of this dissertation is the proposed new definition of the workplace cyberbullying construct. Previously, authors took over definitions from the adolescent literature, which were adaptations of the offline bullying conceptualization. In the most widely used definition from the adolescent literature workplace cyberbullying was conceptualized as *aggressive, intentional acts carried out in an electronic context (e.g., e-mail, blogs, instant messages, text messages) repeatedly and over time against a target that cannot easily defend him/herself* (Smith et al., 2008). Alternatively, in this dissertation workplace cyberbullying is conceptualized as *all negative behaviour stemming from the work context and occurring through the use of ICTs, which is either (a) carried out repeatedly and over a period of time or (b) conducted at least once but forms an intrusion into someone's private life, (potentially) exposing it to a wide online audience. This behaviour leaves the target feeling helpless and unable to defend him/herself.*

The need for a new conceptualisation stemmed from two concerns. First, one of the main characteristics of cyberbullying is that it can occur anywhere and at any time (West, Foster, Levin, Edmison & Robibero, 2014). However, given that we were interested in cyberbullying stemming from a particular context – the work context – we felt that it was important to specify the origin of this behaviour in the definition itself ('*negative behaviour stemming from the work context*'). Otherwise, all online bullying – also from friends or acquaintances unrelated to the work context – would fall under the definition of workplace cyberbullying. Second, both in the adolescent (Dooley, Pyzalski, & Cross, 2009) and the adult (D'Cruz & Noronha, 2017) literature it is stated that cyberbullying is not merely an extension of traditional bullying to the online context, but that it possesses certain new characteristics that need to be accounted for. Additionally, several authors have already stressed the fact that, because of these specific characteristics of the online context, certain one-time acts can also constitute cyberbullying (Dooley et al., 2009; Langos, 2012). Yet, despite this being put forward by different authors, this is not reflected in the definitions that are currently being applied by many researchers. Looking at the way cyberbullying has been conceptualised so far, we see that the only element that distinguishes these definitions from the one of traditional bullying is their reference to the online context in which the behaviour occurs ('*carried out in an electronic context*'). However, we feel that it is important to additionally acknowledge the unique nature of cyberbullying and the possibility of one-time acts by explicitly including them in the new definition ('*conducted at least once but forms an intrusion into someone's private life,* (*potentially) exposing it to a wide online audience').*

Interestingly, our definition aligns with the findings of a recent study that performed semi-structured interviews with nurses in New Zealand in order to explore the lay understanding of the concept and dynamics of workplace cyberbullying (D'Souza, Forsyth, Tappin & Catley, 2018). The first theme that emerged was the need for extension of the typical definition of workplace cyberbullying, because of the unique characteristics of this phenomenon. Moreover, throughout the interviews, participants often referred to 'one-off' cyberbullying incidents and their impact. Other important themes that emerged were invasion of boundaries and rapid dissemination of negative content with a potentially infinite audience. Finally, participants argued against the inclusion of 'intent' of the perpetrator in the definition, but rather prioritized inclusion of the harm done to the target. All of these aspects are reflected in the new definition as it: adds the possibility of one-time behaviours ('*or conducted at least once'*), refers to invasion of boundaries ('*intrusion into someone's private life*'), address the possibility of dissemination of negative content *('potentially exposing it to a wide online audience'*) and includes the negative effect on the victim as opposed to intent of the perpetrator ('*this behaviour leaves the target feeling helpless and unable to defend'*).

1.2 The model

One of the big critiques pertaining to the field of cyberbullying in general has been the fact that it developed in the absence of a general theory (Tokunaga, 2010). However, while in the adolescent field several theories have emerged in the previous years (e.g. Lazuras, Barkoukis, Ourda & Tsorbatzoudis, 2013), the current studies of workplace cyberbullying have developed rather a-theoretically. In addition, most research has focused on simplistic relationships instead of examining more complex processes, ignoring the contextual and interacting factors that contribute to the emergence of cyberbullying (Tokunaga, 2010). One of the main contributions of this PhD project is therefore the development of a model of workplace cyberbullying – the Emotion Reaction Model – that focuses on antecedents of both cyber-victimization and perpetration and is grounded in multidisciplinary literature regarding adolescent cyberbullying, workplace bullying, computer-mediated communication, emotions and emotion regulation.

In the Emotion Reaction Model (ERM) it is proposed that work stressors predict cyberbullying victimization through the experience of sadness and fear and cyberbullying perpetration through the experience of anger. Certain boundary conditions are also put forward. Whether stressors will lead to anger as opposed to sadness or fear is determined by the perceived control (i.e. individual or situational). If one attributes stressors to an individual, one will experience anger, whereas if one attributes stressors to the situation, one will experience sadness and/or fear. Additionally, whether emotions will be experienced and displayed depends on the emotion regulation strategies applied.

Individuals who reappraise their stressors will be less inclined to cyberbully or to become cyberbullied because reappraising stressors diminishes the emotional impact of work stressors. Alternatively, individuals who suppress their emotions will be more inclined to cyberbully or to become cyberbullied, because suppression depletes resources and leads to more displaced aggression and less social support. The ERM combines both contextual (work stressors) and individual (emotions and emotion regulation) factors in explaining workplace cyberbullying. Importantly however, this model was never intended as a comprehensive model of workplace cyberbullying. Instead, this model proposes one potentially crucial path through which cyberbullying at work can occur. The focus in this model is on work stressors as they have received considerable evidence in predicting workplace bullying occurrence (e.g. Baillien & De Witte, 2009; Balducci, Cecchin & Fraccaroli, 2012; Notelaers, De Witte & Einarsen, 2010; Reknes, Einarsen, Knardahl & Lau, 2014) and emotions as they are more easily expressed online as opposed to offline (Derks, Fischer & Bos, 2008) and have often been linked with adolescent cyberbullying (e.g. Gradinger, Strohmeier & Spiel, 2009; Varjas, Talley, Meyers, Parris & Cutts, 2010).

In line with our model and in addition to the evidence already discussed in Chapter II (Study 1), some recent studies underline the importance of looking at the work context when trying to understand workplace cyberbullying (D'Souza, Forsyth, Tappin & Catley, 2018; Gardner et al., 2016). Also, additional studies have linked sadness and fear with cyberbullying victimizations in adolescents (Balakrishnan, in press; Carvalho, Branquinho & de Matos, 2017), while another study even showed that anxiety and depression in childhood predicted cyberbullying later at work (Brendgen & Poulin, 2018). Furthermore, a study amongst adolescents showed that adolescents experiencing social and emotional difficulties were more likely to be both cyberbullied and traditionally bullied, than to experience only traditional bullying (Cross, Lester & Barnes, 2015). In regard to perpetrators, recent studies have confirmed the link between anger and cyberbullying in adolescents (Aricak & Ozbay, 2016), and showed that both the momentary feelings of anger as well as the general inclination towards feeling anger are associated with cyberbullying (Longiro et al., 2015). Also, recent evidence shows that not being able to properly regulate anger is associated with adolescent cyberbullying behaviour (Den Hamer & Konijn, 2016; Kim, Epstein & Kim, 2017). Altogether, these findings are in line with the main propositions of our model, and underline the importance of further exploring the role emotions play in the workplace cyberbullying process.

Additionally, we would like to point out an implicit process that is suggested by the ERM and that can further help us understand the dynamic between cyberbullies and cyber victims. In the ERM, it is proposed that anger leads to cyberbullying perpetration and sadness and fear lead to cyberbullying victimization. However, emotional experience is highly fluctuating and can change depending on

individuals' appraisal of a situation. While some individuals experiencing sadness and fear might get caught in a helplessness spiral, others might find a way to regain some sense of control over the situation, for instance by seeing an opportunity to fight back. This implicitly suggests a process in which initial cyber-victims that are able to regain control will start experiencing anger and can subsequently become cyberbullies themselves. Indeed, as anger is an active, negative emotion that fuels retaliation (Lazarus, 1994), it is to be expected that cyber-victims experiencing this emotion will fight back against their aggressor. Alternatively, the reverse would hold for cyber-perpetrators losing their sense of control. This postulation is in line with empirical evidence that show that some cyber-victims experience anger (Campbell, Spears, Slee, Butler & Kift, 2012) and that cyberbullying is often reciprocal (Law, Shapka, Domene & Gagné, 2012). Furthermore, recent evidence from adolescent literature supports the fact that cyberbullying victimisation can lead to cyberbullying perpetration through the experience of anger (Ak, Özdemir & Kuzucu, 2015; Pabian & Vandebosch, 2015). This again demonstrates the importance of experienced emotions in cyberbullying and their significance in determining the role one partakes in this process.

