You can't always get what you want: The role of change goal importance, goal feasibility and momentary experiences for volitional personality development

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Abstract

Most adults want to change aspects of their personality. However, previous studies have provided mixed evidence on whether such change goals can be successfully implemented, perhaps partly due to neglecting the goals' importance and feasibility as well as the experience of trait-relevant situations and states. This study examined associations between change goals and changes in self-reported Big Five traits assessed four times across two years in an age-heterogeneous sample of 382 adults (255 younger adults, $M_{age} = 21.6$ years; 127 older adults, $M_{age} = 67.8$ years). We assessed trait-relevant momentary situations and states in multiple waves of daily diaries over the first year ($M = 43.9$ days). Perceived importance and feasibility of change goals were analysed as potentially moderating factors. Contrary to our hypotheses, the results demonstrated that neither change goals nor goal importance or feasibility were consistently associated with trait change, likely due to inconsistent associations with momentary situations and behaviours. The results suggest that wanting to change one's traits does not necessarily lead to changes without engaging in trait-relevant situations and behaviours. These findings provide novel insights into the boundary conditions of volitional personality development.

Most adults want to change aspects of their Big Five personality traits to a certain degree (Hudson & Roberts, 2014; Miller et al., 2019; Quintus et al., 2017; Robinson et al., 2015).[1] Such aims emphasise the active role that individuals play in the development of their personality. While previous studies have shown that deliberately engaging in systematic interventions can foster Big Five trait changes (Allan et al., 2018; Hudson & Fraley, 2015; Magidson et al., 2014; Martin et al., 2014), it remains an open question whether naturally occurring change goals also lead to personality change (Hudson & Fraley, 2016a; Robinson et al., 2015). Additionally, previous research has failed to investigate relevant moderators of change goals, that is, how goal importance and feasibility moderate the association of change goals and actual trait changes. Finally, momentary experiences that may underlie volitional personality development (e.g. situations, states; Burke, 2006; Chapman et al., 2013; Magidson et al., 2014; Roberts & Mroczek, 2008; Wrzus & Roberts, 2017) have been largely neglected in previous research as well (for a recent exception see Hudson et al., 2019). Addressing these issues is vital for research on volitional personality development and could also help practitioners (e.g. clinical psychologists or coaches)

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to design effective interventions that support people in volitionally changing their personality traits.

Volitional personality development

Building on ideas rooted in developmental psychology (Baltes, 1987; Higgins, 1987), personality psychologists have recently started to focus on explicit, deliberate goals to change the Big Five traits openness, conscientiousness, extraversion, agreeableness and emotional stability (the inverse of neuroticism; Baranski et al., 2017; Hudson & Roberts, 2014; Robinson et al., 2015). Both personality and developmental psychology perceive goals as giving direction, structure and meaning to people's lives, thus being important factors in how people actively shape their own development (Brandtstädter & Rothermund, 2002; Carver & Scheier, 1998; Freund & Baltes, 2000; Heckhausen et al., 2010; Hudson & Roberts, 2014; Robinson et al., 2015). Consequently, personality development across one's lifespan may also reflect one's striving for more mature personality traits, which in turn could be functional in successfully managing life transitions or fulfilling social roles (Hennecke et al., 2014; Miller et al., 2019; Roberts et al., 2008; Wood & Denissen, 2015; Wood & Roberts, 2006).

Research on how personality change goals predict trait changes has only recently attracted researchers' attention. To date, research has identified that change goals can be organised within the Big Five framework using both questionnaires (Hudson & Roberts, 2014; Robinson et al., 2015) as well as open-ended answers (Baranski et al., 2017; Miller et al., 2019). In addition, across different ages, a large majority of people express goals to change their personality (Hudson & Fraley, 2016b; Quintus et al., 2017). Most people want to increase their Big Five traits into a socially desired direction, that is, towards higher emotional stability, extraversion, agreeableness, conscientiousness and openness (Baranski et al., 2017; Hudson & Fraley, 2015, 2016a, 2016b; Hudson & Roberts, 2014; Quintus et al., 2017; Robinson et al., 2015). Also, the more people want to increase, the lower they score on the respective trait currently—with trait levels being the main predictor of corresponding change goals (Hudson & Fraley, 2015, 2016a, 2016b; Quintus et al., 2017; Robinson et al., 2015). In measures that allow for quantifying the amount of desired change, lower current trait levels not only predicted the presence but also the strength of change goals (Hudson & Fraley, 2015, 2016a, 2016b; Quintus et al., 2017). That is, the less extraverted or emotionally stable people view themselves, the more they want to increase in extraversion or emotional stability.

Currently, studies on associations between change goals and actual Big Five trait changes have displayed somewhat mixed results with change goals often, but not always, predicting trait changes in the desired direction (Asadi et al., 2020; Baranski et al., 2020; Hudson et al., 2019; Hudson & Fraley, 2015, 2016a; Robinson et al., 2015; Stieger et al., 2020). In these studies, traits were self-reported and trait changes were implemented as differences in self-reports across time. One study additionally included observer reports and changes therein (Stieger et al., 2020). In two intervention studies, small goal-concurrent changes were observed for all traits in college students who repeatedly reported their current traits and change goals over a period of 16 weeks (Hudson et al., 2019; Hudson & Fraley, 2015). A similar study found somewhat smaller goal-concurrent changes in extraversion, agreeableness and emotional stability even without an intervention (Hudson & Fraley, 2016a). In contrast, longer studies without an intervention found no such associations between change goals and changes in self-rated traits over one year later (Asadi et al., 2020; Baranski et al., 2020; Robinson et al., 2015). Instead, goals to increase conscientiousness, extraversion, agreeableness and neuroticism were sometimes even associated with decreases in the respective traits (Baranski et al., 2020; Robinson et al., 2015). Differences in the investigated timeframe and assessment strategies (i.e. assessments once a week vs. once a year) could explain these contrasting results. Thus, further research is needed to clarify the associations between change goals and actual trait changes. In addition to the strength of change goals (i.e. the amount of desired change), relevant moderating factors of change goals could be their importance and feasibility.

Goal importance and goal feasibility as relevant factors in volitional personality development

Building upon classic models of motivation and planned action (Atkinson, 1964; Eccles et al., 1983; Fishbein & Ajzen, 1975; Gollwitzer & Moskowitz, 1996; Heckhausen, 1977; Vroom, 1964), a recent theoretical framework on volitional personality development (Hennecke et al., 2014) suggests that people may assign different importance (i.e. desirability of change) as well as feasibility (i.e. expectancy of success) to their change goals. Both goal importance and feasibility should influence goal striving and attainment. Specifically, higher importance of change goals may be associated with stronger goal commitment and greater efforts to implement behavioural changes (Hennecke et al., 2014; Locke & Latham, 1990, 2002, 2006). Therefore, greater goal importance should lead to more pronounced trait changes (Hennecke et al., 2014; see also Beattie et al., 2015; Maier & Brunstein, 2001). Higher feasibility of change goals may reflect higher perceived capacity and entail higher motivation for effective goal implementation; thus, feasible goals should be followed by

specific, goal-related actions that may finally condense into actual trait changes (Carver & Scheier, 1998; Hennecke et al., 2014; Locke & Latham, 2002). In addition, goals that are considered both more important and more feasible should be associated with more pronounced trait changes (Hennecke et al., 2014). However, such theoretical considerations on the role of change goal importance and feasibility remain to be closely empirically tested. This is especially important as change goals might differ from goals typically assessed in motivational or organisational science. Personality change goals are, by default, dynamic goals that require people to maintain trait-related actions without implying a fixed end point that only has to be reached once (e.g. owning a house; Carver & Scheier, 1998; Powers, 1973) which could make their importance and feasibility incrementally relevant.

Notably, the aforementioned divergent findings on the associations between change goals and trait changes (Hudson et al., 2019; Hudson & Fraley, 2015, 2016a; Robinson et al., 2015) could at least be partly explained by the varying importance or feasibility of the examined change goals. By focusing on specifically chosen traits in an intervention, some previous studies may have already assessed more important and feasible goals or, as a result of the intervention, even artificially increased change goal importance and feasibility (Hudson et al., 2019; Hudson & Fraley, 2015). For example, each week participants in the treatment condition were 'coached to create very specific and concrete "small steps" [...] as well as "if – then" implementation intentions' (Hudson & Fraley, 2015, p. 8); this may have boosted change goal importance and feasibility. However, studies that relied on a more naturalistic design may have assessed less important or feasible change goals that could have merely reflected the desirability of changing traits and thus did not guide people's actions (Asadi et al., 2020; Robinson et al., 2015). Consequently, the authors explicitly suggest that future research should examine the expectancy and value (i.e. feasibility and importance) of change goals since 'stating a goal differs from stating perceived importance' (Robinson et al., 2015, p. 40).

