



# Finding an autonomous path to positive change: a self-determination theory view of daily change-oriented organizational citizenship behavior

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## Abstract

The present study investigates the relationship between employee daily social and temporal comparison and positive change in the form of change-oriented organizational citizenship behavior (OCB-CH). Using insights from self-determination theory, social comparison theory and the two-facet model of authentic and hubristic pride, we tested two distinct process models in this relationship, namely an autonomous and a controlled path. The autonomous path represents the expression of intrinsic growth tendencies relating to prosociality, creativity and healthy emotion regulation. We hypothesized that this expression is instigated by the experience of growth denoted by favorable, downward temporal comparisons and leads to authentic, rather than hubristic, pride. Subsequently, proceeding through the satisfaction of the basic psychological needs, the path eventually leads to OCB-CH. Participants from various occupational sectors ( $N=68$ ) responded to a daily diary questionnaire ( $N=340$ ) at the end of each of five working days. Multilevel mediational analyses supported the autonomous path: on days when employees perceived themselves as engaging in more downward temporal comparison, they were more likely to engage in OCB-CH via the experience of authentic pride and satisfaction of the basic psychological needs. These findings expand self-determination theory by revealing why downward temporal comparison information fosters proactive behaviors within organizational contexts in general and the initiation of positive change in the form of OCB-CH in particular.

**Keywords** Change-oriented OCB · Temporal comparison · Social comparison · Self-determination theory · Need satisfaction · Need frustration · Authentic pride · Hubristic pride

In today's highly competitive and rapidly changing business environment, companies are under pressure to adapt quickly to enhance their efficiency and effectiveness. In this context, employees have the potential to aid organizational adaptation by engaging in organizational citizenship behavior (OCB), which refers to activities that go beyond their formal job responsibilities and contribute to the improvement

of organizational methods, policies, and procedures (Podsakoff et al., 2000). Among various forms of OCB, change-oriented organizational citizenship behavior (OCB-CH) involves more active efforts to modify or enhance existing practices and drive constructive change within organizations (Choi, 2007; Zampetakis, 2023). Motivationally, OCB-CH can be viewed as a puzzle: why would individuals go over and above their job descriptions, not only to contribute to their workplace but to actively drive change within their organization? If such behavior is not required by the organization and the direction it is headed, and even aims at changing the organization, then it cannot be solely motivated externally by the organization; some internal motivational processes must be at play. Such motivational processes have been studied within the framework of Self-Determination Theory (SDT; Ryan and Deci, 2017), which we apply in the context of our research.

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## Why SDT can be useful to the study of OCB-CH

Motivating OCB-CH is gaining increasing attention because employees are seen as vital for organizational adaptation to a changing environment. Even when research in the field uses motivational terms that are central in SDT research and refer to internal motivational processes, such as intrinsic motivation (Sagnak, 2016) and autonomy orientation (Li et al., 2016), the emphasis is placed on what the leader can offer to enhance the motivation of employees. The assumption, usually explicit, is that OCB-CH is a reciprocation for resources offered by the leader and, therefore, it is a reactive consequence resulting from leader behavior and environmental contingencies. In other words, motivation mainly lies within environmental incentives. This view of OCB-CH originates from the traditional research of OCB. Because OCBs could not be seen as motivated by work contracts or specific types of pay, the initial motivational view focused instead on abstract rewards, such as non-contingent leadership support, that are obtained within the context of organizational social exchange relationships (Organ, 1990). The presence of such rewards can be deduced from the existence of work satisfaction (Bateman and Organ, 1983). According to this initial account, OCB is engaged in so as to reciprocate these rewards.

An alternative to the above reactive view of OCB is a proactive view of helping behavior that is initiated by the self rather than environmental rewards (Spitzmuller & Van Dyne, 2013). This view is consistent with a functional approach where the initiation of help is considered to serve an individual's motives (Penner et al., 1997). In this sense, OCBs generally and OCB-CH specifically do not have to be motivated externally; they are already motivated internally. Self-Determination Theory focuses on intrinsic tendencies of individuals and posits an innate potential to grow, master challenges and integrate aspects of the environment into the self (Ryan & Deci, 2017). What is more, these tendencies are not linked to rewards. Instead, they are thwarted by rewards (Deci et al., 1999). Therefore, they can be linked to OCB-CH (that operates outside the realm of rewards) so long as they can be associated with helping behavior. Indeed, there is ground within SDT to support the idea that individuals may engage in helping behavior through the enactment of their intrinsic tendencies. This can be justified both from a theoretical evolutionary perspective (Ryan & Hawley, 2017) and from an empirical perspective. For example, intrinsic altruistic tendencies in toddlers have been found to be undermined by the presence of extrinsic rewards (Warneken & Tomasello, 2008), which are known to frustrate intrinsic tendencies (Deci et al., 1999). Moreover, helping behavior has been associated with greater well-being (Weinstein &

Ryan, 2010). This effect persists even when there is no contact with the beneficiary, meaning that engaging in prosocial behavior per se contributes to greater well-being, even without the satisfaction of actually seeing a person benefitted and having the opportunity to form a stronger social connection (Martela & Ryan, 2016). Therefore, on the basis of both theoretical and empirical work, SDT argues that individuals are naturally inclined to help and experience well-being without the presence of rewards.

Apart from the association of intrinsic tendencies with helping behavior, there is another reason why SDT would be especially useful in understanding OCB-CH. In comparison to other forms of OCBs, OCB-CH is associated to a greater extent with creativity (Barratt, 2015) and more likely to be explained by affective-driven theories than by cognitive-based social exchange theories (Chiaburu et al., 2022). SDT offers evidence that the enactment of intrinsic tendencies is associated with flexibility and creativity in the workplace (Gagné, & Deci, 2005) and healthier regulation of emotions (Roth & Benita, 2023). Hence, OCB-CH is potentially associated with the enactment of intrinsic tendencies associated with helping behavior, creativity and healthier emotional regulation and it seems worthwhile to examine whether the conditions under which intrinsic tendencies are facilitated also foster OCB-CH.

