

UNIVERSITY OF RIJEKA
POSTGRADUATE DOCTORAL STUDY OF
PSYCHOLOGY

Andrea Milić

**CONTOURS OF THE ENVIOUS
PERSONALITY:
A STUDY OF ENVY IN THE
DISPOSITIONAL DOMAIN**

DOCTORAL THESIS

Rijeka, 2024

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Mentor: prof. Igor Kardum, PhD
Co-mentor: prof. Domagoj Švegar, PhD

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SVEUČILIŠTE U RIJECI
SVEUČILIŠNI POSLIJEDIPLOMSKI ZNANSTVENI
DOKTORSKI STUDIJ PSIHLOGIJE

Andrea Milić

**OBRISI ZAVIDNE LIČNOSTI:
STUDIJA ZAVISTI U DISPOZICIJSKOJ
DOMENI**

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Rijeka, 2024.

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ABSTRACT

This dissertation presents the investigation of dispositional envy by focusing on the relationship of envy with Big Five and Dark Triad personality traits and emotion regulation mechanisms. It is inspired by the on-going scientific debate on how to conceptualise the construct of envy: as a general construct inherently containing ill will against the envied, or as a dual construct that can exist in the form of benign and malicious envy? The research was placed in the framework of Life History Theory which suggests that personality traits cluster in a way to form different life history strategies in a spectrum from slower to faster. Within this framework, and considering currently scarce but indicative empirical results, envy is hypothesized to cluster with traits that form a fast strategy to enable “going ahead” rather than with traits that form a slow strategy which empowers “getting along” behaviours. Research was conducted through 4 consecutive studies that gradually painted the contours of an envious personality by simultaneously using instruments that operationalize envy differently, multidimensional measures of the Dark Triad, a mediation model that examined life history strategy and emotion regulation strategies in relation to the envious disposition, through multiple testing of the same hypotheses, and by adding the vignette design and a multi-cultural sample. Results demonstrated that the Dark Triad predicts dispositional envy beyond and above Big Five and socio-demographic characteristics. The trait of neuroticism of the Big Five and narcissism and Machiavellianism of the Dark Triad appeared as the most significant consistent predictors of an envious disposition. The narcissistic factors of *Entitlement*, and lack of *Self-Sufficiency*, and the Machiavellian factor of *Cynical view* form the strongest link between the Dark Triad dimensions and envy. Results demonstrated that slower life history strategy positively affects cognitive reappraisal and is linked with less maliciousness in envy. The tendency to use cognitive reappraisal to regulate emotional experience positively affects benign motivations of envy and mediates a positive effect of slow strategy on benign motivations and a negative effect on malicious envy. A negative effect of slow strategy on suppression and a direct positive effect of suppression on maliciousness in envy were partially confirmed. The hypothesized mediation effect of suppression on the link between life history strategy and envy has not been confirmed. However, the unexpected positive effect of suppression on benign envy was also partially demonstrated.

Key words: Dispositional envy, Life History Strategy, Big Five Personality Traits, Dark Triad Personality Traits, Emotion Regulation

PROŠIRENI SAŽETAK

Ova disertacija predstavlja istraživanje zavisti u dispozicijskoj domeni fokusirajući se na odnos između zavisti, crta ličnosti petofaktorskog modela i tamne trijade, te mehanizama emocionalne regulacije. Istraživanje je potaknuto tekućom znanstvenom debatom o samoj konceptualizaciji konstrukta, te zasada nedostatnim empirijskim podacima koji bi omogućili bolje razumijevanje funkcionalne logike ove neugodne emocije. Jedna grupa znanstvenika definira zavist kao generalni konstrukt koji nužno sadrži ne samo žudnju da se ostvari prednost i željeni društveni status, nego i želju da se ta prednost oduzme onome kome zavidimo. Druga grupa znanstvenika sugerira da se zavist može očitovati i kao benigna i kao maliciozna zavist, pri čemu je benigna usmjerena na samo-unaprjeđenje, a maliciozna na diskreditiranje mete zavisti. Istraživanje se zasniva na teoriji životnih puteva koja sugerira da se crte ličnosti grupiraju na način da formiraju različite strategije životnih puteva, od sporije koju karakterizira dugoročno planiranje i kooperacija, do brže koju karakteriziraju kratkoročni ciljevi, dominacija i kompeticija. Slijedeći postulate teorije životnih puteva i postojeće empirijske rezultate, pretpostavlja se da zavist “okuplja” crte ličnosti vezane uz bržu strategiju životnih puteva. Oslanjajući se na prethodna istraživanja koja demonstriraju povezanost dispozicijske zavisti sa neuroticizmom i crtama ličnosti tamne trijade s jedne strane, te istraživanja koja crte ličnosti tamne trijade također povezuju sa bržom životnom strategijom, ovaj znanstveni rad započeo je analizom odnosa zavisti sa crtama ličnosti petofaktorskog modela i tamne trijade. U prvoj etapi istraživanja korišten je uzorak od 312 punoljetnih sudionika. Analiziralo se do koje mjere crta ličnosti petofaktorskog modela i tamne trijade mogu predvidjeti zavist uz istovremeno korištenje instrumenata koji operacionaliziraju zavist i kao jednodimenzionalni i kao dvodimenzionalni konstrukt. Rezultati pokazuju da su narcizam, i u manjoj mjeri Makijavelizam najkonzistentniji pozitivni prediktori dispozicijske zavisti mjerene svim uključenim instrumentima. Neuroticizam se također pokazao kao značajni pozitivni prediktor dispozicijske zavisti bez obzira na mjerni instrument. U drugoj etapi istraživanja nastavila se analiza odnosa crta ličnosti tamne trijade sa zavišću na uzorku od 233 punoljetnih sudionika, i uz korištenje multidimenzionalnih instrumenata tamne trijade. Rezultati pokazuju da su faktori narcizma, “*privilegiranoš*” i nedostatak “*samodostatnosti*”, te faktor Makijavelizma “*cinični pogled na ljudsku prirodu*” najznačajniji prediktori dispozicijske

zavisti. U slijedećoj etapi istraživanja, te na istom uzorku iz prve etape ispitivala se veza između strategija životnih puteva, emocionalne regulacije i dispozicijske zavisti, kao i medijacijski efekt emocionalne regulacije na hipotetsku vezu između strategija životnih puteva i dispozicijske zavisti. Obzirom da sve emocije mogu biti podložne regulaciji, pretpostavilo se da će nelagodna i društveno nepoželjna emocija zavisti pokazati značajniju vezu sa mehanizmima emocionalne regulacije. U posljednjoj etapi, to se istraživanje repliciralo uz korištenje nove mjere dispozicijske zavisti i drugog uzorka ispitanika kojeg je sačinjavalo 305 punoljetnih pripadnika različitih nacionalnosti. Rezultati su pokazali pozitivnu povezanost sporije strategije životnih puteva s ponovnom kognitivnom procjenom i negativnu s dispozicijskom zavišću mjerenom kao generalni konstrukt ili kao maliciozna vrsta zavisti. Ponovna kognitivna procjena ima pozitivni efekt na zavist mjerenu kao benigna zavist, te pokazuje pozitivan medijacijski efekt na vezu između sporije strategije životnih puteva i benigne zavisti. Očekivani medijacijski efekt emocionalne supresije na zavist nije se potvrdio ovim istraživanjem, no djelomično se pokazao i neočekivani pozitivan efekt emocionalne supresije na benignu zavist. Ovim istraživanjem potvrdio se potencijal teorijskog okvira strategija životnih puteva pri razmatranju individualnih razlika i adaptivne logike naizgled nefunkcionalne emocije. Vrijednost istraživanja ogleda se i u simultanom korištenju psihometrijskih instrumentata koje operacionaliziraju zavist različito, u korištenju multidimenzionalnih mjera tamne trijade, te medijacijskog modela kojim se analizirala veza između strategija životnih puteva, emocionalne regulacije i zavisti, kao i u višestrukome testiranju hipoteza uz dodavanje novog instrumenta za mjerenje zavisti i uključivanjem više različitih uzoraka.

Ključne riječi: dispozicijska zavist, strategije životnih puteva, crte ličnosti petofaktorskog modela, crte ličnosti tamne trijade, emocionalna regulacija

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1. INTRODUCTION

1.1. The Devious Design of Envy

Increased scientific interest in recent decades revealed the peculiar design of one unpleasant emotion that has persistently left its trace throughout the history of human interactions - envy. Yet, out of all emotions in the human repertoire, envy is perhaps the least present in our vocabulary. It signifies an unpleasant, negative emotional response to another person or group of people only because they (appear to) have a superior quality, achievement, status or possession that we desire and wish that they would lack (Smith & Kim, 2007). Envy is also banned by norms of social behaviour that teach us to be well mannered and happy for the success of others. It is an emotion prohibited by all religions. Out of the seven deadly sins¹, it is only envy that is not considered as fun under any circumstances (Epstein, 2003). Envy is an emotion with a bad reputation of having potency not only to advance one's social standing, but to destroy individuals, relationships and even destabilize organizations and societies (Vidaillet, 2008).

This highly unpleasant emotion is accompanied by a profound feeling of shame and we are notoriously disinclined to acknowledge it even to ourselves (Heikkinen et al., 2003). Therefore, we tend to rationalize our episodes or states of envy by resentment against a person's "lack of qualities" or hostility against their "abundance of pure luck". Shame that accompanies envy originates from at least three sources: the shame of feeling envy and its associated sense of inferiority and hostility, the shame of realizing that one is culpable for one's inferiority, and the shame of feeling shame (Smith, 2004).

However, like with every persistent and strong emotional experience, the topic of envy has found its prominent place in philosophy, literature and cinema that portray fictional or real characters driven and absorbed by envy. Biblical warnings through the story of Cain and Abel, Salieri's prototypical fixation on Mozart's talent depicted in Forman's movie "Amadeus" (Duffy & Shaw, 2000), the green-faced Grinch who stole Christmas – all remind us that this emotion can easily spill over into tragedy. Overcome

¹ *Pride, greed, lust, envy, gluttony, wrath and sloth*

with envy, one is able to sacrifice one's own outcomes to diminish the envied person's relative advantage and experience malicious joy when the envied person suffers (Smith & Kim, 2007). Even the noble and dignified, the fortunate, famous and wealthy, are not safe from its influence.²

Envy is often confused with a range of other emotions, such as hostility, shame and longing (Parrott & Smith, 1993) that demonstrate its transmutational nature (Smith, 2004). However, empirical results (van de Ven et al., 2009) suggest that “pure” envy can be distilled from co-occurring emotions such as admiration and resentment and that one “combination” of emotions may result in benign, and the other in malicious envy. The cunning nature and design of envy transpires in the semantic field too. The thesaurus function of MS Office Word offers synonyms such as: jealousy, greed, bitterness, resentment, spite and desire, although all of these emotions have their own specific purpose, as well as distinctive behavioural and biological signatures and should not be confused. Envy is mostly used interchangeably with jealousy or greed but researchers emphasise that it takes one person for greed, two for envy and three for jealousy. Longing and desire are predecessors of both greed and envy. However, when feeling envy, people feel miserable because they compare their own situation to that of others who are better off, while for greed it is enough to compare one's own situation to an imaginary situation of having more (Seuntjens et al., 2015). Likewise, both envy and jealousy motivate people to undermine rivals, but envy is fuelled by disadvantages against someone who is perceived to have the desired advantages, while jealousy signals the need to deflect the threats to valued relationships (Buss, 2013; DelPriore et al., 2012). Furthermore, envy and jealousy often co-occur. We may envy the rival in a “love triangle” which could increase our jealousy (Smith & Kim, 2007).

In some languages two words exist to verbalise the experience of envy.³ One word implies positive, benign or constructive envy that feels like admiration. Another implies negative, malicious, destructive envy that feels like hostility with its extreme in

² E.g., *Episode 8/Season II of “The Crown” by Stephen Frears portraying the story of a dinner hosted in 1961 for Jackie and John F. Kennedy by Queen Elisabeth II. According to anecdotal testimonies, Queen Elisabeth felt outshined by Jackie and engaged in a passive-aggressive “catfight”. However, this competition with Jackie motivated the Queen to adapt her behaviour. During her travel to Ghana, she impressed PM Nkrumah by “forgetting” the protocol and formalities and thus winning popular support.*

³ E.g., *Benijden and Afgunst in Dutch, Zaz Dorść and Zawiść in Polish, Zavist i Jal in Croatian (whereby Zavist may be both benign and malicious, and Jal, rarely in use, stands for malicious only).*

“schadenfreude”⁴, a German word signifying a pleasure obtained from witnessing another person's misfortune (van Dijk et al., 2006). These two qualitatively different experiences of envy exist even in cultures where only one word represents both types of envy (Gershman, 2014). Moreover, while the word jealousy is often used to indicate envy (saying “I am jealous”, meaning “I am envious”), it never occurs that the word envy is used to indicate jealousy (saying “I am envious”, meaning “I am jealous”) (van de Ven et al., 2009).

In addition to its linguistic disguises, there seemed to be not only a social but an academic prohibition of the concept of envy. Schoeck (1969) noted that envy has been repressed by the scholastic community, veiled under misleading titles, or conceptualised narrowly. He referred to the framework of psychoanalytical approaches that focused on unconscious objects of envy. Four decades later, Smith and Kim (2007) arrived at similar conclusions: many psychologists have found a psychoanalytic focus on envy too narrow to start understanding envy. They noted the same discrepancy: a powerful influence of envy in social interactions and, on the other hand, early stages of psychological research on envy.

Envy has been observed as emerging at about two years of age when mental development enables better comprehension of social interactions and allows for comparison with others. It is hypothesized to be a social, complex, self-conscious emotion (Niedenthal & Ric, 2017). Viewing both pleasant and unpleasant emotions as functional responses to our environment has been commonly accepted by mainstream scientific contributions, from appraisal theories (Lazarus, 1991) to psychological constructionism (Lindquist, 2013). However, little consistency has been found in the functional logic of envy. It seems to make no sense at all and may only cause damage, just like an inflamed appendix, a “left-over” organ in our evolved bodies.

The overdue breakthrough in understanding this undesirable emotion came about with the evolutionary psychology approach that began to decipher a number of previous, somewhat confusing or counter-intuitive empirical findings regarding human behaviour (Confer et al., 2010). Following the proposition that evolution is relevant in every single instance of human behaviour although we may not be aware of it - all psychological mechanisms, including seemingly “useless” emotions, are adaptive, evolved responses to statistically recurrent problems in the competitive arena of natural

⁴ *In the Croatian language the word “zljudaost” verbalises “schadenfreude”.*

or sexual selection (Buss, 2005). Focusing on domain specificity, frequency, functionality, and the biological basis of emotions, researchers have categorized anger, disgust, fear, happiness, sadness, surprise and contempt into the group of basic emotions (Larsen & Buss, 2010). According to traditional evolutionary psychology criteria, emotions are considered as basic if present in other species, if each of them solves a specific subset of adaptive problems, and if all of them have a distinctive and universal facial expression (Ekman, 1992). On the other hand, envy is hypothesized to have evolved due to the necessity of managing social relationships. Moreover, its covert nature and lack of a distinct facial expression (as currently assumed) expelled it from the category of basic emotions.

A new window with a landscape view on this insufficiently researched emotion opened with a paradigm shift within the evolutionary psychology approach. Al-Shawaf et al. (2016) claim that a whole class of emotions have evolved as a result of adaptive problems related to reproductive success, and are not necessary for survival. For this reason, they had not received deserved attention. Still, Alcook (2009, as cited in Al-Shawaf et al., 2016) suggests that adaptations promoting an organism's survival at a disadvantage to its overall reproductive success are entirely absent in the behaviours of living species. Taking into account the evolutionary challenges of the contemporary world, Buss (2013) recalibrated criteria for defining basic emotions. Emotions are conceptualised as the finest superordinate programs that compute, adjust and coordinate a number of subprograms, from cognitive to physiological, while solving problems with evolutionarily important implications (Cosmides & Tooby, 2000). With such a paradigmatic shift, emotions that may lack distinctive communication signals, are unique to humans and have evolved to solve a broader range of adaptive problems, have finally started earning academic attention. Consequently, Buss (2013) argues that sexual jealousy is also a basic and essential emotion, although it is unlikely to solve problems of survival.