A recent review of the literature on cyberbullying furthermore uncovers two additional theories on adult cyberbullying that have been developed in the past two years: the Social Media Cyberbullying Model (Lowry et al., 2016) and a research model of cyberbullying in Social Network Sites (Zhang, Yu, Wakefield & Leidner, 2016). The Social Media Cyberbullying Model extends a social structure and social learning model of crime and deviance (Akers & Jensen, 2003) to the online context by proposing anonymity as a key factor fostering cyberbullying in social media. The context of social media is elaborated to strengthen the perception of anonymity while anonymity itself fosters online disinhibition and deindividuation. Online disinhibition refers to the fact that people feel more free to perform certain acts online as opposed to offline (Lowry et al. 2013, Suler, 2004), while deindividuation pertains to the loss of one's sense of individuality and personal responsibility (Valkenburg & Peter, 2011). Because of this, anonymity makes individuals feel less responsible for their actions online and leads to more deviant online behaviour and cyberbullying. The model of cyberbullying in Social Network Sites (SNS) is based on two theories from the field of criminology: the neutralization theory (Sykes & Matza, 1957) and the general deterrence theory (Paternoster & Simpson, 1996). Neutralization theory assumes that individuals will be more inclined to cyberbully if they for instance, do not feel responsible for their acts, do not see the damage that is being done or do not acknowledge the victim (Sykes & Matza, 1957). Additionally, according to the deterrence theory, individuals will be less likely to commit antisocial acts if, for instance the risk of getting caught is high or the penalties for violation are severe.

These two theoretical frameworks offer a very interesting viewpoint on cyberbullying behaviour. However, the additional value of our model is twofold: (a) first, while these models make predictions about cyberbullying perpetration only, our model makes predictions about both perpetration and victimization of cyberbullying, and (b) second, while these models focus on characteristics of the online environment that would drive individuals to engage in cyberbullying behaviour in general, our model helps explain why cyberbullying would emerge in the specific context of the workplace. In other words, these models cannot help us to understand why an individual decides to start cyberbullying a co-worker or a supervisor or why an employee suddenly becomes a target of cyber-attacks from his or her colleagues. Our model is therefore an important addition to the cyberbullying field that offers some promising perspectives in explaining this negative online phenomenon in the workplace.

1.3 The measurement

Another contribution of this PhD dissertation was the development of a tool for assessing the prevalence at workplace cyberbullying. Given that at the start of this project no validated scale of workplace cyberbullying existed, this was a necessary step in order to be able to empirically contribute to this novel field. We developed and validated the *Inventory of Cyberbullying Acts at Work (ICA-W)* based on three studies and building on our new, developed definition. First, the items were developed based on the relevant adolescent and adult cyberbullying literature and on our conceptualization of the workplace cyberbullying phenomenon. Next, the dimensionality of the scale was assessed with Exploratory and Confirmatory Factor Analysis and the final items were selected. Additionally, the convergent validity of the scale was tested by looking at associations with theoretically relevant constructs of workload, role conflicts, job insecurity, autocratic leadership, interpersonal conflicts, traditional workplace bullying and a self-labelling measure of cyberbullying. Finally, the criterion validity was assessed by looking at the relationship between the ICA-W scores and mental well-being six months later, using a cross-lagged panel design. Our findings indicate that a three-factor structure fitted our data best. In other words, the final 10 items of the ICA-W scale could be divided in three types of negative online acts – work-related, person-related and intrusive acts – that represented the general workplace cyberbullying construct. Additionally, the ICA-W displayed a good convergent and criterion validity and a good reliability of the scale as a whole, as well as of the three subscales. The advantage of the ICA-W is that it is relatively short, while still allowing to discriminate different types of cyberbullying acts that can be studied in their own right (i.e. work-related, person-related and intrusive). In addition, the scale dimensionality was tested in two different samples, and the negative effect on mental well-being was examined longitudinally, strengthening the confidence in our findings.

It is important to consider that intrusive behaviours had rather low prevalence rates, which could perhaps question the inclusion of this dimension. Nevertheless, despite the low occurrence of the intrusive behaviours we still argue for their inclusion. More specifically, intrusive acts, such as posting someone's photo's online, stealing someone's identity or hacking someone's private information are typical and unique for the online environment: when omitted, the specific characteristics of cyberbullying discussed in the introduction of this dissertation (e.g., anonymity, viral reach, public behaviours) are not accounted for. In other words, without them, the only difference between traditional bullying and cyberbullying is the context in which this behaviour occurs. This contrasts with arguments from leading researchers in the adolescent literature (Dolley et al., 2009) as well as from some pioneers in the adult literature (D'Cruz & Noronha, 2017) underscoring that cyberbullying possesses unique distinguishing characteristics that need to be accounted for. Additionally, as the impact of technology on our lives is only expected to increase over the following years and this trend is associated with heightened ICT misuse (Ernst & Young, 2011), it is to be expected that intrusive acts will only grow in importance. In sum, in order to correctly represent the workplace cyberbullying phenomenon and to increase the durability of our scale, intrusive behaviours are a necessary complement to the more traditional negative acts, such as gossiping, insulting and excluding.

Notably, since the development of our ICA-W scale, two new validated scales emerged: the Workplace Cyberbullying Measure (WCM; Farley, Coyne, Axtell & Sprigg, 2016) and the Cyberbullying Behaviour Questionnaire and Cyberbullying Behaviour Questionnaire Short (CBQ(-S); Jönsson, Muhonen, Forssell & Bäckström, 2017). Farley et al. (2016) developed the one-dimensional, 17-items *Workplace Cyberbullying Measure* using a sample of UK workers. Jönsson et al. (2017) developed the one-dimensional, 20-items C*yberbullying Behaviour Questionnaire* and a shorter, 7-item version in a Swedish and USA sample. However, we believe that the ICA-W scale offers some advantages with respect to these two scales. First, both the WCM and the CBQ are one-dimensional scales. Second, they both consist of negative acts that are very similar to the traditional bullying items from the most widely applied workplace bullying scale, the NAQ-R (Einarsen, Hoel, & Notelaers, 2009). In contrast, the ICA-W allows for a distinction between different types of negative online behaviours and also includes the more unique cyberbullying acts, such as hacking, sharing photos and identity theft. Furthermore, while CBQ has a short, 7-item version that consists of mainly interchangeable behaviours (e.g. receiving 'aggressive messages', 'rude messages' and 'threatening messages'), our scale is likewise compact, while at the same time still capturing a broader array of negative online behaviours. Finally, our scale was the only one that tested the predictive validity by looking at the association between workplace cyberbullying and mental well-being six months later. Thus, while each of these workplace cyberbullying measures has its own strengths and merits, we still believe the ICA-

W has an added value above and beyond these alternative scales. However, future studies should look into how these three scales relate and explicitly test whether ICA-W indeed has an incremental value.

1.4 Empirical investigation of processes regarding cyber-victimization and cyber-perpetration

Besides theoretically, this dissertation also empirically contributed to the understanding of processes that lead to cyberbullying perpetration and victimisation. In three different studies, the main propositions of the ERM model were tested in order to gain empirical support for their validity. These three studies jointly provide support for the important role of emotions in the cyberbullying process.