### Finding autonomous OCB-CH in feedback processes

The enactment of intrinsic tendencies takes two forms: intrinsic motivation and internalization. For the purposes of our research, the basic SDT distinction is between autonomous motivation of OCB-CH, which refers to intrinsic motivation and internalized forms of extrinsic motivation, and controlled motivation of OCB-CH, which refers to rewards that are either external (e.g., in the form of societal praise or money) or internal (e.g., when self-esteem is at stake) (Ryan & Deci, 2017). Simply put, employees can engage in OCB-CH because they enjoy it or find it consistent with their values (autonomous OCB-CH) or they do so because they have something to gain or in order to feel good about themselves (controlled OCB-CH). However, as argued above, the nature of OCB-CH seems to be connected to the enactment of intrinsic tendencies and to autonomous forms of behavior, rather than controlled forms of behavior. We specifically aim to explore this autonomous aspect of OCB-CH.

Autonomous forms of behavior are facilitated when the three basic psychological needs of autonomy, competence and relatedness are satisfied. *Autonomy* is associated with a sense of volition and choice, *competence* with mastery and effectance and *relatedness* with warmth and connectedness within relationships and groups. The absence of need

satisfaction is distinct from need frustration, as need frustration is not only lack of fulfillment; it is a direct obstruction of basic needs (Vansteenkiste et al., 2023). If we had to start our study of autonomous OCB-CH from one motivational concept, that would be the concept of competence (Deci & Moller, 2005). SDT has posited that exploration, achievement and play are all motivated by a growth tendency that relates to competence. This tendency is enhanced under conditions of optimal challenge and positive feedback. Therefore, a point of departure for approaching OCB-CH through an SDT lens, is to examine how employees deal with the feedback they receive during work or with the results of social comparison processes in order to evaluate their own growth. There are two types of comparisons, upward comparison, where an individual compares to a standard that is better off, and downward comparison, where an individual compares to a standard that is worse off (Gerber et al., 2018). Downward social comparisons have already been linked positively to OCB (Spence et al., 2011), but from an SDT perspective the question is what the functional significance of these comparisons is, that is, what their effect is mostly for the needs of autonomy, competence and relatedness.

In simple terms, there are two main possible outcomes for social comparison processes from an SDT perspective (cf. Neighbors & Knee, 2003). On the one hand, social comparison can be experienced as controlling and initiate ego-defensiveness and, on the other hand, it can be experienced autonomously and as supportive of growth tendencies. The former is associated with contingent self-esteem or hubristic pride while the latter with non-contingent self-esteem or authentic pride (Krettenauer & Casey, 2015). Previous research (Gürel et al., 2022) has found that downward temporal and social comparisons are positively associated with pride, but did not differentiate between types of pride. From an SDT perspective, it makes sense to distinguish between authentic and hubristic pride, as consequences of social comparison. As mentioned above, authentic pride relates to an unbiased processing of environmental stimuli whereas hubristic pride is a defensive self-aggrandizing response.

According to the dual-process model of pride (Tracy & Robins, 2007), authentic and hubristic pride can in turn activate distinct cognitive and affective processes. The former is related to autonomous functioning, positive affect and affiliative tendencies and the latter to controlled functioning, negative affect and dominance tendencies (Hodgins & Knee, 2002). Thus, authentic pride derived from positive self-comparisons is likely to yield positive emotions, boost self-worth and fulfill needs. Conversely, hubristic pride derived from negative comparisons, as well as a desire for superiority, might result in need frustration. In our study of SDT-related feedback processes, it also makes sense to differentiate between temporal and social comparison

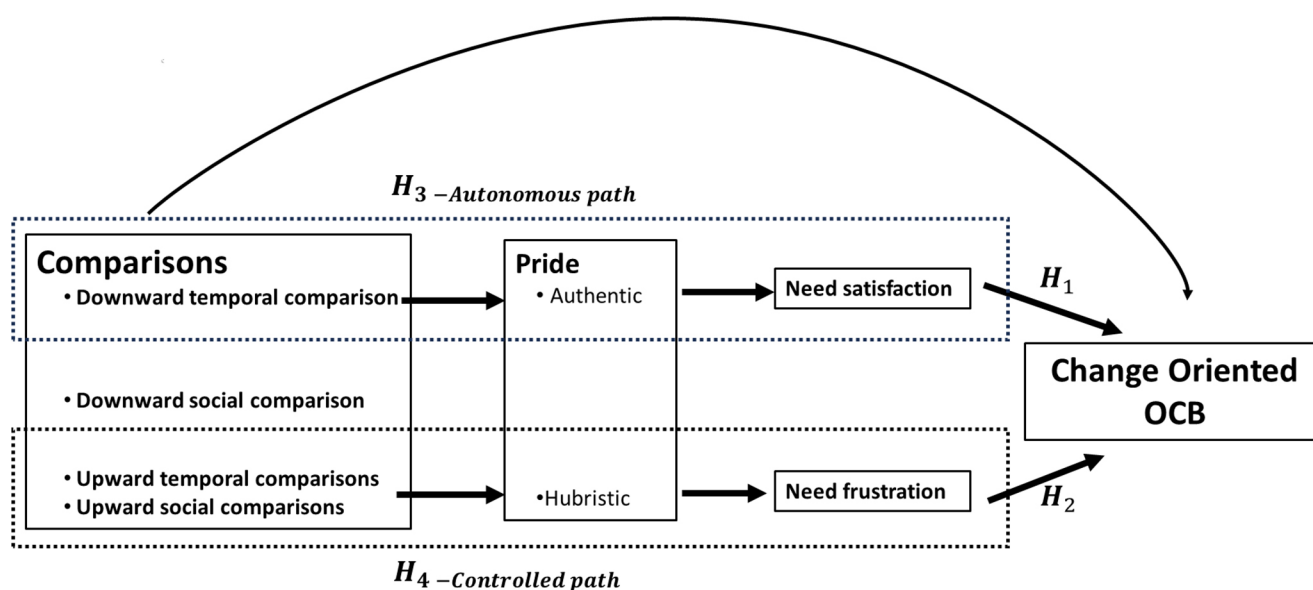
as determinants of pride, since only temporal comparison exclusively tracks individual growth and social comparison makes interpersonal contrasts that may or may not reflect individual growth.