1.2. Causes, Purpose and Behavioural Manifestations of Envy

Envy arises when we compare ourselves unfavourably with others (Smith & Kim, 2007) and is hypothesized to signal an important strategic interference (Buss, 1989a) in the on-going social competition over resources. It indicates that we are outclassed by someone who has acquired a desired status, has attracted companions or

has a possession we want. From early human settlements to the contemporary and global social arena, social comparison has been the most important mechanism to assess where we stand in pursuit of self-important goals. It is an adaptive mechanism, providing information and motivation. However, the feelings that follow can be poisonous (Fiske, 2010). In other words, there is a basic discrepancy between using social comparisons to assess our abilities and using them to maintain a sense of superiority (Smith, 2004). Consequently, *schadenfreude* may be justifiable for the one experiencing such a socially shameful emotion, because rather than admitting to inferiority, it may satisfy people's appeal for a positive self-view and a sense of self-worth (van Dijk et al., 2011). Therefore, submission, ambition, but also destruction may surface as behavioural responses (Hill & Buss, 2008). In the environments that generate highly competitive demands, two basic strategies seem most adaptable: make myself more attractive or make rivals less attractive (Hill & Buss, 2008). Research suggests that the strategy which aims at making a rival less attractive is more likely to be chosen and that an envious person is able to even give up the highest possible outcome only to damage the rival's reputation (Smith & Kim, 2007).

The purpose of envy, seen through the lens of evolutionary logic, becomes more obvious when focusing on its social triggers. Envy has been found to be frequently connected with the perception of fairness and justice (Johar, 2011), and appraisal patterns of deservingness and control (van de Ven et al., 2012). People feel more envious hostility toward another individual when they consider the situation that exposed their inferiority as unfair. The more a situation is appraised as undeserved, the more malicious envy will be experienced. However, when the situation is experienced as deserved and controllable, benign envy may be manifested. Research indicates that envy is directed towards those similar to us in the desired, self-defining domain (Smith & Kim, 2007). Since we perform social comparisons frequently, there is a need to have them done in a quick and efficient manner, with the use of "routine standards" such as close friends (Rütter & Mussweiler, 2005). Applying an admittedly farfetched, yet indicative "thought experiment", Ramachandran and Jalal (2017) asked participants in their study whether they feel more envious of Bill Gates or of their neighbour that is slightly better off. Contrary to common sense, but in line with propositions of the Social Comparison Theory (Crusius et al., 2022) participants of the study were not interested in the absolute values. They were more envious of the status of their neighbours, even if slightly better off, than that of Bill Gates. Given the nature of evolutionary process,

the rule “always do the best you can” does not specify at what point we can relax (Hill & Buss, 2006). It leaves us with an even bigger problem of having to waste all of our resources or admitting that we don't have many at our disposal after all. Therefore, a specific cognitive adaptation in the form of positional bias needs to be adopted so that success is ascertained in domains that affect fitness in terms of comparing with one's reference group, one's neighbourhood, work group, perhaps even siblings. This evolutionary driven logic operates especially when related to important goals (Lazarus, 1991). Results of Salovey and Rodin's (1991) survey of 6482 randomly selected readers of a national magazine indicate the importance of domain as a prerequisite to experience envy. This group of participants rated their popularity among friends, physical attractiveness, wealth and possessions as domains of their higher interest while fame was rated as less important. Results of the subsequent questionnaire in which they registered instances of experiencing envy demonstrated a higher positive correlation with the specified domains of interest. Researchers examining social comparison mechanisms identified another ingredient necessary to trigger envious feelings. We envy similar others who enjoy an advantage in a domain related to our self-worth and when the perception of control over circumstances is low (van de Ven et al., 2012; Testa & Major, 1990). However, it is important to note a general principle characterizing various social emotions: we may not envy advantages of the envied because they are personally important to us but merely because they have high societal value (Lange et al., 2017).

Should our behaviour be guided by evolutionary logic, the closer we get to the critical aspects of evolutionary fitness and reproductive problems, the more we should be prone to experience envy (Hill & Buss, 2006). Consequently, envy will need to demonstrate sex differentiation in domains where the sexes have faced qualitatively different but recurrent adaptive problems. This prediction has already been empirically confirmed considering previously puzzling sex differences in experiencing jealousy and aggressiveness (e.g., Buss & Shackelford, 1997; Campbell, 2011). Examining sex-differentiated positional bias, Hill and Buss (2006) collected data that confirmed evolutionary perspective predictions on gender differences in envy as well. The target of men's and women's envy will be individuals with whom they are in direct resource competition (friends, siblings, co-workers) and more often they will be same-sex targets. However, women, in a greater degree than men, prefer a situation in which they are more attractive than their same-sex peers and less attractive in absolute terms of

“beauty standards”. Therefore, in the domain of attractiveness, women will be compelled to apply a stronger positional bias. Women will feel more envious than men when their same-sex friend receives an expensive gift from her romantic partner. Men will envy their peers that have more sexual experience than themselves. Subsequent research confirmed predictions that sex differences in envious responses will be consistent with research on mate preferences from the evolutionary perspective. The same predictable domains will guide these preferences (DelPriore et al., 2012; Hill et al., 2011). Men will feel more envious towards those rivals that are better off for their ability to acquire resources, while women will target youth and physical attractiveness (Buss, 1989b).

Gender effect was also found in Wobker and Kenning's (2013) experimental study of drivers and outcome of envy in an economic group game. The game was set up in a way that participants were free to choose their strategy while playing the game. In that, what may have worked as an individual's best strategy (personal quest for money/rank/status) was destructive in a group setting. Women took chances to reduce the accumulated wealth of the other players more often than men, but not to a high extent. However, men were keen on damaging the other players to a higher extent than women. The results are concordant with the prediction that men would be more affected by status-oriented emotions because such behavioural adaptation enhances their evolutionary fitness to collect resources (Hill & Buss, 2006). Furthermore, studies indicate that envy will more likely turn to *schadenfreude* when the target of social comparison is of the same gender (van Dijk et al., 2006).

In order to understand why and how envy turns benign or malicious, Lange et al. (2017) propose to focus on the different pathways of attainment of the desired status. In “prestige-based” hierarchies, status is based on merit and fairness. Thus, the evolutionarily sound behavioural strategy would be to turn the bitter bites of envy into a benign motivation to gain respect by sharing skills, and “passing on” the traits of agreeableness and emotional stability. In “dominance-based” hierarchies, status is based on the outcome of the zero-sum conflict. In such environments, it would be adaptive to develop a chronic dominance strategy fuelled by malicious envy in order to be able to intimidate others and foster subordinates' submissiveness.

1.3. Implications of Envy

In last two decades researchers started addressing the apparent imbalance between theoretical considerations and empirical findings regarding individual, interpersonal and social implications of envy, although focusing mostly on the envious, rather than on the envied. Specific evidence, enabled by the fMRI technology, already documented neural mechanisms of envy and its “rewarding” reaction, *schadenfreude* (Takahashi et al., 2009). Envy is processed in the medial prefrontal cortex and anterior cingulate cortex, parts of the brain known to integrate emotion and cognition. Hill et al. (2011) also provided initial experimental evidence that envy has not only an affective, but a prominent cognitive component with a functional task. Emotional distress created by envy prompts the envious to employ a set of cognitive/goal oriented strategies: temporarily filter out information that is less relevant to the problem, retrieve a storage of relevant information from memory, focus attention on the source of strategic interference and finally motivate action to prevent future interference (Buss, 1989b). The results indicated that the experience of envy enables people to better focus on information about social targets and enhances memory and the ability to correctly recall key data. However, “under the spell of envy” we are also less able or willing to invest efforts in another, unrelated domain. No matter the, admittedly, limited research design (e.g., it was not sex-differentiated), it opened venues for further explorations on what other tasks envy is likely to coordinate or inhibit.

When we hungrily watch a friend eating pizza, would we envy them more if the pizza was already sliced? Should the evolutionary account be accurate, the intensity of envy would indeed increase with the perceived divisibility of resources and higher expectations of sharing. In other words, we would envy more if the friend's pizza were sliced up (easily divisible) no matter the equal total size of pizza and/or if our friend appears to have no intention of sharing it (whether sliced or not). Three experiments designed by Inoue et al. (2015) confirmed this prediction and offered novel insights into the adaptive function of envy. Should “pizza owners” realize that the disadvantaged person is envious, they may be prompted to share in order to avoid the potential negative consequences of being envied. Showing willingness to share resources gives less reason for envy, unless running the risk of appearing ungrateful. While focusing on general envy without dividing it into benign and malicious, the authors rightfully argue that their

findings may demonstrate a reason why envy has evolved. Given the variability in the willingness to share resources, envy signifies an adaptive attempt to maximize one's relative share of resources in any way possible. Inoue et al. (2015) concluded that while most people believe that envy breeds hatred and should be discouraged, it may ultimately lead to receiving valuable resources and, to an extent, be a necessary evil.

A study that has examined the relationship between individual differences in social comparisons and potentially destructive emotions and behaviours, ascertained that people who make frequent social comparisons experienced envy more frequently, and were more likely to lie, blame others and to have unmet cravings (White et al., 2006). Duffy et al. (2012) studied work-related consequences of envy in a university hospital where employees and students were assessed by a series of instruments adapted to the team context. Researchers tested whether envy will be a reliable predictor of social undermining. The first study confirmed the prediction that when employees have low social identification with co-workers, the mediated effect of envy on social undermining through moral disengagement will be stronger. The second study demonstrated that the indirect effect of envy on social undermining through moral disengagement is stronger in teams with low team identification and high team undermining norms. Duffy et al. (2012) do not negate that social identification with those who are closer and more similar generates envy, as found by researchers previously. However, the behavioural responses are further shaped by moral disengagement. Without distancing from the otherwise highly socially identifiable target, social undermining would not be easy to perform. Smith and Kim (2007) found a strong positive correlation between prejudice and envy. This may be another strategy of distancing from the target to enable hostile behaviour. When examining antecedent emotions for *schadenfreude*, Hareli and Wiener (2002) provided evidence that other emotions, independent of envy, may give rise to experiencing *schadenfreude*. Yet, given that envy and pride often co-occur (Lange & Crusius, 2015a), it is conceivable that rather than admitting one's own inferiority, it may be easier to mask envious feelings with dislike and anger against a target and, thus, justify *schadenfreude*.

Although organizational settings proclaim high standards of politeness formalised through ethical codes of conduct, researchers have found that envy often causes social loathing and withdrawal behaviours (Duffy & Shaw, 2000). In that, high performers are more likely to be targets of victimization (Kim & Glomb, 2014). Starting from the first systematic studies of envy in group settings (Vecchio, 1999, 1995), results

indicate that envy triggers behavioural responses such as sabotaging the rival's work, back-stabbing and harassment. However, some adaptive correlates of envy have also been identified, such as the tendency to set personal standards (Rentzsch & Gross, 2015) and an increase in creativity (Ierides, 2014).

Effects of envy have been found across industries and in qualitatively different relationships. Van de Ven et al. (2011) examined consumer behaviour and found that willingness to pay a premium for products is derived from a consumer's envy. Crusius and Mussweiler's (2012) experimental data demonstrates that envy affects not only buying behaviours but also more basic behavioural outputs: approach and avoidance. After being exposed to an envy provoking situation, the self-control ability of participants was also reduced by experimental manipulation. Under these conditions, participants demonstrated an impulsive behavioural tendency to approach the envied target, disregarding social norms that promote restraint.

Other studies demonstrated that poor relationships between leaders and employees led to higher levels of episodic envy in employees which then reduced their work engagement and induced social undermining behaviours (Chin-Yi & Lazatkhan, 2017; Kim et al., 2013). Even friendships have been found to be affected by envious feelings. Cobo-Reyes and Jimenéz's (2012) experimental games demonstrated that people do not only care about their own income but have preferences about the earnings of others. Surprisingly, the results show that strangers coordinate more frequently in order to reach an efficient gain equilibrium than friends.

One of the rare empirical studies of the effects of envy on the envied included a cross-cultural sample of Americans of European descent and Spanish participants. Rodriques Mosquera et al. (2010) found that being envied has both positive (increased self-confidence) and negative consequences (fear of ill will from others). What is also indicative was the finding that being envied had more psychological and relational consequences (both positive and negative) among participants who were achievement-oriented (Americans of European descent) than among participants who were oriented towards cooperation and interpersonal harmony (Spanish).

Considering the initial empirical data on individual, interpersonal and social implications of envy, more of an effort should be made to identify which personal and environmental characteristics may affect our envious responses. To paraphrase Hill and Buss (2008), when one envies their neighbour's bigger house, why do some of us choose to work harder to get the desired advantage, some chose to move to a different

neighbourhood, while some decide to devalue and even destroy the neighbour's home? The scientific community has no conclusive answers as yet.

The above theoretical and empirical considerations only added to the growing debate on whether there is such a construct as the typical envious personality type. In other words, would some people be more susceptible to envy and what in their psychological set-up would make them more prone to envy than others?

1.4. Personal Tendency to Envy and How to Measure It

The evolutionary perspective considers individual differences and variability in personality traits as important characteristics of our species that allow us to compete for differential evolutionary relevant outcomes. Selection pressures vary over time or space. Consequently, selection favours diverse levels of a personality trait in these environments (Buss, 2009). This fitness-relevant diversity (specific abilities, behavioural tendencies, body type, etc.) has a heritable component and it is relatively stable over time. Therefore envy, just as any other emotion, may be considered as an episode/specific, and as a personal tendency/dispositional (Duffy et al., 2012). Dispositional envy has finally been noted as an important personality variable and it is generally defined as a relatively stable tendency to react to status threats with the emotion of envy that motivates individuals towards re-gaining status (Lange et al., 2018). Individual tendency, i.e., one's typical behaviour triggered by upward status comparisons may also depend on other behavioural inclinations such as towards inequity aversion, justice sensitivity and achievement motivation (Lange et al., 2017). However, researchers disagree on how to conceptualise and measure the construct of dispositional envy. Some researchers argue that an envious disposition not only includes the desire to obtain an advantage but also the hope that the other loses it. Consequently, the 8-item, self-reported instrument, Dispositional Envy Scale (DES) was developed as one of the first, and most widely used, scales that measures envy as a unitary construct containing the affective component of ill will (Smith et al., 1999). The scale consists of items measuring a sense of inferiority and frustration (the facets of benign and malicious envy), ill will, and perceptions of injustice (indicative of malicious envy). DES has been found to show good internal consistency with $\alpha = .83 - .86$, and re-test reliability over a two-week period, $r = .80$ (Smith et al., 1999). Application of the Brazilian-Portuguese

(Milfont & Gouveia, 2009) and Argentinian (Mola et al., 2014) versions of the DES confirmed its good psychometric properties.

Observing qualitatively different motivational dynamics of experienced envy, another group of researchers distinguish benign and malicious envy dispositions, though it is suggested that these two types of envy may co-occur. Their investigations of dispositional envy rely on the Benign and Malicious Envy Scale (BeMaS; Lange & Crusius, 2015b) developed to measure the construct's duality. Benign dispositional envy is hypothesized as a tendency to respond to unfavourable upward social comparison predominantly with self-improvement efforts, while malicious envy is hypothesized to bring about motivation to harm one who is superior (Lange & Crusius, 2015b; van de Ven et al., 2009). The Dispositional Benign Envy subscale ($\alpha = .85$) and the Dispositional Malicious Envy subscale ($\alpha = .89$) showed an adequate internal consistency and were not correlated, $r(365) = .01, p = .89$. The DES showed no significant relationship with the Dispositional Benign Envy subscale $r(365) = .04, p = .46$, but was significantly correlated with the Dispositional Malicious Envy subscale, $r(365) = .65, p < .001$. In a set of Lange and Crusius's (2015b) four studies, and as measured by BeMaS, it was hypothesized that benign envy will predict faster race performance of marathon runners mediated via higher goal setting. The hypothesis was confirmed. On the other hand, it was expected that dispositional malicious envy will predict race goal disengagement and the assumption was confirmed. In the words of the BeMaS authors, translated versions of the BeMaS may be an interesting means to test motivational dynamics and cultural differences of dispositional benign and malicious envy.

Finally, observing that the intensity and frequency of envy may vary across comparison domains, other researchers suggested considering dispositional envy as a unitary, but domain-specific construct, and have developed the Domain-Specific Envy Scale (DSES; Rentzsch & Gross, 2015). The instrument showed good psychometric properties when tested on a German-speaking sample and cross-validated with an English-speaking sample. The scale significantly positively related to the DES that measures general tendency without differentiating between benign and malicious envy. The authors of the scale used it in the study that examined the link between dispositional envy and self-esteem, and found a strong positive correlation of dispositional envy and lower self-esteem. When re-used three months later, the relationship remained stable.