Momentary experiences and volitional personality development

Several previous studies on personality change goals implemented changes in daily experiences (e.g. Hudson et al., 2019). Also, current theories suggest that personality development occurs in a bottom-up fashion with repeated experiences of momentary states laying the foundation for long-term trait development (Back et al., 2011; Dweck, 2017; Geukes et al., 2017; Hennecke et al., 2014; Roberts, 2017; Roberts & Jackson, 2008; Wrzus & Roberts, 2017). While traits refer to relatively stable patterns of behaviours, thoughts, or feelings across time and situations (Fleeson & Jayawickreme, 2015; Roberts & Jackson, 2008), states reflect people's momentary behaviours, thoughts, or feelings in a specific situation (Heller et al., 2007; Wrzus & Roberts, 2017). Varying states can at least partly be explained by the different characteristics of situations and expectations associated with them (Fleeson, 2007; Fleeson & Jayawickreme, 2015; Rauthmann et al., 2014).

Accordingly, a viable way for people to implement their change goals would be to engage in goal-relevant situations that require or facilitate the experience of goal-related states. Furthermore, the importance of situations seems to be intuitively apparent to people. When asked for ways in which they could achieve their personality change goals, people frequently named situations to engage in (e.g. engaging more in social situations to increase extraversion or attending more arts and culture events to increase openness; Baranski et al., 2017; Robinson et al., 2015). In addition to selecting relevant situations, change goals should be directly linked to the enactment of goal-relevant personality states (Wrzus & Roberts, 2017; see also Carver & Scheier, 1998; McCabe & Fleeson, 2016; Ryan, 1970). For example, the more people wanted to avoid loneliness or connect with others, the more they reported behaving in an extraverted manner (McCabe & Fleeson, 2016). Simultaneously, behaving contrary to one's current trait levels often requires significant effort (Gallagher et al., 2011). Thus, goal feasibility seems to be central for volitional personality development.

Following a self-regulatory perspective on personality development, people need to invest into trait-relevant situations and replace their habitual behaviour, thoughts and feelings with more desired states to achieve self-regulated (i.e. volitional) trait changes (Denissen et al., 2013; Hennecke et al., 2014; Hoyle & Sherrill, 2006; Morf, 2006). Stronger change goals may reflect greater discrepancies between one's current and desired trait levels (Hudson & Roberts, 2014). Accordingly, individuals may have increased motivation to successfully implement their goals, and stronger change goals may be linked to experiencing more goal-relevant momentary situations and states. In line with this idea, a recent study demonstrated that personality changes only occurred if participants actually behaved according to their change goals (and therefore most likely experienced associated situations and states; Hudson et al., 2019). In this study, however, participants were guided through the process of choosing concrete plans associated with their change goals and subsequently awarded for completing these. Therefore, the study does not reflect people's naturally occurring attempts to change their personality and could overestimate volitional personality development.

Similarly, most previous studies have failed to assess the role of change goal importance and

feasibility, which may also play a vital part in determining momentary experiences (see also Gollwitzer & Oettingen, 2012; Hennecke et al., 2014; Peters, 2015; Wood & Denissen, 2015). Although first empirical research supports this idea (e.g. Brandstätter & Frank, 2002), also evidence to the contrary exists (Baranski et al., 2020). More important goals could profit from higher goal commitment entailing the perseverant pursuit of those goals (Latham & Locke, 1991), which could in turn facilitate the identification of goal-relevant situations and the enactment of associated behaviours. More feasible change goals may profit from clearer requirements (e.g. which situations to expose oneself to and how to behave) and higher perceived ability to meet these requirements so that people could invest more strongly in these goals (Ajzen, 1985; Fishbein & Ajzen, 1975; Gollwitzer, 1990; Heckhausen, 1991; Perugini & Conner, 2000).

In line with current models of personality development, the repeated enactment of desired personality states should eventually lead to long-term changes in personality traits (Hennecke et al., 2014; Wrzus & Roberts, 2017). Firstly, empirical results indicate that the repeated experience of states can in fact change underlying traits (Quintus et al., 2020). Also changes in the trait self-esteem over one year were related to state self-esteem assessed once per month (Hutteman et al., 2015) and increases in negative affect following daily hassles predicted increases in the trait neuroticism over a period of six years (Wrzus et al., 2020). Taken together, previous research suggests that change goals and their importance and feasibility should be associated with more frequent experiences of goal-relevant situations and states. These repeated experiences should, in turn, lay the foundation for actual trait changes.

Current research

The current study examined associations between personality change goals and subsequent momentary experiences as well as trait changes in younger and older adults over the course of two years. In line with a recent theoretical framework (Hennecke et al., 2014), we focused on the role of change goal importance and feasibility in volitional trait development.

We hypothesised that stronger change goals are linked with corresponding long-term trait changes (H1a). Additionally, change goals that are more important (H1b) or more feasible (H1c) should be associated with more pronounced trait changes, especially change goals that are perceived to be both more important and more feasible (H1d).

Additionally, we assumed that momentary situations and elicited states mediate the associations between change goals and trait changes, as predicted by two recent frameworks (Hennecke et al., 2014; Wrzus & Roberts, 2017). Stronger change goals

should be associated with more frequent experiences of goal-relevant situations and states (H2a). Moreover, higher change goal importance (H2b) and feasibility (H2c) should predict the experience of goal-relevant situations and states. Furthermore, we expected this effect to be stronger for goals that are both more important and more feasible (H2d). The hypotheses were not preregistered. The current study uses data from a large longitudinal study on personality development in young and later adulthood. Other publications using the data focus on the predictors of change goals (Quintus et al., 2017) and age differences in personality development (Wrzus et al., 2020), as well as momentary processes of personality development (Quintus et al., 2020). Only the latter two manuscripts examined longitudinal changes in self-ratings of traits, but they did not examine effects of change goals, goal importance, or goal feasibility. One other manuscript analysed momentary situations and states (Quintus et al., 2020), and we refer to the relevant results in the results and the discussion section.

Method

Participants

The age-heterogeneous sample consisted of 382 participants (73% women; 255 younger adults $M_{age} = 21.57$, $SD_{age} = 2.20$; 127 older adults $M_{age} = 67.76$, $SD_{age} = 5.31$). The participants were recruited via local newspapers, flyers in public places (cafés, drug stores, vocational schools), Facebook groups, mailing lists and from introductory nonpsychology courses for regular and older students at the University of Mainz, Germany. A priori power analysis for the main project suggested that with an anticipated attrition rate of 10%, approximately 300 participants were sufficient to detect longitudinal personality changes of $d = 0.2$ with a power of .95. For the current research questions, simulation studies showed that the sample size of 382 allowed for detection of associations with b = .15 in 99% and with b = .10 in 85% of 500 repetitions and interaction effects with b = .05 in 96% and b = .03 in 61% of 500 repetitions ($p \leq .05$; https://osf.io/7cbu6).

Procedure

Assessments of personality traits and change goals. Participants rated their Big Five traits in four assessments that took place in fall 2015 (Time 1 = T1), spring 2016 (Time 2 = T2, 6 months after T1), fall 2016 (Time 3 = T3, 12 months after T1) and fall 2017 (Time 4 = T4, 24 months after T1). At T1, participants rated their goals to change their traits as well as how important and feasible they perceived changing their goals to be. Change goals were partly also assessed at later time points, but these assessments

were not relevant for the current analyses. A complete list of all measures applied in this project is available at https://osf.io/7cbu6. At T1, participants provided informed consent and answered questionnaires online and in the laboratory as part of the larger study. At T2, participants answered all questionnaires in the laboratory. Both of the laboratory assessments at T1 and T2 were administered in small age-homogeneous group sessions using personal computers. At T3 and T4, however, participants answered all questionnaires online because they were now familiar with the procedure and the instruments. The ethics committee at the University of Mainz approved the study (approval #2015-JGU-psychEK-012). We were able to maintain a high participation rate at T2 (n = 358), T3 (n = 327) and T4 (n = 327, 85.8% of initial participants) by providing participants with regular study updates, holiday greetings, as well as continuous email and phone support.

Daily diary assessment. Participants answered up to 10 daily diaries (D) every two months during the first year of the study to examine momentary experiences relevant to trait development. Hence, during the six months between T1 and T2, participants completed up to 30 daily diaries (D1, D2, D3) and another 20 daily diaries between T2 and T3 (D4, D5).