## Purpose of the study and hypotheses

Our study adds to the current understanding of OCB-CH and SDT. Specifically, we expand on SDT by examining the dynamic within-person associations between the basic psychological needs of autonomy, competence, and relatedness and OCB-CH. To achieve this, we conducted a daily diary study involving employees from diverse occupational sectors in Greece. In contrast to prior studies that have utilized aggregate measures of need satisfaction (Coxen et al., 2021), our study investigates the concurrent within-person associations of basic psychological need satisfaction and frustration with OCB-CH. More importantly, we explore how the self-evaluation of performance relative to others (social comparison) and relative to oneself (temporal comparison) can initiate different motivational paths that are related to OCB-CH. The crucial motivational distinction here is between autonomous and controlled processing. Autonomous responses involve genuine feelings of self-worth that take the form of authentic pride; controlled responses involve more defensive, distorting, self-aggrandized views that take the form of hubristic pride (Krettenauer & Casey, 2015; Tracy & Robins, 2007). Aligned with SDT, we anticipate that experiencing self-improvement (via downward temporal comparison) will foster autonomous motivation, leading to increased OCB-CH. The opposite holds when individuals are not growing – less OCB-CH is expected. By providing this broad account, we aim to provide a more comprehensive understanding of the motivational mechanisms underlying OCB-CH.

In Fig. 1, we present our theoretical model.

We now briefly explain the reasoning for the hypothesized relationships between the variables of our model. At the core of SDT lies the concept of intrinsic tendencies. As we have argued above, intrinsic tendencies are associated with helping behavior, healthy emotional regulation and creativity, all of which are in turn associated with OCB-CH. What nurtures these intrinsic tendencies is the satisfaction of the three basic needs of autonomy, competence and relatedness. To the extent that it is associated with these intrinsic tendencies, OCB-CH would be expected to be positively correlated with need satisfaction. Similar evidence already exists with regard to OCB in general (Roche & Haar, 2013; Spanouli et al., 2023) and specifically with regard to voice behavior, a form of OCB-CH (Paolillo et al., 2021). Moreover, need frustration, the active thwarting of basic needs, should be



**Fig. 1** The proposed theoretical model. *Note:* Relationships are at the within-person level of analysis; OCB = organizational citizenship behaviour

negatively correlated with OCB-CH. Last, the satisfaction of these needs may fluctuate from domain to domain of life or from activity to activity, even on moment-by-moment basis, which in turn would be expected to have an effect on OCB-CH. Therefore, it is important to study the relationship between OCB-CH and need satisfaction/frustration longitudinally. This reasoning leads to our first two hypotheses:

**Hypothesis 1:** Within individuals, basic need satisfaction will be positively related to OCB-CH, on a daily basis.

**Hypothesis 2:** Within individuals, basic need frustration will be negatively related to OCB-CH, on a daily basis.

Need satisfaction or frustration is the result of engaging in the work environment. In this research we focus on a central feature of work life, self-evaluation of work behavior in the form of social comparison (comparing with others) and temporal comparison (comparing with oneself). Arguably, if these comparison processes lead to the experience of growth, needs will be fulfilled and there is greater chance of engagement in OCB-CH. In this case, growth is in essence the experience of becoming better in comparison to oneself (downward temporal comparison); this experience should lead to authentic pride and need satisfaction. Conversely, the experience of growth should be forestalled if a person feels worse relative to oneself (upward temporal comparison) or others (upward social comparison), and is likely to produce defensive processes in order to protect self-esteem. This defensive process will involve hubristic pride and undermine psychological needs, thus reducing chances of engagement in OCB-CH. Thus, on the one hand, we would expect downward temporal comparisons to have a positive

effect on OCB-CH through the mediating role of authentic pride and need satisfaction:

**Hypothesis 3:** Within individuals, downward temporal comparison will have an indirect positive relationship with OCB-CH through authentic pride and need satisfaction, on a daily basis.

On the other hand, we would expect upward comparisons (temporal or social) to have a negative relationship with OCB-CH through the mediating role of hubristic pride and need frustration, which will come as a result of ego-defensiveness:

**Hypothesis 4:** Within individuals, (a) upward temporal comparison and (b) upward social comparison will have an indirect negative relationship with OCB-CH through hubristic pride and need frustration, on a daily basis.

We refrain from making specific predictions regarding the connection between downward social comparison and OCB-CH. Instead, we approach this relationship in an exploratory manner, conducting tests without predetermined expectations.

## Methodology

### Procedure and participants

Participants were recruited in Greece by eighteen psychology students via snowball sampling as part of their course

requirements in an “Applications of SDT in the Workplace” seminar. We instructed students to find working adults from their personal network who were willing to participate in an online survey about their daily experiences at work. This sampling strategy may improve the external validity of the study results by increasing the heterogeneity of the sample (Demerouti & Rispens, 2014).

Each student provided contact details, specifically email addresses, for the 108 employees they enlisted. A requirement for inclusion was that employees were physically present at their workplace for the entire duration of the study. Communication with all employees took place via email, where the initial message contained a cover letter, a consent form, and a separate document outlining the study’s purpose (“report daily experiences at work”), along with information on voluntary participation. Incentives for participation included feedback on study results, as well as assured anonymity and confidentiality. A secure website link (Google Forms) was provided for respondents to complete a baseline survey encompassing demographic details. The baseline survey achieved a 66% response rate, with 72 employees participating. One week after the initial message, participants were sent a day-specific questionnaire link, with instructions to complete a daily questionnaire at the end of their workday (5:00 pm) for five consecutive days, starting on a Monday. To minimize recall bias, participants were instructed to complete surveys within a specified timeframe, ending at 9:00 pm. Google Forms displays the submission time for each response, providing a timestamp to indicate when respondents completed the form. Following the removal of four individuals who dropped out on the second day, the final dataset comprised 68 complete, five-day employee diaries. The five-day timespan was selected based on research suggesting that five days are sufficient to obtain a precise overview of the daily dynamics of BPNS and OCB-CH (Coxen et al., 2021; Zampetakis, 2023). The dataset and syntax used for the analyses are available via open science framework: [https://osf.io/hbrzt/?view\\_only=135db75062b149c6b29e7b3f80ed658f](https://osf.io/hbrzt/?view_only=135db75062b149c6b29e7b3f80ed658f).

Employees in our sample were, on average, 39.5 years old ( $SD=14.47$  years, range 21–66 years), and 62% were female. The majority held a university degree (54.41%) followed by a high school degree (24.47%). Approximately 17% of respondents had a Master’s degree or a PhD. The remaining participants completed a secondary school certificate. Approximately 48% of participants were employed in public sector organizations (e.g., public healthcare centers, schools, local governments and governmental services) and the rest were employed in private sector organizations (e.g., banking sector, production, retail trade and commerce, sales, administration, etc.). Participants worked, on average, 38.89 h per week ( $SD=9.04$  h, range 30–56 h), had 11.21

years of tenure in their current position ( $SD=11.59$ , range 2–40 years) and 38% had managerial roles in their organizations (middle managers).