Although their use has been limited, the existing scales indicated particular relationships with a number of psychological constructs (Lange et al., 2017). Those with a tendency to envy are more likely to be neurotic, disagreeable, insecure, hostile (Smith et al., 1999), ungrateful (McCullough et al., 2002) and greedy (Seuntjens et al., 2015). Furthermore, it was found that vulnerable narcissism fuels dispositional envy and that the envious suffer from a chronic feeling of inadequacy and low self-esteem (Krizan & Johar, 2012). However, it must be emphasised that these studies relied on different operationalizations of the construct of envy, and thus used either instruments that measure envy as a general construct or an instrument that measures benign and malicious envy. This makes it harder to disentangle individual differences in the experience of envy.

Initial data sets resulting from the application of the few available dispositional envy scales indicate a negative correlation of envy with well-being measures such as life satisfaction, vitality and subjective happiness (Milfont & Gouveia, 2009; Mola et al., 2014). A quasi-experimental online study (Appel et al., 2015) not only confirmed a positive relationship between depressiveness, low self-esteem and envy but provided insights into how depression may intensify envy, specifically when one is facing high and frequent comparison standards on social platforms, such as Facebook.

A study of neural signatures of dispositional envy, perhaps the first of its kind (Xiang et al., 2017), revealed a positive correlation of dispositional envy with regional grey matter volume (rGMV) in the left dorsolateral prefrontal cortex (DLPFC) and superior temporal gyrus (STG). When analysis was repeated while controlling for the emotional intelligence, a reduced effect of rGMV in the DLPFC was observed on the dispositional envy measured by the DES scale. The study offered neurological evidence of the mediating role of emotional intelligence on experiencing and exhibiting envy pointing out how individuals with higher emotional intelligence, and increased ability for emotional regulation, exhibit less envy.

Much of this pioneering research focused on examining antecedents, appraisal patterns, related emotional and behavioural outputs and implications of enviousness (see van de Ven et al., 2009). Focusing on the feeling and the appraisal components of envy undeniably generated a better understanding of this emotion. However, understanding individual differences in the tendency to experience envy requires the examination of trait envy in relation to other personality variables.

In conclusion, while significant theoretical considerations exist, science has not yet offered substantial empirical data that would allow understanding of all the facets of this highly volatile and disturbing emotion in the dispositional sphere. However, a promising framework to study “second class” emotions, including envy, has been offered (Al-Shawaf et al., 2016). Initial empirical results speak in favour of the modern evolutionary perspective that generates novel hypotheses considering the diversity of adaptive problems emotions are designed to solve. According to this framework, emotions are seen as superordinate programs that coordinate a range of cognitive, perceptual and communication tasks enabling optimal responses to the demands of our environments and situations. No matter how painful it feels and how maladaptive it seems, envy is then yet another basic key on the main coordination switchboard that activates important programs and without which we may end up clueless, disoriented and demotivated.

Yet, it is considered a social taboo for a reason. Since envy arises from social comparison, it seems more important than ever to address this insufficiently researched emotion. Today's modern society, of “winners and losers” and imposed definitions of “success” blasting through the social media, may provoke evolutionary pangs of unknown magnitude. It may make us believe we all struggle for the same scarce resources. It may make us think that the definition of personal success is the same for all. It is possible that such a global and highly competitive environment fosters envy, but leaves us “dry” of its adaptive function. The signal that envy is sending us is not deciphered in a functional manner, partly because we tend to ignore it. The more we envy, the more we deny it. Neglected as such, envy turns into an exaggerated behavioural response or transforms into cover-up emotions. How important it would be to understand dispositional envy is perhaps best expressed by Hill and Buss (2008, p. 68): *“Rather than coping with envy, the individual is solving the problem that envy has alerted them to fix. Just as the best course of action to remedy a toothache is to remove the decay (rather than developing coping techniques to deal with the pain), the best way to fix envy is to solve the adaptive problem that it is signalling needs to be solved.”*

Systematic empirical research of this emotion in the dispositional sphere is necessary, as much as we are reluctant to deal with it and as much as we cannot avoid experiencing it at times.

2. PREVIOUS STUDIES AND THEORETICAL FRAMEWORK

2.1. Dispositional Envy, Big Five and Dark Triad Personality Traits

Existing studies hinted at several important personality-based factors, that may be related to whether a person's envy becomes a stronger or weaker "coordinator" of their behavioural choices. Current findings point towards a relationship of dispositional envy with a constellation of traits that facilitate higher reactivity to upward social comparison and a tendency towards social exploitation. Considering that individuals high on neuroticism experience higher exposure and reactivity to demanding events such as facing one's own inferiority, researchers expected and found positive correlations of dispositional envy with neuroticism (Smith et al., 1999). However, there seem to be a lack of studies that would examine the relationship of dispositional envy with other Big Five (BF) personality traits although some have suggested a distinct link of some other personality variables with dispositional envy (Rentzsch & Gross, 2015). Moreover, a growing number of researchers suggested that dispositional envy may exist beyond "the traditional personality framework" (Veselka et al., 2014) and the focus turned towards socially malicious personality dimensions that reflect tendencies towards self-promotion. This led to explorations of dispositional envy in relation to the Dark Triad (DT) traits that consist of three subclinical antisocial personality traits: psychopathy, Machiavellianism, and narcissism (Paulhus & Williams, 2002). Researchers found that DT traits may significantly predict dispositional envy (Krizan & Johar, 2012). A psychopath's impulsivity and tendency towards cruel and aggressive strategies against competitors (Williams et al., 2007), the Machiavellian unconditional determination to improve personal status (Jones & Paulhus, 2014), a narcissist's exaggerated reactivity to social comparison threats and excessive commitment to acquire a superior status (Neufeld & Johnson, 2018) all placed DT traits as prime suspects of going "hand in hand" with an envious disposition.

The relationship between psychopathy and envy was mapped out by researchers that investigated malicious, hostile elements of envy split up from benign motivation towards self-improvement (Lange et al., 2018). The results generated by measuring DT with the Short Dark Triad scale (SD3; Jones & Paulhus, 2014) and enviousness with BeMaS (Lange & Crusius, 2015b), confirmed the assumption that psychopathy is related to the malicious, and not to the benign dispositional form of envy. The same

group of authors examined the relationship between Machiavellianism and envy, and the results suggested Machiavellianism to be a strong positive predictor of trait envy regardless of whether it is conceptualised and measured as a unitary/general or dual construct. Efforts to disentangle the relationship between the narcissist dimension of DT and envy yielded somewhat inconsistent findings. When assessing narcissism by the standard and widely used Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988), and dispositional envy with the DES (Smith et al., 1999), researchers found no links between constructs (Krizan & Johar, 2012). Instead, when authors measured narcissism by the Hypersensitive Narcissism Scale (HSNS; Hendin & Cheek, 1997), a consistent and positive association of trait envy with narcissism appeared.

A group of authors that conceptualise the envious disposition as a dual construct expected diverging relationships between narcissism and benign envy, and between narcissism and malicious envy. Assessing narcissism by the Narcissistic Admiration and Rivalry Questionnaire (NARQ; Back et al., 2013), stronger links were found between dispositional malicious envy and narcissistic rivalry and conflicts, and stronger links between dispositional benign envy and narcissistic admiration, i.e., acquiring social potency through admiration and praise (Lange et al., 2016). Thus, the investigation of what appears to be a highly indicative relationship, that of narcissism and envy, seemed to be directed towards sizing down the narcissism spectrum to vulnerability/grandiosity and admiration/rivalry models. It was suggested that NPI, although considered as a primary measure of narcissism, does not account for the low-self-esteem and associated insecurities of the vulnerable sort of narcissist, but rather psychological themes of narcissistic grandiosity and thus may not be appropriate to examine narcissism's links with trait envy (Gold, 1996).

Overall, previous research instigated important directions for examining the emotion of envy in the personality sphere. First, a predictive significance of neuroticism from BF and all DT traits, especially narcissism, need to be re-examined in a way to include different conceptualizations and operationalizations of trait envy. Previous research suggested a moderate overlap of BF and DT personality dimensions (Paulhus & Williams, 2002). Although not consistent across studies, findings indicated that all three DT traits correlate negatively with agreeableness, while Machiavellianism and psychopathy correlate negatively with conscientiousness, and psychopathy with neuroticism. On the other hand, narcissism and psychopathy correlate positively with

extraversion and openness (Paulhus & Williams, 2002). However, their unique contribution in predicting dispositional envy remains unclear.

2.2. The Integrative Framework of Life History Theory

Life history theorists (LHT) predict that personality traits cluster in a purposeful way to create adaptations that will solve important evolutionary tasks, i.e., secure fitness in the social arena depending on its socioecological characteristics (Rushton, 1985). Within this framework, people allocate their resources toward two major fitness categories: somatic effort, i.e., keeping the organism alive, and reproductive effort, i.e., producing and maintaining new genetic variants (Figueredo et al., 2013). Early life experiences and primarily variables related to the (in)stability of an environment may have a large effect on future resource allocation preferences (Belsky et al., 1991). Safe and relatively stable environments will call for slower life history strategy and preference for somatic efforts characterized by long-term parental care over short-term mating, delayed sexual maturation and more stable relationships, cautious risk taking and supportive communication patterns (Olderbak & Figueredo, 2010; Figueredo et al., 2006). By contrast, environments of deprivation paired with strained relationships, will encourage faster life history strategizing, early maturation to enable focus on reproductive efforts (Ellis & Garber, 2000), exploitative interpersonal styles, more selfish general orientations rather than kin-selected altruism (Figueredo & Jacobs, 2010), higher impulsivity, diminished sense of self-control (Jonason & Tost, 2010), and an inability to delay gratification (Brumbach et al., 2009). More recently, distinctive life history variables, such as relationship quality and levels of social support, have informed the, so called, “pace-of-life syndrome” (POLS) hypotheses that proved to be a resourceful generator of hypotheses regarding individual differences (Réale et al., 2018). The authors reviewed the evidence of covariations between life history and physiological differences on one side, and suites of personality traits on the other. As a result, convincing arguments were offered that speak in favour of a holistic (or in their words: multi-factorial and multi-level) framework to study personality differences based on connections between behavioural, physiological, and life-history traits.

Complementary to the LHT propositions operationalised through life history strategies, scientists taking the socio-analytic approach have identified two motives that mirror the evolutionary survival and reproduction drives: “getting along” or “going

ahead” (Hogan & Blickle, 2018). Traits that evolved to generate companionship and social acceptance (such as emotional stability, agreeableness, conscientiousness) diverge from traits that facilitate competition over social status and dominance over resources (extraversion, openness to experience). Within this framework, dispositional envy would need to demonstrate specific patterns of connectedness between personality traits.

Indeed, initial research suggests that personality traits that are found to be related with dispositional envy may also be related to specific life history strategizing. Psychopathy and (to a lesser extent) Machiavellianism of the DT were found to be related to faster and narcissism to slower life history strategy (Jonason et al., 2017). Although DT traits, especially Machiavellianism, may also demonstrate a blend of slow and fast life history strategy, their link to life history strategies is well established (Davis et al., 2019), as well as their link to dispositional envy (Krizan & Johar, 2012). Furthermore, in contrast to fast life history strategising, BF personality traits of higher conscientiousness, extraversion, agreeableness, openness, and low neuroticism are noticeable in scores of slow life history strategists (Gladden et al., 2009).

Additionally, development of personalities scoring higher on DT traits, that seem to be quite prominent in the orbit of dispositional envy, may be affected by environmental factors that also inform an individual’s life history strategy, such as quality of relationships (Jonason et al., 2012), perception of family functioning, insecure attachments (Láng & Birkás, 2014), disrupted trust, deficient parental care, and distorted communication (Belsky et al., 1991).

This led to placing the exploration of dispositional envy within the framework of a higher-level psychological construct that contains corresponding personality variables - that of different life history strategies derived from the LHT.

2.3. Dispositional Envy and Emotion Regulation

Considering what is currently known about the nature of envy, it is safe to conclude that this is an emotion that inherently creates forceful emotional distress and therefore calls for regulation. Consequently, in search for empirical imprints of psychological mechanisms underlying a personal tendency to envy, the current research includes examination of emotion regulation mechanisms in relation to dispositional envy. After all, all emotions are subject to regulation and researchers continuously pay

respectable attention to examining emotion regulation process models. Unlike emotion dysregulation, that signifies disproportional domination of one emotion or rigidity in emotional expression (Cole et al., 1994), emotion regulation signifies shaping which emotions one has, when one has them and how one experiences and expresses these emotions (Gross, 1998). Adaptive emotion regulation predicts better social functioning, including interpersonal and working performance and contributes to our psychological health (John & Gross, 2004). Individual differences in the habitual use of a particular regulation strategy are related to moderately heritable genetic variants (Hawn et al., 2015), early childhood rearing, and attachment styles developed (Cassidy, 1994), personality characteristics and the ability for self-reflection (Thompson & Goodman, 2010). Emotion regulation in adults is based on awareness of emotional distress, the cognitive task of understanding circumstances and engaging in goal-directed behaviours (LeBlanc et al., 2017). It may be achieved through situation selection or modification (avoiding or changing emotion eliciting situations), cognitive reappraisal (changing the meaning or importance of a situation) or expressive suppression (changing a response once an emotion has already arisen) (Gross & John, 2003). Numerous studies focused on examining consequences of two emotion regulation strategies - expressive suppression and cognitive reappraisal, considering cultural variabilities as well (Butler et al., 2007). Empirical findings indicate that reappraisal is a more functional and less costly regulation strategy. Downregulating an emotion through reappraisal adjusts the entire emotional response, decreases the intensity of emotional experience, tones down behavioural and psychological reactions, decreases proneness to experience unpleasant emotions, and is associated with higher self-esteem (John & Gross, 2004). By contrast, it is suggested that expressive suppression does not decrease emotional experience, i.e., does not inhibit emotion arousal, but merely hinders its expressive behavioural response. It is associated with lower self-esteem and undesirable outcomes of increased emotional negativity (John & Gross, 2004). Cognitive appraisal lowers emotional arousal, while suppression consumes more cognitive resources during the emotion regulation period (Meyer et al., 2012), and some mental health-related consequences of suppression have been identified. It may be linked to depression, anxiety, and post-trauma stress-related symptoms (Joormann & Gotlib, 2010). Although less is known about consequences of emotion regulation strategies on everyday experiences, some studies indicated that suppression is associated with fewer daily positive events, particularly in individuals with elevated social anxiety (Kashdan et al., 2006). In

general, people with a tendency to employ cognitive reappraisal reported better interpersonal functioning, more satisfaction with their social status and a positive affect (e.g., Augustine & Hemenover, 2009). The opposite associations were found with the habitual use of expressive suppression. A long-term use of suppression or reappraisal in an interpersonal domain, such as a romantic partner's relationships, results in similar implications: positive effects of reappraisal and negative of suppression (Kardum et al., 2021).

It needs to be emphasized that effectiveness of each of these strategies depends on the emotion intensity, the strength of a regulatory goal versus other goals that activated an emotion, and atonement with a range of personal and contextual factors (Sheppes & Gross, 2011). Expressive suppression, that has acquired a bad reputation, may not be always maladaptive. For example, temporarily at least, it may save one from the devastating effect of having to pay attention to a particularly unpleasant episode that no appraisal process can turn into a less demanding emotional experience. However, this is costly. In the long run, it may leave one vulnerable for developing psychopathological symptoms (Aldao et al., 2010). Suppressing anger may be adaptive as it may "buy us time" for a more focused response regarding a valued relationship. However, it may well be maladaptive when continuously suppressing in situations where increased anger comes "in handy", such as when in need to revolt against injustice (Thompson, 1994). Thus, the adaptiveness of emotion regulation strategies needs to be judged by assessing the price and values they pose for our personal well-being and the well-being of the people we interact with in specific contexts.

Since it is universally condemned as an unacceptable, harming emotion, and is subjecting the envier to suffering based on a realization that someone else is better off in a domain of one's keen interest – it makes sense to consider the emotion of envy as a perfect candidate for prompting the one experiencing it to maintain a regulatory goal. Yet, undeniably, envy is "guilty as charged" for causing dysfunctional behaviours and socially damaging outcomes (Kim & Glomb, 2014).

