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Farley, S. orcid.org/0000-0003-0782-4750, Niven, K. orcid.org/0000-0002-6675-5532, Hughes, D.J. orcid.org/0000-0002-3807-3809 et al. (1 more author) (2025) Workplace bullying and personality change: evidence from a 4-year Swiss panel study. *Work & Stress*. ISSN: 0267-8373

<https://doi.org/10.1080/02678373.2025.2551489>

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Workplace bullying and personality change: Evidence from a 4-year Swiss panel study

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We have no known conflicts of interest to declare.

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Workplace bullying and personality change: Evidence from a 4-year Swiss panel study

Abstract

Bullying is amongst the most extreme and unpleasant working experiences one can face, with well-documented negative consequences for well-being. However, theoretical claims that the harmful consequences of workplace bullying extend beyond short-term effects to changes in victims' personality traits have only been tentatively explored. Using longitudinal panel data collected by the Swiss National Centre of Competence in Research Lives project ($N = 2,469$), we investigated the relationship between perceived workplace bullying and changes in the Big Five personality traits, over 4-years. We hypothesised that experiences of bullying would be related to decreased agreeableness, conscientiousness, extraversion, and openness, and increased neuroticism. Latent change score analyses revealed that changes in, and the total amount, of workplace bullying, were related to increased neuroticism and decreased extraversion, with changes in bullying status also related to decreased conscientiousness. This study provides the strongest evidence to-date that experiencing workplace bullying can manifest in undesirable personality trait changes.

Keywords: Workplace bullying, Personality Change, Neuroticism, Extraversion, TESSERA Framework

WORKPLACE BULLYING AND PERSONALITY CHANGE

Bullying refers to a process wherein an individual is, or at least perceives themselves to be, subjected to frequent negative acts over a prolonged period (Einarsen et al., 2020).

Bullying is amongst the most extreme and unpleasant working experiences one can face, with well-documented negative consequences for well-being and career success (e.g., Farley et al., 2023; Glambek et al., 2015; Tokarev et al., 2017), and theoretical claims that bullying can even manifest in deleterious personality changes (Leymann & Gustafson, 1996).

Bullying typically begins as a low-level conflict with negative behaviours directed towards the victim gradually increasing in intensity and frequency (Leymann, 1996). As bullying escalates, victims tend to experience increases in stress and anxiety and decreases in opportunities to socialise and engage in meaningful work tasks. Bullying represents a repeated experience that fundamentally changes victims' working environments and internal states, both of which can accumulate to drive personality change (e.g., Tasselli et al., 2018; Wrzus & Roberts, 2017).

Given the prototypical bullying process (Leymann 1996), victims are argued to experience internal states and working environments that increase neuroticism and reduce opportunities to be agreeable, conscientious, open-to-experience, and extraverted. The consequences of such changes could be profound. Higher neuroticism and lower conscientiousness and extraversion are associated with a slew of detrimental outcomes including poorer job performance, interpersonal difficulties, and degraded mental and physical health (Ozer & Benet-Martinez, 2006). In addition, lower levels of agreeableness are associated with reduced job satisfaction and counterproductive work behaviours (Wilmot et al., 2022), while lower openness is linked to reduced decision-making performance (LePine et al., 2000).

Despite prominent theorising (e.g., Bowling et al., 2010; Coyne et al., 2000; Leymann, 1996), there is little empirical evidence regarding the effects of bullying on

personality. Here, we examine a large and unique longitudinal dataset (Maggiori et al., 2016) to contribute to the literatures on workplace bullying and personality change in two key ways. First, we extend understanding of the consequences of workplace bullying, by providing the most rigorous test to-date of effects on personality change. Most extant workplace bullying and personality research is cross-sectional (Nielsen et al., 2017). We are aware of just three studies that assess bullying and personality traits over-time,¹ thereby allowing for tests of the relationship between personality change and bullying. These studies report mixed and inconclusive evidence. Nielsen and Knardal's (2015) two-wave study found that the presence of bullying at baseline predicted reductions in conscientiousness, agreeableness, and openness; Podsiadly and Gamian-Wilk (2017) found that bullying predicted a decrease in agreeableness; and Persson et al. (2016) found that people who transitioned from bullied to not bullied reported increased extraversion and reduced neuroticism, whereas changing from not bullied to bullied was unrelated to personality change.

In large part, these mixed and inconclusive findings stem from an important methodological limitation that our study addresses: assessing change over too short a timeframe. Extant studies assess change over relatively short time periods of between 6 months and 2 years. Most definitions and models posit 6 months of hostility to be a lower bound of bullying (with shorter episodes often not qualifying; Einarsen et al., 2020) and it is common for bullying to last for more than 2 years (Vartia, 2001; Vartia & Hyyti, 2002), with mean durations ranging from 6 to 62 months (Einarsen et al., 2020). In addition, personality change tends to “*unfold in a slow and incremental way over relatively long periods of time*” (Bleidorn et al., 2018, p. 85). Thus, although any instance of bullying will affect mood and

¹ Hamre et al. (2020) reported a study examining whether bullying influenced the personality characteristic of psychological hardiness using a multi-wave design. However, they summed the amount of bullying experienced across the years of their study, so their analysis only involved a single indicator of bullying, which they found predicted a small reduction in hardiness.

other short-term variables quickly, effects on personality trait change would be difficult to detect over shorter timeframes (Bleidorn et al., 2018; Costa et al., 2019). Here, we use a dataset that captures the key variables of bullying and personality traits over a 4-year period, a more suitable timeframe to capture the typical bullying process and allow for any gradual personality trait changes to manifest.

Second, we contribute to the general literature on personality trait change. Despite great enthusiasm for the idea of personality trait change, most studies, which assess normative life events (e.g., marriage, parenthood, graduation, first job) or workplace experiences (e.g., levels of autonomy, workload), report small and inconsistent effects (Bühler et al., 2023). Many life events and normative experiences (graduating-working-promotion, marrying-child rearing) tend to follow a path of increased social responsibility, which can make it difficult to disentangle the effects of innate personality maturation and the specific experiences studied. However, the organisational literature has begun to study some non-normative life events, such as job loss and chronic job insecurity, which are associated with personality changes that run counter to typical developmental trends and might prompt more stark changes in personality traits (Boyce et al., 2015; Wu, 2016; Wu et al., 2020). In addition, and due in part to the nature of personality, individuals perceive and experience events uniquely. For some, children are life affirming, for others not. For some, greater work autonomy is a blessing, for others a burden. The same is not true of bullying which, by definition, is universally perceived as a prolonged experience of negative acts. Thus, bullying could be a particularly potent driver of personality change because it is a non-normative, unidirectional, and a sustained and traumatic experience (Bond et al., 2010; Matthiesen & Einarsen, 2004; Nielsen et al., 2015).