In Study 3, the mediating role of sadness and fear in the relationship between work stressors and exposure to workplace cyberbullying and the moderating role of the emotion regulation strategies of reappraisal and suppression were first tested cross-sectionally. It was expected that reappraisal would buffer the relationship between stressors and emotions and that suppression would boost the relationship between emotions and cyberbullying. Second, given that emotions have usually been regarded as an outcome, rather than a predictor of cyberbullying (e.g. Campbell et al., 2012), the relationship between sadness and fear and exposure to workplace cyberbullying was additionally tested in a longitudinal cross-lagged panel design. This study finds support for the mediating effect of sadness and fear in the association between work stressors and exposure to workplace cyberbullying. Thus, experiencing work stressors was associated with more sadness and fear in individuals and this in turn was associated with being exposed to workplace cyberbullying. Additionally, it is also found that, as expected, reappraisal buffers the relationship between stressors and emotions, in that the more individuals reappraised their work stressors, the less sad and fearful they felt. However, no support was found for the boosting role of suppression on the relationship between emotions and exposure to workplace cyberbullying. In other words, suppressing one's emotions did not increase the association between sadness and fear and exposure to cyberbullying. It is well known that interaction effects are notoriously hard to observe (Busemeyer & Jones, 1983) and it is to be expected that this would be all the more so in the complex, double moderated mediation model that was tested in this study. Therefore, it could be that a different method, such as one that allows a distinction between different types of cyber-victims, is necessary for uncovering the true relationship between these constructs – which served as a motivation for Study 4. Finally, it was tested whether emotions predicted exposure to workplace cyberbullying or whether this relationship was other way around or reciprocal. Previously, many cross-sectional studies from the adolescent literature that found an association between sadness, anxiety and being cyberbullied concluded that these emotions were a product of cyberbullying (e.g. Campbell et al., 2012). However, the results of this longitudinal study suggest that the experienced emotions of fear and sadness are an antecedent as opposed to a consequence of

cyberbullying. In other words, according to this study, feeling sad and fearful sets a process in motion which leads to one becoming a victim of workplace cyberbullying later on, suggesting that emotionally weakened individuals become easy targets of online bullying.

In Study 4, the association between cyber-victimization and emotion regulation was further explored as the previous study revealed no significant relationship between them. In that regard, several studies in the field of workplace bullying have shown that different types of victims can be distinguished based on the types of negative acts they experience (Notelaers, Einarsen, De Witte, & Vermunt, 2006). These studies also suggest that different associations can be found between types of victims and related variables. However, until now, no study has tried to identify different types of cyberbullying victims at work. Therefore, in this study, it was investigated whether different profiles of cyber victims could be identified based on negative online acts they experience and if this classification was associated with a particular emotion regulation strategy (i.e. reappraisal or suppression). Furthermore, we wanted to extend the focus of this study by including both working adults and adolescents, in order to compare results between these different age groups. This study found three patterns of cybervictimization in both adults and adolescents: no cybervictimization, similar to offline cybervictimization and pervasive cybervictimization. That is, individuals either experienced no cyberbullying, the cyberbullying acts that they experienced were similar in nature to offline bullying acts (e.g. gossiping, exclusion and insults) or they experienced a wide range of cyberbullying acts, including the more cyber-typical ones (e.g. identity theft and sharing private information online). Additionally, the pervasive cybervictimization group had a prevalence rate in the similar order of magnitude in adults (3%) and adolescents (5%), with a somewhat higher rate in adolescents as expected. Finally, both in adults and adolescents, this group displayed a higher propensity towards suppressing emotions. This finding can mean two things: (a) individuals who suppress their emotions are more likely to become severely cybervictimized, possibly because the perpetrator is unaware of the emotional impact of his or her behaviour on the victim or because this diminishes the chance of the victim receiving social support from others (in line with our model) or (b) severely cybervictimized individuals tend to cope with cyberbullying by suppressing how they truly feel in an attempt to avoid the experience of severe negative emotions. As for now, it is impossible to make conclusive statements about which of the proposed interpretations truly holds, given that most studies investigating the relationship between emotion regulation and coping with cyberbullying so far have applied cross-sectional designs. However, there is some longitudinal evidence that internalizing problems predicts cyberbullying victimization (Pabian & Vandebosch, 2016), which seems to lend some indirect support for the former interpretation, and in line with our ERM model.

In Study 5, the processes leading to cyberbullying enactment were examined. In the traditional workplace bullying literature, the research focus has been mostly on victims of this behaviour, with few studies investigating processes related to bullying perpetration. We therefore wanted to expand this limited focus by empirically investigating the proposition of the ERM model that work stressors lead to cyberbullying through the experience of anger. Furthermore, as emotions are short-lived experiences evoked by a stimulus, that produce immediate affective, cognitive and behavioural responses (Frijda, 1988), this was accounted for by investigating the relationship between stressors, anger and cyberbullying on a daily basis. That is, the time-span between the measurement of variables of interest was shortened and variables were observed in their natural context, as they occurred. Therefore, a daily diary study was performed in which the experiences of dual-earner couples was assessed during one working week, two times a day: right after work (T1) and at the end of the day (T2). At T1, dual-earner couples' experienced work stressors during that day and their anger upon arrival home were assessed, while at T2 their anger and their antisocial online behaviour committed throughout the evening were measured. The data were analysed using Multilevel Structural Equation Modelling. Interestingly, this study uncovers some important gender differences. The results suggested that both men and women experienced more anger upon arrival at home on the days that they also experienced more work stressors. However, for men, this anger right after work was translated in antisocial online behaviours at home, while for women this relationship was not established. Furthermore, women's anger crossed over to their partners while the opposite was not true. However, this transferred anger at the end of the day was not associated with antisocial online behaviour. This study suggested different coping mechanisms for dealing with daily work stressors and anger for men and women, implying that men more often than women vent their work related anger online. This is in line with some evidence in adolescents that shows that females are more prosocial online than males, while males behave more aggressively in online interactions (Gianesini & Brighi, 2015). In addition, it suggested that the source of anger is important when trying to understand antisocial online behaviour: while anger stemming from work predicted antisocial online behaviour, anger stemming from the partner (i.e. crossed-over anger) had no associations with antisocial online behaviour. It could therefore be that anger stemming from more uncontrollable stressors evokes negative online behaviour while anger stemming from more controllable partner interactions does not.

2. Critical reflections

In this section, we discuss some main theoretical and empirical issues, which warrant critical reflection and further argumentation. We do so by transcending the individual studies (for which limitations

have been discussed at the end of each chapter) and focussing on aspects that relate to this dissertation as a whole.

2.1 Theoretical

The first step in this PhD project was creating a solid theoretical basis for different studies by uncovering an important process that might come into play when trying to understand workplace cyberbullying. Instead of limiting ourselves to only the (cyber)bullying literature, we also explored different theories regarding computer-mediated communication and emotions in building the Emotion Reaction model. The strength of this model is that is lends itself for empirical testing. Furthermore, all the propositions from our model were built on theories that already gained some empirical support. For instance, following the Work Environment Hypotheses (Einarsen, Raknes & Matthiesen, 1994; Leymann, 1996), we focus on stressors, given that they have received much support in predicting workplace bullying and some support as well with regard to the novel construct of workplace cyberbullying (Gardner et al., 2016). Additionally, we focus on discrete emotions of anger, sadness and fear, because these emotions are most clearly linked with specific behavioural tendencies (Lerner & Keltner, 2000) and are generally the most occurring and well-documented emotions across cultures and even species (e.g., Ayoko et al., 2012; Lazarus, 1991; Tiedens & Linton, 2001). Finally, we build on the emotion regulation strategies of reappraisal and suppression given that they are most widely applied (John & Gross, 2004) and have been linked with some clear positive and negative outcomes respectively (Gross & John, 2003). However, as pointed out in Study 1, the Emotion Reaction model was never intended as a comprehensive model, but rather as a representation of one particularly important process that might contribute to workplace cyberbullying – the emotional process.