## Measures

### Baseline questionnaire

The baseline questionnaire consisted of inquiries related to demographics, encompassing information on gender, age, educational attainment, organizational sector, managerial role, length of tenure, and weekly working hours.

### Daily questionnaire

All instruments were adapted to fit within a diary format. To reduce participant burden and increase response rate, we opted to use shortened versions of our constructs and one-item measures whenever possible. All scales used were from validated scales adapted to the Greek culture through previous research and were further adapted to the daily level. To ensure the accuracy of constructs that lacked prior validation, we undertook a process of translating these constructs into Greek and subsequently back-translating them by an independent researcher. In the case of constructs with multiple items, we utilized multilevel confirmatory factor analysis (MLCFA) to calculate the McDonald’s omega ( $\omega$ ) composite reliability coefficient for within-person change. Each daily assessment commenced with the stem, “Today at work...”. Unless specified otherwise, participants expressed their ratings using a 5-point Likert-type scale, ranging from 1 = “Did not apply to me today” to 5 = “Totally applied to me today.” The responses were then averaged across the items.

**Daily change-oriented organizational citizenship behavior (OCB-CH)** Daily OCB-CH was assessed using a 3-item scale adapted from Zampetakis’ (2023) study. Items were: “I encouraged others to take the initiative for their own ideas”, “I devoted time to help others find ways to improve our products and services”, and “I inspired others to think about their work in new and stimulating ways”. Omega reliability coefficient for the three items was 0.81.

**Daily need satisfaction & frustration** The Basic Psychological Need Satisfaction and Need Frustration scale (BPNSFS) (Chen et al., 2015) was used to assess employee daily experiences of need satisfaction and need frustration of the psychological needs for autonomy, competence, and relatedness. We used three items for the measurement of satisfaction and frustration of each of the three needs. We slightly adapted the items to make them amenable to a diary

assessment at the work context. Sample items included: “I felt a sense of choice and freedom in the things I undertook at work” (autonomy satisfaction), “I felt forced to do many things I wouldn’t choose to do” (autonomy frustration), “I felt capable at what I did” (competence satisfaction), “I felt insecure about my abilities” (competence frustration), “I felt that the people I care about at work also cared about me” (relatedness satisfaction), and “I had the impression that people I spent time with at work disliked me” (relatedness frustration). Omega ( $\omega$ ) coefficient ranged from 0.83 to 0.92. Results from MLCFA suggested adequate fit for the six-factor model:  $\chi^2$  ( $df=120$ )=180.76,  $p < 0.001$ ; CFI=0.974; RMSEA=0.039; and SRMR<sub>within</sub> = 0.05. The three-factor model demonstrated a superior alignment with the data when contrasted with a model wherein all items loaded onto a single factor:  $\Delta\chi^2$  ( $df=14$ )=1462.06,  $p < 0.001$ . Given the large number of parameters relative to our sample size, and in order to simplify our analyses in estimating indirect effects, we created item parcels for need satisfaction and need frustration from the corresponding latent variables and treated need satisfaction and need frustration as unidimensional constructs. Results from MLCFA suggested adequate fit for the two-factor model:  $\chi^2$  ( $df=8$ )=20.28,  $p < 0.001$ ; CFI=0.961; RMSEA=0.067; and SRMR<sub>within</sub> = 0.05. The two-factor model, had a better fit to the data compared to a model in which all items loaded on one factor:  $\Delta\chi^2$  ( $df=1$ )=321.49,  $p < 0.001$ .

**Daily authentic and hubristic pride** We incorporated six items from the Authentic and Hubristic Pride Scales (AHPS) developed by Tracy and Robins (2007) to measure the two facets of pride. Specifically, three items were used to evaluate authentic pride, namely, “I felt self-worth,” “I felt confident,” and “I felt productive” ( $\omega_{within}=0.73$ ). Additionally, three items were employed to assess hubristic pride, including “I felt snobbish,” “I felt pompous” and “I felt stuck-up” ( $\omega_{within}=0.76$ ). Results from MLCFA suggested adequate fit, for the two-factor model:  $\chi^2$  ( $df=8$ )=9.43,  $p=0.31$ ; CFI=0.955; RMSEA=0.023; and SRMR<sub>within</sub> = 0.031. The two-factor model, had a better fit to the data compared to a model in which all items loaded on one factor:  $\Delta\chi^2$  ( $df=1$ )=518.94,  $p < 0.001$ .

**Social and temporal comparisons** To assess social and temporal comparisons involving the act of comparing oneself favorably or unfavorably to others or to one’s past self respectively, we utilized one item for each type of comparison (see also Gürel et al., 2022). Specifically, for social comparisons, participants responded to two items: “I thought I was better than my colleagues” (downward social comparison) and “I thought I was worse than my colleagues” (upward social comparison). For temporal comparisons, participants

indicated their agreement on two items: “I thought I had become better compared to yesterday” (downward temporal comparison) and “I thought I had become worse compared to yesterday” (upward temporal comparison).

## Controls

We formulated our hypotheses specifically for relationships within individuals, without incorporating control variables for relationships between individuals. When examining within-person dynamics, we accounted for day-of-the-week variations.

## General analytical approach

Our diary data have a hierarchical structure with daily data (Level 1,  $N=340$ ) nested within employees (Level 2,  $N=68$ ). Intraclass correlation coefficient (ICC) values for the daily constructs suggested significant amounts of within person variance, justifying the use of multilevel modelling statistical techniques (see Table 1).

Prior to our main analyses, we tested for the assumptions of the general linear model (i.e., data screening, missing value analysis, outlier detection, collinearity among independent variables). To determine the discriminant validity and reliability of the latent constructs, we conducted multilevel confirmatory factor analysis (MLCFA) and reliability analysis. To assess the fit of the MLCFA models, we used several indices: (a) Root Mean Square Error Approximation (RMSEA, acceptable fit values  $< 0.08$ ), Comparative Fit Index (CFI, acceptable fit values  $> 0.90$ ) and Standardized Root Mean Square Residual (SRMR, acceptable fit values  $< 0.10$ ). We used Akaike’s Information Criterion (AIC) and Bayesian Information Criterion (BIC) for model comparisons with lower values indicative of better model fit.