Workplace Bullying and Personality Change

WORKPLACE BULLYING AND PERSONALITY CHANGE

Personality traits are relatively stable phenomena, and organisational research has predominantly focused on the stable elements, uncovering personality traits to be useful predictors of a range of important outcomes, including bullying perpetration (Dåderman & Ragnestål-Impola, 2019) and victimisation (Fernández-del-Río et al., 2021). However, personality traits also change throughout the whole lifespan (e.g., Katz & Kahn, 1978), hence why they are considered to be *relatively* stable, and interest is growing in developing and testing theories of how life events, including work-related events, might help explain personality trait change (Bleidorn et al., 2018; DeYoung, 2015; Li et al., 2021; Woods et al., 2019; Wrzus & Roberts, 2017; Wu et al., 2020).

Theories of personality change suggest that trait changes occur as a result of continued requirements to behave in a contra-trait manner (i.e., behaviour that diverges from trait levels). For example, the TESSERA framework (Wrzus & Roberts, 2017) argues that recurring and repeated sequences of Triggering situations (e.g., seeing a perpetrator of bullying walk into the work canteen) and associated Expectancies (e.g., anticipation of abuse), cause the occurrence of States/State Expressions (e.g., motivation to withdraw), and Re-Actions (e.g., social isolation), which can accumulate over time to change people's natural behavioural tendencies, the 'set-point' of their traits. Similarly, Smallfield and Kluemper's (2022) theory argues that exposure to stressors can cause short-term physiological responses in three key systems (hypothalamus–pituitary–adrenal or HPA, dopaminergic, and serotonergic systems). These physiological responses produce short-term fluctuations in personality, which typically return to 'equilibrium' within hours or days, but chronic stressors can see the physiological responses maintained, resulting in epigenetic changes in the fundamental systems underlying personality.

Workplace bullying closely fits the sequences outlined in both theoretical models. Specifically, workplace bullying is an enduring experience (Nielsen et al., 2015) that involves

social interactions which likely trigger contra-trait states/behaviours and physiological stress responses. Those exposed to bullying often experience heightened levels of anger, sadness, and anxiety (Brotheridge & Lee, 2010; Jahanzeb et al., 2021; Rodríguez-Muñoz et al., 2015); engage in cognitions relating to injustice and blame (Bowling & Beehr, 2006; Farley et al., 2015); and use novel coping strategies of avoidance and confrontation (Karatuna, 2015; Leymann, 1990; Van den Brande et al., 2017). The collective experiences of bullying episodes can be so extreme that they are linked to outcomes such as post-traumatic stress disorder (Nielsen et al., 2015). Thus, workplace bullying is a prime candidate for an experience that triggers the theorised mechanisms of personality trait change.

Hypotheses

Below, based on extant empirical evidence and key theoretical models (Leymann, 1996; Smallfield & Kluemper, 2022; Wrzus & Roberts, 2017), we hypothesise the likely associations between exposure to workplace bullying and personality change. We model bullying in two ways. First, we model the annual change in the presence and degree of bullying experiences. This approach allows us to most closely align with the key theoretical propositions underlying this study, namely, that bullying-driven environmental changes trigger changes in personality. Second, we examine the total amount of bullying experienced over the 4-year period. This approach allows us to estimate whether more bullying is associated with greater personality change. It also accounts for the possibility that some participants might be bullied to similar degrees throughout the whole study timeframe, therefore showing no changes in experience, but still experiencing significant bullying. Thus, both approaches are complementary and draw upon the same theoretical rationales. Regarding personality, we focus on the Big Five personality traits: agreeableness, conscientiousness, extraversion, openness, and neuroticism, each of which are broad, multi-

dimensional, summary traits that contain many related but distinct narrower traits (Irwing et al., 2024).

Agreeableness

The broad domain of agreeableness concerns a desire to please and appease others and comprises traits of empathy, cooperation, helpfulness, and politeness, with those high in agreeableness generally being prosocial, helpful, and kind. There are at least two reasons to suspect that bullying will lead to decreases in victim agreeableness. First, motivation to behave pro-socially diminishes when subjected to threats (e.g., due to job insecurity; Wu et al., 2020), and the threats inherent in workplace bullying ought to have similar effects. Indeed, victims often socially withdraw to avoid bullies (Van den Brande et al., 2017) and to protect themselves from negative affect (Steel et al., 2008), which reduces opportunities to engage in prosocial behaviour and to develop or maintain relationships. Second, the confrontational (i.e., argumentative, and hostile) state that often arises in response to bullying is diametrically opposed to agreeable behaviour and can even make the victim appear to be the aggressor, further alienating others and reducing meaningful opportunities for agreeable interactions. Consistent exposure to such antagonistic environments, as would be the case in bullying (Einarsen, et al., 2020), would likely see victims engage in repeated TESSERA sequences (Wrzus & Roberts, 2017). This is likely to facilitate prolonged physiological stress responses, which is the cause of personality change in Smallfield and Kluepfer's (2022) theory. Together, these theoretical mechanisms may explain why bullying has been associated with reduced agreeableness in prior research (Nielsen & Knardal, 2015; Podsiadly & Gamian-Wilk, 2017).

H1: Workplace bullying will be associated with decreases in agreeableness.

Conscientiousness

WORKPLACE BULLYING AND PERSONALITY CHANGE

The broad domain of conscientiousness involves the tendency to be organised, dependable, and persistent. Leymann (1996) identified that workplace bullying victims often have their meaningful work tasks removed and that some victims are no longer given work tasks to perform. When this occurs, a reduction in conscientiousness is the likely outcome, as both the opportunity and motivation to engage in conscientious behaviour is drastically diminished. For example, the removal of one's work tasks reduces opportunities to achieve and renders unnecessary the need to work in a planful and timely manner. Adapting to such circumstances might promote conscientiousness-reducing TESSERA mechanisms (Wrzus & Roberts, 2017), and associated regulatory system changes (Smallfield & Kleumper, 2022), especially for those naturally elevated in conscientiousness. Indeed, conscientious employees are more likely to experience bullying (Nielsen & Knardal, 2015), as they may be targeted by employees envious of their performance levels (the so called 'tall poppy syndrome').