A possible downside of this approach is that some alternative variables that might be a part of this process are not included in the current model. For instance, while the ERM focuses on the 'basic emotions' of sadness, fear and anger, some alternative emotions might also be of importance. For instance, envy (Stockdale, Coyne Nelson & Erickson, 2015), (lack of) guilt (Fanti, Demetriou & Hawa, 2012) and shame (Gianesini & Brighi, 2015) have all been previously linked with adolescent cyberbullying. However, the link between stressors and these emotions would be much less straight-forward as these emotions refer to very specific evoking stimuli and can have many different behavioural reactions contingent to various factors. For instance, envy is said to be an emotion that results from a loss of self-esteem when another individual obtains outcomes that one personally desires and that can have many possible consequences (Vecchio, 2000). In that regard, scholars have distinguished two different types of envy: benign and malicious (Van de Ven, Zeelenberg & Pieters,

2009). While benign envy leads to motivation to improve one's own position, malicious envy leads to a motivation to damage the position of a superior other. However, it is still not known what factors account for individuals experiencing one type of envy over the other. Additionally, shame and guilt are considered to be negative self-conscious emotions. Individuals experience these emotions when they appraise a particular situation to be incongruent with their identity goals and when they attribute the blame for this to themselves (Tangney & Dearing, 2002). Some important differences between these emotions and the 'basic' emotions, such as anger and fear, include/entail that they require self-awareness and self-representations (Tangney & Dearing, 2002), are more cognitively complex (Izard, Ackerman, & Schultz, 1999) and promote the attainment of sophisticated social goals (Keltner & Buswell, 1997). Because of this, it is hard to make concrete predictions regarding their antecedents and outcomes. Thus, understanding the role of envy, guilt, shame or other emotions not regarded as a 'basic emotion' in the workplace cyberbullying process, would require many additional assumptions and boundary conditions, making these type of emotions less fit for a general model of workplace cyberbullying. However, they would be a valuable addition to empirical studies trying to uncover different processes that can emerge in the development of workplace cyberbullying.

Next, following the ample empirical evidence regarding the adaptive nature of the emotion regulation strategy of reappraisal and the maladaptive nature of the emotion regulation strategy of suppression (Webb, Miles & Sheeran, 2012), we propose that reappraisal will lessen the emotional impact of stressors, while suppression will increase the chance of becoming a cyberbully or a cybervictim. However, recently, it has been suggested that successful adaptation does not necessarily depend on the type of regulatory strategy, but on the ability to apply different emotion regulation strategies flexibly in accordance with situational demands (Bonanno & Burton, 2013). The assumption that particular regulatory strategies are consistently adaptive or maladaptive has been labelled with the term '*the fallacy of uniform efficacy*' and contrasted with a new view which puts forwarded the importance of '*regulatory flexibility*' in determining beneficial outcomes for individuals (Bonanno & Burton, 2013). This assumption of regulatory flexibility has already received some empirical support. For instance, Bonanno, Papa, Lalande, Westphal and Coifman (2004) examined the effect of expressive enhancement and suppression strategies as a prospective predictor of distress among New York City undergraduates in the immediate aftermath of the September 11th terrorist attacks and one and a half years later. They found that flexibility in using expressive enhancement and suppression strategy predicted reduced distress, whereas asymmetry between expressive and suppressive abilities was unrelated to adjustment. Next, Troy, Shallcross and Mauss (2013) found that the ability to reappraise was negatively associated with depressive symptoms when participants faced uncontrollable stress, and positively associated with symptoms when stress was controllable. Also, in

another study it was found that the beneficial effects of putatively adaptive strategies, such as reappraisal, are more context-dependent than the detrimental effects of the putatively maladaptive strategies, such as suppression (Aldao & Nolen-Hoeksema, 2012). However, an issue with the different studies investigating the regulatory flexibility process is that they do not follow a clear definition of what this flexibility entails. Moreover, a great heterogeneity exists in the way regulatory flexibility has been operationalized in different studies, ranging from the variability in the use of emotion regulation strategies across situations to the ability to follow instructions on what strategy to use (Aldao, Sheppes & Gross, 2015). In other words, more work is needed in this promising emerging field in order to make definite conclusions about the effects of regulatory flexibility and its different types on individuals' functioning and well-being. We believe that as this field of work develops, we will also be able to better understand the role emotion regulation strategies play in the workplace cyberbullying process and possibly adjust the propositions accordingly.

2.2 Methodological

In trying to empirically contribute to the emerging field of workplace cyberbullying, we collected data from different samples and applied different analytical techniques in order to find stronger support for the Emotion Reaction Model. However, inevitably, this process was not without its limitations. First and foremost, one of the biggest challenges throughout this dissertation was the extremely low prevalence rate of workplace cyberbullying (about 3% victimization and 1% perpetration). This is not an uncommon problem in this field and has been found in previous studies on this topic (Gardner et al., 2016). Some possible explanations are a lack of general understanding of the phenomenon among adults (Blizard, 2015) and the perceived stigma and embarrassment around experiencing cyberbullying (Minor, Smith, & Brashen, 2013), which would lead to underreporting of this phenomenon. It has also been suggested that older participants are possibly less inclined to cyberbully because they have a lower drive and ambition to learn the technology needed to harm others online (Ventaktesh, Thong & Xu, 2012). Furthermore, recent evidence investigating cyberbullying across the lifespan has found evidence that cyberbullying increases from youth to emerging adulthood, but then decrease into older age (Barlett & Chamberlin, 2017). This finding underscores the difficulty of observing this behaviour in our samples of working adults, in which participants had an average age of 42, ranging from 18 to 69. The low prevalence rates of workplace cyberbullying make it difficult to find significant effects and to make strong conclusions regarding the observed results. However, despite this methodological challenge, we were still able to observe some meaningful results in our studies. Additionally, we together with other authors believe that, with technology becoming increasingly immersed in our daily lives, the problem of workplace cyberbullying will probably increase over time (Kelly, 2011; Piotrowski, 2012; Privitera & Campbell, 2009).

Second, in collecting data for our studies, we applied convenience sampling. Although convenience sampling is not ideal as it does not provide data that are representative for the population, it can still be useful and necessary, especially when the population is very large making randomization impossible and when resources, time and workforce of the researcher are limited (Etikan, Musa & Alkassim, 2016). Still some caution is required when attempting to generalize our findings to the general population. While the dataset used for the construction of the ICA-W scale (Study 2) consisted of a mix of public and private sector organisations, our sample used for Study 3 and 4 was mainly representative for the public sector (92%). Therefore, we cannot be certain that the same results will be obtained in a more balanced sample. However, as the public sector is characterized by older employees, working less long hours, and having more job security (Millard & Machin, 2007), we believe that the associations between stressors, emotions and workplace cyberbullying would have been even stronger if tested in more balanced samples.

Third, while we developed a measure of workplace cyberbullying victimization, the ICA-W, we did not validate this scale for the perpetration of cyberbullying. That is why, in Study 5, a different validated scale was used as a basis for the measurement of daily antisocial behaviours – namely, the European Cyberbullying Intervention Project Questionnaire (Brighi et al., 2012; Del Rey et al., 2015; Schultze-Krumbholz et al., 2015). An important reason was the extremely low prevalence rate of workplace cyberbullying perpetration (1%) in our sample. Thus, while we did collect data on perpetrators by using items of the ICA-W but worded differently ('Have you taken someone's identity online' versus 'Has someone ever taken over your identity online'), the fact that only few participants admitted committing different negative online behaviours made it impossible to further apply analytical techniques necessary for validating this measure.

Fourth, in order to uncover processes contributing to the development of workplace cyberbullying, throughout different studies, we tested the main propositions of the ERM regarding both cyberbullying victimization and perpetration. We confirmed that emotions and emotion regulation strategies played an important role in the cyberbullying process. However, given the focus of this dissertation, the role of control appraisal in the development of different work related emotions has yet to be explored and future studies should try to add to our understanding on how and why different emotions emerge in the work context.

Fifth, although we tested both the propositions pertaining to cyberbullying victimization as well as perpetration, we used different methods in order to do so. Namely, for the test of cyberbullying victimization, we applied a combination of cross-sectional moderated mediation analyses together with longitudinal cross-lagged panel analyses. However, as a central role in our model is given to

discrete emotions that are highly fluctuating and short-lived, this method was not ideal for capturing the true nature of emotions and their relation to cyberbullying. This is why for the test of cyberbullying perpetration, we applied a daily diary study in which we measured emotions and cyberbullying as they occurred and applied multilevel structural equation modelling in order to investigate both within- and between-person variation in emotional experience and cyberbullying. On the one hand, the fact that we were able to observe meaningful effects using a variety of methodological methods gives stronger evidence of the validity of our model's propositions. On the other hand, it also limits the comparability of results. This is why future studies should try to explore the daily fluctuations of emotions and behaviour from the victim perspective as well.