To account for the hierarchical structure in the data we person mean-centered all Level 1 predictor variables (except time) to remove between-person variation. We ran two multilevel regression models. In the first model we examined the direct effects of basic need satisfaction on OCB-CH, controlling for need frustration. In the second model, in order to simplify the testing of the indirect effects, we applied unidimensional variables for need satisfaction and need frustration. For data analyses, we used the Mplus 8.4 software and the MLR estimator. Mplus is a statistical software package commonly used for advanced statistical analyses, particularly in the fields of structural equation modeling (SEM) and latent variable modeling. It is designed to handle complex models and offers a wide range of features for analyzing data with various structures. The INDIRECT command in Mplus is used for testing indirect, direct, and total effects

**Table 1** Within and between person descriptive statistics and zero-order correlations

	M	SD	ICC	1	2	3	4	5	6	7	8	9
(1) Downward social comparisons	3.16	1.07	0.48	-	0.02	0.35***	-0.23***	0.39***	-0.22***	0.28***	-0.02	0.36***
(2) Upward social comparisons	1.66	0.91	0.36	0.21*	-	-0.12***	0.26***	-0.14***	0.22***	-0.09	0.08	-0.05
(3) Downward temporal comparisons	3.45	1.06	0.18	0.40**	0.01	-	-0.51***	0.45***	-0.31***	0.48***	-0.13***	0.39***
(4) Upward temporal comparisons	1.53	0.85	0.36	0.26*	0.54***	0.24*	-	-0.36***	0.26***	-0.35***	0.24***	-0.33***
(5) Need satisfaction	3.63	0.69	0.51	0.19	-0.13	0.56***	-0.31*	-	-0.47***	0.49***	-0.16***	0.55***
(6) Need frustration	2.12	0.72	0.64	0.24*	0.53***	-0.25*	0.41***	-0.54***	-	-0.38***	0.26***	-0.32***
(7) Authentic pride	3.96	0.68	0.47	0.25*	-0.46***	0.56***	-0.42***	0.56***	-0.36**	-	-0.03	0.30***
(8) Hubristic pride	1.43	0.72	0.53	0.11	0.66***	-0.26*	0.36**	-0.24*	0.64***	-0.44***	-	0.03
(9) OCB-CH	3.21	1.04	0.45	0.06	-0.04	0.39***	-0.18	0.53***	-0.21*	0.22	-0.21*	-

Within-person correlations are presented above the diagonal are ( $N = 340$ ). Between person correlations are presented below the diagonal ( $N = 68$ ). OCB-CH = change oriented organizational citizenship behaviour; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

in mediation models, offering a comprehensive approach to understanding variable relationships. The proposed theoretical model in Fig. 1 was estimated with fixed slopes (i.e., fixed effects model). We modelled residual covariances between need satisfaction and need dissatisfaction. To obtain estimates and 95% confidence intervals (CI) for the indirect effect, we employed Monte Carlo simulations.

## Results

### Assumption testing, descriptive statistics, and intercorrelations

We conducted preliminary assessments to verify the presence of collinearity in the data, and the results showed no evidence of multicollinearity (mean Variance Inflation Factor = 1.74). Additionally, the residuals from our multilevel analyses were found to adhere to a normal distribution (Kolmogorov-Smirnoff = 0.0,  $p = 0.264$ ). Therefore, we can conclude that the assumptions of the general linear model are satisfied. Table 1 provides the descriptive statistics, ICC values and bivariate correlations.

Results for the ICC values of the daily variables suggested significant within-person variance and generally follow McCormick et al. (2020), Zampetakis (2023) and Coxen et al. (2021), regarding observed within-person variance of relevant constructs and justified our multilevel modelling method.

We conducted MLCFAs on our focal variables. To identify the measurement model for the single-item variable of comparisons we used a factor loading of 1 and variance equal to 0.30, 0.25, 0.60 and 0.25 for downward social, upward social, downward temporal and upward temporal comparisons respectively, based on previous research (Gürel et al., 2022). The full factor MLCFA measurement model showed good model fit (Model 5, in Table 2). This model fit the data better than alternative models when the following variables were combined: all comparisons (Model 2); need satisfaction and need frustration (Model 3), authentic and hubristic pride (Model 4), and all variables as one factor (Model 1), providing evidence for discriminant validity.

At the within-person level, the correlations indicated that OCB-CH was positively associated with downward social and temporal comparisons, as well as with satisfaction of basic psychological needs and authentic pride. Additionally, OCB-CH showed a negative relationship with upward temporal comparisons and basic need frustration. However, there were no statistically significant correlations observed between OCB-CH and upward social comparison, as well as between OCB-CH and hubristic pride. Indirect effects

**Table 2** Comparison of measurement models for the study variables

Model	$\chi^2$	df	CFI	RMSEA	SRMR within	AIC	BIC
Model 1	2826.04	350	0.288	0.144	0.148	24934.81	25256.43
Model 2	641.74	315	0.887	0.085	0.073	21944.69	22400.34
Model 3	789.79	299	0.859	0.069	0.112	22168.26	22685.17
Model 4	2014.03	326	0.515	0.123	0.151	23796.32	24209.85
Model 5	495.69	288	0.94	0.046	0.049	21798.03	22357.06

$N=340$ . All  $\chi^2$  values are statistically significant at  $p < 0.001$

**Table 3** Multilevel regression results with OCB-CH as dependent variable (unstandardized estimates)

	Estimate	SE	t	p
Intercept	0.42	0.51	0.83	0.41
Autonomy satisfaction	0.27	0.06	4.83	0.00
Competence satisfaction	0.12	0.04	3.76	0.00
Relatedness satisfaction	0.25	0.06	3.93	0.00
Autonomy frustration	0.04	0.05	0.82	0.41
Competence frustration	-0.08	0.07	-1.09	0.28
Relatedness frustration	-0.10	0.10	-1.02	0.31
Downward social comparison	0.10	0.05	1.84	0.07
Upward social comparison	0.06	0.05	1.12	0.26
Downward temporal comparison	0.11	0.05	2.29	0.02
Upward temporal comparison	-0.14	0.07	-2.18	0.03
Authentic pride	-0.04	0.09	-0.45	0.66
Hubristic pride	0.22	0.07	2.96	0.00
Level 2 intercept variance $\sigma_b^2$	0.34	0.08		
Level 1 intercept variance $\sigma_w^2$	0.37	0.05		

can be tested without a direct relationship between variables (Zhao et al., 2010).