This leads to several questions. To what extent does a regulatory goal compete with other motivations inflicted by envy? What regulation strategy is feasible in an interaction with envy? How could available regulatory strategies further shape an envious response? In search for evidence on associations between emotion regulation and dispositional envy, one needs to note that, regardless of different operationalisations of the construct and lack of studies that would focus on the link between envy and

emotion regulation, noteworthy mechanisms that may play a role in an envier's regulatory preferences have been identified. Based on results of their experimental study, Lange and Crusius (2015b) posited that benign envy is characterized by the optimistic tendency to hope for success which leads towards a goal directed approach strategy, while fear of failure of the maliciously envious leads towards avoidant behaviour that enables maintenance of a hostile attitude towards the envied. Other experimental data, although focusing on episodic envy (Crusius & Mussweiler, 2012) also demonstrated that envy affected basic behavioural outputs, termed by emotion regulation researchers as situation selection (Gross, 1998): approach and avoidance (of people, places, or objects). After being exposed to an envy provoking situation, participants were observed in a quasi-experimental manipulation in which they demonstrated an impulsive behavioural tendency to approach the envied target and superior object, regardless of social norms of exercising restraint. Following findings of studies that examined appraisal differences and how specific counterfactual thoughts may shape envious responding, Crusius and Lange (2021) concluded that (upward) additive, self-focused counterfactual thoughts increase benign envy to direct emotion towards self-improvement, while (upward) other-focused counterfactuals increase malicious envy with the goal to protect the envier's self-esteem by harming the envied. Yet another, already mentioned, experimental study indicated that envy generally affects memory and cognitive processing in a specific way (Hill et al., 2011). In that study, the emotional distress created by envy enabled the envier to better focus on information about their social targets, and to better retrieve that information from memory. However, this seemed to consume cognitive resources to the point of not willing or being able to re-direct and focus on solving unrelated problems from other domains. Therefore, while envy calls for regulation, this regulatory goal may be compromised considering that dispositional envy is determined by its unreserved and chronic focus on the emotion provoking sources.

Furthermore, it is by now well established that emotion regulation development may be strongly impacted by environmental factors that include influences of parents, peers or siblings across a life span starting from infancy (Fox & Calkins, 2003) which are distinctive variables related to the slow-fast continuum of life history strategies. For example, when infants more susceptible to emotional distress receive less sensitive parental responses, they are more likely to develop regulation problems (Crowell et al., 2015), while maturation supported by a comforting caregiver increases the infant's

ability to become more deliberate in their attempts to manage distress or disengage from a distressing situation (Thompson & Goodman, 2010).

Taken together, although scarce, previous studies vouch for integration of existing knowledge regarding the relationship between BF and DT personality traits, emotion regulation and dispositional envy within the framework of LHT and variability in life history strategies.

3. CURRENT RESEARCH, RATIONALE FOR INDIVIDUAL STUDIES, AND HYPOTHESES

This research examines whether dispositional envy would demonstrate its adaptive logic by being related to “clusters” of traits and psychological mechanisms that enable “going ahead” motivation, favouring short-term gains over long-term strategizing, and taking “shortcuts” in pursuit of a superior social position and resources in any way possible. In this context, it was examined whether benign envy may also appear as a distinct disposition that is “clustering getting along” traits to enable slower strategizing and acquiring status through self-development without necessarily having to harm or diminish the envied. Specific hypotheses were tested through four consecutive studies.

3.1. Study 1: Big Five, Dark Triad Personality Traits and Their Link With Dispositional Envy

Mindful of the initial findings on relationships of dispositional envy with at least one BF and all three DT traits, and interrelation between these two groups of traits, it is considered important to simultaneously evaluate their unique contribution. As noted, the previous research also suggested a moderate overlap of BF and DT personality dimensions. However, results produced by one domain cannot be automatically generalised onto another. Therefore, it is regarded as worthwhile to perform a simultaneous investigation of the two groups of personality dimensions in relation to dispositional envy.

Furthermore, in this study, both the measures that reflect unitary and dual conceptualisations of trait envy are included. Comparing results produced by instruments that operationalise the construct differently and ascertaining whether

distinctive associations between BF and DT traits exist with general, benign, or malicious envy measurements, may enhance generalization of results and bring us closer to understanding trait envy.

Based on previous results, it was assumed that amongst the BF personality variables trait neuroticism would be the most important positive predictor of dispositional envy. No explicit empirical evidence was found to expect the relationship between dispositional envy and other BF dimensions. However, the relationship between personality variables and upward social comparison, the mechanism that triggers envy in the first place, was considered (Smith, 2000). While not entirely consistent across studies, findings indicated that trait openness also relates to the tendency to engage in upward social comparison although with less decrease in positive affect than neuroticism. On the other hand, trait extraversion, agreeableness and conscientiousness were found to be more related to engaging in a downward social comparison (Olson & Evans, 1999). Consequently, and considering that openness to experience also constitutes a “going ahead” trait, it was hypothesized that trait openness will surface as a positive predictor of dispositional envy, although to a lesser degree than neuroticism. Regarding trait extraversion, agreeableness and conscientiousness, the findings on their correlations with downward, rather than upward, social comparison were considered along with the lack of other findings to support the assumption of their predictive power. Thus, specific hypotheses related to these three variables were not articulated.

Considering previous empirical results that linked trait narcissism with dispositional envy, regardless of being operationalised as a unitary or dual construct (Krizan & Johar, 2012; Lange & Crusius, 2015b), it was hypothesized that among DT traits narcissism will surface as a consistently positive predictor of trait envy. Based on the initial findings of the dual approach researchers (Lange et al., 2018), Machiavellianism was also expected to be a significant positive predictor of envy regardless of the measure used to operationalise the construct, but psychopathy would have to demonstrate different associations, depending on whether benign or malicious disposition are being assessed. Psychopathy would need to surface as a positive predictor of higher scores on the malicious, rather than on the benign disposition subscale, allowing for harmful motivations and strategies against the envied.

3.2. Study 2: Components of Dark Triad Traits and Their Link With Dispositional Envy

Previous research that demonstrated the relationship between the DT traits and dispositional envy is based on the use of shortened or unidimensional measures of DT. Therefore, DT trait links with trait envy were further examined by assessing what components, i.e., factors, of each DT dimension consistently generate an envious disposition. For this purpose, dispositional envy was operationalised as a general construct that contains two affective components: perceived inferiority to the one that is already in possession of what we want, and at least some form of ill-will towards the superior (Smith et al., 1999). With the intention to address limitations of previous studies, multidimensional psychometric instruments and standard measures of non-clinical forms of psychopathy, Machiavellianism and narcissism, were used. Keeping in mind the on-going discussion on which factor structures of the existing measures of the DT traits, especially Machiavellianism and narcissism, may be most stable and reliable (Corral & Calvete, 2000; Schmitt et al., 2017), diverse available structures were included.

Psychopathy was assessed with the standard Self-Report Psychopathy Scale-III (SRP-III) (Williams et al., 2007) with items loading on the four distinctive factors: *Antisocial behaviour*, *Impulsive thrill-seeking*, *Interpersonal manipulation* and *Cold affect*. Following previous, somewhat inconsistent findings, there were no specific expectations regarding psychopathic components.

Machiavellianism was measured with the original MACH IV (Christie & Geis, 1970) with three components referring to the use of manipulative *Tactics* in interpersonal relationships, a *Cynical view* of human nature and disregard for conventional *Morality*. A 4-factor structure of MACH IV (Corral & Calvete, 2000) was also included and contains: *Positive interpersonal tactics*, *Negative interpersonal tactics*, *Positive view* of human nature, and *Cynical view* of human nature. Since in previous studies and with the use of unidimensional measures, Machiavellianism appeared as a consistent positive predictor, it was assumed that all the factors in both scales except for *Positive view* would demonstrate significant positive power to predict trait envy. These key MACH-IV components indicate the Machiavellian propensity of placing one's own views above everyone else's and the ability to use diverse tactics to deceive others in pursuit of own self-interest (Jonason & Webster, 2010).

Narcissism was measured by the widely used, though most complex in its structure, Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988). The scale includes seven factors: *Authority*, *Self-sufficiency*, *Superiority*, *Vanity*, *Exhibitionism*, *Entitlement*, and *Exploitativeness*. The scales that deduced the original NPI into a shorter, stable set of components were also used (Corry et al., 2008; Emmons, 1984; Kubarych et al., 2004). Each of these scales contains the factor of strong sense of *Entitlement*. This factor is considered as a phenotypical component of narcissistic self-centredness (Krizan, 2018), and it was hypothesized that it will be strongly related to an envier's chronic concern for own prospects and a desire to out-do others.

3.3. Study 3: Life History Strategy, Emotion Regulation and Their Link With Dispositional Envy

The objective of this study was to examine associations between life history strategy, emotion regulation and dispositional envy, as well as a possible mediating effect of emotion regulation on the hypothesized link between life history strategy and envy. The hypothesized relationship is supported by research that demonstrated compatible patterns of connectedness which both dispositional envy and life history strategies generated in relation to DT and other reported variables. Also, since all emotions may contain a regulatory goal, it was safe to assume that an emotion that brings higher levels of distress would demonstrate a strong link with emotion regulation mechanisms. In addition to two measures that operationalize envy as a unitary construct with items that mostly measure malicious aspects of envy, a measure with subscales that differentiate benign and malicious envy was included again. Two distinct emotion regulation strategies were considered: cognitive reappraisal and expressive suppression (Gross & John, 2003). Although cross-sectional, this study provides a theoretically justified sequential model of variables. Early life experiences may impact individual differences in life history strategies which then affect individual differences in other characteristics. Consequently, life history strategy was investigated as an antecedent of dispositional envy, whereby emotional regulation mechanisms emerge as mediators of life history strategy's effects on envy. Evolutionary framework, operationalized by life history strategies, and distinction between fast and slow strategies, as a broader level of explanatory hierarchy, may represent a powerful tool to analyse and understand functional principles of emotions, including envy.

In formulating a hypothesis regarding the link between emotion regulation strategies and dispositional envy, the process model of emotion regulation (Gross, 2008) was taken into account. The model enables observation of emotion regulation processes at different levels of analysis and demonstrates that multiple emotion regulation strategies can be triggered simultaneously. Moreover, most of the points in the model may happen before an emotional response. In other words, the model indicates that for the process to be activated (situation selection – situation modification – attentional deployment – cognitive change and response modification), it is not necessary to experience an emotion to activate an emotion regulation strategizing.

The following hypotheses were tested: slower life history strategy positively predicts both reappraisal and benign motivations of dispositional envy, and negatively predicts suppression and malicious envy motivations. Suppressive emotion regulation strategizing predicts malicious envy, while reappraisal positively predicts benign envy. Emotion regulation mechanisms mediate the link between slower life history strategizing and dispositional envy, in a way that reappraisal is linked with increased experience of benign properties in envy, while suppression is linked with the experience of its malicious properties.

3.4. Study 4: Re-Examination of Results by Introducing a New Instrument to Measure Dispositional Envy

The hypothesized relationship from Study 3 was further tested to establish whether the results would be complementary when including another sample and using another methodological choice to assess dispositional envy. Insofar, most existing envy studies relied on dispositional envy self-report psychometric instruments. However, researchers have already cautioned that the nature of envy can amplify the tendency of respondents to underreport their emotional experiences when completing self-report psychometric questionnaires. Consequently, it was suggested to measure envy by constructing envy targets using persons and situations perceived as real, creating cover stories, and placing the word envy amongst filter items (Smith & Kim, 2007). Following recommendations on how to improve the validity of studies by contextualizing research topics through the vignette design (Aguinis & Bradley, 2014), relatable real-life scenarios were created for the purpose of this study to prompt an envious response without using the word “envy” anywhere in the text.

4. STUDY 1

4.1. Method

4.1.1. Participants and Procedure

In the first study that investigated whether and to what degree the BF and the DT traits may predict dispositional envy, a total of 312 (208 identify as female and 104 identify as male) responses were received from Croatian participants with a broad age range from 18 to 75 ($M=45.20$; $SD=13.28$), the majority of whom have a secondary school (35.6%) or university education (33.7%). Average earnings were reported by 56% of the participants, above average by 26.3% and 17.6% reported below average income. The data was collected via the Google Survey platform. Participation was voluntary and three random orders of questionnaires within the survey were distributed by e-mails and social media with the request to forward the survey link to acquaintances. It was explained that the results would be used for research purposes only and they were free to withdraw their participation at any time. Access to the survey was enabled after participants provided informed consent.

4.1.2. Measures

English versions of the dispositional envy scales used in this study were translated into the Croatian language following the standard back-translation process.

Dispositional Envy Scale (DES) (Smith et al., 1999) is an 8-item scale that measures a general tendency towards envy and consists of items measuring a sense of inferiority and frustration, ill will and perceptions of injustice (e.g., “*I am troubled by feelings of inadequacy*”, “*It is so frustrating to see some people succeed so easily*”), on a 5-point Likert scale assessing agreement with the statement from 1 (*strongly disagree*) to 5 (*strongly agree*).

Benign and Malicious Envy Scale (BeMaS) (Lange & Crusius, 2015b) is a 10-item scale that measures dispositional forms of benign (“*If I notice that another person is better than me, I try to improve myself*”) and malicious envy (“*I wish that superior people lose their advantage*) on a 6-point Likert scale assessing agreement with the

statement from 1 (*strongly disagree*) to 6 (*strongly agree*) with five items for each subscale.

Domain-Specific Envy Scale (DSES) (Rentzsch & Gross, 2015) is a 15-item scale that measures variations across three different comparison domains; attraction (“*It eats me up inside when people come across to others better than I do*”), competence (“*It disturbs me when others have a greater fund of knowledge than I have*”) and wealth (“*It bothers me when others own things that I cannot have*”). Participants answer on a 7-point Likert scale assessing agreement with the statement from 1 (*strongly disagree*) to 7 (*strongly agree*). The factorial structure of the scale indicates a superordinate factor of general dispositional envy that was considered for the purpose of this study.

Big Five Inventory (BFI) (Benet-Martinez & John, 1998) consists of 44 items assessing five personality dimensions. Items refer to openness (“*I see myself as someone who is original, comes up with new ideas*”), conscientiousness (“*I see myself as someone who perseveres until the task is finished*”), extraversion (“*I see myself as someone who is talkative*”), agreeableness (“*I see myself as someone who is helpful and unselfish with others*”), and neuroticism (“*I see myself as someone who is depressed, blue*”). Participants answer on a 5-point Likert scale assessing agreement with the statement from 1 (*strongly disagree*) to 5 (*strongly agree*). In this study, a Croatian version of the scale was used (Kardum et al., 2006).

Dark Triad Dirty Dozen (DTDD) (Jonason & Webster, 2010) measures three personality traits that form a highly exploitative social strategy. Items refer to psychopathy (“*I tend to lack remorse*”), Machiavellianism (“*I tend to manipulate others to get my way*”), and narcissism (“*I tend to want others to admire me*”). It is a concise 12-item instrument divided in three subscales (4 items each). Participants answer on a 7-point Likert scale assessing agreement with the statement from 1 (*strongly disagree*) to 7 (*strongly agree*). In this study, a Serbian adaptation of the scale, that is applicable to the Croatian-speaking population, was used (Dinić et al., 2018).

4.2. Results

4.2.1. Correlation Analysis

Correlations between socio-demographic variables, personality measures and measures of dispositional envy were computed first and are presented in Table 1.