Finally, given the nature of the last study – including a daily diary study in which the participants filled out a brief questionnaire during five consecutive working days – we must be careful when labelling the negative online acts reported by these participants as workplace cyberbullying. Indeed, the measurement in our daily diary study disregards some important component of the workplace cyberbullying definition. First, the time period on which the negative online acts were reported (i.e., five days) was too short to make definite statements about whether behaviour committed could constitute as cyberbullying (i.e., lasting six months) as opposed to cyber aggression or cyber incivility. Therefore, future research could consider asking participants about their previous and current cyberbullying experiences in a background questionnaire. Based on their answers on this questionnaire, participants indicating that they have previously cyberbullied or are currently involved in this behaviour could then be selected for a follow-up daily study. However, we do acknowledge that this might be challenging given the very low prevalence rates of this behaviour. Second, we did not inquire who the target of the negative online behaviour was in this study. Thus, it cannot be established whether negative behaviour committed online was directed towards a target from the work context. A future study could therefore explore who the targets are of negative online behaviours committed at home by stressed and angry employees.

3. Where do we go from here

Given the novel nature of the workplace cyberbullying field, there are still many promising avenues for future exploration and research. We discuss two major issues related to this dissertation that we feel could benefit the field and need to be addressed in the future.

3.1 Disentangling the relationship with traditional bullying

Throughout this dissertation, we exclusively focused on the phenomenon of workplace cyberbullying and its antecedents. However, a question that still needs to be addressed and further explored in this emerging field is the relation of workplace cyberbullying to 'traditional bullying' or 'offline bullying'.

Currently, two contrasting views can be extracted from the cyberbullying literature: (a) One in which cyberbullying is seen as essentially the same behaviour as traditional bullying, with some new characteristics that relate to the online environment and can make the experience of cyberbullying somewhat different, and (b) another in which cyberbullying is seen as a unique phenomenon in need of its own understanding and prevention. The former view implies that most of what we know from the traditional bullying literature can be extrapolated to the cyberbullying phenomenon, while the latter suggests that new factors can be in play in both predicting cyberbullying and studying its consequences.

We find some support for both views in the current literature. However, it should be stated that most of what we know comes from the adolescent literature, as this issue is yet to be explored in the work context. First of all, empirical findings seem to suggest that cyberbullying and traditional bullying are closely related. Involvement in traditional bullying is said to be one of the most significant predictors of becoming involved in cyberbullying in adolescence (e.g., Beran & Li, 2007; Fanti, Demetriou & Hawa, 2012). Studies also show a strong relationship between being involved in offline and online bullying both in adolescence (Ybarra & Mitchell, 2004) and adulthood (Privitera & Campbell, 2009). Furthermore, current findings from the workplace cyberbullying literature find offline and online bullying at work to be associated with similar antecedents (Gardner et al., 2016) and outcomes (Baruch, 2005). Employees themselves point towards numerous parallels between the two bullying constructs when discussing their nature and impact (D'Cruz & Noronha, 2013; Heatherington & Coyne, 2014). Finally, a study amongst adolescents investigating whether cyberaggression differs from offline aggression found no difference in individuals behaving aggressively online versus offline, concluding that the online context does not create new perpetrators but merely provides aggressive individuals with a new context for aggressive behaviour (Dempsey, Sulkowski, Dempsey & Storch, 2011). Altogether, these findings seem to suggest that individuals engage in cyberbullying alongside traditional bullying and that the online environment simply provides an additional context for people to engage in bullying behaviour.

However, reality paints a more complex picture and there are also studies arguing otherwise. For instance, adolescents themselves seem to believe that the online context provides a 'safe' environment for negative behaviour and this creates new perpetrators that would not normally engage in bullying (Mishna, Saini & Solomon, 2009). Also, a large sample study of 22,544 Swedish adolescents found that 25% of the targets who experienced cyberbullying also experienced traditional bullying while 62% of them only experienced cyberbullying; concluding: "while there is indeed an overlap between traditional bullying and cyberbullying, it is limited" (Låftman, Modin & Östberg, 2013, p.115). Furthermore, a study investigating the relationship between cyberbullying and traditional

bullying in adolescents found that the amount of overlap between the two forms of bullying is not so large and that, although cyberbullying and traditional bullying share some common ground, cyberbullying seems to be composed of its own unique characteristics (Erdur-Baker, 2010). There is also some evidence pointing out that cyberbullying and traditional bullying might have different outcomes and antecedents. For instance, a meta-analysis on the association between cyberbullying and traditional bullying with internalizing problems found that despite their sizable overlap, both forms have unique relations with internalizing problems (Gini, Card & Pozzoli, 2018). In addition, another study found that although students who had been victimised by traditional bullying felt that their bullying was harsher and had more impact on their lives than cyberbullied students, cybervictims actually reported significantly more social difficulties and higher levels of anxiety and depression than traditional victims (Campbell, Spears, Slee, Butler & Kift, 2012). Regarding the antecedents, one study found that cyberbullies are characterized by an emotional and personality profile different from traditional bullies (Resett & Gámez-Guadix, 2017). Additionally, a study from the adolescent literature found that the ability to regulate and use one's own emotions in social interactions is a predictor of cyberbullying but not of traditional bullying (Baroncelli & Ciucci, 2014), again suggesting a distinct character of the two phenomena. In the work context, D'Cruz and Noronha (2017) find that the power relations change online; while the possibility to gather electronic evidence of online bullying empowers victims by providing them an opportunity to address the problem, the boundarylessness, anonymity and invisibility of workplace cyberbullying can actually make victims even more distressed. Thus, this suggests that workplace cyberbullying can have even worse consequences for victims than traditional bullying. However, further evidence from the work context on this issue is currently lacking.

It is clear that the question regarding the relationship of cyberbullying and traditional bullying is a complex one. Looking at the empirical evidence, many studies support the first view of cyberbullying being conceptually similar to traditional bullying. We do believe that in most cases, cyberbullying happens alongside traditional bullying. In that regard, it might be important to include both forms (i.e., online and offline) when investigating the bullying construct in the workplace, as omitting to take cyberbullying into account might provide an incomplete picture of the situation forehand. However, some empirical evidence from the adolescent literature also points out the possibility of cyberbullying being a unique phenomenon. In these cases, cyberbullying can be distinct from its offline counterpart in that it could provide individuals not normally inclined to bully with the opportunity to lash out (e.g., because of the anonymity). This means that factors normally accounted for in workplace bullying research might not be enough to predict this type of cyberbullying. It also implies that in order to study this type of behaviour, one must think beyond what is already known and investigate new types of processes that might come into play. More research is needed to determine what holds within the

working contexts, where on the one hand, formal power relationships might encourage anonymous online bullying, and on the other hand, the existence of an 'electronic footprint' might discourage it out of fear of job loss (D'Cruz & Noronha, 2017). Finally, a last thing we need to keep in mind is that, as the 'means of delivery' is not specified in the current traditional workplace bullying scales, studies investigating the traditional bullying construct so far have probably unknowingly included some forms of cyberbullying as well. It is therefore questionable whether comparisons such as 'traditional versus cyber' or 'offline versus online' can be made within the current literature. We therefore urge researchers aiming to disentangle both phenomena to specify the medium (e.g. face-to-face versus online) through which negative acts are committed when studying bullying at work.

3.2 Extending the Emotion Reaction Model

As the Emotion Reaction Model (ERM) was not intended to be a comprehensive model of workplace cyberbullying, we focused on a specific set of particularly meaningful variables that could help us to explain the workplace cyberbullying process. However, this model can be further expanded in several ways. In this section, we discuss some possible avenues that can serve as an inspiration for future studies (see Figure 1).