## Hypothesis testing

According to hypothesis 1, we expected that on days that the three basic needs are satisfied employees will engage in more OCB-CH behaviors. We run a multilevel regression analysis model, with the three basic need satisfaction variables as independent and used the rest variables as controls. Results of the unstandardized effects are presented in Table 3.

Confirming hypothesis 1, daily satisfaction of the need for autonomy ( $b=0.27, p < 0.001$ ), daily satisfaction of the need of competence ( $b=0.12, p < 0.001$ ) and daily satisfaction of need for relatedness ( $b=0.25, p < 0.001$ ) were positively related to daily enactment of OCB-CH. Notably, there was a statistical positive correlation between downward temporal comparison and OCB-CH, while upward temporal comparison showed a negative correlation with OCB-CH.

According to hypothesis 2, we expected a negative correlation between need frustration and OCB-CH. Results from multilevel regression analysis (see Table 3) with the three basic need frustration variables as independent and the rest variables as controls, suggested no significant correlations. Thus, we failed to confirm hypothesis 2. Interestingly, when

there were no control variables in the model, daily frustration of the need for autonomy ( $b = -0.17, p < 0.001$ ), daily frustration of the need of competence ( $b = -0.21, p < 0.05$ ) were negatively related to daily enactment of OCB-CH. The negative correlation between daily frustration of need for relatedness and OCB-CH was not statistically significant ( $b = -0.11, p = < 0.27$ ).

We used multilevel path modeling to test our indirect hypotheses in a single model and thus we estimated all parameters of interest simultaneously. The model had an excellent fit to the data  $\chi^2 (df=1)=2.09, p=0.15$ ; CFI=0.919; RMSEA=0.057; and SRMR<sub>within</sub> = 0.013. In Table 4, we present unstandardized direct and total indirect effects for the study variables.

Hypothesis 3 suggested a positive connection between daily downward temporal comparison and OCB-CH through authentic pride and basic needs satisfaction. Findings reveal significant direct ( $b=0.10, p < 0.05$ ) and total indirect ( $b=0.13, p < 0.001$ ) effects for daily downward temporal comparison. The indirect effect emerges from two paths: (a) via authentic pride and need satisfaction ( $b=0.05, p < 0.001$ ), and (b) exclusively through need satisfaction ( $b=0.09, p < 0.01$ ). The remaining six indirect effects lacked statistical significance. Standardized effects were for path (a): 0.06,  $p < 0.01$ , and for path (b): 0.11,  $p < 0.001$ . These findings provide support for hypothesis 3: on days when employees engaged in more downward temporal comparison than usual, they reported experiencing higher levels of authentic pride which was associated with employee basic need satisfaction and OCB-CH enactment. The effect of authentic pride was fully mediated by need satisfaction, as indicated by the non-significant direct effect of authentic pride on OCB-CH. Notably, while the direct effect of downward social comparison was insignificant, the total indirect effect was significant ( $b=0.07, p < 0.05$ ). This indirect effect is rooted solely in need satisfaction ( $b=0.07, p < 0.01$ ). In contrast, for daily downward temporal comparison, the indirect connection arises through both authentic pride and need satisfaction, while for daily downward social comparison, it only emerges through need satisfaction.

The total standardized effect of downward temporal comparison on OCBCH was 0.23 (95% Monte Carlo confidence interval (95% MCCI): (0.14–0.33). Furthermore, the



**Table 4** Unstandardized direct and total indirect effects of the study variables

Predictor	Outcome									
	Authentic pride		Hubristic pride		Need Satisfaction		Need frustration		OCB-CH	
	Direct	Indirect	Direct	Indirect	Direct	Indirect	Direct	Indirect	Direct	Indirect
Downward social comparison	0.10*		0.06		0.09*	0.03	0.06	0.00	0.09	0.07*
	(0.01–0.19)		(-0.02)–(0.14)		(0.03–0.15)	(-0.01)–(0.06)	(-0.03)–(0.14)	(-0.03)–(0.03)	(-0.14)–(0.19)	(0.02–0.12)
Upward social comparison	-0.13**		0.23***		0.007	-0.06**	0.13**	0.10**	0.06	-0.01
	(-0.22)–(-0.05)		(0.06–0.39)		(-0.05)–(0.07)	(-0.09)–(-0.03)	(0.03–0.23)	(0.04–0.16)	(-0.04)–(0.16)	(-0.09)–(0.06)
Downward temporal comparison	0.22***		0.07		0.13***	0.08**	-0.06	-0.07*	0.10*	0.13***
	(0.14–0.31)		(-0.15)–(0.09)		(0.05–0.22)	(0.04–0.12)	(-0.13)–(0.04)	(-0.12)–(-0.02)	(0.04–0.19)	(0.07–0.19)
Upward temporal comparison	-0.12**		0.11		-0.08	-0.05*	0.05	0.06*	-0.14*	-0.07
	(-0.22)–(-0.02)		(-0.02)–(0.25)		(-0.21)–(0.06)	(-0.08)–(-0.02)	(-0.11)–(0.21)	(0.01–0.11)	(-0.27)–(-0.03)	(-0.15)–(0.04)
Authentic pride					0.34***		-0.20*		-0.07	0.25***
					(0.17–0.49)		(-0.38)–(-0.05)		(-0.25)–(0.11)	(0.16–0.34)
Hubristic pride					-0.08		0.34***		0.20**	-0.09
					(-0.18)–(0.04)		(0.21–0.48)		(0.08–0.34)	(-0.18)–(0.03)
Need Satisfaction									0.67***	
									(0.49–0.78)	
Need frustration									-0.13	
									(-0.31)–(0.08)	

The upper and lower bounds of the 95% confidence intervals (shown in parentheses) were based on the findings from Monte Carlo simulations; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

total standardized effect of downward social comparison on OCB-CH was 0.16 (95% MCCI: (0.09–0.27)).

Hypothesis 4 stated that upward temporal comparisons would be negatively related to OCB-CH via hubristic pride and frustration of basic needs. Results suggest a negative direct relationship ( $b = -0.14, p < 0.05$ ) and a non-significant total indirect effect. Thus, hypothesis 4 was not supported. For upward social comparisons, results suggest that the direct and total indirect effect were not statistically significant.