When targeted for conscientious efforts, individuals might suppress their conscientiousness to avoid further victimisation. Tepper and colleagues (2017) would consider this as a performance-undermining response to mistreatment, but they have also posited a possible performance-enhancing pathway, whereby victims work more conscientiously to prevent further abuse. However, evidence for such a pathway is limited and might even reflect a methodological artefact that arises with low base-rate phenomena (i.e., most studies of workplace mistreatment have low base rates, meaning correlations can be misleading due to restriction of range and heteroscedasticity; Fischer et al., 2021). Thus, we suspect that if bullying is related to changes in conscientiousness, those changes will be decreases, rather than increases.

H2: Workplace bullying will be associated with decreases in conscientiousness.

Extraversion

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The broad domain of extraversion concerns tendencies towards enthusiasm and assertiveness and comprises traits of sociability, cheerfulness, energy, and excitement seeking. Wrzus and Roberts (2017) note that unpleasant events often decrease extraversion because they trigger negative states that reduce extraversion and prohibit positive states that engender extraversion (e.g., having fun with friends or colleagues). The negative emotional states aroused by bullying (e.g., sadness, fear, anxiety; Vie et al., 2012) fit this model, as they run counter to the positive affective states usually experienced by extraverts (Steel et al., 2008). According to Smallfield and Kluemper (2022), repeated exposure to a chronic stressor (such as workplace bullying) causes chronic threat appraisals, which alter the epigenetic set-points that govern personality trait change. Therefore, both the chronic stress appraisals and the negative emotions that follow them can lead to reductions in extraversion. Moreover, those who withdraw following instances of bullying would limit their exposure to socialise and to enact assertive behaviours, such as being an informal leader. Reacting repeatedly to ongoing bullying incidents by engaging in social withdrawal will also, over time, lead to trait extraversion change according to the TESSERA framework (Wrzus & Roberts, 2017).

H3: Workplace bullying will be associated with decreases in extraversion.

Neuroticism

The broad domain of neuroticism concerns tendencies toward emotional withdrawal and volatility. It comprises traits of anxiety, self-consciousness, depression, and hostility. Wrzus and Roberts (2017) note that increases in neuroticism often occur alongside decreases in extraversion, as the unpleasant life events that decrease extraversion contain the same features that increase neuroticism (an increase in negative states and a reduction in positive ones). In bullying situations, victims repeatedly encounter hostile interactions from the perpetrator(s), which are experienced as threatening and negative. Paying repeated attention to negative triggers, and repeatedly experiencing negative affect, have been highlighted as

pathways to trait anxiety, a component of neuroticism (Mathews & MacLeod, 2002). This may occur as events perceived as threatening place individuals on high alert, which is a prerequisite of survival (Mathews & MacLeod, 2005). When threat appraisals are continuously activated, which is likely in response to multiple acts of bullying, epigenetic changes can occur in the systems that underlie personality, making trait change more probable (Smallfield & Kluemper, 2022).

H4: Workplace bullying will be associated with increases in neuroticism.

Openness-to-Experience

The broad domain of openness concerns tendencies towards open-mindedness and intellectual pursuits, and comprises traits of imagination, curiosity, experience-seeking, and an appreciation of aesthetics. Previous research found that experiencing workplace bullying is negatively associated with openness (Dåderman & Ragnestål-Impola, 2019; Nielson & Knardal, 2015) and that openness moderates the impact of bullying and witnessing bullying on employee well-being (Dåderman & Basinska, 2021; Sprigg et al., 2019). As discussed above, bullying often leads to reduced opportunity to engage in meaningful and varied work tasks (Leymann, 1996) and, due to withdrawal coping strategies (Van den Brande et al., 2017; Steel et al., 2008), reduces victims' opportunities to socialise. Restricted work tasks and social engagement essentially promotes TESSERA sequences that reduce opportunities and motivation to engage in core openness related behaviours, including curiosity, novelty-seeking, and imagination (Wrzus & Roberts, 2017). Indeed, Nielsen and Knardal (2015) found that workplace bullying predicted reduced openness over a two-year period.

H5: Workplace bullying will be associated with decreases in openness.

Exploratory analyses

The fundamental goal of this study is to examine the degree to which workplace bullying experiences are related to personality trait change, a relationship that is prominently

theorised (Bowling et al., 2010; Coyne et al., 2000; Leymann, 1996) but rarely tested. However, it is also possible that personality traits might influence bullying experiences, with certain traits acting as risk factors for bullying. Nielsen and Knardahl (2015) offer two reasons why personality might predict subsequent bullying. First, people with specific personality traits might “*violate expectations, underperform, annoy others and even breach social norms of polite and friendly interactions*” (p. 130), thereby provoking mistreatment from others. Second, people with certain traits might have a lower threshold for interpreting others’ behaviours as being bullying. For example, the ‘gloomy perception’ mechanism (de Lange et al., 2005) argues that employees with a gloomier perception of reality report their work characteristics as being more unfavourable; as such, employees with personality traits that predispose a more negative outlook (e.g., neuroticism) might be more likely to interpret benign behaviours as malicious and minor slights as major events, increasing perceptions of victimisation (Nielsen & Einarsen, 2018). Although there has been some empirical support for this notion (e.g., Reknes et al., 2021, found that employee trait-anger and trait-anxiety predicted the development of bullying over time), others have reported little evidence of a role for personality in predicting later victimisation (Nielsen & Knardahl, 2015) or bullying escalation (Podsiadly & Gamian-Wilk, 2017). Here, we contribute to this emerging perspective by additionally exploring whether personality is a risk factor for changes in workplace bullying experiences or the cumulative bullying experienced.

Method

Participants and Procedure

We used panel data collected by the Swiss National Centre of Competence in Research Lives project (NCCR Lives: <https://www.lives-nccr.ch/en>). The NCCR Lives project collected data from a representative sample of the Swiss working population annually for a seven-year period (see Maggiori et al., 2016 for full details). Participants were selected

from the Swiss national register of inhabitants and invited to participate in the study at consecutive yearly intervals. The data were collected via telephone interviews and via online and hard copy questionnaires that were translated from English into French and German (Ruch & Stahlmann, 2020). The variables used in this study came from the self-completion questionnaires. The study was conducted in line with the ethical guidelines of the University of Lausanne. Prior to each measurement wave, participants received an invitation letter which outlined the study aims and procedure, ensured confidentiality, and informed them about their right to withdraw at any moment (Urbanaviciute et al., 2021).