First, regarding exposure to cyberbullying, we see a promising avenue in further elaborating on the emotions-cyberbullying path: that is, the way sadness and fear translate into becoming exposed to workplace cyberbullying. Some explanations regarding this process have already been suggested in Study 3 (Chapter IV) – weakened emotional state, social sharing and risky online behaviours. We further build on this in proposing several interesting mediating variables that can be captured under the term *Emotion Driven Behaviours*. First, we propose that sadness and fear possibly set some emotion driven behaviours in motion which in turn result into individuals experiencing these emotions becoming victims of workplace cyberbullying. One possible emotions driven behaviour in that regard is *social sharing.* Social sharing is conceptualized as a process in which an individual describes an emotional event or experience in a socially-shared language to another individual (Rimé, Philippot, Boca & Mesquita, 1992). People socially share their emotions in order to manage their emotional experience (Rimé, 2009) and they do it regardless of the type of emotion experienced, their gender, age, culture or level of education (Rimé, Finkenauer, Luminet, Zech, & Philippot, 1998). Social sharing of emotions is very prevalent: Evidence shows that people communicate their emotions to others within the day in 60% of cases (Rimé et al., 1991). These days, social sharing can happen online as well, as recent evidence shows that people increasingly use social networking sites for emotional disclosure (Hidalgo, Tan & Verlegh, 2015; Manago, Taylor & Greenfield, 2012). However, although social sharing might help to manage one's own momentary emotions, we believe that this can also

provide potential perpetrators with signals regarding one's emotionally weakened state on the one side and even cause irritation on the other side. In support, several recent studies find that that posting messages regarding negative affect and posting indiscreet or negative content, puts individuals at risk of becoming cyberbullied (Dredge, Gleeson & De la Piedad Garcia, 2014; Peluchette, Karl, Wood & Williams, 2015).

Another potentially relevant emotion driven behaviour is *risky online behaviour.* Broadly speaking, any behaviour that potentially results in undesirable outcomes can be labelled as risky (Boyer, 2006). However, in the cyberbullying literature, risky online behaviours usually refer to acts such disclosing personal or private information to others, having contact with strangers online and excessive internet use. These types of complex and interactive internet uses make people more vulnerable and more likely to be targeted by people with bad intentions (Schrock & Boyd, 2008). In that regard, many studies with adolescents have shown that adolescents who engage in frequent and risky internet use are more likely to experience cyber-victimization (Erdur-Baker, 2010; Wolak et al., 2007; Ybarra & Mitchell, 2004). Additionally, Cooper, Agocha and Sheldon (2000) have already found that negative emotionality motivates people to engage in risky behaviours in order to escape these aversive emotional states. However, as fear is a defined as a risk avoidant emotion (Tiedens & Linton, 2001), we believe this will be more of relevance for individuals experiencing sadness.

Finally, the last emotion driven behaviour we wish to put forward is *withdrawal*. Work stressors trigger negative emotions and cognitions, which in turn can translate into coping in the form of emotional and behavioural withdrawal from work (Podsakoff, LePine & LePine, 2007). Some examples of withdrawal behaviours are absenteeism, tardiness and turnover intentions. As both fear and sadness are emotions that stimulate retreat and withdrawal behaviours (Lazarus, 1991), we believe they will initiate these types of work related withdrawal behaviours. In turn, we believe that these types of behaviours will increase individual's chance of becoming targeted by cyberbullies. The Social Interactionism paradigm helps understand this relationship (Felson & Tedeschi, 1993): Workers violating certain work norms may, deliberately or not, provoke negative behaviours from their colleagues. For instance, workers expressing their intention to leave might be considered as 'safe' targets, while underperforming because of absence or tardiness might legitimize negative behaviour towards an individual. In support, it has already been found that withdrawal encourages targeting of an individual (Bowling & Beehr, 2006).

With regards to cyberbullying perpetration, it seems most relevant to include additional factors that help explain in what conditions or circumstances individuals are more or less inclined to commit workplace cyberbullying behaviours. In that regard, we use the *I3 Theory* of aggression (Slotter &

Finkel, 2011) as a framework that can help us make informed decisions regarding what potential variables to include in the ERM. The I3 Theory is a meta-theoretical model that presents an organizational structure for understanding the process by which a given risk factor promotes aggression and how these risk factors interrelate. The I3 Theory proposes that whether one commits aggressive behaviours depends on certain Instigating, Impelling and Inhibiting factors and their interrelations. Instigating factors refer to 'discrete, situational events or circumstances that induce rudimentary action tendencies toward physical aggression' (Slotter & Finkel, 2011, p. 37) and can be dyadic (i.e. originated in the target) or third-party (i.e. originated in somebody other than the target). Impelling factors refer to 'factors that increase the likelihood that individuals will experience an aggressive impulse in response to an instigating trigger' (p. 39) and can be evolutionary and cultural (e.g. social norms), personal (e.g. personality), dyadic (e.g. power imbalance) and situational (e.g. exposure to violent media). Finally, the Inhibiting factors refer to 'factors that increase the likelihood that individuals will override aggressive impulses rather than acting upon them' (p. 40) and can again be evolutionary and cultural (e.g. social norms), personal (e.g. self-control), dyadic (e.g. empathy) and situational (e.g. cognitive processing time).

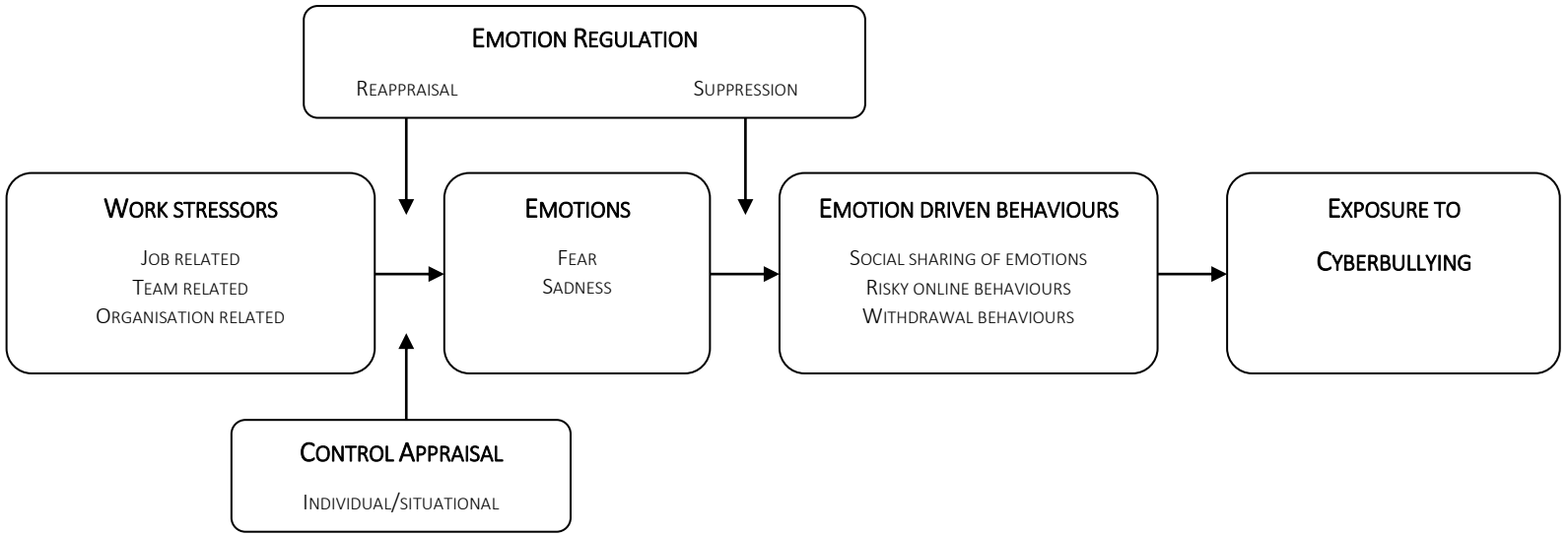
In the ERM, stressors and anger are instigating factors that make people act out online in the first place, while emotion regulation is both seen as an inhibiting (reappraisal) and a impelling (suppression) factor. However, we see a particular added value in including supplementary impelling and inhibiting factors to the model. Our model currently does not include cyber-specific characteristics that could contribute to the commitment of negative online behaviours. That is why we believe that adding the aspect of *(perceived) anonymity* would be especially valuable. Anonymity is the most important factor behind the online disinhibition effect, which refers to the fact that people feel less inhibited to perform certain acts online as opposed to offline (Suler, 2004). It is stated that anonymity creates the feeling of separateness between your online actions and your real-life identity, which increases the chance of acting out (Suler, 2004). In that regard, evidence has already showed that anonymity leads to more cyberbullying in adolescents (Barlett, 2015; Wright, 2014) and cyber-aggression in young adults (Wright, 2013).