Each evening, participants received an email at 6 p.m. and a reminder at 10 p.m. that included a personalised link and requested that they answer the online questionnaire on SoSci Survey (https://soscisurvey.de). This allowed participants to answer the questionnaire with any internet-enabled device (e.g. personal computer, tablet). All daily diary assessments started on a Saturday and ended on a Monday to cover both working days and weekends. We instructed participants to keep their personalised link and complete their diary the next morning if they were unable to answer it in the evening. Of the questionnaires, 87% were completed as scheduled. On average, participants completed diaries for 43.90 days (*SD* = 10.64, range 3–50 days); 97% of participants provided information on at least five days per assessment period (range for assessment periods 93%–99%). Participants received compensation of 117€ for completing the full study protocol and partial compensation if they missed assessments.

Measures

Big Five traits. At all four trait assessments, we asked participants to rate their Big Five traits openness to experience, conscientiousness, extraversion, agreeableness and emotional stability using the German version of the 44-item Big Five Inventory (BFI; John & Srivastava, 1999; Lang et al., 2001). We used a seven-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) to assess personality ratings. The trait scales had satisfactory reliabilities at all assessments: T1 (average ω = .88, range ω: .81–.93), T2 (average ω = .86, range ω: .79–.91), T3 (average ω = .87, range ω: .81–.92) and T4 (average ω = .87, range ω: .83–.91).

Change goals. At T1, T2 and T3, we assessed participants' goals to change their Big Five traits with a 16-item German short-version of the Change Goals BFI (C-BFI; Hudson & Roberts, 2014). For a recent application and further details on the short version of the C-BFI, see Quintus et al. (2017). One sample item for extraversion is 'I want to be outgoing, sociable' (Hudson & Roberts, 2014; Quintus et al., 2017). Items were rated on a 5-point scale ranging from 1 (*much less than I currently am*), to 3 (*I do not want to change this trait*), to 5 (*much more than I currently am*). On average, the scale reliabilities were ω = .67 (range ω = .44–.76). Additionally, for each item, participants rated how important and feasible this goal was to them. The importance of change goals was rated on a 5-point scale ranging from 1 (*not important at all*) to 5 (*very important*) and was averaged to form a composite for each trait (average ω = .72, range ω = .69–.76). Similarly, the feasibility of change goals was rated on a 5-point scale ranging from 1 (*not difficult at all*) to 5 (*very difficult*), which was inverted and averaged to form a composite for each trait (average ω = .69, range ω = .59–.78). The reliabilities for these measures are in line with those originally reported for the BFI short scale on which they were based (range α: .50–.73; Gerlitz & Schupp, 2005).

Daily situations and states. At the beginning of each daily questionnaire, we asked participants to recall the most memorable experience of their day (i.e. an experience that '…still sticks in your mind…') and provided several pleasant, neutral and unpleasant examples. Participants briefly described this experience and then rated the situation and their behaviour during it. The *situation* was rated with the German DIAMONDS S8-I questionnaire (Rauthmann et al., 2014) using a seven-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). We focused on the intellect, duty, sociality, deception, negativity and adversity dimensions, which were each assessed with a single item (e.g. intellect: 'Deep thinking is required'; sociality: 'Social interactions are possible or required') because previous analysis emphasised the relevance of these DIAMONDS to the Big Five traits (Rauthmann et al., 2014). Behaviour related to the Big Five was reported with five pairs of antonyms as the anchors of a seven-point scale (openness: *narrow-minded* and *open*; conscientiousness: *careless* and *deliberate*; extraversion: *shy* and *outgoing*; agreeableness: *rejecting* and *empathic*; emotional stability: *insecure* and *secure*).

Attrition analyses

We compared participants who completed all four assessments with participants who missed one or more assessment after T1 ($n = 73$) to test for sample selection through attrition. Participants who completed all personality trait assessments did not differ from the remaining participants with respect to their age ($d = 0.17$, $p = .17$), gender ($\chi^2(1, 382) = 0.15$, $p = .70$) and Big Five traits (d range: -0.29–0.18, all $ps > .05$), except for emotional stability at T3 ($d = -0.42$, $p = .03$). Participants who missed at least one personality trait assessment did not differ in their change goals (d range: -0.11–0.06, all $ps > .05$), change goal importance (d range: -0.19–0.06, all $ps > .10$), or change goal feasibility (d range: -0.20–0.21, all $ps > .10$), except for goals to change conscientiousness at T1 ($d = -0.31$, $p = .019$). We also examined whether data were missing completely at random (MCAR; Little, 1988). A nonsignificant test for 'nonrandomness' that included all variables from T1 to T4 used in the models supported the MCAR assumption, $\chi^2(4413) = 4306.17$, $p = .87$. On this basis, we used full-information maximum likelihood estimation (FIML) in all longitudinal analyses to account for missing data (Enders, 2010).

Analytic strategy

We estimated separate latent growth curve models (LGCMs) for each Big Five trait to test our hypotheses H1a–H1d (see Figure 1). Furthermore, to examine associations between change goals and situations and states (Hypotheses H2a–H2d), we estimated multilevel structural equation models (ML-SEMs). We computed separate models for openness, conscientiousness and extraversion based on one trait-relevant aspect of situations (e.g. sociality in models of extraversion). Since two aspects of situations have

been shown to be relevant to agreeableness and emotional stability (sociality and deception as well as negativity and adversity, respectively), we tested two models for these traits, resulting in seven models. We used the maximum likelihood estimator with robust standard errors to compute all models, offering robustness against violations of normality and the independence of observations (Muthén & Muthén, 1998–2017). The code is available at https://osf.io/7cbu6. Data are available upon request to the corresponding author because participants' consent only allowed individual sharing of data for research purposes.

Modelling individual differences in initial traits and trait change (between-person level). We set up LGCMs to assess individual changes in the Big Five traits across T1, T2, T3 and T4 (see Figure 1; Bollen & Curran, 2006; Duncan et al., 2006; Preacher, 2010). Growth curve models in the SEM framework model interindividual differences in intraindividual change by including latent intercepts and latent slopes as well as variances for those estimates. This means that people could differ in their trait level at the beginning of the study (i.e. their latent intercept) and in their developmental trajectories over time (i.e. their latent slope). These intercepts and slopes can then be predicted by other variables in the model.

We controlled for measurement error by using multiple manifest indicators that specified the occasion-specific latent trait at each personality assessment T1, T2, T3 and T4 (Steyer et al., 1997, 1999). At each personality assessment, we modelled latent trait representations by three parcels consisting of two or three items each (not depicted in Figure 1). To ensure that parcels were matched for discrimination and difficulty, we used the item-to-construct parcelling method (Allemand et al., 2007; Little
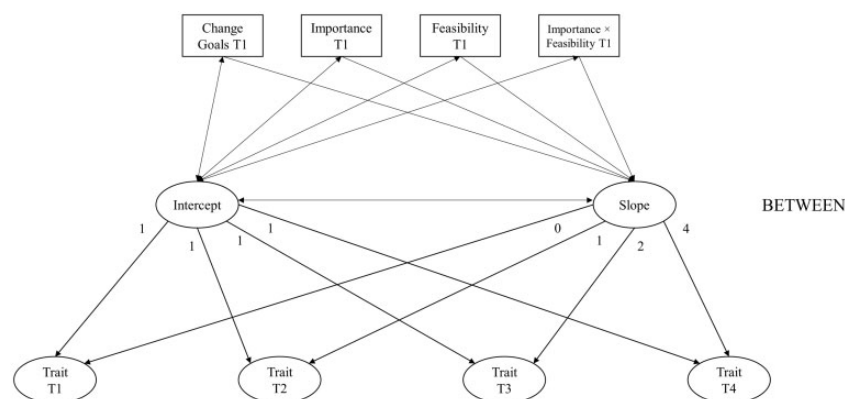

Figure 1. Latent growth curve model on the association of change goals, importance and feasibility with latent change in Big Five traits from T1 to T4. Note: Rectangles represent manifest variables; ellipses represent latent variables. Latent traits at T1, T2, T3 and T4 were estimated using three indicators (parcels) for each measurement occasion (not depicted). A latent intercept and a latent slope were fitted to the occasion specific latent traits. Factor loadings on the slope factor correspond to six-monthly intervals. Intercept and slope were allowed to covary. The intercept was also allowed to covary with change goals, importance, feasibility and importance × feasibility and change goals and their importance and feasibility additionally covaried with each other (not depicted). The slope was predicted by change goals, importance, feasibility and importance × feasibility.

et al., 2002). A latent intercept (corresponding to the latent trait level at T1) and a latent slope (signifying the development of traits across T1–T4) were then fitted to the occasion-specific latent traits T1–T4 (see Figure 1). The factor loadings on the slope factor correspond to six monthly intervals, i.e. T2 = 1, T3 = 2 and T4 = 4 as the intervals between T1–T2 and T2–T3 were six months, but the interval between T3–T4 was one year.