Data Transparency

To access the data, the first author created an account to view the study variables and documentation on Swiss U Base <https://www.swissubase.ch/en/> (study 12734). The data are not freely available to access via Swiss U Base; however, researchers can apply to access the data by sending a proposal to the research team who compiled the dataset, which prevents the duplicated use of data. The first author sent a proposal to the research team, which was approved in March 2022, thereby enabling access to the dataset. The study design and hypotheses were not preregistered as the data came from a secondary dataset, however all code for the analyses is available at https://osf.io/8g2p9/?view_only=b2b7be57180b46f7b518fe96b1ba166a.

Data were collected from employed and unemployed members of the Swiss population (Rossier et al., 2012); however, given our specific interest in workplace bullying, we only used the data provided by employed participants. In addition, we only used data collected from the first four years of the project, which comprised four waves of data collection. A total of 2,435 participants provided complete data in the first wave, of which 1,234 (50.7%) were female, 1,627 (66.8%) were of Swiss nationality, and their mean age was 42.00 years ($SD = 8.63$ years). In the following waves of data collection, the number of

participants reduced, iteratively, and no new participants were sampled (nWave 2 = 1,754, nWave 3 = 1,492, nWave 4 = 1,364). If a participant did not participate in one wave of the study, they were not subsequently contacted to participate in the following waves of data collection (Maggiori et al., 2016). Missing data patterns were not uniform; therefore, we used full information maximum likelihood (FIML) to estimate all models (see analysis strategy for further information) meaning we used all available data for each parameter estimate.

Measures

Workplace Bullying

Experiences of workplace bullying were assessed in all four waves of data collection, with the NCCR using a single item: *'In the last 12 months at work, in your last job, have you personally experienced mobbing / bullying?'* In the first wave of data collection, the response scale was binary with 'yes' or 'no' as the response options. In waves 2-4, the response scale was ordinal, with responses coded between 1-4: 'never, rarely, occasionally, frequently'.

Despite increasing support for the use of single-item measures in organisational research (Matthews et al., 2022), single-item bullying measures, especially when not accompanied by a definition, can distort prevalence estimates (Nielsen et al., 2010). Thus, we conducted a validation study ($N = 217$) to ascertain the accuracy and appropriateness (Hughes, 2018) of the NCCR measure used here. Specifically, we examined the relationships between the NCCR measure, a single item bullying measure accompanied by a definition (Nielsen et al., 2020), and the short Negative Acts Questionnaire (SNAQ; Notelaers et al., 2019). The full validation study is reported in the supplementary materials. In brief, the NCCR measure (whether using binary or ordinal response scales) correlated strongly with the single item measure accompanied by a definition ($r=.74$ binary; $r=.78$ ordinal). Moreover, the NCCR measure correlated with the SNAQ to a similar degree as the single item definition measure. Further, when all bullying measures were used as indicators of a general component

or latent factor, all had strong component/factor loadings ($>.87$), suggesting each to be reliable indicators of bullying.

Big Five Personality Variables

The Big Five personality variables of openness to experience, agreeableness, conscientiousness, extraversion, and neuroticism were measured in waves 1 and 4 using the NEO Five-Factor Inventory Revised (NEO-FFI-R; McCrae & Costa 2004). The NEO-FFI-R is a 60-item scale, which involves 12 items for each of the five personality traits. Items were scored on a five-point response scale ranging from ‘strongly disagree’ to ‘strongly agree’. The scale reliabilities were all acceptable for each variable at both time points: openness (e.g. ‘*I am intrigued by the patterns I find in art and nature*’ T1 $\alpha = .74$; T4 $\alpha = .76$), agreeableness (e.g. ‘*I try to be courteous to everyone I meet*’ T1 $\alpha = .71$; T4 $\alpha = .72$), conscientiousness (e.g. ‘*I’m pretty good about pacing myself so as to get things done on time*’ T1 $\alpha = .80$; T4 $\alpha = .79$), extraversion (e.g. ‘*I laugh easily*’ T1 $\alpha = .74$; T4 $\alpha = .74$), and neuroticism (e.g., ‘*I often feel tense and jittery*’: Time 1 (T1) $\alpha = .82$; T4 $\alpha = .86$).

Analysis Strategy

First, we descriptively explored the extent of change in bullying experience and personality traits from waves 1 to 4 of the data (i.e., across the 4-year period). Paired t-tests and test-retest correlations were estimated to consider mean level change and rank-order stability for each of the Big Five traits and bullying. Inspecting mean-level and rank-order changes provides information on the level of change and stability in the sample as a whole (Roberts et al., 2008).

Next, we specified a latent difference score model following the recommendations of McArdle and Nesselroade (2014), to estimate the magnitude of change in personality across waves. Latent change score models provide a flexible and rigorous modelling approach, combining the conceptual strengths of both autoregressive and growth curves, to estimate

change and development of psychological constructs over time (Clark et al., 2018; McArdle & Nesselroade, 2014). Models were estimated for each trait individually. Model specification is shown in Figure 1. To investigate the extent to which exposure to bullying was predictive of personality change, we then added bullying to the model in two ways. First, we estimated change in bullying between waves 2 to 4 using a difference score model specified identically to the model for personality. This was estimated based on bullying at waves 2 and 4, as these measures were on the same scale. We treated change in personality as the outcome and change in bullying as the predictor. Second, we estimated cumulative bullying by creating binary variables for each wave indicating whether an individual had experienced bullying (1) or not (0). For these analyses, we dichotomised the T2-T4 bullying scales such that those who selected 1 (never) were classified as having not experienced bullying, whereas those who selected 2, 3, or 4 (rarely, occasionally, frequently) were classed as having experienced bullying. Summing these binary variables provided a score ranging from 0 to 4, where higher numbers indicate an increased exposure to bullying across the four waves of the study. In Figure 1, the effects of cumulative bullying and bullying change on personality are depicted by the beta paths.

All models were estimated in Lavaan 0.6-15 (Rosseel, 2012) and R version 4.2.2, based on FIML estimation to account for missingness. Model fit was evaluated based on the chi-square test, root-mean-square error of approximation (RMSEA), standardised root-mean-square residual (SRMR) and comparative fit index (CFI). We took values of <0.08 , <0.06 and >0.95 respectively, for the RMSEA, SRMR and CFI, to be indicative of good model fit.