Table 1. *Descriptive Statistics and Correlations for all Variables in Study 1*

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.Gender	-															
2.Age	-.10	-														
3.Education level	-.09	.08	-													
4.Income	-.06	.07	.37***	-												
5.Extraversion	-.08	.07	.16**	.11	-											
6.Agreeableness	-.02	.12*	.00	.01	.13*	-										
7.Conscientiousness	-.12*	.09	.20***	.12*	.47***	.15**	-									
8.Neuroticism	-.10	-.19***	-.18**	-.02	-.44***	-.35***	-.32***	-								
9.Openness	-.01	.04	.07	.06	.32***	.15**	.21***	.20***	-							
10.Psychopathy	.23***	-.09	.11	.05	-.03	-.36***	-.12*	.06	-.00	-						
11.Machiavellianism	-.13*	-.12*	-.05	-.00	-.02	-.29***	-.25***	.06	.01	.41***	-					
12.Narcissism	.13*	-.08	.17**	.22***	.01	-.19***	-.10	.11*	-.02	.38***	.41***	-				
13.DES	-.02	-.22***	-.06	-.06	-.29***	-.19***	-.38***	.40**	-.19***	.26***	.32***	.29***	-			
14.BeMaS Benign	.10	-.24***	.14*	.14*	.12*	-.10	.03	-.02	.12*	.11*	.27***	.47***	.21***	-		
15.BeMaS Malicious	.08	-.05	-.01	.10	-.20***	-.26***	-.33***	.24***	-.07	.29***	.34***	.30***	.48***	.24***	-	
16.DSES Global	.06	-.25***	.02	.03	-.25***	-.27***	-.28***	.39***	-.15**	.31***	.34***	.49***	.63***	.37***	.48***	-
Cronbach's Alpha					.81	.72	.80	.84	.83	.55	.86	.87	.86	.78	.63	.92
Mean		45.20	3.15	1.09	28.16	32.86	33.21	21.43	38.68	11.47	10.29	15.41	11.92	14.81	8.49	29.91
Std. deviation		13.27	1.12	0.66	6.07	5.36	5.84	6.25	6.61	6.27	7.02	8.70	5.19	5.74	3.31	15.03

* $p < .05$; ** $p < .01$; *** $p < .001$

Female (0)

Male (1)

Correlations between dispositional envy measures and BF traits indicated moderate negative correlations of DES and DSES with extraversion, agreeableness, conscientiousness and openness and positive correlations with neuroticism. The BeMaS malicious envy subscale disclosed the corresponding pattern except for trait openness which was not found to be related with this measure. The BeMaS benign envy subscale correlational pattern with BF traits was notably different than the other scales revealing only extraversion and openness as weak positive correlates. With regards to correlations between dispositional envy measures and DT traits, all scales demonstrated a significant positive correlation with all three DT traits, except for the BeMaS benign envy subscale with a much weaker positive link with psychopathy. Therefore, when comparing the correlational pattern of dispositional envy measures and BF on one side, DT on the other, the BeMaS benign subscale correlations diverged from other measurements of dispositional envy. The correlational matrix between DT and BF traits showed an expected positive correlation of DT with neuroticism, disagreeableness, and low conscientiousness. Out of socio-demographic variables, age correlated negatively with all dispositional envy measures except for the BeMaS malicious disposition subscale, while education and income correlated positively with the BeMaS benign disposition subscale. Finally, all dispositional envy measures used in this study were significantly positively correlated suggesting their construct validity.

4.2.2. Hierarchical Regression Analysis

A hierarchical multiple regression analysis was carried out to identify the best predictors of dispositional envy measures. In the first set of analysis, socio-demographic data were entered into the hierarchical regression in the first step, BF personality traits in the second, and DT traits in the third step. In the second set, the order of DT and BF traits was reversed; DT traits were entered as predictors in the second, and BF in the third step. The analysis was conducted for all dispositional envy measures included in this study, resulting in four final models. Considering that the final models remained the same, only data from the first set of analysis are presented in Table 2.

Table 2. *Regression Analysis of Socio-Demographic data, BF and DT as Predictors of Dispositional Envy Measures in Study 1*

Predictors	Dispositional envy measures			
	DES	BeMaS benign	BeMaS malicious	DSES
<i>1.step</i>				
Gender	-.05	.08	.06	.04
Age	-.22***	-.25***	-.05	-.25***
Education level	-.04	.13*	-.05	.04
Income	-.03	.10	.12	.03
R^2	.05**	.10***	.02	.07***
<i>2.step</i>				
Gender	-.04	.08	.04	.06
Age	-.15	-.25***	.01	-.17***
Education level	.07	.11	.02	.12*
Income	-.04	.11	.14*	.02
Extraversion	-.02	.09	-.03	-.03
Agreeableness	-.03	-.10	-.19***	-.12*
Conscientiousness	-.27***	-.04	-.29***	-.16**
Neuroticism	.26***	-.03	.09	.27***
Openness	-.08	.13*	.05	-.04
R^2	.26***	.14***	.18***	.25***
ΔR^2	.21***	.03*	.16***	.18***
<i>3.step</i>				
Gender	-.10*	.05	-.01	-.02
Age	-.12*	-.23***	.03	-.14**
Education level	.03	.06	-.02	.06
Income	-.07	.03	.11*	.05
Extraversion	-.06	.04	-.06	-.09
Agreeableness	.09	.06	-.09	-.00
Conscientiousness	-.20***	.04	-.22***	-.10
Neuroticism	.26***	-.07	.09	.24***
Openness	-.10	.12*	.03	-.05
Psychopathy	.14*	-.15**	.11	.09
Machiavellianism	.16**	.12*	.16**	.11*
Narcissism	.15**	.44***	.13**	.37***
R^2	.36***	.32***	.26***	.43***
ΔR^2	.10***	.19***	.08***	.18***

* $p < .05$; ** $p < .01$; *** $p < .001$; beta weights are presented

Female (0)

Male (1)

The hierarchal regression analyses indicated that BF traits significantly increased the amount of variance explained in all dispositional envy measures beyond and above socio-demographic variables and that DT traits significantly increased the amount of variance explained in all dispositional envy measures beyond and above socio-demographic variables and BF traits. When DT traits were entered in the second and BF traits in the third step, DT traits additionally explained 15% variance of DES, 19% of BeMaS benign, 15% of BeMaS malicious subscale and 25% of DSES, whereas BF traits additionally explained 16% variance of DES, 3% of BeMaS benign, 9% of BeMaS malicious subscale and 11% of DSES. Therefore, DT traits are somewhat better

predictors of benign envy and dispositional envy measured by DSES, while BF traits better predicted dispositional envy measured by the DES.

Although using hierarchical linear regression to test the incremental validity is a standard procedure, this approach is problematic because it may overlook measurement errors and thus enhances the probability of type I error (Westfall & Yarkoni, 2016). Methods based on structural equation modelling seem to be more appropriate because measurement unreliability can be modelled by the use of multiple indicators (items) for each latent variable. Therefore, the incremental validity of BF and DT traits was reanalyzed by a structural equation model analysis using the “lavaan” package (R Core Team, 2018; Rosseel, 2012) and R syntax for incremental validity testing of individual data provided by Wang and Eastwick (2020). These analyses showed that BF traits additionally explained 18% variance of DES, 6% of BeMaS benign, 25% of BeMaS malicious subscale and 24% of DSES beyond and above socio-demographic variables. DT traits additionally explained 13% variance of DES, 30% of BeMaS benign, 9% of BeMaS malicious subscale and 24% of DSES beyond and above socio-demographic variables and BF traits. When DT traits were entered in the second and BF traits in the third step, DT traits additionally explained 21% variance of DES, 34% of BeMaS benign, 21% of BeMaS malicious subscale and 39% of DSES, whereas BF traits additionally explained 10% variance of DES, 5% of BeMaS benign, 13% of BeMaS malicious subscale and 9% of DSES. Consistent with the previous analyses, DT traits somewhat better predicted benign envy and dispositional envy measured by DES and DSES, while BF traits better predicted malicious envy.

From the BF traits, in the final model, neuroticism emerged as a significant positive predictor of dispositional envy when measured as a general construct by DES and DSES. Conscientiousness appeared as a significant negative predictor when the construct was measured by DES and the BeMaS malicious disposition subscale. Openness was a weak positive predictor and solely when dispositional envy was measured by the BeMaS benign disposition subscale. Extraversion and agreeableness did not demonstrate a predictive capacity regardless of the scale used to assess envious disposition.

Among DT traits, narcissism appeared as a significant positive predictor of dispositional envy as assessed by all scales. While Machiavellianism also emerged as a consistent positive predictor, its effect was less significant across scales. Psychopathy emerged as a weak positive predictor when dispositional envy was measured by DES,

but as a moderately negative predictor when the construct was measured by the BeMaS benign disposition subscale. Out of socio-demographic characteristics, age repeatedly appeared as negative predictor. Income emerged as a weak positive predictor, and only with the use of the BeMaS malicious disposition subscale.

With the intent to investigate whether these results could be generalised beyond the sample population, additional hierarchical linear regression analyses were performed on all envy measures. Perceived income was identified as a variable that may reveal some contextual specifics of the sample population that would possibly be relevant regarding the topic of this study. In the first step, either BF or DT personality traits were entered and in the second step the interaction terms of each personality trait and perceived income were entered. The results showed that all interactions between personality traits and perceived income were not significant, suggesting that the perceived income in the sample population did not moderate the effects of personality traits on envy.

4.3. Discussion

The goal of the first study was to investigate the unique contribution of BF and DT personality traits in predicting dispositional envy conceptualised and operationalised either as a unitary or dual construct. It was hypothesized that trait neuroticism, and to a lesser degree openness, from the BF will emerge as positive predictors of trait envy assessed by all scales used in this study. Amongst the DT traits, it was assumed that individuals scoring higher on narcissism and Machiavellianism would consistently score higher on dispositional envy, while psychopathy would have differential associations depending on whether the BeMaS benign or malicious envy subscale was drawn on.

As a result of utilizing the two methods to measure incremental validity, it can be concluded that overall, DT traits better predicted benign envy measured by BeMaS and dispositional envy measured by the DSES, while BF traits better predicted dispositional envy measured by DES. Amongst the BF traits, neuroticism came into view as a significant positive predictor, except for a model resulting from the use of BeMaS. Openness to experience emerged as a positive predictor of an envious disposition measured by the benign subscale of BeMaS, although with a weak effect. These results are in accord with previous research indicating that individuals high on neuroticism

reported more negative affective consequences of unfavourable upward social comparison than openness (van Der Zee et al., 1996). Conscientiousness surfaced as a significant negative predictor when envious disposition was measured by DES and the BeMaS malicious disposition subscale. This resonates with findings that conscientiousness is only marginally related to social comparison and mostly in a downward direction (Olson & Evans 1999). Trait extraversion and agreeableness did not demonstrate predictive significance.

Study 1 suggested trait narcissism to be a consistent predictor regardless of the measures used to assess dispositional envy. Other studies have already revealed that envy, as an indicator of one's inferiority, affects the desire of narcissists to advance their personal standing highly intensely and more frequently (Morf et al., 2011). Owing to their great concern with (re)gaining a superior status, narcissists experience exaggerated reactivity to social comparison threats (Neufeld & Johnson, 2018). Another consistently positive predictor, although with a weaker effect, was Machiavellianism. A core characteristic of people scoring high in Machiavellianism is the importance of their reputation and careful strategizing to maintain it through manipulation (Jones & Paulhus, 2014). Machiavellianism is used as a successful tactic especially when having a close personal relationship with the victim (Slaughter, 2011). Likewise, envy likely targets people who are relatable (Schaubroeck & Lam, 2004).

Contrary to previous findings that linked psychopathy with a malicious disposition (Lange & Crusius, 2015b), Study 1 of this research suggests positive but weak effects of psychopathy only when envy was measured by DES, and a negative effect when measured by the BeMaS benign disposition subscale. Psychopathy and envy may be discordant personality variables because psychopathy is characterised by extreme impulsive antisocial behaviour (Benning et al., 2018), while envy seeks, screens, and negotiates social information and involvement.

In this study, age was found to be a moderate negative predictor of general dispositional envy measured by DES, DSES, and the BeMaS benign disposition subscale. This indicates "*the younger, the envier*" trend echoing evolutionary psychology findings about the functionality of specific emotions in the reproductive age when evolutionary fitness demands are the highest (Hill & Buss, 2008). Income appeared as a weak positive predictor of envious personality when the BeMaS malicious subscale was used ("*The more I have, the more I envy*") which, to some extent, may be

explained by the previously suggested strong link of envy and dispositional greed (Seuntjens et al., 2015).

5. STUDY 2

5.1. Method

5.1.1. Participants and Procedure

In the second study, that investigated possible indications of mechanisms through which DT traits may be linked with dispositional envy, 233 Croatian participants were recruited using opportunity sampling (195 identify as female and 38 as male), between 18 and 28 years of age ($M=20.97$; $SD=1.52$). The student population constituted most of the participants (65%), while the others were employed adults. Average education level reflected 14.30 years of schooling ($SD=1.33$). Research assistants distributed the research announcement to their contacts asking them to distribute the survey further. All participants reviewed a letter of information, provided informed consent, and then completed the questionnaires.

5.1.2. Measures

Dispositional envy was measured by the Dispositional Envy Scale (DES; Smith et al., 1999), that was utilised in the first study among other measures and previously demonstrated relations with other reported variables similar to DSES (Rentzsch & Gross, 2015) and the malicious subscale of BeMaS (Lange & Crusius, 2015b).

Psychopathy was measured by the Self-Report Psychopathy Scale-III (SRP-III) (Williams et al., 2007) that is commonly used in non-clinical samples. Participants rated each of the 31 items on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), with items loading on the four distinctive factors: *Antisocial behaviour*, *Impulsive thrill-seeking*, *Interpersonal manipulation* and *Cold affect*. *Cold affect* was removed because of its low reliability in this study ($\alpha=.25$).

Machiavellianism was measured with the 20-item original MACH IV (Christie & Geis, 1970), whereby each statement is assessed on a scale ranging from -3 (*strongly disagree*) to +3 (*completely agree*). The three components refer to the use of

manipulative *Tactics* in interpersonal relationships, a *Cynical view* of human nature and disregard for conventional *Morality*. Studies, including the current one, showed that the *Morality* factor is the least reliable subscale of the original MACH IV, and it was therefore left out from subsequent examination. A 4-factor structure of MACH IV (Corral & Calvete, 2000) was also included and contains: *Positive interpersonal tactics*, *Negative interpersonal tactics*, *Positive view* of human nature, and *Cynical view* of human nature.

Narcissism was measured by the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988), a 40-item scale where for each item, participants choose one of two statements they feel applies to them more. The scale is sorted into seven factors that tap into: *Authority*, *Self-sufficiency*, *Superiority*, *Vanity*, *Exhibitionism*, *Entitlement*, and *Exploitativeness*. The following factor structures of the NPI were also included; a) the Emmons (1984) 4-factor structure of *Leadership/Authority*, *Self-admiration/Self-absorption*, *Superiority/Arrogance*, and *Exploitativeness/Entitlement*; b) the Kubarych, Deary, and Austin (2004) 2-factor structure of *Exhibitionism* and *Power*; c) the Kubarych et al. (2004) 3-factor structure of *Exhibitionism*, *Power* and *Special person*; and d) the Corry, Merritt, Mrug, and Pamp (2008) 2-factor structure of *Leadership/Authority* and *Exhibitionism/Entitlement*.

5.2. Results

5.2.1. Correlation Analysis

Correlations of Dark Triad trait measures and their components with general dispositional envy measured by DES were computed first and are presented in Table 3. Socio-demographic variables (age, gender, and educational level) were not presented as they showed no significant correlations with DES in this study.

Table 3. *Descriptive Statistics and Correlations of all Variables with DES in Study 2*

Variables	M	SD	α	DES
SRP-III, Williams, Paulhus, & Hare (2007)	65.61	11.84	.83	.11
Antisocial behaviour	16.37	4.68	.74	.17**
Impulsive thrill-seeking	21.76	5.90	.79	.07
Interpersonal manipulation	15.52	3.72	.59	-.05
MACH IV, Christie & Geis (1970)	66.70	9.90	.71	.26***
Tactics	27.56	5.23	.54	.24***
Views	31.90	5.22	.51	.25***
MACH IV, Corral & Calvete (2000)				
Negative interpersonal tactics	13.98	3.26	.49	.21***
Positive interpersonal tactics	15.76	4.35	.64	.15*
Cynical view	20.19	4.12	.44	.25***
Positive view	16.73	2.98	.46	.07
NPI, Raskin & Terry (1988)	13.70	6.60	.84	.11
Authority	3.55	1.96	.70	-.02
Self-sufficiency	1.84	1.38	.46	-.18**
Superiority	1.52	1.27	.55	.13
Exhibitionism	1.80	1.56	.54	.20**
Exploitativeness	1.43	1.23	.46	-.00
Vanity	1.33	1.10	.60	.08
Entitlement	2.20	1.53	.50	.29***
NPI, Emmons (1984)				
Leadership/Authority	3.23	2.24	.75	-.02
Self-absorption/Self-admiration	2.84	1.90	.63	.11
Superiority/Arrogance	2.22	1.49	.38	.01
Exploitativeness/Entitlement	1.86	1.52	.52	.28***
NPI, Kubarych et al., 2-factor (2004)				
Exhibitionism	3.31	2.20	.62	.21**
Power	9.01	4.60	.79	.05
NPI, Kubarych, et al., 3-factor (2004)				
Exhibitionism	2.55	1.91	.62	.21***
Power	6.43	3.24	.73	.08
Special Person	3.36	2.22	.59	.02
NPI, Corry et al. (2008)				
Exhibitionism/Entitlement	4.30	2.62	.65	.23***
Leadership/Authority	3.80	2.22	.74	.02
DES	13.21	4.54	.80	

* $p < .05$; ** $p < .01$; *** $p < .001$, $N = 233$

Regarding the overall scores, only MACH IV significantly correlated with the dispositional envy measure. However, looking at the individual DT trait components, each DT dimension contained at least one component that correlated with DES. Out of three psychopathy components measured by SRP-III (Williams et al., 2007), *Antisocial*

behaviour produced a moderate positive correlation with DES. Christie and Geiss's (1970) MACH IV components, *Tactics* and *Views*, were both strongly positively correlated with DES, as well as Corral and Calvete's (2000) MACH IV components of *Negative interpersonal tactics* and *Cynical View*. The factor related to *Positive interpersonal tactics* showed a weaker correlation. Raskin and Terry's (1988) factor of *Entitlement* demonstrated positive significant correlation with DES and *Self-sufficiency* demonstrated negative significant correlation with DES. Emmons' (1984) *Exploitativeness/Entitlement* factor and Corry et al.'s (2008) *Exhibitionism/Entitlement* also showed strong positive correlations with DES. Kubarych et al.'s (2004) 2 and 3-factor NPI produced moderate to strong positive correlation between *Exhibitionism* and DES.