To test hypotheses H1a–H1d, we expanded the basic LGCMs by change goals, change goal importance, and change goal feasibility (see Figure 1). Specifically, we predicted trait changes (i.e. latent slopes) by change goals and change goal importance and feasibility, as well as the importance × feasibility interaction (see Figure 1). We modelled these predictors as manifest variables. Note that we allowed change goals, change goal importance and feasibility and importance × feasibility to covary with traits and each other at T1 (not depicted in Figure 1).

Measurement invariance. To ensure that latent slopes reflected not only changes in the measurement model but also actual trait changes, we examined the measurement invariance of the latent trait measurement model over the T1–T4 period (Horn & McArdle, 1992; Van de Schoot et al., 2012; Vandenberg & Lance, 2016). Following suggested guidelines, full strong measurement invariance was achieved for each model (Chen, 2007; Cheung & Rensvold, 2002; see Table S1). In addition, we accounted for shared method variance across assessments by including indicator-specific factors (IS) for the nonreference parcels (not depicted in Figure 1). Compared to correlated residuals, this approach is more parsimonious and has the advantage of separating reliable method variance from random error (Eid, 2000; Eid et al., 1999; Geiser & Lockhart, 2012).

Modelling associations between change goals (between-person) and daily situations and states (within-person). The data possess a multilevel structure with nonindependent daily diaries due to assessments being nested within participants. Consequently, we applied ML-SEM (Asparouhov & Muthén, 2008; Mehta & Neale, 2005; Muthén & Satorra, 1995) using Mplus Version 7.3 (Muthén & Muthén, 1998–2017). ML-SEM allows researchers to simultaneously model complex longitudinal associations between latent variables whilst accounting for measurement error (i.e. to use structural equation modelling) and to model hierarchical data with measurements being clustered within superordinate levels (i.e. to use multilevel regression). Furthermore, ML-SEM handles the current study's two-level data by decomposing the total variance/covariance matrix into two components, the *within-person level* (i.e. within-person associations between momentary situations and states) and the *between-person level* (i.e. individual differences in within-person means, associations and traits), making it useful for the investigation of associations between daily experiences and traits (for recent applications, see Roesch et al., 2010; Sturgeon et al., 2014).

We assessed the proportion of variance in momentary situations and state components due to between-person differences using intraclass correlation coefficients (ICC; Muthén & Satorra, 1995) to formally determine the need for ML-SEM. As illustrated in Table S2, the ICCs indicated that both situations and states varied substantially between participants, and so the application of ML-SEM was recommended (Hedges & Hedberg, 2007; Muthén & Satorra, 1995; Snijders & Bosker, 2011).

Within-person level. To assess associations between situations and states, we specified manifest path models (Muthén & Muthén, 1998–2017) for the one-item measures assessed during D1–D5
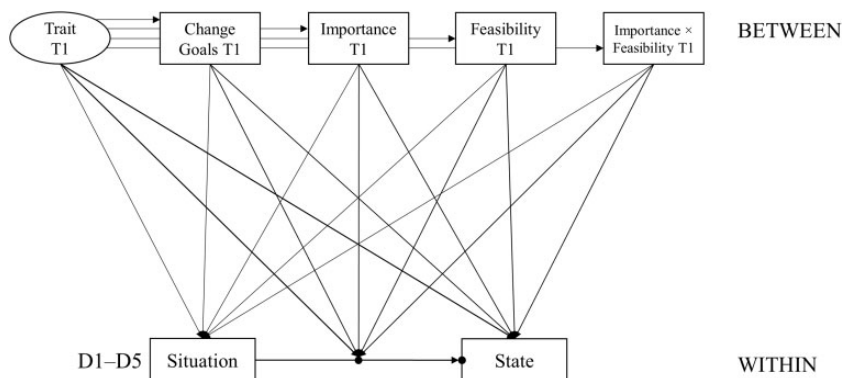

Figure 2. ML-SEM on the associations of change goals and change goal importance and feasibility with trait-relevant situations and states. Note: Rectangles represent manifest variables; ellipses represent latent variables. Black dots indicate random effects. Latent traits at T1 were estimated using three indicators (parcels; not depicted). Change goals, importance, feasibility and importance × feasibility were predicted by traits at T1. We allowed change goals and their importance and feasibility to covary (not depicted). Situation-state contingency was implemented as a random slope. Traits, change goals, importance, feasibility and importance × feasibility predicted situations, states and the situation-state contingency.

(lower part of Figure 2). We tested associations between situations and states using random intercepts and random slopes, i.e. allowing for interindividual differences in states as well as situation-state contingencies. We centred all diary variables at their scale midpoint to ease interpretation.

Between-person level. To further examine the associations between change goals and momentary experiences, we predicted situations and states during D1–D5 as well as the association between situations and states by change goals, change goal importance and feasibility and the importance × feasibility interaction (Figure 2). Finally, we predicted situations and states by traits at T1.

Model evaluation. We evaluated model fit with the Chi-squared test, CFI, TLI, RMSEA and SRMR. In ML-SEM, Mplus offers separate indices for within- and between-person SRMR (Muthén & Muthén, 1998–2017). We primarily relied on the CFI, TLI, RMSEA and SRMR since the Chi-squared test is prone to rejecting plausible models with larger sample sizes (Hu & Bentler, 1999; Schermelleh-Engel et al., 2003; West et al., 2012). For CFI and TLI, satisfactory and good model fit in ordinary structural equation modelling is implied by values > .90 and >.95, respectively (Kline, 2005; Van de Schoot et al., 2012). For RMSEA, values < .08 suggest adequate model fit and values < .05 good model fit (Hu & Bentler, 1999; Schermelleh-Engel et al., 2003). For SRMR, values < .10 and < .05 indicate adequate and good model fit, respectively (Hu & Bentler, 1999; Schermelleh-Engel et al., 2003). Note that these criteria stem from studies that did not investigate multilevel data. Therefore, whether these suggestions are also applicable for ML-SEM remains to be seen.

Results

Descriptive information on change goals, goal importance and goal feasibility

Table 1 presents the means and standard deviations of change goals, change goal importance and change goal feasibility at T1. On average, participants expressed goal to increase every Big Five trait as indicated by means above three (i.e. above the scale midpoint indicating 'I do not want to change on this trait') in the first column of Table 1. In addition, on average, participants rated their change goals at least as moderately important and feasible (columns 2 and 3 of Table 1). The *SD*s indicate substantial interindividual variation in change goals, their importance and their feasibility (Table 1).

Table 2 shows zero-order correlations between change goals, change goal importance, change goal feasibility and traits at T1. In all Big Five traits,

Table 1. Means and standard deviations of change goals, their importance and feasibility at T1.

Trait	Change goals	Importance of change goals	Feasibility of change goals
Openness	3.48 (0.42)	3.33 (0.97)	3.59 (0.88)
Conscientiousness	3.65 (0.58)	3.49 (0.90)	3.30 (0.90)
Extraversion	3.41 (0.57)	3.34 (0.98)	3.51 (1.07)
Agreeableness	3.37 (0.44)	3.51 (1.03)	3.73 (0.88)
Emotional stability	3.81 (0.61)	3.51 (0.98)	2.91 (1.10)

Note: Standard deviations shown in parentheses.

with the exception of openness, stronger change goals were associated with higher change goal importance but lower perceived feasibility. Similarly, the more important change goals were for participants, the less feasible they viewed them as being (Table 2). With higher trait levels at T1, participants reported less pronounced goals to change yet greater perceived feasibility of change, while the associations between trait level and goal importance were inconsistent (Table 2). Next, we report the results of latent growth curve models that tested our hypotheses. We first report the results on the associations between change goals, change goal importance and feasibility and actual trait change (H1a–d). We subsequently describe results on the associations between change goals, change goal importance and feasibility and experienced trait-relevant situations and states (H2a–d). In addition to ML-SEM results testing H2a–d, we also report zero-order correlations between change goals, change goal importance and change goal feasibility at T1, and the subsequent experience of trait-relevant situations and states (Table 3).

Linking change goals with changes in Big Five traits (Hypotheses 1a–d)

Amount of change goals. LGCMs linking change goals with changes in Big Five traits showed good to excellent fit, except for SRMR for openness (Table 4). Since all other indices suggested a good model fit (Table 4), we kept this model to allow for comparisons between traits. Results showed that stronger change goals were generally not significantly linked to stronger trait changes over the following two years, when controlling for current Big Five traits (Table 5). These results contradict Hypothesis H1a.