## Discussion

In this study, we took a novel approach by examining the relationship between comparison processes and employee OCB-CH, from a within-person perspective. Drawing on theoretical insights from SDT, we argued that comparison processes are inextricably connected to the experience of growth and we aimed to test two distinct paths, namely an autonomous and a controlled path. Multilevel mediational analyses supported the autonomous path: on days when employees perceived themselves as engaging in more downward temporal comparison, they were more likely to engage in OCB-CH via the experience of authentic pride and satisfaction of the basic needs. Conversely, no support

was found for the controlled path, that is, the indirect relationship between upward comparison and OCB-CH via hubristic pride and need frustration.

Need satisfaction has already been positively associated with OCB (Roche & Haar, 2013; Spanouli et al., 2023) and voice behavior (Paolillo et al., 2021). Our diary study provides further support to the positive association of need satisfaction and OCB-CH on a daily basis. It does not show any association between need frustration and OCB-CH arguably because this ‘dark pathway’ is more associated with ill-being in the workplace on a daily basis (Coxen et al., 2023) and only the ‘bright pathway’ should be expected to enhance positive approach behaviors such as OCB-CH. Lower need frustration could be important in helping employees fulfill their work-related obligations but it would not necessarily be associated with going beyond these responsibilities. Higher need satisfaction, on the other hand, with its stronger support of prosocial and creative intrinsic tendencies, might provide a more direct ‘bright pathway’ to OCB-CH.

It is important to note that need satisfaction should not be treated exclusively as a passive process that is facilitated by environmental support, but also as a proactive process -- called need-crafting-- that can be initiated by the employees themselves (Mokgata et al., 2022). Therefore, apart from discussing how leaders and managers can support the basic psychological needs, it is important to study in more

detail how employees process environmental stimuli and what the effect of these processes are on need satisfaction. In this study, we specifically focused on social comparison processes due to their prevalence in the workplace. Our hypotheses were based on the SDT assumption that social comparison processes have two distinct paths: an autonomous path and a controlling, ego-defensive path (Neighbors & Knee, 2003).

On the one hand, results supported the autonomous path, where experiencing improved performance relative to yesterday (downward temporal comparison) led to authentic pride, need satisfaction, and eventually to OCB-CH (this finding supported Hypothesis 3). Furthermore, our exploratory analyses revealed another autonomous path from downward social comparison to OCB-CH via need satisfaction. Although we did not hypothesize about the effects of downward social comparison, it seems that downward social comparison does not foster an ego-defensive path that undermines OCB-CH, but plays a more constructive role. Hence, evaluating personal growth appears to be a complex process that, besides intrapersonal, involves interpersonal downward comparisons. The conditions under which these interpersonal comparisons will not initiate ego-defense warrant further research.

On the other hand, the ego-defensive path was expected to be initiated by upward comparison, that is by the perception that an employee has performed worse relative to yesterday (upward temporal comparison) or worse relative to others (upward social comparison). This defensive process was expected to strengthen hubristic pride and need frustration, which was supported by our results. However, this defensive process had no adverse impact on OCB-CH, contrary to hypothesis 4. This might be due to the fact that the 'dark motivational pathway' is not related in any way to a positive approach behavior such as OCB-CH. It might be related to how employees fulfill work obligations but not to how they go beyond them.

Our study contributes further insights into the relationships between temporal and social comparison, specifically at the within-person level of analysis, and the possible implications for OCB-CH. We recognize the importance of examining within-person associations, as they offer a more nuanced understanding compared to generalizing results solely from between-person studies. This approach aligns with recommendations emphasizing the need for caution when extrapolating findings from between-person studies (McCormick et al., 2020). Our results suggest different patterns of relationships between social and temporal comparison at the between-person and within-person levels, indicating that employees may use differently social and temporal comparison when both data sources are available for self-evaluation. For instance, at the between

person level, downward social comparisons are positively related to downward temporal comparisons, upward social and temporal comparisons. However, at the within-person level, downward social comparisons are positively related to downward temporal comparisons and negatively related to upward temporal comparisons, while they are not related to upward social comparisons. Moreover, our results support the notion that, at the within-person level, temporal and social comparisons operate through distinct mechanisms (e.g., Gürel et al., 2022) and we extend this to organizational contexts, specifically for the enactment of OCB-CH by employees. Notably, our standardized results indicated that the total effect of downward temporal comparison on OCB-CH was stronger (estimate=0.23) compared to downward social comparison (estimate=0.16). Thus, in the organizational context, temporal downward comparison information plays a more significant role in employee voluntary efforts to change organizational status quo (i.e., OCB-CH) compared to social downward comparison information. The reason for this finding may be linked to what we have consistently argued throughout this paper: downward temporal comparison initiates an autonomous path to positive change.

Surprisingly, hubristic pride correlated positively with OCB-CH. This might suggest that individuals, being driven by a desire for recognition and dominance, engage in attention-grabbing activities that elevate their status within the organization. Despite the nature of this type of competitive motivation, these behaviors seemingly overlap with observable and positively viewed OCB actions. It is therefore important to assess the motivation behind these behaviors and study their long-term sustainability.

## Practical implications

Our findings have implications for organizations aiming to promote OCB-CH. Traditionally, organizations have relied on various forms of social comparison information, such as employee of the week/month, to recognize outstanding performance. However, our results suggest that this approach may not be the most effective strategy for fostering the initiation of positive change among employees. Instead, managers can take proactive steps to enhance temporal downward comparisons and encourage employees to focus on their own growth over time. This can be achieved by providing constructive and positive feedback, creating a work culture that values continuous improvement and personal growth. Our results also suggest that downward temporal comparison can be a source of motivation and self-improvement for employees, as it can induce authentic pride and need satisfaction, which in turn can lead to OCB-CH. This may further imply that employees should not be discouraged by

their past failures or setbacks, but rather use them as learning opportunities and benchmarks for future progress.

In addition, our results provide initial evidence for managers about the role of pride on OCB-CH enactment. Pride is a complex emotion that can have different effects on OCB-CH, depending on its type and source. Authentic pride, which is based on the experience of personal growth, can enhance OCB-CH indirectly, by increasing need satisfaction. By recognizing employee achievements and by providing positive feedback, managers can foster authentic pride. Hubristic pride, on the other hand, has a direct effect on need frustration. When managers actively address employee insecurities and foster a supportive, collaborative work environment, they can mitigate the manifestation of hubristic pride, ultimately reducing the likelihood of need frustration.