Insert Figure 1 Here

Results

Mean-level and Rank-order Changes in Personality and Bullying

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Overall, 32.3% of the sample reported some bullying at one wave or more over the study period, with 4.4% reporting bullying at three or more waves, consistent with previous studies (Leymann, 1996). Table 1 contains the mean scores, standard deviations, and correlations for all study variables.

Mean-level Changes

A repeated-measures t-test of the Big Five personality traits revealed small but significant decreases in openness ($t(1,324) = .7.36, p < .001$), agreeableness ($t(1,324) = 5.58, p < .001$), conscientiousness ($t(1,324) = 11.07, p < .001$) and extraversion ($t(1,324) = .8.79, p < .001$), but no significant change in neuroticism, for the sample as a whole across the study period. The trends are generally in line with other studies of personality change within general adult populations (Graham et al., 2020) and studies of working adults (Holman & Hughes, 2021; Sutin & Costa, 2010). In addition, a linear mixed model testing change over waves with a random intercept for participants suggested no significant changes in mean levels of bullying across waves 2-4 ($\chi^2(2) = 0.44, p = 0.803$).²

Rank-order Changes

Test-retest correlations (Table 1) revealed that, consistent with effects in the broader literature (e.g., Bleidorn et al., 2022; Graham et al., 2020; Holman & Hughes, 2021; Roberts & DelVecchio, 2000), the Big Five personality traits had moderate to high stability across time, with test–retest correlations ranging from $r = .66$ (conscientiousness) to $.77$ (openness). Test-retest correlations for bullying assessed in successive waves (i.e., T1-T2, T2-T3, T3-T4) were moderate in magnitude, ranging from $.38$ – $.43$. When assessing rank-order stability over the same time-period as personality (i.e., T1-T4), bullying was much less stable ($r = .22$).

Insert Table 1 Here

² The T1 bullying scale used a binary ‘bullied or not’ response format, whereas the T2-T4 used a 4-point severity response format (never-frequently), hence we could not compare mean-level change from T1-T2.

Overall, the analyses suggest higher levels of rank-order stability but greater mean-level change for personality than for bullying. In other words, although personality scores fluctuated more, people were relatively consistent in their rank ordering (i.e., the most extraverted participants at T1 remained amongst the most extraverted at T4, etc.). In contrast, the average levels of bullying reported remained stable, but participants' rank order changed notably, meaning, for example, that those bullied most at T2 were not necessarily amongst the most bullied at T4, and vice versa.

Relationships between Bullying and Personality

Based on the between-person bivariate correlations (Table 1), we can see that there is a consistent non-zero positive correlation between neuroticism and bullying, even between assessments taken at different waves (mean $r = .15$). In most cases, the correlations between bullying and extraversion were also significant, albeit much smaller (mean $r = -.05$), with bullying generally unrelated to the other traits.

Relationship between Change in Bullying and Change in Personality

We used latent change score models to test our hypotheses and explore the degree to which changes in bullying were associated with changes in personality.³ All models reached acceptable levels of model fit, and summaries of the model statistics are displayed in Table 2. Changes in bullying were associated with a decrease in conscientiousness ($\beta = -.06$, $p < .05$), a decrease in extraversion ($\beta = -.06$, $p < .05$), and an increase in neuroticism ($\beta = .16$, $p < .001$). Changes in bullying were unrelated to changes in agreeableness and openness. Thus, the latent change models supported H2 (decrease in conscientiousness), H3 (decrease in extraversion), and H4 (increase in neuroticism), but not H1 (decrease in agreeableness) or H5 (decrease in openness). In our exploratory analyses, we also modelled the effects of

³ In response to a thoughtful reviewer question, we also estimated growth curve models of these data. The results are near-identical, with no differences in interpretation. Code and results are displayed in the OSF site.

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personality at T1 on subsequent change in bullying, finding that higher extraversion ($\beta = .07$, $p < .001$) and conscientiousness ($\beta = .06$, $p < .05$) scores led to increases in bullying.

Insert Table 2 Here

Relationship between Cumulative Bullying and Personality Change

Finally, we examined whether the cumulative effect, or total amount of bullying, reported, was associated with change in personality. All models reached acceptable levels of model fit, and summaries of the model statistics are displayed in Table 3. The total amount of bullying reported was associated with a decrease in extraversion ($\beta = -.06$, $p < .05$) and an increase in neuroticism ($\beta = .12$, $p < .001$). No significant associations were observed for openness, agreeableness, and conscientiousness. Thus, these models supported H3 and H4 but not H1, H2, or H5. In our exploratory analyses modelling the effects of personality at T1 on total bullying, we found that neuroticism ($\beta = .12$, $p < .001$), openness ($\beta = .10$, $p < .001$), and agreeableness ($\beta = -.05$, $p < .05$) were related to cumulative bullying experiences.

Insert Table 3 Here

Discussion

We examined the relationship between workplace bullying experiences and victim personality change. Workplace bullying, whether modelled as a change score or a cumulative score, was related to increased neuroticism and decreased extraversion, with changes in bullying status also related to decreased conscientiousness. Overall, the results support the proposition that bullying can manifest in personality trait change. There was also tentative evidence of personality traits predicting subsequent bullying experiences. Specifically, baseline levels of conscientiousness and extraversion were associated with changes in bullying status over time and neuroticism, openness, and agreeableness were associated with the overall amount of bullying. These effects were generally small and the results exploratory, but a cautious interpretation might be that conscientiousness and extraversion are

risk factors for experiencing bullying at some point in time, with neuroticism, disagreeableness and openness exacerbating bullying once it occurs.

Wzrus and Roberts (2017) argue that negative life events most strongly influence extraversion and neuroticism, which is reflected in the current study, with workplace bullying experiences most convincingly related to changes in these traits. Changes in extraversion and neuroticism tend to co-occur, as negative life events often prohibit positive states and induce negative states (Wzrus & Roberts, 2017). Indeed, our findings are consistent with other studies of adverse workplace experiences. For example, job stress has been linked to increases in neuroticism and decreases in extraversion (Wu, 2016), while chronic job insecurity has been found to increase neuroticism (Wu et al, 2020). Our study is the first to show that workplace bullying is related to increased neuroticism and decreased extraversion, although Persson et al. (2016) found that individuals who transitioned from bullied to not bullied reported the opposite changes, suggesting that the impact of bullying may be reversible. However, further research is needed to establish what happens to personality after a bullying experience ends.