Importance and feasibility of change goals. Contrary to H1b, the higher participants rated the importance of their goal to change agreeableness, the less they changed in the trait agreeableness across the study (Table 5, Model 3). Associations between change goal importance and actual trait changes were mostly in the predicted direction for the other traits but not statistically significant (Table 5). Similarly,

Table 2. Intercorrelations of change goals, their importance and feasibility, and traits at T1.

Trait	*r* change goals with importance	*r* change goals with feasibility	*r* importance with feasibility	*r* traits with change goals	*r* traits with importance	*r* traits with feasibility
Openness	.03	−.56**	0	−.24**	.35**	.45**
Conscientiousness	.24**	−.58**	−.32**	−.53**	−.04	.50**
Extraversion	.19**	−.58**	−.23**	−.50**	.03	.53**
Agreeableness	.12*	−.34**	−.17*	−.26**	.14*	.36**
Emotional stability	.36**	−.60**	−.53**	−.61**	−.24**	.58**

Note: Importance = change goals' importance. Feasibility = change goals' feasibility.
* $p < .05$. ** $p < .01$.

Table 3. Correlations of change goals, their importance and feasibility at T1 with person averages of situations and states.

Momentary experiences	Change goals					Importance					Feasibility				
	O	C	E	A	ES	O	C	E	A	ES	O	C	E	A	ES
Situations															
Intellect	0	.09	−.04	.10	0	.12*	.09	−.02	.02	.03	.10	−.04	−.01	−.09	.05
Duty	−.10*	−.03	−.10	−.03	−.04	.11*	−.03	.06	.02	.12*	.01	.01	.01	−.09	−.03
Sociality	−.05	−.03	−.13*	.00	.07	.02	−.03	0	.10	.07	.01	−.05	.13*	.05	−.05
Deception	.05	.12*	−.00	.12*	.13*	.04	.12*	.02	−.04	−.01	−.02	−.09	−.06	−.13*	−.03
Negativity	.08	.27*	.09	.14*	.30*	−.01	.28*	.03	−.01	.11*	.03	−.19*	−.13*	−.05	−.17*
Adversity	.04	.13*	.03	.07	.12*	.02	.13*	.03	−.03	−.02	.02	−.13*	−.08	−.06	−.07
States															
Open	−.12*	−.21*	.42*	−.09	−.20*	.10*	−.21*	0	.08	−.07	.09	.20*	.27*	.14*	.18*
Conscientious	−.19*	−.29*	.22*	−.05	−.22*	.12*	−.29*	.01	.04	0	.08	.20*	.11*	−.02	.11*
Extraverted	−.09*	−.11*	−.18*	0	−.19*	.01	−.11*	.01	.09	−.05	.04	.14*	.29*	.12*	.18*
Agreeable	−.14*	−.17*	−.21*	−.09	−.13*	.13*	−.03	.02	.09	−.02	.09	.18*	.21*	.12*	.11*
Emotional stable	−.15*	−.33*	−.22*	−.13*	−.36*	.10	.05	.04	.07	−.06	.06	.25*	.22*	.08	.24*

O: openness; C: conscientiousness; E: extraversion; A: agreeableness; ES: emotional stability.
*$p < .05$.

Table 4. Model fit indices for growth curve models examining associations of change goals, their importance and feasibility predicting long-term changes in Big Five traits.

Trait	χ^2	CFI	TLI	RMSEA	SRMR
Openness	236.797	0.967	0.962	0.009	0.106
Conscientiousness	244.925	0.960	0.955	0.009	0.064
Extraversion	288.923	0.955	0.949	0.010	0.066
Agreeableness	246.851	0.945	0.937	0.009	0.063
Emotional stability	235.663	0.966	0.961	0.009	0.044

Note: All models were calculated using maximum likelihood estimation with robust standard errors and scaled test statistics. All χ^2-tests of model fit had 105 degrees of freedom. CFI: comparative fit index; TLI: Tucker-Lewis index; RMSEA: root mean square error of approximation; SRMR: standardised root mean square residual.

change goal feasibility was not significantly associated with trait change for any of the Big Five traits (Table 5), which contradicts H1c. Regarding H1d, the importance × feasibility interaction modified the association of feasibility with change in emotional

stability (Table 5, Model 5). A simple slope analysis revealed that for people with high importance of change goals (+2SD), higher feasibility of change goals predicted less change in emotional stability (b = −0.051, $SE = 0.022$, $p = .019$) compared to people with low importance of change goals (−2SD, b = 0.034, $SE = 0.022$, $p = .126$). It is important to note here that higher perceived feasibility was associated with an already higher level of emotional stability at T1 (see Table 2). No interaction effects occurred for the other Big Five traits.

Change goals predicting momentary situations and states (Hypotheses 2a–d)

Amount of change goals. Change goals did not predict trait-relevant situations, as hypothesised in H2a (Tables 3 and 6). Instead, zero-order associations indicated that in some traits (e.g. extraversion) stronger change goals were linked with experiencing fewer trait-relevant situations (Table 3). This might be related to lower traits being linked to stronger change

Table 5. Goals to change traits, their importance and feasibility at T1 predicting trait changes (latent intercepts and slopes).

Predictors	Trait level T1[a] (Intercept)	Trait change T1 to T4[b] (Slope)
Model 1: Openness		
Estimate	5.404** [5.304, 5.504]	−0.019 [−0.036, −0.002]
Change goals	−0.108** [−0.158, −0.058]	−0.004 [−0.052, 0.044]
Goal importance	0.463** [0.347, 0.580]	−0.014 [−0.034, 0.005]
Goal feasibility	0.404** [0.306, 0.502]	−0.023 [−0.048, 0.001]
Importance × feasibility	−0.238** [−0.351, −0.126]	0.019 [−0.001, 0.038]
Model 2: Conscientiousness		
Estimate	4.558** [4.450, 4.666]	0.009 [−0.012, 0.029]
Change goals	−0.358** [−0.425, −0.291]	−0.015 [−0.058, 0.028]
Goal importance	−0.011 [−0.119, 0.097]	0.009 [−0.020, 0.038]
Goal feasibility	0.487** [0.382, 0.593]	−0.008 [−0.036, 0.021]
Importance × feasibility	−0.096 [−0.205, 0.014]	−0.004 [−0.027, 0.019]
Model 3: Extraversion		
Estimate	4.601** [4.475, 4.726]	−0.009 [−0.031, 0.014]
Change goals	−0.375** [−0.452, −0.299]	−0.026 [−0.074, 0.021]
Goal importance	−0.032 [−0.163, 0.099]	−0.018 [−0.011, 0.046]
Goal feasibility	0.680** [0.541, 0.819]	−0.001 [−0.028, 0.026]
Importance × feasibility	0.034 [−0.102, 0.171]	−0.016 [−0.040, 0.007]
Model 4: Agreeableness		
Estimate	4.654** [4.557, 4.751]	−0.005 [−0.025, 0.015]
Change goals	−0.124** [−0.169, −0.079]	0.007 [−0.038, 0.052]
Goal importance	0.121* [0.009, 0.233]	−0.023* [−0.044, −0.002]
Goal feasibility	0.299** [0.213, 0.384]	−0.020 [−0.045, 0.005]
Importance × feasibility	−0.036 [−0.140, 0.067]	0.008 [−0.014, 0.031]
Model 5: Emotional stability		
Estimate	4.209** [4.082, 4.335]	0.018 [−0.006, 0.042]
Change goals	−0.482** [−0.560, −0.404]	0.025 [−0.023, 0.073]
Goal importance	−0.318** [−0.455, −0.180]	0.023 [−0.007, 0.052]
Goal feasibility	0.770** [0.630, 0.910]	−0.008 [−0.035, 0.018]
Importance × feasibility	0.068 [−0.063, 0.200]	−0.021* [−0.038, −0.004]

[a]The intercept only covaried with change goals, importance, feasibility.
[b]The slope was predicted by change goals, importance, feasibility.
*p < .05. **p < .01.

goals but fewer trait-relevant situations. When controlling for T1 trait levels in ML-SEM, associations between change goals and situations were no longer significant (Table 6). Turning to the associations between change goals and trait-relevant states, the zero-order correlations showed that stronger change goals were linked with reporting less trait-relevant behaviour for all Big Five traits except agreeableness (Table 3). In ML-SEM, stronger goals to change openness and emotional stability at T1 were associated with less open and stable behaviour respectively, but no further significant associations between change goals and states occurred (Table 6). Lastly, stronger change goals were only associated with situation-state contingencies for agreeableness and sociality of situations (Table 6). Note that in contrast to change goals, associations between traits at T1 and subsequent momentary trait-relevant experiences were generally congruent. Traits at T1 significantly predicted all associated states and they predicted trait-relevant situations for openness, agreeableness and emotional stability (see Quintus et al., 2020).