Our study also highlights the importance of psychological needs' satisfaction as a driving force behind OCB-CH. Therefore, managers should consider factors that facilitate autonomy, competence, and relatedness to enhance OCB-CH. For example, supervisors can provide support to enhance employees' feelings of competence, while organizational-level interventions can be implemented to meet employees' needs. These interventions can include skills' training programs, corporate social events, or empowerment programs that respectively address the needs for competence, relatedness, and autonomy. By implementing these strategies, organizations can create a supportive environment that encourages employees to engage in OCB-CH, fostering positive voluntary behaviors and promoting overall organizational success.

### Limitations and directions for further research

We acknowledge several limitations of the study. First, we used single items to measure social comparison that focused on the evaluation of performance. While a growing body of literature supports single-item measures (Allen et al., 2022), particularly in longitudinal studies, social comparison can be very complicated both in its general form (Gerber et al., 2018) and within the organizational context (Greenberg et al., 2007). Our findings seem to favor downward comparison processes as in the classic proposal of downward principles by Wills (1981). From an SDT perspective, an important caveat should be noted here. Festinger (1954), in his seminal paper, argued that individuals have an upward drive to self-evaluate. Indeed, this is especially true when such social comparisons are not self-threatening, according to a meta-analysis of research spanning more than 60 years (Gerber et al., 2018). The lack of threat should be expected when, for example, the comparison is with a stereotype (e.g., university professor) rather than an exemplar (e.g., Einstein;

see Dijksterhuis et al., 1998). Our study, however, did not measure comparison choice but the outcome of a performance evaluation. When such an evaluation is unfavorable, we would expect individuals to become ego-defensive as they do in response to negative feedback. While, consistent with previous literature on OCB (Spence et al., 2011), we expected only downward comparison to be associated with OCB through the autonomous path, upward comparison should not be considered as always threatening. More research is needed to study upward and downward comparisons in their entirety and it is likely that upward comparisons can be processed autonomously and be positively related to OCB-CH under certain conditions. This presents a promising direction for future research.

Second, our measure of pride warrants discussion. SDT views pride as ego-inflation and relates it to introjected regulation, a non-autonomous form of regulation (Niemic et al., 2008). Hubristic pride can be associated with avoidance introjected regulation and authentic pride with approach introjected regulation, but in both cases, they are associated with non-autonomous motivation (Arvanitis & Kalliris, 2020). However, the items used from Tracy and Robins (2007) seem to tap into mostly narcissistic self-aggrandizement on the one hand and competence affirmation on the other. The former can be seen as ego-inflation, and the latter as the more benign form of pride – benign in the sense that it is not autonomy-thwarting. Therefore, our hypotheses and results should be interpreted under this light. Future research endeavors can tackle this issue by employing alternative measures of pride.

Third, we utilized a snowball sampling approach where students, acting as research assistants, recruited working adults. This procedure raises concerns regarding the generalizability of our results. While prior research suggests that samples recruited from students are comparable to other samples (Demerouti & Rispens, 2014), this methodology lacks control and poses an increased risk of obtaining falsified responses. However, in our study, students received no credit for recruiting employees or their responses. Furthermore, all responses were provided in a web-based platform by respondents themselves, primarily aiming at verifying whether a report was completed at the correct time. The drawbacks that may be associated with the snowball sampling approach we implemented, are mitigated by the valuable opportunity it affords us to access diverse data from multiple sources across various organizations. This not only enables us to tackle issues related to relying solely on data from a single source but also meaningfully enhances the external validity of our research findings. Nevertheless, it is important to note that our sample is a convenience sample characterized by heightened heterogeneity and remains relatively small in terms of generalizability. Consequently,

caution is advised when interpreting our results, and future research may benefit from larger samples to enhance confidence in our findings.

Fourth, our data were collected at the end of the workday, which limits our ability to make definitive claims about causality. Nonetheless, the use of a daily diary study design allowed us to gather measurements that were closer to employees' actual experiences and behaviors, reducing the potential for retrospective reporting bias (Zampetakis, 2023).

Fifth, the Level 2 sample size ( $N=68$ ) in our study may be deemed small, and it was constrained by the amount of research resources available. However, this sample size is consistent with previous diary studies (e.g., Zampetakis, 2023) and recommendations from simulation studies for estimating fixed effects in multilevel models (McNeish & Stapleton, 2016). Moreover, we used manifest variables, instead of latent variables to simplify analyses. Future research could address this issue by collecting more data and testing more complex hypotheses including random effects.

Finally, in the realm of data analysis, it would have been optimal to include controls for additional variables acknowledged as more direct predictors of OCB-CH. This would have demonstrated that our results account for distinctive variance in OCB-CH, even after considering the impact of these control variables. For instance, incorporating factors such as job characteristics (e.g., Zampetakis, 2023) into our model could have bolstered explanatory power and increased confidence in our findings. Subsequent research endeavors could explore this aspect further.

## Conclusion

Our study aligns with Self-Determination Theory (SDT), proposing that individuals have intrinsic tendencies to master challenges and grow by developing interests and competencies as well as by expanding and integrating within the social matrix. This growth involves personal and relational dimensions. We explore how perceiving workplace growth fosters positive attitudes toward OCB-CH, mediated by authentic pride and need satisfaction. Conversely, thwarted growth triggers ego-defensive responses, leading to need-frustration, unrelated to OCB-CH. Our research extends SDT's prosocial perspective and offers insights into the link between self-assessed growth and proactive engagement in both organizational and societal contexts.

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**Data availability** The dataset and syntax used for the analyses are available via open science framework: [https://osf.io/hbrzt/?view\\_only=135db75062b149c6b29e7b3f80ed658](https://osf.io/hbrzt/?view_only=135db75062b149c6b29e7b3f80ed658).

## Declarations

**Informed consent** Informed consent was obtained from all individual participants included in the study.

**Ethical approval** All procedures were conducted in accordance with the ethical standards of the institutional and national research committee, and with the 1964 Helsinki declaration and its amendments or comparable ethical standards.

**Competing interests** The authors have no competing interests to declare that are relevant to the content of this article.

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