5.2.2. Linear Regression Analyses

First, a linear regression of overall DT traits as predictors of dispositional envy measured by DES was carried out. Consistent with the correlational results, only MACH IV (Christie & Geiss, 1970) appeared as a significant positive predictor of DES ($\beta = .24$; $p < .001$; $R^2 = .07$; $p < .001$).

Separate regression analyses were then performed for individual factors of DT trait dimensions as predictors of dispositional envy measured by DES. Results for the psychopathy dimension measured by SRP-III (Williams et al., 2007) revealed the factor of *Antisocial behaviour* as a weak positive predictor ($\beta = .17$; $p < .05$; $R^2 = .04$; $p < .05$). In Christie and Geiss' (1970) MACH IV structure of Machiavellianism, factors of *Tactics* ($\beta = .16$; $p < .05$; $R^2 = .08$; $p < .001$) and *Views* ($\beta = .17$; $p < .05$; $R^2 = .08$; $p < .001$) both appeared as positive predictors, while in Corral and Calvete's (2000) MACH IV structure only *Cynical View* ($\beta = .18$; $p < .05$; $R^2 = .08$; $p < .001$) emerged as a positive predictor of DES. The regression model performed with different structures of NPI is presented in Table 4.

Table 4. *Regression Analysis of Individual Components of NPI as Predictors of Dispositional Envy Measured by DES in Study 2*

Raskin & Terry (1970)		Emmons (1984)		Kubarych et al., 2-factor (2004)		Kubarych et.al., 3-factor (2004)		Corry et al. (2008)	
Predictors	Beta	Predictors	Beta	Predictors	Beta	Predictors	Beta	Predictors	Beta
Authority	-.15	Leadership/Authority	-.19*	Exhibitionism	.28***	Exhibitionism	.25***	Exhibitionism/Entitlement	.28***
Self-sufficiency	-.24***	Self-Absorption/Admiration	.13	Power	-.12	Power	-.04	Leadership/Authority	-.11
Superiority	.09	Superiority/Arrogance	-.12			Special person	-.09		
Exhibitionism	.16	Exploitativeness/Entitlement	.38***						
Exploitativeness	-.06								
Vanity	.05								
Entitlement	.32***								
R ²	.19***		.12***		.05**		.05**		.06***

* $p < .05$; ** $p < .01$; *** $p < .001$

In the regression model performed with NPI, Raskin and Terry's (1970) *Entitlement* factor demonstrated significant positive, while *Self-sufficiency* demonstrated moderately negative predictive power in relation to DES. The most significant Emmons NPI (1984) factor was *Exploitativeness/Entitlement*, while *Leadership/Authority* emerged as a weak negative predictor. Both Kubarych et al.'s 2 and 3-factor NPI (2004) provided *Exhibitionism* as a significant positive predictor, and Corry et al.'s (2008) structure confirmed *Exhibitionism/Entitlement* as significant positive predictors of dispositional envy measured by DES.

Finally, individual components of SRP-III, MACH IV, and NPI were simultaneously entered into the regression model. Considering that for MACH IV and NPI different structures exist, structures with a larger number of factors were included. The results are presented in Table 5.

Table 5. *Regression Analysis of SRP-III, MACH IV, and NPI Individual Components as Predictors of Dispositional Envy Measured by DES in Study 2*

Predictors	Beta
<hr/>	
Psychopathy	
Antisocial behaviour	.12
Impulsive thrill-seeking	.05
Interpersonal manipulation	-.17*
<hr/>	
Machiavellianism	
Negative interpersonal tactic	.13
Positive interpersonal tactic	.06
Cynical view	.14*
Positive view	.12
<hr/>	
Narcissism	
Authority	-.12
Self-sufficiency	-.24***
Superiority	.12
Exhibitionism	.10
Exploitativeness	-.03
Vanity	.06
Entitlement	.25***
R ²	.26***

* $p < .05$; ** $p < .01$; *** $p < .001$

Results show that *Entitlement* of NPI remained the most significant positive, and *Self-sufficiency* as the most significant negative predictor, while *Interpersonal manipulation* of the SRP-III turned to be a weakly negative predictor, and *Cynical view* of MACH IV a weakly positive predictor of dispositional envy.

5.3. Discussion

While theoretically well elaborated, the existing evidence of DT trait links with enviousness has mostly been generated from studies that utilised unidimensional measures of DT traits. Thus, the purpose of Study 2 was to examine possible mechanisms through which DT traits relate to dispositional envy, i.e., to test predictive capacity of DT trait individual factors. Considering the scarcity of previous findings, no assumption was made regarding components of psychopathy and trait envy. However, it was expected that Machiavellian *Cynical view* and a tendency to use diverse *Tactics* in pursuit of own self-interest, as well as narcissistic self-centred sense of *Entitlement* would transpire as the strongest positive predictors of general envious disposition.

Regarding the overall scores, Machiavellianism demonstrated significant ability to predict dispositional envy. Performance of specific factors was then investigated and resulted in demonstrating that at least one factor in each of the three DT dimensions appears as a significant predictor of the envious disposition measured by DES. Within the psychopathy dimension, *Interpersonal manipulation* that involves pathological lying and manipulation through conning (Williams, et al., 2007) appeared as a factor of significance. Its significance was weak and negative though, which, like in Study 1, singled out psychopathy as the least likely companion of trait envy. This supported the assumption that an envier's heightened sensitivity to social interactions may serve as a "protective shield" from taking on highly anti-social, impulsive, and callous manipulation of psychopaths and vice versa. Furthermore, Corral and Calvete's (2000) Machiavellian component characterised by the *Cynical view of human nature* appeared as a positive, although not the strongest, predictor. This component taps into the Machiavellian belief that all situations need to be exploited or people will otherwise take advantage of them. It makes sense to expect that the envier's conviction of being defeated under unfair circumstances would be coupled by Machiavellian distrust in other people and motivation to exploit others. Finally, Raskin and Terry's (1988) NPI *Entitlement* factor appeared as the most significant positive predictor of dispositional envy. This factor is related to a tendency to perceive others as being far less important than oneself and expecting special privileges over others. At the same time *Self-sufficiency* appeared as the most significant negative predictor. This component facilitates assertiveness, and it is considered as a healthy psychological resource factor, in contrast with *Entitlement* that is associated with poor social adjustment (Raskin & Terry, 1988). Consequently, it appears that being needy

due to the lack of self-sufficiency and having a strong sense of entitlement together form the most powerful mechanism that may intensify envious longing for social potency and status that others already enjoy.

The following components of trait narcissism also demonstrated significant positive effect on envy; *Exploitativeness/Entitlement* in Emmons' NPI (1984), *Exhibitionism* in Kubarych et al.'s 2 and 3-factor NPI (2004) and *Exhibitionism/Entitlement* in Corry et al.'s NPI (2008). In other words, factors characterised by the need for constant attention and admiration (*Exhibitionism*) and the ability to utilise socially dysfunctional manipulative strategies for status attainment (*Exploitativeness*) were consistently positively related to the envious disposition.

6. STUDY 3

6.1. Method

6.1.1. Participants and Procedure

Study 3 examined associations between life history strategy, emotion regulation and dispositional envy, as well as a mediating effect of emotion regulation on the hypothesized link between life history strategy and dispositional envy. Participants were the same as in Study 1 and consisted of 312 adults (208 identify as women, 104 as men) that completed a survey distributed online with the request to further distribute the Google Forms survey link. Participation was voluntary, respondents provided informed consent and were able to withdraw their participation at any time. Respondent age range was from 18 to 75 ($M = 45.20$, $SD = 13.28$). The majority completed either secondary (52%) or university (34%) education, 71% of participants are in a relationship, and 51% consider their income as average.

6.1.2. Measures

Dispositional envy was measured by utilizing the three scales as in Study 1: Dispositional Envy Scale (DES) (Smith et al., 1999), Domain-Specific Envy Scale (DSES) (Rentzsch & Gross, 2015), and Benign and Malicious Envy Scale (BeMaS),

with its subscales BeMaS_b (for benign) and BeMaS_m (for malicious envy) (Lange & Crusius, 2015).

Emotion regulation strategies were measured by the Emotion Regulation Questionnaire (ERQ) (Gross & John, 2003) - a 10-item instrument that measures typical use of cognitive reappraisal (ERQ_r) (“*I control my emotions by changing the way I think about the situation I’m in.*”) or expressive suppression (ERQ_s) (“*I control my emotions by not expressing them.*”). Respondents answered on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). In this study a Croatian version of the scale was used (Gračanin et al., 2019).

Life history strategy was measured by Mini-K (Figueredo et al., 2006) - a 20-item measure of life history strategy on the continuum of the fast (r scores) or slow (K scores) strategy. Respondents indicated how much they agree with statements on a scale from 1 (*not at all*) to 5 (*very much*) and the test is scored in a way that larger values (higher K scores) indicate a slower life history strategy. Items refer to: (a) *family social contact and support*; (b) *friends social contact and support*; (c) *altruism*; (d) *mother/father relationship quality*; (e) *insight, planning, and control*; (f) *intentions toward infidelity*; and (g) *religiosity*. The English version of the Mini-K used in this study was translated into the Croatian language following the standard back-translation process.

6.2. Results

6.2.1. Correlation Analysis

Correlations between all variables included in this study were computed first. Descriptive statistics and correlations between all variables are presented in Table 6.

Table 6. *Descriptive Statistics and Correlations between all Variables in Study 3*

Variables	1	2	3	4	5	6	7
1. LHS	-	.36**	-.13*	-.30**	-.27**	.03	-.26**
2. ERQ_r		-	.13*	-.18**	-.16**	.16**	-.22**
3. ERQ_s			-	.16**	.19**	.07	.12*
4. DES				-	.63**	.21**	.48**
5. DSES					-	.37**	.48**
6. BeMaS_b						-	.24**
7. BeMaS_m							-
Cronbach α	.78	.85	.72	.86	.92	.78	.63
Mean	103.78	29.44	14.27	11.92	29.92	14.81	8.49
Sd. deviation	14.75	7.78	5.19	5.19	15.03	5.74	3.31

* $p < .05$, ** $p < .01$

Note: ERQ_r = cognitive reappraisal; ERQ_s = expressive suppression; BeMaS_b = BeMaS subscale for benign dispositional envy; BeMaS_m = BeMaS subscale for malicious dispositional envy

The correlational matrix demonstrated that all dispositional envy measures were significantly and positively correlated. Envious experiences measured by DES, DSES and BeMaS_m, scales that contain items pertaining to the malicious aspects of envy, were more related with each other than with envy measured by BeMaS_b. Slow life history strategy was significantly negatively correlated with DES, DSES and BeMaS_m. It showed no correlation with BeMaS_b, but significantly positively correlated with reappraisal and negatively with suppression. Reappraisal was significantly positively correlated with BeMaS_b and negatively with all other dispositional envy scales. Suppression was significantly positively correlated with all envy scales that measure it as inherently containing maliciousness.

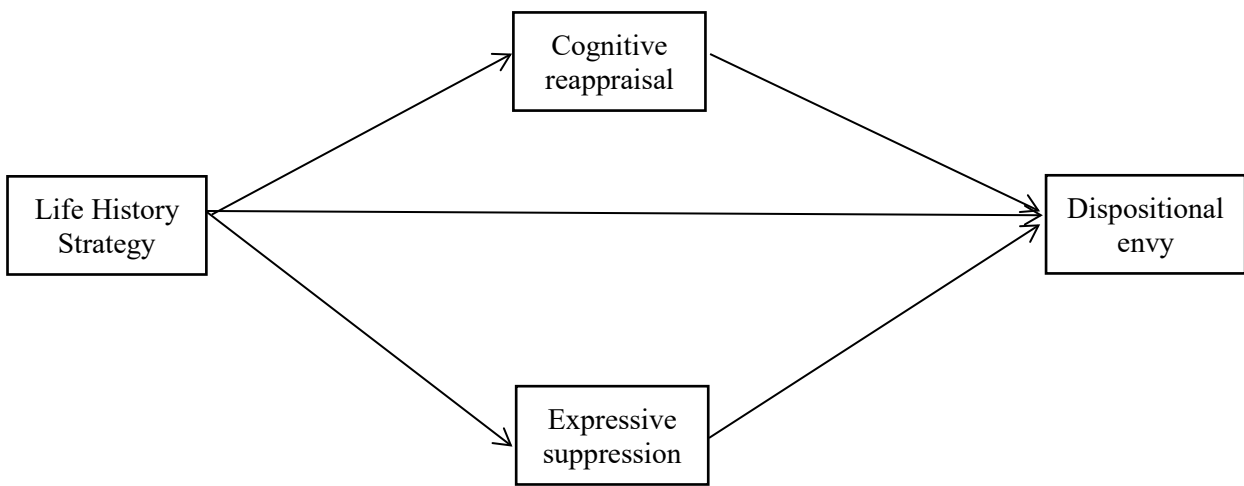
6.2.2. Mediation Analyses

Next, mediation analyses investigated the effects of life history strategy on emotion regulation strategies, and the effects of life history strategy, cognitive reappraisal and expressive suppression on four envy measures. It was also examined whether the relationship between life history strategy and envy is mediated by emotion regulation strategies. Four separate analyses were carried out for four measures of dispositional envy included in this study.

Sample size was above the recommended threshold ($N = 250$) for obtaining correlations with a high degree of stability (Schönbrodt & Perugini, 2013) and above the threshold ($N = 200$) for computing a path analysis (Sideridis et al., 2014), suggesting adequate power to detect direct effects. The required sample size for detecting indirect

effects was calculated using the online application “Monte Carlo Power Analysis for Indirect Effects” (Schoemann et al., 2017). For a mediation model with two parallel mediators, both correlated .20 and -.20 with the predictor, mutually correlated at .10, and associated to the outcome at .20 and -.20 and with a supposed correlation between life history strategy and envy of -.20, the power of detecting indirect effects would be .89 and .86. The mediation model is presented graphically in Figure 1. PROCESS macro for R was used for analyses (Hayes, 2022).

Figure 1. A General Model of the Relationships between Life History Strategy, Emotion Regulation and Envy



The results of the mediation analyses are presented in Table 7.

Table 7. Results of the Mediation Analyses in Study 3

Effects	Dispositional envy measures			
	DES_sum	DSES_global	BeMaS_b	BeMaS_m
LHS → reappraisal			.19 [.13, .24]	
LHS → suppression			.36 [.24, .46]	
LHS → envy	-.09 [-.13, -.05]	-.22 [-.34, -.09]	-.01 [-.05, .03]	-.04 [-.07, -.01]
reappraisal → envy	-.24 [-.36, -.14]	-.21 [-.34, -.09]	-.02 [-.14, .09]	-.19 [-.33, -.05]
suppression → envy	.14 [.05, .25]	.50 [.19, .82]	.16 [.03, .30]	-.16 [-.30, -.04]
LHS → reappraisal → envy	.14 [.05, .25]	.17 [.06, .28]	.05 [-.08, .18]	.07 [.01, .14]
LHS → suppression → envy	-.01 [-.03, .00]	-.04 [-.09, .00]	.05 [-.07, .16]	.11 [.02, .22]
LHS → reappraisal → suppression → envy	-.04 [-.09, .00]	-.04 [-.09, .00]	.02 [.00, .04]	-.01 [-.03, -.00]
LHS → suppression → reappraisal → envy	-.01 [-.01, -.00]	-.02 [-.05, -.00]	.06 [.01, .11]	-.06 [-.11, -.01]
LHS → reappraisal → suppression → envy	-.01 [-.01, -.00]	-.02 [-.05, -.00]	-.00 [-.01, .00]	-.00 [-.01, -.00]
LHS → suppression → reappraisal → suppression → envy	-.02 [-.04, -.00]	-.02 [-.05, -.00]	-.01 [-.03, .01]	-.01 [-.04, -.00]
R	.30***	.27***	.03	.26***

*** $p < .001$

Note: Unstandardised (above) and standardised (below) regression coefficients and their 95% confidence intervals are reported. Bootstrap confidence intervals were obtained on 10000 samples. Significant effects are bolded.