We also found that a change in bullying status was associated with decreases in conscientiousness. This finding is in line with previous research (Nielsen & Knardal, 2015) and runs contrary to the suggested performance-enhancing effects of abusive relationships at work (Tepper et al., 2017). It has been argued that victims of abuse might work harder to stave-off further victimisation (Tepper et al., 2017). However, any short-term increases in conscientiousness, if they happen at all, do not appear to manifest into lasting changes. Rather, because changes in bullying status, especially the onset of a new episode, are likely to reduce meaningful work tasks (Leymann, 1996) and increase perceptions of injustice (Nielsen & Knardal, 2015), victims withdraw effort and performance, which over time manifests in reductions in trait conscientiousness. There is, however, a limit to how many

work tasks and how much conscientiousness can be withdrawn, which is perhaps why cumulative bullying was unrelated to changes in conscientiousness. Combined with the exploratory finding that conscientiousness predicted an increase in experienced workplace bullying, we can speculate that an early reduction in conscientiousness, characterised by a withdrawal of diligent planful, achievement-striving efforts, might be a relatively effective protective strategy for victims. However, future research is needed to establish the mechanisms that links bullying to conscientiousness.

Contrary to some previous studies (Nielsen & Knardal, 2015; Podsiadly & Gamian-Wilk, 2017), we found that changes in bullying status and the total bullying experienced were unrelated to agreeableness and openness. We anticipated that opportunities to display agreeable and open behaviours might be limited by bullying, perhaps even promoting the opposite (i.e., disagreeable and close-minded behaviours). Since our findings are at odds with previous research, it is possible that experiencing bullying in the short term is related to state changes in agreeableness and openness, but that these state changes may not translate into longer term change for various reasons. For example, it is often the case that bullying victims seek increased social support, both inside and outside of work, as a coping mechanism, which in some cases might offset effects on agreeableness in the longer term (Farley et al., 2023).

Our findings demonstrate that workplace bullying has effects beyond short-term well-being and performance, extending to deleterious personality changes detected over a 4-year period. This represents a significant addition to the literature. The average bullying case will vary between six months and five years (Einarsen et al., 2020), but given the difficulties of collecting yearly panel data, little is known about how cumulative bullying affects outcomes. Our study therefore provides much needed empirical evidence, which indicates that the duration of cases influences the severity of impact. The provision of this evidence is important as it suggests that tertiary interventions that address bullying (Hershcovis et al.,

2015) may need to be adapted based on the duration of exposure. For example, where bullying has taken place over a period of years, it may take a longer period of counselling for the victim to come to terms with their experience.

In addition, our findings contribute to the growing literature exploring workplace experiences as drivers of personality change (e.g., Holman & Hughes, 2021; Wu et al., 2020). Specifically, it seems that bullying could be a particularly potent driver of change. Not only do typical victim reactions to bullying fit very closely with theoretical models of personality changes (e.g., Smallfield & Kluemper, 2022; Wrzus & Roberts, 2017), but bullying is also a highly salient and extreme experience that is associated with non-normative personality changes (i.e., contrary to the maturation principle). Therefore, the effects of bullying can be disentangled from innate personality change and represent one of an increasing number of workplace experiences that may influence personality development (Holman & Hughes, 2021; Wu et al., 2020). Our results also demonstrate that the changes are not uniform. We observed that some traits changed more than others, which suggests that theoretical accounts of personality change, especially those that focus on the role of chronic stressors (e.g., Smallfield & Kluemper, 2022), might benefit from developing distinctive change profiles for different stressors.

Limitations and Future Research

It is important to acknowledge some limitations of the study. First, personality was assessed at just two time-points, limiting our ability to assess reciprocal relationship between workplace bullying and personality change. Future research with multiple waves and additional variables could assess whether changes in victim personality provoke further mistreatment, for example, by making the bullying behaviour seem justified.

Second, bullying was assessed using a single item, where people self-reported their experiences of bullying (using a binary yes/no scale at T1 and an ordinal frequency of exposure scale at T2-T4), which provides a relatively coarse assessment (Nielsen et al., 2010). Although our supplementary validation study demonstrates the general accuracy and appropriateness of the measures used, future research would benefit from richer assessments of bullying, for example, by considering the intensity of behaviours to which a person is exposed. Simultaneous study of the intensity and frequency of the bullying would also help to assess whether it is the repeated nature of bullying, its intensity, or both, that is most influential in shaping personality.

Third, our broad theorising about why exposure to workplace bullying ought to lead to personality change drew from process-based models describing affective, cognitive, relational (Wrzus & Roberts, 2017), and physiological (Smallfield & Kluemper, 2022) mechanisms, which we were unable to capture in this study. Wrzus and Roberts's (2017) TESSERA framework in particular could be considered in alignment with the classic process of bullying (Leymann, 1996) to articulate the specific types of expectancies, states/state expressions, and re-actions that might be expected during escalating phases of workplace bullying (see Figure 2), which could provide a testable model of such mechanisms of personality change. Future research would add valuable insights by assessing these intermediary variables.

Insert Figure 2 Here

Future research could also extend the period studied to provide greater insight into the duration of personality change attributable to workplace bullying. Theories of personality change suggest that effects of a chronic stressor like workplace bullying ought to be sustained or even deepened over the longer-term. For example, Smallfield and Kluemper's (2022)

theory argues that repeated exposure to a stressor like workplace bullying changes people's natural 'set point' in relation to their physiological responses to future stressors, typically making them more reactive, thus creating a vicious spiral over time. Yet, as noted earlier, previous research has studied people who transitioned from bullied to not bullied and documented opposite patterns of personality change to those we observed here (i.e., that transitioning to not bullied increased extraversion and decreased neuroticism; Persson et al., 2016). Empirical tests of the duration of personality change and potential factors that might alter the trajectory of personality change would therefore be highly informative.