Another important instigating factor are the *online social norms.* Social norms are conceptualized as jointly negotiated rules for social behaviour or other criteria of conduct which are standardized as a consequence of individual interactions (Sherif, 1966). They are said to regulate individuals' behaviours and determine which behaviours are seen as acceptable and which not. Social norms are further said to play an important role in consolidating aggressive behaviour and making it acceptable (Huesmann, Guerra, Miller& Zelli, 1992). Furthermore, a recent study has identified two primary triggers of aggressive online behaviour: negative mood and discussion context (i.e. previous aggressive behaviour

in the group; Cheng, Bernstein, Danescu-Niculescu-Mizil & Leskovec, 2017). In other words, individuals behaved aggressively online when they were in a negative mood and the context was accepting of aggressive behaviour (i.e. social norms). This study revealed that mood and the discussion context are a better predictor of online aggression than individual's history of aggressive online conduct and conclude that ordinary people can, under the right circumstances, behave badly online.

Lastly, we want to point out a potentially important inhibiting factor: *empathy*. Empathy refers to understanding and internalizing of another person's emotional state (Cohen & Strayer, 1996; Eisenberg & Strayer, 1987). Empathy and the emotion regulation are both aspects of the broader construct of Emotional intelligence (Salovey & Mayer, 1990) and therefore play a crucial role in individual's social adjustment (Mayer, Roberts, & Barsade, 2008). Research has consistently identified relationships between empathy and aggressive and antisocial behaviour, such as bullying (Ciucci & Baroncelli, 2014; Jolliffe & Farrington, 2006). Given the centrality of emotions in our model, we believe that empathy is a particularly relevant potential addition over and above emotion regulation. Namely, previous studies have found evidence that cyber-aggressors do not lack in the ability to perceive other's emotions, but rather that they have troubles in adaptively applying their own emotions in social interactions (Baroncelli & Ciucci, 2014; Sest & March, 2017). So while they are able to correctly indicate what emotions others feel, they lack those aspects of emotional intelligence which would inhibit them for misusing this knowledge. Sest and March (2017) conclude in their study that trolls predict and recognise the emotional suffering of their victims, while abstaining from the experience of these negative emotions. This is why we believe that actually being able to experience and feel what others are experiencing and feeling will buffer the relationship between anger and cyberbullying.

To conclude, we have offered some suggestions regarding certain potentially useful mediators and moderators that could be added to the current model. For the victimization part of the model, we feel that is it particularly important to further explain the way in which emotions of sadness and fear translate into becoming victimized online. For perpetrators, we suggest that some boundary conditions are necessary to further help explain why and under which circumstances individuals would engage in this negative online behaviour. In doing so, we further focus on the extension of the emotional path through which cyberbullying develops. However, the model could also be expanded to encompass more deliberate, cognitive paths as well. In that regards, theory of planned behaviour has already been incorporated in certain adolescents cyberbullying models (e.g. Doane, Pearson & Kelley, 2014; Pabian & Vandebosch, 2014). Thus, ERM offers many promising possibilities for further elaboration and extension which should be further explored in the future.



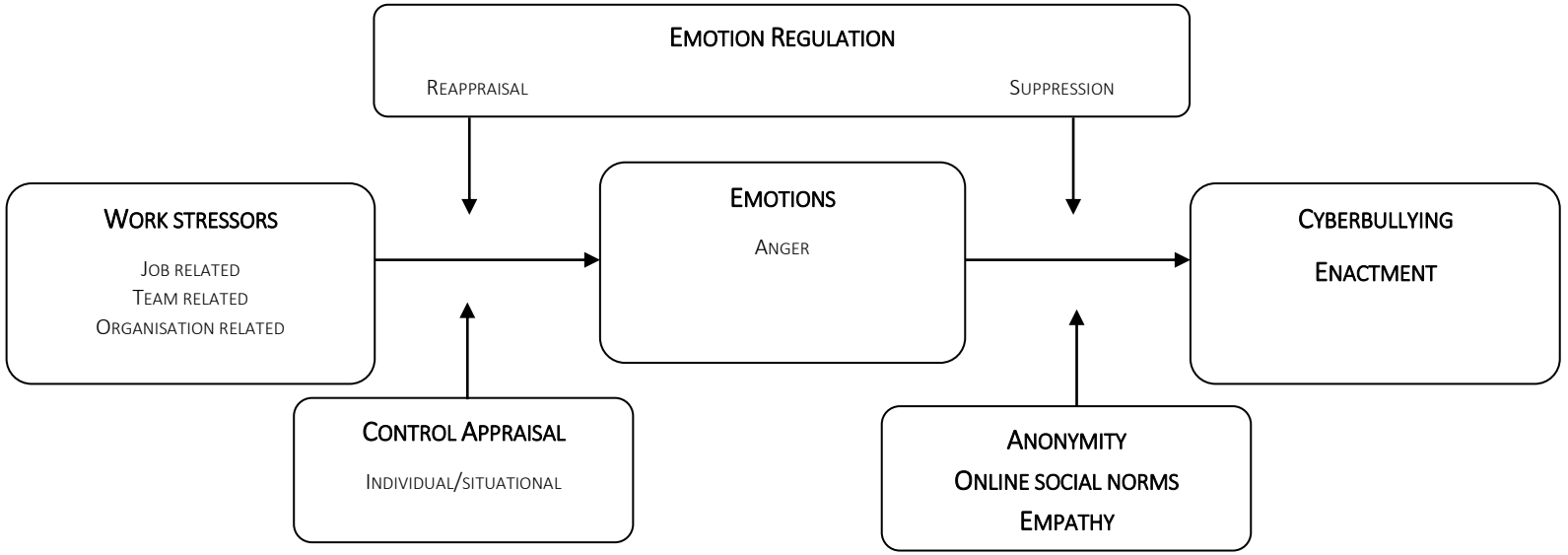


Figure 1. A possible extension of the Emotion Reaction Model

4. Practical implications

We conclude this dissertation with a short discussion on why organisations should care about the issue of workplace cyberbullying and what they should do about it.

Electronic communication is widely used in modern organisations, including both formal communication channels, such as e-mail and teleconferencing, and informal communication channels, such as instant messaging and social media (West, Foster, Levin, Edmison & Robibero, 2014). This in turn can enable workplace cyberbullying, such as: sending offensive or intimidating messages via technology, distributing photos of a colleague without their consent, stalking a colleague using technology, purposely excluding a colleague from a work online platform and tricking a colleague into disclosing personal information and then using technology to distribute that information to others (Langos & Giancaspro, 2017). It has been estimated that this behaviour costs the economy billions of dollars each year (Langos & Giancaspro, 2017) and can seriously damage an organisation's pubic image (Cain, 2011). Furthermore, it has also been shown that cyberbullying not only negatively impacts employees well-being (Muhonen, Jönsson & Bäckström, 2017), but that it also negatively impacts employees satisfaction with ICTs (Camacho, Hassanein, & Head, in press). This is extremely detrimental for organisations that increasingly rely on ICTs for their daily work processes and creates a need for understanding how workplace cyberbullying can be prevented and how organisations can deal with this problematic.