Importance and feasibility of change goals. Although zero-order correlations suggested that with higher importance of goals to change openness and emotional stability participants reported higher intellect or negativity during subsequent situations (Table 3), none of these associations proved significant in ML-SEM (Table 6). No further associations between change goal importance and trait-relevant situations or states emerged (Tables 3 and 6), therefore not supporting H2b.

Contrary to H2c, only higher feasibility of change goals regarding emotional stability predicted negativity of situations. Other than that, the few significant zero-order correlations between change goal feasibility and trait-relevant situations (e.g. for extraversion, Table 3) were not replicated in ML-SEM (Table 6). Regarding associations between change goal feasibility and trait-relevant states, on a zero-order level, higher feasibility was linked, as expected, with more self-reported trait-relevant behaviour in all Big Five traits except openness (Table 3). However, in ML-SEM, none of these associations was robust

Table 6. Goals to change traits, their importance and feasibility at T1 predicting trait-relevant situations, states and situation-state contingency during D1–D5.

	Situation	State	Situation-state contingency
Model 6: Openness	Intellect	Open	Intellect–Open
Estimate	−0.791** [−0.878, −0.702]	1.402 [1.362, 1.509]	−0.023* [−0.085, −0.009]
Change goals	0.161 [−0.080, 0.402]	−0.220* [−0.396, −0.044]	−0.010 [−0.057, 0.036]
Goal importance	0.043 [−0.082, 0.168]	0.065 [−0.016, 0.145]	0.014 [−0.010, 0.037]
Goal feasibility	0.053 [−0.086, 0.193]	−0.027 [−0.122, 0.069]	0.004 [−0.021, 0.029]
Goal importance × feasibility	0.026 [−0.096, 0.148]	−0.065 [−0.142, 0.013]	−0.010 [−0.033, 0.012]
Model 7: Conscientiousness	Duty	Deliberate	Duty–Deliberate
Estimate	−0.839** [−0.943, −0.735]	1.202** [1.124, 1.280]	0.107** [0.092, 0.122]
Change goals	0.025 [−0.215, 0.266]	−0.168 [−0.342, 0.006]	−0.020 [−0.050, 0.010]
Goal importance	0.139 [−0.006, 0.284]	0.002 [−0.101, 0.106]	0.003 [−0.016, 0.021]
Goal feasibility	−0.027 [−0.179, 0.126]	−0.031 [−0.146, 0.085]	0.012 [−0.008, 0.031]
Goal importance × feasibility	0.060 [−0.041, 0.160]	0.009 [−0.071, 0.088]	0.009 [−0.006, 0.024]
Model 8: Extraversion	Sociality	Outgoing	Sociality–Outgoing
Estimate	0.963** [0.869, 1.057]	0.929** [0.884, 0.975]	0.305** [0.290, 0.320]
Change goals	−0.096 [−0.287, 0.094]	0.087 [−0.020, 0.193]	0.020 [−0.015, 0.055]
Goal importance	0.024 [−0.080, 0.129]	−0.022 [−0.081, 0.037]	0.009 [−0.009, 0.027]
Goal feasibility	0.006 [−0.098, 0.111]	0.030 [−0.024, 0.085]	0.022* [0.004, 0.039]
Goal importance × feasibility	−0.039 [−0.115, 0.037]	0.007 [−0.044, 0.058]	−0.008 [−0.021, 0.005]
Model 9: Agreeableness	Sociality	Empathic	Sociality–Empathic
Estimate	0.979** [0.887, 1.070]	0.703** [0.648, 0.757]	0.230** [0.216, 0.244]
Change goals	0.063 [−0.173, 0.300]	−0.008 [−0.132, 0.116]	0.044* [0.010, 0.079]
Goal importance	0.019 [−0.076, 0.114]	0.014 [−0.047, 0.076]	0.005 [−0.011, 0.021]
Goal feasibility	−0.008 [−0.126, 0.110]	−0.040 [−0.113, 0.033]	−0.012 [−0.031, 0.008]
Goal importance × feasibility	−0.002 [−0.111, 0.106]	−0.064* [−0.125, −0.002]	0.004 [−0.021, 0.012]
Model 10: Agreeableness	Deception	Empathic	Deception–Empathic
Estimate	0.007 [−0.038 0.051]	0.368** [0.273, 0.463]	−0.225** [−0.255, −0.196]
Change goals	0.063 [−0.063, 0.188]	−0.060 [−0.266, 0.146]	−0.030 [−0.096, 0.036]
Goal importance	−0.030 [−0.081, 0.022]	0.084 [−0.017, 0.169]	0.018 [−0.013, 0.048]
Goal feasibility	−0.045 [−0.102, 0.012]	−0.002 [−0.140, 0.113]	0.014 [−0.026, 0.054]
Goal importance × feasibility	0.024 [−0.027, 0.075]	−0.114* [−0.219, −0.026]	−0.020 [−0.051, 0.012]
Model 11: Emotional stability	Negativity	Secure	Negativity–Secure
Estimate	−1.112** [−1.213, −1.012]	0.841** [0.767, 0.915]	−0.350** [−0.369, −0.331]
Change goals	0.152 [−0.046, 0.350]	−0.182* [−0.364, −0.018]	−0.018 [−0.067, 0.032]
Goal importance	0.026 [−0.077, 0.128]	0.085 [−0.008, 0.178]	0.013 [−0.012, 0.038]
Goal feasibility	0.165** [0.056, 0.274]	0.028 [−0.074, 0.129]	0.018 [−0.007, 0.044]
Goal importance × feasibility	0.032 [−0.030, 0.094]	−0.027 [−0.088, 0.034]	−0.019* [−0.034, −0.004]
Model 12: Emotional stability	Adversity	Secure	Adversity–Secure
Estimate	0.028 [−0.037, 0.094]	0.735** [0.632, 0.839]	−0.208** [−0.236, −0.181]
Change goals	0.031 [−0.099, 0.162]	−0.181 [−0.431, −0.068]	0.011 [−0.064, 0.085]
Goal importance	−0.064 [−0.140, 0.012]	0.049 [−0.078, 0.176]	−0.002 [−0.035, 0.032]
Goal feasibility	0.027 [−0.055, 0.109]	−0.017 [−0.160, 0.126]	0.012 [−0.027, 0.050]
Goal importance × feasibility	0.042 [−0.002, 0.087]	−0.036 [−0.116, 0.043]	−0.014 [−0.034, 0.006]

Note: Estimate reflects the overall mean for each situation, state or situation-state contingency.
*$p < .05$. **$p < .01$.

(Table 6). Furthermore, in contrast to H2d, perceiving change goals as both important and feasible only predicted trait-relevant states for agreeableness (Table 6). Unexpectedly, for higher importance of change goals (+2SD), higher feasibility predicted less empathic behaviour for both sociality (b = −0.167, SE = 0.066, p = .011, for change goal's importance −2SD, b = 0.087, SE = 0.078, p = .264) and deception of situations (b = −0.230, SE = 0.127, p = .070; for change goal's importance −2SD, b = 0.226, SE = 0.129, p = .082).

Within-person associations between situations and Big Five states. Regarding within-person level associations between situations and states, that is, situation-state contingencies, ML-SEM showed that except for openness, situations predicted states as expected. For example, higher situational duty predicted more conscientious behaviour (b = 0.107, SE = 0.007, p < .01), and higher situational negativity predicted less stable behaviour (b = −0.350, SE = 0.010, p < .01; detailed results on within-person level associations can be found in Table 6 in the row 'Estimate'

for each model). With higher feasibility, the situation-state contingency between sociality of situations and outgoing behaviour was strengthened (Table 6). Also, for lower importance of change goals (−1SD), higher feasibility predicted a stronger situation-state contingency between negativity of situations and emotionally stable behaviour (b = 0.038, $SE = 0.016$, $p = .017$; for change goal's importance −1SD, b = −0.001, $SE = 0.015$, $p = .948$; Table 6). No further associations of change goals, importance and feasibility with situation-state contingencies emerged.

Control analyses

Firstly, we also investigated whether stronger change goals rated as both more important and more feasible (i.e. three-way interactions) predicted stronger subsequent trait changes and momentary experiences. Across all Big Five traits and associated situations and behaviour, no consistent picture of effects emerged. For openness, the three-way interaction predicted less open behaviour (b = −0.163, $SE = 0.082$, $p = .047$) and a weaker situation-state contingency (b = −0.045, $SE = 0.022$, $p = .035$). For emotional stability, the three-way interaction predicted more negativity of situations (b = 0.124, $SE = 0.053$, $p = .019$).