As hypothesized, slow life history strategy was positively linked with reappraisal, negatively with suppression and all measures of envy that contain malicious envy. Contrary to the prediction, life history strategy did not demonstrate a significant relationship with the measure of benign envy disposition. The hypothesis that cognitive reappraisal would be significantly positively linked with benign envy and negatively with malicious disposition was partly confirmed by the findings. Considering hypothesized mediation effects of emotion regulation strategies, the findings supported the prediction that cognitive reappraisal would significantly mediate the positive link between slow life history strategy and benign envy measured by BeMaS_b and a negative link with malicious envy measured by BeMaS_m. However, the hypothesized mediation effect of suppression on malicious disposition measures has not been confirmed.

6.3. Discussion

This study focused on links between life history strategy, emotion regulation and dispositional envy and mediating effects of emotion regulation on the hypothesized relationship between life history strategy and dispositional envy. It was hypothesized that slower life history strategy would positively predict both reappraisal and benign motivations of dispositional envy and would negatively predict suppression and malicious envy motivations. Suppressive emotion regulation strategizing would positively predict malicious, while reappraisal would positively predict the benign feature of envy. Emotion regulation mechanisms would mediate the link between slower life history strategy and dispositional envy, in a way that reappraisal would be related to the increased experience of the benign properties in envy, while suppression would be related to the experience of its malicious properties. Considering that different dispositional envy measures were simultaneously used, the hypotheses were tested several times. The results provided partial support of the hypotheses, except for the expected mediation effect of suppression on the link between life history strategy and dispositional envy.

To rephrase the results, it may be affirmed that slower life history strategists tend to use cognitive reappraisal more often than expressive suppression and are less likely to experience malicious envy. Cognitive reappraisal seems to be positively related

with benign envy and negatively with malicious envy measured by BeMaS_m. Reappraisal significantly mediated positive effects of slow life history strategy on benign envy, and negative effects on malicious envy. The results demonstrated marginally significant direct effects of life history strategy on suppression, but suppression did not mediate a relationship between life history strategy and envy. However, suppression was directly linked with increased maliciousness of envy.

The tendency towards responding to social threats with envy seems to guide individuals to not lose sight of the target of their envy. To encapsulate what the results suggest, it appears that “staying on target” may be possible in two distinct ways. In a realm of faster life history strategy, one would be more susceptible to instant solutions such as crushing the target and taking its place. This is possible through unreserved hostility, lack of remorse, and not “wasting time” on regulating the emotional experience. Slower strategizing and being open to longer-term goals are compatible with reappraisal that “buys time” to guide behaviour towards a constructive search of options, such as how to get one’s desired social status without necessarily eliminating the target.

Moreover, according to the findings, the use of suppression may be positively and directly related to the experience of maliciousness in envy. This effect is easy to explain given the available emotion regulation research. Suppressing unpleasant emotions comes with a great risk of backfiring with amplified strength of unwanted emotions (Wegner, 1994a, 1994b). Therefore, envious thoughts are bound to return, the emotion regulatory goal is compromised, and an increased negative emotional experience may be expected.

7. STUDY 4

7.1. Method

7.1.1. Participants and Procedure

The results of Study 3 supported the hypotheses, except for the hypothesized direct effects of life history strategy on suppression and mediation effect of suppression

on the link between life history strategy and dispositional envy. Study 4 further tested whether these results could be replicated, and whether the findings could be generalized. In this study, 305 respondents participated (179 identify as women, 120 as men, 5 as non-binary/non-conforming, 1 as transgender), between 18 and 72 years of age ($M = 33.8$; $SD = 13.7$). Research was multi-cultural and involved nationals of 24 countries: Austria, Bosnia and Hercegovina, Bulgaria, Brazil, Croatia, Egypt, France, Germany, India, Italy, Lebanon, Lithuania, Mexico, New Zealand, North Macedonia, Serbia, Slovakia, Slovenia, Spain, Tanzania, the Netherlands, Uganda, UK and USA. Most participants reported average income (56.7%), while an equal number reported either below or above average income (21.6% in each category). A first-level university or master's degree are held by 62% of participants, 3.9% doctoral, while 34.1% of participants completed secondary or vocational school. Most participants reported being employed (74.1%) and others reported either being unemployed, self-employed, or retired. Participants completed a survey distributed via social media with the request to further distribute the Google Form link survey to their contacts. Participation was voluntary, respondents needed to provide informed consent and were able to withdraw their participation at any time.

7.1.2. Measures

The same measures for life history strategy, emotion regulation mechanisms, benign and malicious envy disposition were used as in Study 3. The study was conducted in the English language and fluency in English was a precondition of participation. In addition to BeMaS, in this study a vignette design with six scenarios was included, created to reflect benign and malicious envy items from BeMaS. Each of the six scenarios presented a different envy inducing situation that involved a person easy to compare with. Respondents were asked to recall or imagine situations briefly described in the scenarios.

For each scenario, two statements were presented. One echoed a malicious envy condition (vignette_m) containing hostility against the envied or focus on how to diminish the envied person's advantage. The second one echoed a benign envy condition (vignette_b) containing self-reflection or focus on how to increase one's own

prospects by improving own skills and adapting own behaviours. The order of benign and malicious envy condition was randomized across scenarios. Respondents were asked to evaluate both statements on a 7-point Likert scale, from 1 (“*strongly disagree*”) to 7 (“*strongly agree*”). Thus, two sets of scores were calculated, one for benign and one for malicious envy. The following are two examples of scenarios and associated statements, one related to behavioural outcomes, another to affective experience, while the full description of scenarios is presented in Appendix 1.

“Imagine a situation when you devoted equal effort to a work assignment, and a colleague that you worked with on that assignment gets all the credit simply because they were the first ones to be ready to present the work results to superiors. How likely is that you would do the following? (You must rate both options.): (a) Try to examine what you did differently to understand better how the colleague was able to prepare the presentation so quickly. (vignette_b) (b) Speak about this injustice to others making sure it’s known that some people cut corners and get it all. (vignette_m)”

“Recall a situation during the lockdown caused by the COVID-19 pandemic, when you were still isolating at home, while your friend or acquaintance somehow managed to take what you consider “a dream holiday” or do something else that was still not available to you. What were your first thoughts? (You must rate both options.): (a) “Well done. I may try to do something like this too. (vignette_b) (b) Some people have it all. Of course, it bothers me. (vignette_m)”

Vignettes were constructed by two psychologists familiar with concepts of benign and malicious envy that prepared a larger number of envy-inducing scenarios. These were used in the pilot study that included 75 participants, mainly students in their finishing years of social and humanistic university studies. The final set of six vignette scenarios was chosen after examining descriptive data, reliability, factor analysis and correlations with BeMaS (Lange & Crusius, 2015). Cronbach alpha reliability in the pilot study was .64 for benign, and .51 for malicious envy and their correlation was $-.45$ ($p < .001$). Both vignette_b and vignette_m items produced the expected correlations with benign and malicious subscales of BeMaS. Thus, although provisional, the pilot study results indicated that the designed vignette measure can be used as an additional instrument to assess benign and malicious envy.

7.2. Results

7.2.1. Correlation Analysis

Table 8 presents descriptive statistics and correlations between variables used in this study.

Table 8. *Descriptive Statistics and Correlations between all Variables in Study 4*

Variables	1	2	3	4	5	6	7
1. LHS	-	.29**	-.17**	.14*	-.23**	.16**	-.12*
2. ERQ_r		-	-.07	.16**	-.12*	.24**	-.19**
3. ERQ_s			-	.14*	.17**	.03	.09
4. BeMaS_b				-	.07	.38**	.03
5. BeMaS_m					-	-.18**	.49**
6. Vignette_b						-	-.26**
7. Vignette_m							-
Cronbach α	.71	.85	.74	.69	.78	.55	.61
Mean	103.73	29.85	13.80	18.98	10.44	29.86	18.62
Sd. deviation	12.50	6.37	4.63	4.52	4.22	4.80	5.50

* $p < .05$, ** $p < .01$

Note: Vignette_b = benign envy condition; Vignette_m = malicious envy condition

The correlational matrix indicated significant positive correlations between the BeMaS benign envy subscale and vignette answer ratings implicating benign responses, as well as between the BeMaS malicious envy subscale and vignette answer ratings implicating malicious responses. Moreover, BeMaS benign envy subscale was not correlated with vignette malicious answer ratings, while BeMaS malicious subscale appeared to be moderately negatively correlated with vignette benign answer ratings. Taken together, these results indicated adequate convergent-discriminant validity of vignette measures.

Slow life history strategy was significantly positively correlated with both measures of benign envy and reappraisal, and negatively with both measures of malicious envy and suppression. Reappraisal was significantly positively correlated with both measures of benign envy, and significantly negatively with both measures of malicious envy. Suppression demonstrated positive correlations with both BeMaS subscales and no correlations with vignette measures.

7.2.2. Mediation Analyses

Following the same general mediation model as shown in Figure 1, four mediation analyses were carried out to examine effects of life history strategy on cognitive reappraisal, expressive suppression, two measures of benign and two of malicious envy, as well as effects of both emotion regulation strategies on all envy measures. As in the previous study, it was investigated whether emotion regulation strategies would mediate the relationship between life history strategy and envy. The results of these analyses are presented in Table 9.

Table 9. Results of the Mediation Analyses in Study 4

Effects	Envy measures			
	BeMaS_b	Vignette_b	BeMaS_m	Vignette_m
LHS → reappraisal		.15 [.09, .20]		
LHS → suppression		.29 [.19, .39]		
		-.06 [-.11, -.02]		
		-.17 [-.28, -.06]		
LHS → envy	.04 [.00, .09]	.04 [-.00, .09]	-.06 [-.10, -.02]	-.03 [-.08, .03]
	.12 [.08, .24]	.11 [-.01, .23]	-.19 [-.31, -.07]	-.06 [-.19, .06]
reappraisal → envy	.10 [.01, .18]	.16 [.07, .26]	-.04 [-.11, .03]	-.14 [-.24, -.04]
	.14 [.02, .25]	.22 [.09, .35]	-.06 [-.16, .05]	-.17 [-.28, -.05]
suppression → envy	.16 [.05, .28]	.06 [-.06, .18]	.12 [.02, .24]	.08 [-.06, .23]
	.17 [.05, .29]	.06 [-.05, .18]	.13 [.02, .26]	.07 [-.05, .20]
LHS → reappraisal → envy	.04 [.00, .08]	.06 [.02, .11]	-.02 [-.05, .01]	-.05 [-.09, -.01]
	.01 [.00, .03]	.02 [.01, .04]	-.01 [-.02, .00]	-.02 [-.04, -.01]
LHS → suppression → envy	-.03 [-.06, -.00]	-.01 [-.04, .01]	-.02 [-.05, -.00]	-.01 [-.04, .01]
	-.01 [-.02, -.00]	-.00 [-.01, .00]	-.08 [-.02, -.00]	-.00 [-.02, .00]
R	.13*	.16**	.23***	.12*

* $p < .05$, ** $p < .01$, *** $p < .001$

Note: Unstandardised (above) and standardised (below) regression coefficients and their 95% confidence intervals are reported. Bootstrap confidence intervals were obtained on 10000 samples. Significant effects are bolded.

The results confirmed hypothesized positive effects of slower life history strategy on cognitive reappraisal and negative effects on malicious envy, measured by BeMaS subscale, but also a negative effect on suppression. Consistent with the previous study, cognitive reappraisal had a significant positive effect on both measures of benign envy and a significant negative effect on malicious envy measured by vignettes. While expressive suppression in Study 3 did not confirm its hypothesized effects, in this study suppression showed significant positive effects on both benign and malicious envy measured by BeMaS. A significant positive effect of suppression on malicious envy is in line with the hypothesis. However, a significant positive effect of suppression on benign envy was not expected.

The hypothesis that cognitive reappraisal would significantly mediate the relationship between life history strategy and dispositional envy was partially confirmed. The results showed that reappraisal significantly mediated a positive effect of slower life history strategy on benign envy and a negative effect on malicious envy measured by vignettes. The hypothesis regarding the mediating effect of expressive suppression was confuted again; suppression did not significantly mediate the effects of life history strategy on any measure of envy used in this study. Mediating effects of cognitive reappraisal on benign envy measured by vignettes appeared to be significantly stronger than the mediating effect of expressive suppression. This relates to a mediation model when benign envy was measured by BeMaS as well, however in this model the mediating effect of cognitive reappraisal was not significant.

7.3. Discussion

This study replicated Study 3 and focused on links between life history strategies, emotion regulation and dispositional envy and mediating effects of emotion regulation on the link between life history strategizing and dispositional envy. The hypothesis that slower life history strategy would positively predict both cognitive reappraisal and benign motivations of dispositional envy, while faster strategy would positively predict both expressive suppression and malicious motivations was tested. It was hypothesized that suppressive emotion regulation strategizing would predict malicious envy, while reappraisal would positively predict the benign feature of envy. Also, emotion regulation mechanisms would partially mediate the link between life history strategy and dispositional envy, in a way that reappraisal would increase the experience of the benign properties in envy, while suppression would facilitate the experience of its malicious properties.

The hypotheses were therefore tested several times within two studies with different population samples. Regarding the hypothesized direct effects between variables, the predicted significant positive effect of slow life history strategy on cognitive reappraisal was confirmed in both studies, and its negative effect on suppression was confirmed in Study 4. The direct positive effect of slow strategy on benign envy was tested three times, once in Study 3, and twice in Study 4, and it was not confirmed. The direct negative effect of slow strategy on malicious envy was tested five times; in Study 3 by using three measures for malicious envy, and in Study 4 by

using two measures for malicious envy. It was confirmed in Study 3, and partially in Study 4. The direct positive effect of reappraisal on benign envy has been tested three times in total, and it was confirmed. The direct positive effect of suppression on malicious envy has been tested five times across two studies and was confirmed four times. Additionally, results of Study 4 demonstrated an unexpected direct positive effect of suppression on benign envy. Regarding mediation effects, the hypothesis that cognitive reappraisal will positively mediate the effect of life history strategy on benign envy was confirmed twice out of three times of being put to test. The hypothesized mediation effect of suppression on the relationship between life history strategy and envy has not been confirmed neither in Study 3 nor in Study 4.

Thus, it was demonstrated again that slow life history strategists tend to use cognitive reappraisal and are less likely to experience malicious envy. In this research, cognitive reappraisal seemed to be related to shaping envy into its benign form. Moreover, as the results confirmed, reappraisal significantly mediated positive effects of slow life history strategy on benign envy, and negative effects on malicious envy. On the other hand, while slow life history strategising may negatively affect suppression (as partially demonstrated), and suppression may increase malicious envy, this emotion regulation strategy did not significantly mediate a relationship between life history strategy and envy. However, in this study, suppression positively affected not only malicious envy, but benign envy as well.

Thus, the results across the two studies were complementary, except for the findings related to the relationship of expressive suppression and dispositional envy. The positive effect of suppression on malicious envy is easy to explain given the available research as elaborated in the Discussion section of Study 3.

However, according to the additional results of Study 4, suppression may also provide an opportunistic adjustment leading to the increase of benign envy. Although suppression is a behaviourally oriented form of emotion regulation (Gross & John, 2003), studies of emotion regulation in the context of decision-making suggest that not only impulsivity levels are affected by emotions, but decisions can be altered once the emotional response is judged to be good or bad (Greccuci & Sanfey, 2014). By judging an emotional response of envy as bad and socially unacceptable, modification of an affective response would be available, regardless of the likelihood that the suppressed emotion might return. In this way, it is possible that a delayed response allows retention of the regulatory goal to act on one's envy without risking social rejection, e.g., by

showing willingness to self-improve instead of solely preserving hostility against the target.