Practical Implications

Our study suggests that workplace bullying may negatively influence victims' personalities over an extended period. While primary interventions that prevent bullying should always be prioritised, our findings highlight the need for effective secondary and tertiary interventions. Secondary interventions equip employees to deal with bullying when it occurs through the provision of skills and coping resources (Hershcovis et al., 2015). We have argued that personality change occurs when individuals adopt coping strategies that run counter to their usual state. Therefore, promoting more effective coping that does not negatively impact personality would be beneficial for individuals and organisations. Training employees to productively resolve conflict and developing a climate for conflict management (Einarsen et al., 2018) would seem to meet this aim. A climate for conflict management has been defined as "*employees' beliefs that interpersonal conflicts are generally managed well and fairly in their organization*" (Einarsen et al., 2018, p. 553). By promoting fair conflict resolution and encouraging conflict competence skills, organisations would limit the need for targets to adopt counterproductive coping strategies, which may limit the negative impact of bullying on personality.

Our findings also emphasise the importance of ensuring that those who experience bullying are properly supported in the form of high-quality tertiary interventions, such as counselling, therapy, and mediation (Hershcovis et al., 2015). Research is lacking on whether the specific effects of bullying can be reversed; however, there is evidence that volitional personality change, especially reductions in neuroticism, can be achieved through a variety of interventions (Haehner et al., 2024; Roberts et al., 2017).

Conclusion

The present study provides the strongest evidence to date that the harmful consequences of workplace bullying extend beyond short-term effects on well-being and performance to changes to victims' personality traits. Over a 4-year period, we found that changes in, and the total amount, of workplace bullying, were related to increased neuroticism and decreased extraversion, with changes in bullying status also related to decreased conscientiousness. Our findings underscore the importance of preventing and curtailing workplace bullying, to reduce the prolonged damage that it can cause.

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Table 1

Mean scores, standard deviations, and correlations for all study variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Neuroticism T1	2.60	0.560	-												
2 Neuroticism T4	2.57	0.63	.70	-											
3 Extraversion T1	3.41	0.48	-.32	-.20	-										
4 Extraversion T4	3.34	0.47	-.32	-.36	.72	-									
5 Openness T1	3.45	0.509	.00	.00	.27	.22	-								
6 Openness T4	3.42	0.49	-.04	-.06	.25	.31	.77	-							
7 Agreeableness T1	3.63	0.45	-.11	-.09	.11	.06	.16	.13	-						
8 Agreeableness T4	3.61	0.44	-.09	-.18	.14	.17	.20	.21	.68	-					
9 Conscientiousness T1	3.94	0.48	-.34	-.21	.33	.19	.08	.02	.20	.13	-				
10 Conscientiousness T4	3.83	0.45	-.29	-.38	.17	.30	.00	.07	.12	.27	.66	-			
11 Bullying T1*	1.18	0.38	.14	.15	-.03	-.07	.08	.10	-.02	-.03	.01	-.01	-		
12 Bullying T2	1.30	0.69	.13	.12	-.06	-.06	.02	.01	-.04	-.03	-.04	-.03	.38	-	
13 Bullying T3	1.31	0.68	.09	.17	-.04	-.08	.03	.04	-.10	-.08	-.01	-.03	.25	.43	-
14 Bullying T4	1.29	0.68	.12	.24	.02	-.06	.05	.05	-.05	-.05	.02	-.04	.22	.29	.41

Note: correlations > .05, significant at p<.05; correlations > .08, significant at p<.01; * T1 bullying was assessed using a binary scale of Yes or No. T2-T4 bullying was assessed using an ordinal scale of never, rarely, occasionally, frequently.

Table 2

Model fit and parameter estimates for latent change score models of the effect of variation in bullying on variation in personality and the effect of personality at T1 on variation in bullying

Variable	Model Fit				Parameter estimates							
	χ^2 (df)	CFI	SRMR	RMSEA	Bullying		Personality		Bullying Change → Personality Change		Personality T1 → Bullying Change	
					Mean	Variance	Mean	Variance	B	β	B	β
Neuroticism	12.71(1)	0.99	0.02	0.07	.004	.641**	.001	.227**	.095**	.157**	-.015	-.011
Extraversion	5.95(1)	0.99	0.02	0.06	.001	.638**	-.082**	.125**	-.024*	-.054*	.118**	.071**
Openness	0.88(1)	0.99	0.01	0.01	.000	.639**	-.057**	.114**	.013	.030	.030	.019
Agreeableness	0.00(1)	1.00	0.00	0.00	.003	.638**	-.043**	.126**	.006	.013	-.042	-.024
Conscientiousness	1.11(1)	0.99	0.01	0.02	.001	.637**	-.111**	.138**	-.029**	-.062**	.092*	.055*

Note: B = unstandardised effect of bullying on personality; β = standardised effect of bullying on personality * = p<.05, **= p<.001

Table 3

Model fit and parameter estimates for total bullying on variation in personality and for personality at T1 on total bullying

Variable	Model Fit				Parameter estimates					
	$\chi^2(df)$	CFI	SRMR	RMSEA	Personality		Total Bullying → Personality Change		T1 Personality → Total Bullying	
					Mean	Variance	B	β	B	β
Neuroticism	38.57(1)	0.96	0.05	0.12	-.04**	.23**	.07**	.12**	.17**	.12**
Extraversion	3.36 (1)	1.00	0.01	0.03	-.06**	.13**	-.03**	-.06**	-.063	-.04
Openness	23.94(1)	0.98	0.04	0.09	-.06**	.11**	.00	.00	.16**	.10**
Agreeableness	6.26(1)	0.99	0.02	0.04	-.04**	.13**	-.01	-.03	-.09*	-.05*
Conscientiousness	0.82(1)	1.00	0.01	0.00	-.10**	.14**	-.01	-.03	-.03	-.02

Note: B = unstandardised effect of bullying on personality; β = standardised effect of bullying on personality * = $p < .05$, ** = $p < .001$

Figure 1

Illustration of the two latent change models estimated to assess the relationship between bullying and personality change and personality at T1 on subsequent bullying experiences