Secondly, we examined whether the pattern of results changed when excluding goals to decrease in a trait. Across the five traits, results and conclusions regarding trait change remained the same, with only higher importance of goals to change openness now predicting less trait change (b = −0.025, $SE = 0.013$, $p = .048$).

Regarding associations with situations and states, few differences emerged. For a total of 84 relevant associations of change goals, importance, feasibility and importance × feasibility (4) with situations, states and situation state contingencies (3) in seven different models for traits and situation perceptions (see Table 6 for all cells), only three implied different effects, most consistently for change goals. Specifically, stronger change goals now predicted less trait-relevant behaviour for conscientiousness and emotional stability concerning adversity of situations. For more details, see Supplementary Material (https://osf.io/7cbu6).

Thirdly, we tested whether associations between change goals and momentary situations and states differed for weekdays and weekends. Again, across 14 models only 6 out of 168 relevant parameters differed from models including all days of the week (see Supplementary Material, https://osf.io/7cbu6). In addition, these few parameters did not imply a substantial change in results.

Fourthly, we controlled for age group (i.e. younger vs. older participants) and age group × change goal interactions. It showed that younger participants rated themselves lower in openness, conscientiousness and agreeableness at T1 (all bs < −0.040, all ps < .036).

Similarly, younger participants reported less open, conscientious, agreeable and stable behaviour (all bs < −0.207, all ps < .01). However, younger participants reported higher sociality, negativity and adversity of situations (all bs > 0.139, all ps < .029). For a more detailed display and discussion of age differences of traits, states and situations, see Quintus et al. (2017) and Quintus et al. (2020). Other than that, no consistent age differences emerged.

Finally, we also modelled changes and effects of change goals for each assessment period separately (latent neighbour-change models). This led to the same conclusions. We provide details on this alternative analytic approach and corresponding results, as well as detailed results of all control analyses in the Supplementary Material available at https://osf.io/7cbu6.

Discussion

The current longitudinal daily diary study examined associations between change goals and both subsequent changes in Big Five traits as well as the experiences of trait-relevant momentary situations and states. In addition, the study is one of the first empirical tests to assess whether change goal importance and feasibility foster successful goal achievement (i.e. trait changes) as both classic motivational theories (Atkinson, 1964; Fishbein & Ajzen, 1975) and a recent framework on volitional personality development suggest (Hennecke et al., 2014). We combined four trait assessments over two years with an extensive daily diary approach, thus capturing up to 50 diary entries per participant to provide new insights into volitional personality development. Next, we discuss our findings.

Change goals do not predict trait changes and momentary experiences per se

Contrary to our expectations and theoretical frameworks (Hennecke et al., 2014), our results show that people with more pronounced change goals did not necessarily demonstrate larger trait changes over the subsequent two years, that is, stronger change goals were not associated with more pronounced trait changes. Similar results have been observed in three other studies (Asadi et al., 2020; Baranski et al., 2020; Robinson et al., 2015). These and the current findings stand in contrast to other previous studies, which have indicated that people do in fact change in the direction of their change goals (Hudson et al., 2019; Hudson & Fraley, 2015, 2016a). These latter studies often implemented personality change interventions. To explain why change goals did not manifest in actual trait changes in the current study, several not mutually exclusive arguments can be made.

First, since stronger change goals seem to reflect lower current trait levels (Hudson & Roberts, 2014;

Quintus et al., 2017), these lower trait levels may form a major obstacle for people to successfully implement the intended behavioural change in the first place (e.g. people low in extraversion might not be able to behave in a very outgoing manner as a new goal-relevant behaviour; Jacques-Hamilton et al., 2019; Robinson et al., 2015). Thus, people might lack either access to trait-relevant situations or the behavioural repertoire to successfully implement their change goals. In line with this suggestion, change goals did not predict the experience of trait-relevant momentary situations and states as we hypothesised. Zero-order correlations even indicated that stronger change goals might be associated with the experience of fewer goal-relevant situations or states. These findings could not be replicated when controlling for current trait levels in ML-SEM, largely because trait levels mostly predicted momentary experiences, as expected. Consequently, associations between change goals and momentary experiences could be due to shared variance with current trait levels and thus appear to be spurious.

While the current findings contrast theoretical suggestions (Denissen et al., 2013; Hennecke et al., 2014; Wrzus & Roberts, 2017) and some prior empirical research (Hudson & Fraley, 2015; McCabe & Fleeson, 2016; Stevenson & Clegg, 2011), they are in line with another study, which also found that associations between change goals and states were spurious when controlling for traits (Hudson & Roberts, 2014). Hence, our results further support the assumption that the enactment of contratrait behaviour could be effortful (Gallagher et al., 2011; for recent empirical results regarding extraversion, see Jacques-Hamilton et al., 2019) and may fail without clear instructions, as in previous intervention studies (e.g. Hudson & Fraley, 2015). In addition, a recent study found that people lower in the trait extraversion reported more negative affect and tiredness and reduced feelings of authenticity when they tried to act in an extraverted manner (Jacques-Hamilton et al., 2019). Accordingly, while people low in extraversion may perceive higher trait levels as socially desirable and thus report goals to change, these goals may not go hand in hand with lasting changes in actual behaviour, as enacting contratrait behaviour could feel unpleasant and less authentic. Since the altering of momentary behaviour should form the main building block of personality development (Back et al., 2011; Dweck, 2017; Geukes et al., 2017; Hennecke et al., 2014; Roberts, 2017; Roberts & Jackson, 2008; Wrzus & Roberts, 2017), our finding that change goals failed to manifest into long-term trait changes is hardly surprising. Indeed, a previous intervention study demonstrated that trait changes occurred only if people actually acted according to their goals and plans (Hudson et al., 2019). Consequently, it could be argued that change goals as assessed by the C-BFI largely reflect people's desire

for higher trait levels, but do not translate into real changes without specific plans concerning how to implement their goals.

In line with this reasoning, previous studies have fostered the implementation of change goals with interventions (Allan et al., 2018; Hudson et al., 2019; Hudson & Fraley, 2015), while the current study examined naturally occurring volitional personality change. Hence, we did not provide any instructions on how to implement change goals in one's daily life. Still, long-term change goals, being measured on a broad trait level, could be too abstract (see for example the abstractness of the item 'I want to be original, come up with new ideas') for people to successfully translate them into subordinate but more concrete plans or short-term goals without psychological assistance (Bandura, 2001; Emmons, 1992; Gollwitzer, 1999; Hudson & Fraley, 2015; Magidson et al., 2014; Masicampo & Baumeister, 2011). Specific if-then implementation intentions seem to be necessary to increase the likelihood of goal attainment, and vague plans could even inhibit change (Hudson & Fraley, 2015; Robinson et al., 2015). In the context of goal setting, successful goals are often also described by the acronym SMART, i.e. goals should be specific, measurable, attainable, relevant and time-bound (e.g. Lawlor & Hornyak, 2012). Beyond relevance and attainability (which we measured as importance and feasibility), personality change goals could fall short on several of those characteristics without external assistance. In addition to not being very specific, they are dynamic goals that require the upholding of behavioural changes beyond a fixed timeframe (Carver & Scheier, 1998; Powers, 1973) and goal attainment is difficult to measure. Thus, the lack of measurability and fixed timeframes could additionally inhibit successful goal attainment. Furthermore, previous intervention studies have often focused on few specific traits people chose to change, such as 'become more open-minded'. The focus on one or two traits may have facilitated successful trait change because of concentrating efforts and resources on single domains (Allan et al., 2018; Hudson et al., 2019; Hudson & Fraley, 2015; Stieger et al., 2020). In previous studies as well as the current one, change goals were moderately correlated, that is, people who wanted to become more sociable often also wanted to become more emotionally stable and conscientious (Hudson & Roberts, 2014). Accordingly, wanting to change several traits simultaneously may have scattered efforts and consequently impeded trait change.