Furthermore, emotion regulation researchers increasingly emphasize that not only cultural display rules of emotions exist, but there are differences in activation levels. For example, there are indications that in Asian American, East Asian or bicultural European samples, adverse consequences of suppression are not as evident as in European American samples. In a study of anger regulation, data indicated that participants of Asian origin not only expressed anger less but felt less angry after suppressing their anger (Mesquita et al., 2014). Considering the emerging studies that emphasize appraisal patterns and cultural adjustments (Tan et al., 2017), it is possible that the multi-cultural sample in Study 4 provided an indication of flexibility in meeting contextual demands and thus allowed suppression to demonstrate its adaptive side as well.

8. SUMMARY AND GENERAL DISCUSSION

Overall, the results of the present research suggest that the individuals with a tendency to respond to an unfavourable upward social comparison with envy would likely score high on neuroticism of BF, and the two DT traits: narcissism and Machiavellianism. (Study 1). It has been demonstrated that the strong link between the DT traits and dispositional envy may be determined by presence of the specific narcissistic factor of *Entitlement* and a Machiavellian *Cynical View* coupled by the lack of *Self-sufficiency* (Study 2). These factors may power up enviousness for unreserved focus on personal status. The commonality between these components lays in interpersonal loathing and ill will towards others that may be seen as obstacles to the desired status. At the same time, it was demonstrated that psychopathic tactics seem to lack in subtlety for an envier's opportunistic aspirations to raise in social hierarchies.

However, each scale used to measure trait envy offered another corresponding brush stroke in painting the contour of an envious disposition. Lower conscientiousness, (Study 1), and at least one factor of all three DT dimensions – all having a positive effect on increasing malicious motivation scores (Study 2), while openness to experience produced a weak positive effect on benign motivations in envy (Study 1).

More insight was gained while scrutinizing these findings in the light of the LHT framework operationalized through life history strategies (Study 3 and 4). This line of

investigation called for weighing up to what point benign and malicious envy can be set apart in the dispositional sphere. Within the framework of LHT and the mediation model presented, the combination of traits found to be predictive of what is considered as benign or malicious envy was re-examined. Somewhat different motivational dynamics are noticeable, but also remarkable intersections.

Following the findings of the present research, slower life history strategists are more likely to regulate their emotions through cognitive appraisal and less likely to experience the maliciousness of envy. This emotion regulation strategy mediates the relationship between life history strategy and envy in a way that it shapes envious feelings into a more benign and less malicious experience. However, researchers argue that a clear-cut picture of fast-slow strategizing cannot be painted. Sherman et al. (2013) cautioned that while slow life history strategists tend to appear considerate, hard-working, and reliable, they can also be socially awkward and overcontrolling, while fast strategists although hostile, manipulative and impulsive may appear socially skilled. This is consistent with the evolutionary interpretation of life history strategies that adapts to systematically different environments.

A similar explanation is plausible regarding benign and malicious experiences of envy. For example, although slower life history strategizing predominantly clusters so called “getting along” personality traits (Hogan & Blicke, 2018), and is directly positively linked with cognitive reappraisal, this does not prevent slow life history strategists from drawing on possible narcissistic and Machiavellian tendencies that are linked to both slow and fast strategising (e.g., Davis et al, 2019). Moreover, cognitive reappraisal, by reducing negative affect, may at times endorse motivation for riskier behaviours (Heilman et al., 2010). Thus, it is conceivable that slower life history strategists may respond to the provoked envy with a blend of benign and malicious responses.

The present research results did not demonstrate a significant connection between faster life history strategy and suppression, and suppression did not mediate the relationship between life history strategy and dispositional envy. The explanation may lay in a previously established feature of fast life history strategy to let down emotion regulation entirely (Wegner, 1994a). Additionally, although it likes to hide under other related emotions such as hostility or admiration (Smith, 2004), envy seems to be a powerful emotion vigorously resisting to be silenced, because it is sending an important message with social implications. Dysregulation may be a strategy by itself (Heilman

et al., 2010). In other words, a failure to maintain a regulatory goal or not regulating an emotion at all, may be a strategy to maintain the strength of emotional signal without delays. Even a less effective emotion regulation strategy would contradict with a strong motivation not to re-direct or silence, even temporarily, the needed emotional arousal as to be able to discharge the impulsive potential of a personality trait cluster related to faster life history strategizing.

Overall, socio-demographic variables did not account for significant variability in results. It needs to be added that out of socio-demographic characteristics, only age repeatedly appeared as a negative predictor (“*the younger, the envier*”), and only income as a weak positive predictor (“*the more I have, the more I envy*”) (Study 1). However, the multi-cultural sample of 24 nations (Study 4) provided an indication of a possible adaptive role of suppression as an emotion regulation strategy that may “guide” one’s envy towards its benign form as well.

This research demonstrated that envy provides an exceptionally wide range of motivations and strategies to acquire “*what one deserves*”. Given the potency of traits that are clustered together, the somewhat different patterns of connections when comparing the two proposed types of envy and adding to it the effects of culturally endorsed emotion regulation strategies - dispositional envy may well have its benign and malicious forms. However, as results suggest, they seem to exist simultaneously in an envious individual, taking turns, shifting forward and backwards.

9. CONCLUSIONS

Based on this research that included four presented studies, it is proposed that dispositional envy exists as a distinct personality variable aimed at regulating social status hierarchies in a specific manner and predominantly in a constellation of “going ahead” rather than “getting along” traits. Considering what the empirical results have demonstrated so far, dispositional envy assembles personality features that enable the emotion to oscillate between benign and malicious motivations. Thus, it cannot be concluded beyond doubt that benign envy may stand by itself as a distinct and relatively stable disposition, fully equipped with antidotes to stay purified from the venom of maliciousness.

Simultaneous use of psychometric instruments that operationalize envy differently (Study 1), inclusion of multidimensional measures of DT (Study 2), a mediation model

that examined life history strategies and emotion regulation strategies in relation to the envious disposition (Study 3), multiple testing of the same hypotheses (Study 3 and 4), adding the vignette design and a multi-cultural sample (Study 4) – were all methodological choices that expanded the palette of shades in painting the contours of envy in the dispositional sphere.

The evolutionary psychology perspective operationalized through the life history strategy proved to be useful in shedding light on troublesome emotions that appear inadequate and are socially undesirable yet contain a profound functional logic for the one experiencing them. Both life history strategies and dispositional envy relate to important motives of human behaviour, safe positioning, and expectancy of social advancement. Initially, fast life history strategising ensured securing favourable statuses while competing for scarce resources. To respond to the harshness of such environments, archetypal malicious envy may have developed to maintain strong motivation to seize means that meant prolonged survival and secured reproduction. With the development of slower life history strategy as a response to more stable human settlements, where cooperation and less impulsive choices ensured social support and prosperity, the decoding system to decipher signals of envy needed to be augmented to remain functional. It seems that, depending on several important personal and situational variables, the decoding of envy may on occasion filter it into its benign expression or leave it indigestible and impossible to handle without releasing its initial raw potential without delay.

There are limitations to this study that call for follow-up research. The inherent weaknesses of self-reported questionnaire design need to be acknowledged. It is broadly known that self-reported emotional experiences are potentially biased by socially desirable responses. In the case of this research which investigated a universally condemned emotion, the response bias may have been even stronger. This has been addressed by replicating Study 3 and using different methodology to assess envy. However, a limitation lays in the study's principal strength. Although reportedly reliable, vignette scenarios may still have been perceived as artificial without accounting for the actual social costs that the envier is willing to accept. Furthermore, the vignettes addressed both affective experiences (how respondents felt or would feel in envy inducing situations) and behavioural consequences (how respondents acted or would act). Some researchers argue that examinations of envy need to strictly divide the experience of envy from its outcomes to avoid tautology. However, with this approach,

that included different operationalisations of the construct, yet monitored results produced by each scale, the hope was to add clarity to the current conceptual ambiguity of the construct.

While it is expected that online administered research may mobilise larger samples, there are features in place that may discourage participation as well. Moreover, although the majority of the population now have Internet access, there still may be a sample bias. There is currently no adequate sampling frame that would provide an approximate random sample of Internet users. However, there are features that may assist in maintaining the quality of data, such as screening responses for suspicious patterns of data and multiple submissions by one person.

Some of the measures demonstrated a reliability somewhat lower than satisfactory. This is a consequence of the heterogeneity of some of the measures (e.g. for psychopathy) and the shortness of the scales (when dealing with individual components of the DT). These lower reliabilities could have led to somewhat lower correlations of these measures with the other variables used in the research.

Although brought into the light, cultural variabilities in habitual use of emotion regulation strategies and how this may link up to the relationship between life history strategy, emotion regulation and dispositional envy have not been further explored at this time. Thus, it would be worthwhile to re-examine the model hypothesized in this research in the wider contexts of different social hierarchies and cultures. Finally, this research included path-specific effects of mediation analyses. Therefore, the reported direct and indirect effects cannot be interpreted as causal inferences.

In conclusion, whether experienced as a poison of inferiority or as its cure and whether reacted to with or without hostility against the target, within this framework the adaptive logic of dispositional envy may gain clarity. By exploring other personality variables and mediators still not accounted for, our understanding of dispositional envy may lead to learning what changes are feasible in adaptive responding to this painful emotional experience.

The aspired scientific contribution of this research may be summarized by the following: increased understanding of the tendency to respond to an unfavourable social comparison with the emotion of envy by using different instruments to measure dispositional envy, the addition of a new instrument, and placing the research within the framework of the LHT. It is expected that empirical results provided in this research

may also bring the scientific world closer to concluding whether benign and malicious envy can be differentiated in the dispositional domain and, if so, to what extent.

This line of study may exhibit important practical and social implications, including in the organizational settings. Envy often gets camouflaged by other related emotions, while its consequences may be quietly tearing apart the social fabric of a contemporary world marked by heavy competition over resources that are perceived as scarce. The more we understand what makes individuals envious, the more we will be able to investigate and understand what other mechanisms, including nourishing ones, may fine-tune this personality disposition into its less troubling expression.

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12. APPENDIX 1

Vignette scenarios

Scenario I.

Think about a person in your working/studying environment that is easy to compare yourself with and is at a similar level as you. So far you have been in a pleasant collegial relationship. Imagine that your supervisor distributes work assignments to both of you and you started noticing that in the past year your colleague was assigned projects that are far more attractive in terms of professional visibility and more fun to work on, although not more complex than those that you get to manage.

What would be your response? (You must rate both options.)

- a) Either showing anger or ignoring my colleague to make a point that I noticed this discrepancy between the opportunities that we are offered. (Malicious envy response)
1. Strongly disagree
 2. Disagree
 3. Somewhat disagree
 4. Neither agree nor disagree
 5. Somewhat agree
 6. Agree
 7. Strongly agree
- b) Re-examine how my colleague prepared project proposals to see whether there is a difference between our approaches. (Benign envy response)
1. Strongly disagree
 2. Disagree
 3. Somewhat disagree
 4. Neither agree nor disagree
 5. Somewhat agree
 6. Agree
 7. Strongly agree

Scenario II

Recall a situation during the lockdown caused by the COVID-19 pandemic, when you were still isolating at home, while your friend or acquaintance somehow managed to take what you consider “a dream holiday” or do something else that was still not available to you.

What were your first thoughts? (You must rate both options.)

a) “Well done. I may try to do something like this too.” (Benign envy response).

1. Strongly disagree
2. Disagree
3. Somewhat disagree
4. Neither agree nor disagree
5. Somewhat agree
6. Agree
7. Strongly agree

b) “Some people have it all. Of course, it bothers me.” (Malicious envy response)

1. Strongly disagree
2. Disagree
3. Somewhat disagree
4. Neither agree nor disagree
5. Somewhat agree
6. Agree
7. Strongly agree

Scenario III

Imagine a dear colleague or a friend that you often helped to overcome difficult situations. Now this person received public recognition for their achievement. You invested lots of effort to help this person “stand on their feet”. Now, it seems you are left behind.

How would you feel? (You must rate both options.)

a) Resentful, I wouldn't like them that much anymore. (Malicious envy response)

1. Very unlikely
2. Unlikely
3. Somewhat unlikely

4. Neither likely nor unlikely
 5. Somewhat likely
 6. Likely
 7. Very likely
- b) Motivated to secure recognition for my achievements too. (Benign envy response).
1. Very unlikely
 2. Unlikely
 3. Somewhat unlikely
 4. Neither likely nor unlikely
 5. Somewhat likely
 6. Likely
 7. Very likely

Scenario IV

Most of us have encountered people that we simply don't like for many different reasons, and yet we need to cooperate with them. Recall such a person. Now examine how likely it is that this person is also more successful in some area important to you or possesses something you would like to have?

How do you rate the following statements? (You must rate both options.)

- a) "It is very likely. It affects our cooperation in addition to them being difficult."

(Malicious envy response)

1. Strongly disagree
2. Disagree
3. Somewhat disagree
4. Neither agree nor disagree
5. Somewhat agree
6. Agree
7. Strongly agree

- b) "It is very likely. It doesn't affect our cooperation, I have a lot to learn from them." (Benign envy response)

1. Strongly disagree
2. Disagree
3. Somewhat disagree
4. Neither agree nor disagree

5. Somewhat agree
6. Agree
7. Strongly agree

Scenario V

Imagine a situation when you devoted equal effort to a work assignment, and a colleague that you worked with on that assignment gets all the credit simply because they were the first ones to be ready to present the work results to superiors.

How likely is that you would do the following? (You must rate both options.)

a) Try to examine what you did differently to understand better how the colleague was able to prepare the presentation so quickly. (Benign envy response)

1. Very unlikely
2. Unlikely
3. Somewhat unlikely
4. Neither likely nor unlikely
5. Somewhat likely
6. Likely
7. Very likely

b) Speak about this injustice to others making sure it's known that some people cut corners and get it all. (Malicious envy response)

1. Very unlikely
2. Unlikely
3. Somewhat unlikely
4. Neither likely nor unlikely
5. Somewhat likely
6. Likely
7. Very likely

Scenario VI

Person A works in a company, where a new arrival, person B, that is of the same gender and age, gets placed on an entry level position. It is critical for the job to know as many foreign languages as possible. A speaks three languages, and throughout several years with the company has gradually acquired a more senior position. B

speaks four languages and is clearly highly competent and knowledgeable. However, B needs help in learning how to meet company standards in producing a monthly financial report. If the report is done correctly, B's job contract will be extended beyond the probationary period. Once B's contract is extended, B and A would have equal opportunities for further job promotions.

According to you, what should A do? (You must rate both options.)

a) Nothing, let B struggle with that report. (Malicious envy response)

1. Strongly disagree
2. Disagree
3. Somewhat disagree
4. Neither agree nor disagree
5. Somewhat agree
6. Agree
7. Strongly agree

b) Help B with the report and urgently enrol in a language course making sure that discrepancies in language knowledge will eventually be levelled up between them.
(Benign envy response)

1. Strongly disagree
2. Disagree
3. Somewhat disagree
4. Neither agree nor disagree
5. Somewhat agree
6. Agree
7. Strongly agree

13. CURRICULUM VITAE AND LIST OF PUBLICATIONS

Andrea Milić was born on 7 January 1960 in Zagreb, Croatia. In 1984 she completed her four-year studies at the University of Zagreb, Faculty of Political Science, acquiring a bachelor's degree in Political Science. In 2006 she gained a master's degree in psychology at the Open University, Surrey, UK. From 1994 until recently, she worked as an international civil servant in and as a consultant for international non-profit agencies (United Nations Offices in Nairobi, Vienna and Geneva, OPCW in the Netherlands, CTBTO in Vienna and many other agencies throughout the world). Her assignments included creation and facilitation of educational training programs for diverse professions and multidisciplinary teams, as well as international cooperation projects related to scientific and technical exchange. This work took her to many world locations and exposed her to the richness of different cultures. Andrea's current ambition is to merge her extensive international experience with her academic and scientific work and to continue learning and sharing knowledge about fascinating features of human existence. She published the following articles that are partly contained in this dissertation, since they present individual studies undertaken as planned segments of her doctoral thesis:

Milić, A., Kardum, I., & Švegar, D. (2023). The venom and antidotes of dispositional envy: Life History Strategy, emotion regulation, and envy links. *Personality and Individual Differences* 215. <https://doi.org/10.1016/j.paid.2023.112361>

Milić, A., Kardum, I., & Švegar, D. (2021). Contours of the envious personality: Reassessing the capacity of the Big Five and the Dark Triad personality traits in predicting dispositional envy. *Current Psychology*, 42, 14051–14064. <https://doi.org/10.1007/s12144-021-02633-3>

Milić, A. (2019). Envy: An unwanted, but unavoidable and necessary emotion. *Psihologijske teme*, 28(2), 335-375. doi: <https://doi.org/10.31820/pt.28.2.7>