Based on this dissertation's results, we underline the importance of creating a healthy work environment for employees, in which the chance of experiencing severe stressors and negative emotions is drastically minimized. We suggest that organisations should conduct assessments of the work environment on a regular basis and take actions based on the results obtained. Additionally, as an act regarding the prevention of psychosocial risks at work, including bullying, violence and sexual intimidating behaviour is already included in the Belgian law, we suggest that this law should further be extended to explicitly include negative 'online' behaviour as well. In that regards, our measurement, the ICA-W, can be a helpful tool for screening the prevalence of workplace cyberbullying within a particular organisational context. Finally, we suggest training employees in applying adaptive emotion regulation strategies, such as reappraisal. Previous studies have found that depressed individuals that regularly display a dysfunctional pattern of emotion regulation strategies, such as suppression, are able to successfully implement the strategy of reappraisal when instructed to do so (Ehring, Tuschen-Caffier, Schnülle, Fischer & Gross, 2010). Also, mindfulness-based trainings have been shown to be successful in reducing negative affect (Jha, Stanley, Kiyonaga, Wong & Gelfand, 2010) and enhancing emotion regulation (Goldin & Gross, 2010). These results suggest that

adaptive regulatory strategies can be taught and that it is promising to use interventions aimed at promoting functional emotion regulation.

Finally, extending this dissertation's results, we suggest that organisations should implement cyber-related policies, such as a code of online conduct and ICT appropriate usage policies, that will aid in both preventing this negative behaviour and combating it when it occurs (West et al., 2014). Organisation might apply technological interventions that interfere with cyberbullying by influencing the way that people can communicate online. For instance, organisations might consider developing social media policies as a way of governing employee behaviour. Some examples of these policies are: communicating to employees that there may be work consequences to what they post online and making clear that ethnic slurs, personal insults, foul language and behaviour otherwise inappropriate in the workplace should not be used online (Mainiero & Jones, 2013). Alternatively, several e-mail features may prevent misunderstandings that could lead to cyberbullying, such as the Google's "Undo Send" application allowing employees to stop the e-mail transmission up to 30 seconds after having pressed the send button (Giumett et al., 2013). Alternatively, organisation might also apply relational interventions in which the underlying relationship issues between perpetrators and targets of cyberbullying are addressed by means of mediation, conflict resolution training and civility training.

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Publications

1. **Vranjes I.**, Erreygers S., Vandebosch H., Baillien E., De Witte H. (2018). Patterns of Cybervictimization and Emotion Regulation in Adolescents and Adults. *Aggressive Behavior*. Advance online publication. doi: 10.1002/ab.21790

2. **Vranjes I.**, Baillien E., Vandebosch H., Erreygers S., & De Witte H. (2018). Kicking someone in cyberspace when they are down: Testing the role of stressor evoked emotions on exposure to workplace cyberbullying. *Work & Stress*. Advance online publication. doi: 10.1080/02678373.2018.1437233

3. Erreygers, S., Vandebosch, H., **Vranjes, I.**, Baillien, E., & De Witte, H. (2018). Feel good, do good online? Spillover and crossover effects of happiness on adolescents' online prosocial behavior. *The Journal of Happiness Studies*. Advance online publication. doi: 10.1007/s10902-018-0003-2

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6. Erreygers, S., Vandebosch, H., **Vranjes, I.**, Baillien, E., & De Witte, H. (2018). The Interplay of Negative Experiences, Emotions and Affective Styles in Adolescents' Cybervictimization: A Moderated Mediation Analysis. *Computers in Human Behavior*, 81, 223-234. doi: 10.1016/j.chb.2017.12.027

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Book chapters in preparation

1. Vranjes I., Farley S., Baillien E., (2018). Harassment in the digital world: Cyberbullying. In S., Einarsen, H., Hoel, D., Zapf & C. L., Cooper, (in prep.) (Eds.). *Bullying and harassment in the workplace: Developments in theory, research, and practice*. (3rd ed.). Boca Raton: CRC Press.

2. Escartin, J., Vranjes, I., Baillien, E. & Notelaers, G. (2018). Workplace bullying and cyberbullying scales: An overview. In P., D'Cruz & E., Noronha, G., Notelaers & C., Rayner (in prep.) (Eds.). *Conceptualizing and Researching an Acute Work-linked Stressor*. Springer.

Media and knowledge mobilization

Radio 1, February 6th, 2018. Werkstress doet mannen online pesten.
Psypost.org, February 12th, 2017 Scientists propose a new model to understand cyberbullying in virtual workplaces
Mediawijs.be, April 28th, 2017. Cyberpesten op het werk: Een miskend fenomeen
Het Nieuwsblad, January 16th, 2016 1 op 20 werknemers gecyberpest op het werk.

Peer-reviewed conference presentations

1. Erreygers S., Vandebosch H., **Vranjes I.**, Baillien E., De Witte H. (2017, August). Sleepless in cyberspace: longitudinal associations between sleep-problems and cyberbullying, mediated by anger. *Paper presented at the European Conference on Developmental Psychology. Utrecht, The Netherlands*.

2. Erreygers S., Vandebosch H., **Vranjes I.**, De Witte H., Baillien E. (2017, January). Positive and negative spirals of online behavior: Examining longitudinal associations between being the actor and the recipient of prosocial and antisocial behavior online. *Paper presented at Etmaal van de Communicatiewetenschap. Tilburg, The Netherlands*.

3. **Vranjes I.**, Baillien E., Vandebosch H., Erreygers S., De Witte H. (2017, May). Letting off steam online: a longitudinal analysis of the emotion reaction model of workplace cyberbullying: *Paper presented at the European Association of Work and Organizational Psychology. Dublin, Ireland*.

4. Erreygers S., **Vranjes I.**, Vandebosch H., Baillien E., De Witte H. (2017, May). Classified: Similar patterns of cybervictimization and emotion regulation in adolescents and adults. *Paper presented at the world anti-bullying forum. Stockholm, Sweden.*

5. **Vranjes I.**, Baillien E., Vandebosch, Erreygers, De Witte H. (2016, April). The virtual reality of emotions in the workplace: how emotions impact workplace cyberbullying. *Paper presented at the International Conference on Workplace Bullying and Harassment*. *Auckland, New Zealand*.

6. **Vranjes I.**, Baillien E., Vandebosch H., Erreygers S., De Witte H. (2016, November). Process behind negative online behavior at work: testing an Emotion Reaction model of workplace cyberbullying. *Paper presented at the WAOP Conference. Rotterdam, The Netherlands*.

7. Erreygers S., Vandebosch H., **Vranjes I.**, Baillien E., De Witte H. (2016, June). Nice or naughty? The role of emotions and digital media use in explaining adolescents' online pro- and antisocial behavior. *Paper presented at the Annual Conference of the International Communication Association*: *Communicating with Power*. *Fukuoka, Japan*.

8. Erreygers S., Vandebosch H., **Vranjes I.**, Baillien E., De Witte H. (2016, February). Nice or naughty? The role of emotions and digital media use in explaining adolescents' online pro- and antisocial behavior. *Paper presented at the Etmaal van de Communicatiewetenschap. Amsterdam, The Netherlands*.

9. Erreygers S., Vandebosch H., **Vranjes I.**, Baillien E., De Witte H. (2016, April). Nice or naughty? patterns of adolescents' prosocial and antisocial behavior online and associations with emotion

regulation. *Paper presented at cyberbullying: A challenge for researchers and practitioners: prevention and intervention. Gothenburg, Sweden*.

10. Vranjes I., Baillien E., Vandebosch H., Erreygers S., De Witte H. (2016, April). Do emotions instigate negative online behavior? Introducing and testing the emotion reaction model of workplace cyberbullying. *Paper presented at The European Academy of Occupational Health Psychology. Athens, Greece.*

11. Vranjes I., Baillien E., De Witte H. (2015, November). When workplace bullying goes online: construction and validation of the Inventory of Cyberbullying Acts at Work (ICA-W). *Paper presented at Workshop Aggression: "Future Challenges of Aggression Research". Linz, Austria*.

12. Erreygers S., Vandebosch H., Vranjes I., Baillien E., De Witte H. (2015, November). Cyberbullying: How do youngsters' experiences offline influence their behavior online?. *Paper presented at Workshop Aggression: "Future Challenges of Aggression Research". Linz, Austria*.

13. Vranjes I., Baillien E., Vandebosch H., Erreygers S., De Witte H. (2015, November). The dark side of working online: The rise of workplace cyberbullying. *Paper presented at WAOP Conference. Amsterdam, The Netherlands*.