In addition, methodical differences from other studies (Hudson et al., 2019; Hudson & Fraley, 2015, 2016a), especially regarding the assessment schedules, could explain why stronger change goals did not predict subsequent trait changes. Previously, the repeated and relatively proximal assessment of both traits (i.e. once per week) and change goals

(i.e. once every five weeks) may have facilitated a seemingly successful implementation of change goals, which may have, for example, been due to the overestimation of one's own trait changes or consistency-seeking with remembered change goals (Hudson & Fraley, 2015, 2016a; see also Robins & John, 1997; Wrzus, 2018). A recent study demonstrated that short-term personality changes following an intervention were also observed by significant others, albeit to a lesser degree than self-reported changes (Stieger et al., 2020). Combined with the repeated finding of goal-concurrent trait changes in short-term (i.e. four months; Hudson et al., 2019, Hudson, Fraley, Chopik, & Briley, 2020; Hudson & Fraley, 2015, 2016a) vs. longer term studies (Asadi et al., 2020; Baranski et al., 2020; Robinson et al., 2015; and this study), this could also suggest that change goals and/or interventions largely result in short-term (possibly mainly behavioural) changes but not sustainable long-term changes in underlying traits. For example, this could happen when participants stop working (as hard) on achieving their goals after a study/intervention and before the behavioural changes have become habitual or been integrated into the self-concept. On the other hand, in the current study, we did not observe significant effects of change goals across six-month periods either (see Supplementary Material on results from latent neighbour-change models at https://osf.io/7cbu6). Future studies might consider implementing more frequent and more comprehensive assessments of daily life to closer examine the time course of change goal implementation, potential obstacles and possibly even using them as measures of goal attainment.

Importance and feasibility of goals to change personality traits

Although frequently requested (Hennecke et al., 2014; Robinson et al., 2015; Wood & Denissen, 2015), the current study is one of the first to empirically examine the relevance of change goal importance and feasibility in volitional personality development. As expected, people varied substantially with regard to the importance and feasibility of their change goals, which suggests that people place different emphasis on implementing their change goals. Based on theoretical assumptions, more important change goals should be associated with higher goal commitment and more perseverant efforts to implement such goals (Latham & Locke, 1991). More feasible goals should profit from clearer requirements (e.g. which situations and behaviours to engage in) and higher perceived ability to act accordingly (Ajzen, 1985; Fishbein & Ajzen, 1975; Gollwitzer, 1990; Heckhausen, 1991). We suspected that importance and feasibility could be even more important for goals to change personality traits that can be considered more dynamic than 'normal' goals. However,

our results, in line with those reported by one other recently published study (Baranski et al., 2020), did not support these assumptions. In light of the general pattern of results, we refrain from overinterpreting the effect of higher importance and feasibility of goals to change agreeableness on less empathic behaviour and of goals to change emotional stability on weakening the negative situation-state contingency of negativity and emotionally stable behaviour. Other than expected, greater importance, feasibility, or even simultaneous importance and feasibility of change goals (i.e. interaction of change goal importance and feasibility) did not consistently predict more pronounced trait changes or trait-relevant situations and behaviour, respectively. For emotional stability, higher feasibility of more important change goals even predicted less change. This unexpected finding could be explained by higher feasibility being associated with relatively high levels of the trait emotional stability, but it remains to be seen whether this effect is replicated in future studies. The findings suggest that neither importance nor feasibility provide sufficient preconditions for successful volitional personality development likely because they do not necessarily imply actual goal implementation in situations and behaviour. This might be caused by change goals lacking other characteristics of successful goals such as measurability or specificity. The weak-to-absent empirical associations between goal importance or feasibility with daily situations and states support this interpretation. In addition, higher perceived feasibility was associated with higher current trait levels but with less pronounced and less important change goals. This indicates that stronger and more important goals seem to be viewed as more daunting and difficult to achieve, and people may only judge the feasibility as high if they already show relatively high levels of a respective trait.

Alternatively, even if people perceive some change goals as feasible, the goals may nonetheless be unexpectedly hard to implement in everyday situations or behaviour because, for example, people might not know which situations are actually relevant to increase a particular trait (Baranski et al., 2017). Nonetheless, our results do not automatically imply that the current theories on volitional trait change that include components from expectancy-value models (Hennecke et al., 2014) need to be revised. The SMART taxonomy of goals suggests that importance and feasibility did not predict trait change or momentary experiences partly because of measuring change goals too broadly. Particularly, the feasibility (attainability) of the relatively unspecific change goals assessed here could be overrated and reflect general beliefs regarding the feasibility of changing one's personality. Supporting this interpretation, on average, participants rated the feasibility of their change goals quite high in this study (above the scale midpoint for all traits except emotional stability), and such beliefs

of changeability have been shown to be unrelated to trait change, both volitional and otherwise (Hudson, Fraley, Briley, & Chopik, 2020). The feasibility of more concrete change goals, on the other hand, might be more realistically judged and might subsequently also show the expected associations with trait change (Hennecke et al., 2014). Similarly, whereas the importance of broadly measured change goals might imply general desires and/or social desirability, the importance of more specific change goals could be more closely linked to momentary experiences and thus further trait change. In summary, change goal importance and feasibility might be necessary but not sufficient preconditions of volitional personality change, and their role may depend on other characteristics of change goals as well.

Limitations and future directions

Relying on an extensive measurement-burst design, the current study provides a comprehensive investigation of volitional personality development, potential moderators and mediating variables. However, some limitations need to be discussed. First, the daily diary assessments only took place during the first year of the study to reduce the burden on participants. To better understand long-term processes, additional assessments of momentary experiences would have been desirable during the second study year (i.e. between T3 and T4). In addition, in the daily diary assessment, we asked participants to rate the most relevant experience of their day. This approach reflected a compromise between the desire to gain insights into daily experiences and practicability (e.g. asking people to identify moments that would change their personality in the future did not seem possible), but it may also suffer from blind spots. For example, we may not have insight into daily routines or other small behavioural changes that likely contribute to personality development (Roberts & Jackson, 2008; Wrzus & Roberts, 2017) unless participants considered them as the most important experience of their day. Furthermore, individual differences in memory and motivation could have influenced the selection of the most memorable experience. Thus, two participants having the same experiences might consider a different situation as most relevant (Quintus et al., 2020). Therefore, it might be useful for future studies to assess predefined experiences which have been linked theoretically or empirically to the respective traits. Whereas readers might speculate that the most relevant experiences and behaviours were untypical, results showed that traits at T1 were associated with momentary situations and states (Quintus et al., 2020), which is in line with previous research (e.g. Fleeson & Gallagher, 2009). While the correlations are somewhat smaller than those previously found, it is important to note that situations and states were assessed five times across one year

here, compared with about two weeks in previous studies (Fleeson & Gallagher, 2009). Also, situations and states reported in D1–D3 and D4–D5 were highly stable (see Table S3). Taken together, this indicates that we likely assessed representative momentary experiences.

Second, as noted in Quintus et al. (2017), the sample is highly educated and unbalanced with respect to age and gender because the general project focused on personality development among younger and older adults while being in college. Additionally, younger and older adults did not differ with respect to extraversion, and older adults even reported higher openness. Both these traits are reportedly lower for older adults in representative samples of the German population (Specht et al., 2011). Any age differences or lack thereof found in this study should thus be interpreted with caution, and future studies should include more general samples to address naturally occurring goals to change personality traits and the perceived importance and feasibility to draw wider conclusions on the generalisability of the results.

One limitation shared by this and most other studies is that they mostly rely on self-reported change goals, self-reported traits and self-reported experiences or behaviour. First evidence indicates that—at least in an intervention context—changes are also reported by significant others, albeit to a smaller degree (Stieger et al., 2020). Nonetheless, it would be extremely useful if future studies included more objective measures of situations and states to also assess automatically elicited behaviours relevant for personality development (Wrzus & Roberts, 2017). This could, for example, be achieved by using mobile sensing (see, e.g., Wang et al., 2018), or including other-reports more commonly.

Importantly, we do not consider a missing intervention as a limitation because the study focused on naturally occurring goals to change one's traits and how such goals predict trait changes. Within the limited possibilities of interpreting null findings, we would argue that simply having a goal to change one or more aspects of one's personality, which is very common among adults (Hudson & Fraley, 2016a; Hudson & Roberts, 2014; Quintus et al., 2017), does not lead to trait changes without the knowledge of how to implement changes in daily situations and behaviour (Hudson et al., 2018). This argument is substantiated through findings that people in intervention programmes, who engage less in goal-relevant behaviour, show less pronounced changes (Hudson et al., 2019; Hudson & Fraley, 2015).

Conclusion

The current study suggests that wanting to change one's personality traits does not lead to changes

without engaging in trait-relevant situations and behaviours. Moreover, rating broad change goals as important and feasible does not provide sufficient preconditions for the successful implementation of personality change goals. Our results thus provide valuable insights into the boundary conditions of volitional personality development.

Data accessibility statement

This article earned Open Materials badge through Open Practices Disclosure from the Center for Open Science. The materials are permanently and openly accessible at https://osf.io/7cbu6

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Note

1. In the current manuscript, goals to change or maintain personality traits will be referred to as change goals or goals to change.

Supplemental material

Supplemental material for this article is available online.

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