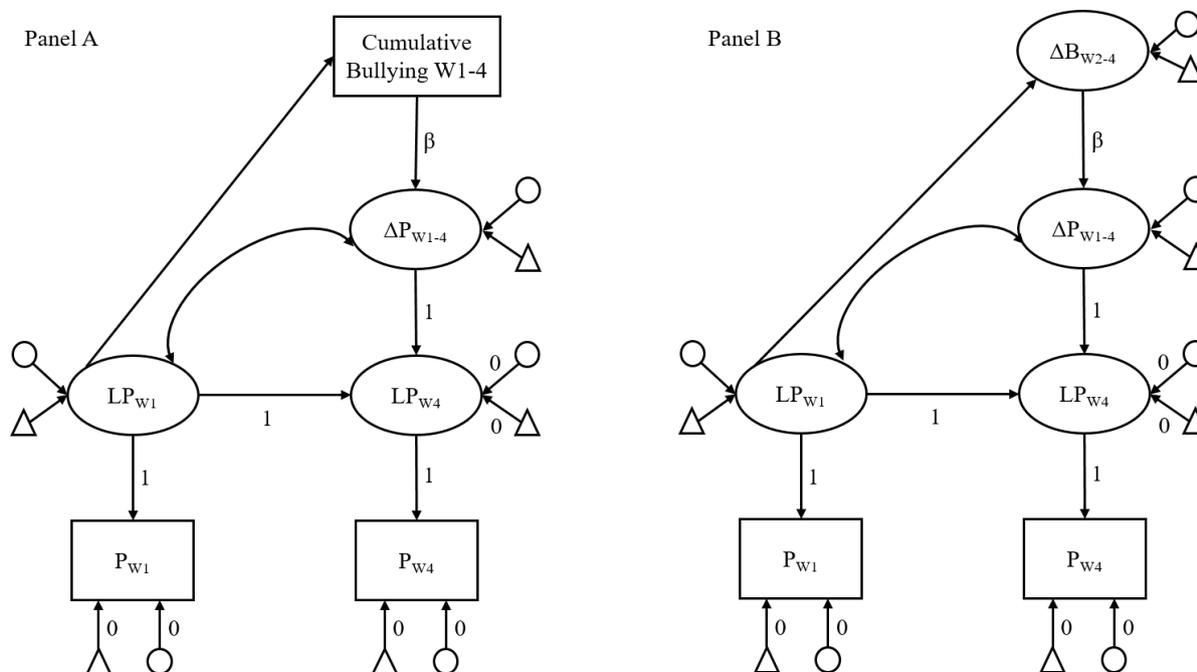
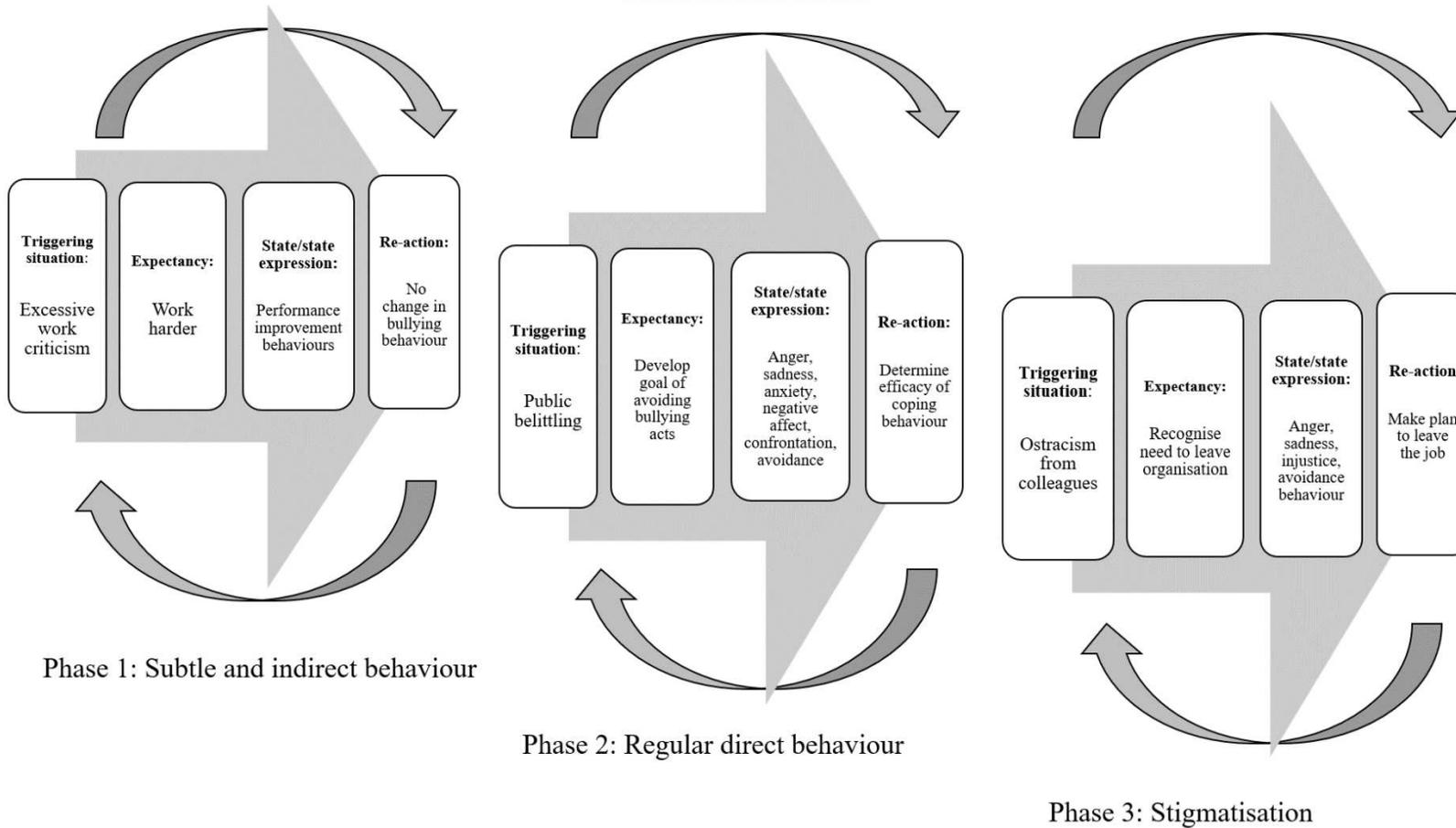


Figure Caption: Rectangles represent measured variables, ellipses latent variables, and triangles variable means. P represents a measured personality trait and LP is the single indicator latent variable for that measured trait. Subscripts w_1, w_2 and w_4 represent the time points at which the variable was assessed. ΔP and ΔB (Panel B) represent the mean difference in personality and bullying between time points. Numbers on the arrows represent constrained parameters, un-numbered parameters are freely estimated. β = the effect of bullying on personality change.

Figure 2

Hypothetical application of TESSERA sequences within Leymann's Bullying Stages



Note: Circular arrows represent repeated TESSERA sequences