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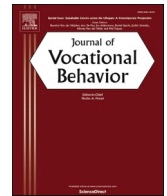
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# What makes work meaningful? Longitudinal evidence for the importance of autonomy and beneficence for meaningful work

Frank Martela<sup>a,\*</sup>, Marcos Gómez<sup>b</sup>, Wenceslao Unanue<sup>b</sup>, Sofia Araya<sup>b</sup>,  
Diego Bravo<sup>b</sup>, Alvaro Espejo<sup>c</sup>

<sup>a</sup> Department of Industrial Engineering and Management, Aalto University, Finland

<sup>b</sup> Business School, Universidad Adolfo Ibáñez, Chile

<sup>c</sup> Business School, Universidad de los Andes, Chile

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## ABSTRACT

The significance of meaningful work for quality of work life has been confirmed by research showing its importance both as regards to employee motivation, well-being, and commitment as well as organizational outcomes such as turnover intentions, citizenship behavior, and customer satisfaction. In explaining what makes work meaningful, Self-Determination Theory (SDT) provides a potent theoretical framework, linking meaningful work to the satisfaction of human psychological needs. Accordingly, we draw on SDT and research on prosocial behavior to examine what we identify as the four most potential psychological pathways to meaningful work: beneficence and the psychological needs for autonomy, competence, and relatedness. We tested these four antecedents in a three-waves longitudinal design among a large sample of Chilean workers (T1  $N = 631$ , T2  $N = 240$ , T3  $N = 148$ ). We found that both autonomy and beneficence prospectively predict subsequent meaningful work above and beyond the other two needs and baseline levels of meaningful work. These results advance theory on key psychological pathways to meaningful work and have important practical implications for how organizations and managers can foster meaningfulness in the workplace through cultivating autonomy and beneficence.

## 1. Introduction

Experiencing meaning and purpose in life is seen as fundamentally important to human existence and quality of life (Frankl, 1963; Heintzelman & King, 2014; Martela & Steger, 2016), associated in several studies with longevity (Cohen et al., 2016; Hill & Turiano, 2014), lower allostatic load (Zilioli et al., 2015), and lower incidence of psychological disorders such as depression and suicidal ideation (Heisel & Flett, 2004; Mascaro & Rosen, 2005, 2008). In modern world, work has become a key domain from which people seek meaning (Allan et al., 2015; Baumeister, 1991; Steger & Dik, 2009), with several studies demonstrating people's willingness to accept significantly lower salaries in exchange for more meaningful work (Achor et al., 2018; Hu & Hirsh, 2017; Net Impact, 2012).

The importance of meaningful work – defined as the subjective experience of how existentially significant and valuable people find their work to be (Both-Nwabuwe et al., 2017; Martela & Pessi, 2018) – for the quality of work life and occupational health psychology is also underscored by studies that have associated it with job satisfaction (Littman-Ovadia & Steger, 2010), work engagement (Steger, Littman-Ovadia, et al., 2012; Yasin Ghadi et al., 2013), organizational commitment (Geldenhuis et al., 2014), decreased turnover

\* Corresponding author at: P.O.Box 15500, Aalto University, FI-00076 Aalto, Finland.

E-mail address: [frank.martela@aalto.fi](mailto:frank.martela@aalto.fi) (F. Martela).

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intentions and absenteeism (Leunissen et al., 2018; Soane et al., 2013), customer satisfaction (Leiter et al., 1998), supervisor-rated performance (Harris et al., 2007), and behavioral involvement (Montani et al., 2020), among others. A recent meta-analysis of the outcomes of meaningful work concluded that the results “broadly support the notion that people with meaningful work *feel* better and *work* better” (Allan et al., 2019, p. 515).

Accordingly, understanding the key sources that make work meaningful is crucially important not only for the bottom line of the organization, but also from the point of view of supporting employee motivation, commitment, and well-being (Bailey, Yeoman, et al., 2019; Martela & Pessi, 2018; Rosso et al., 2010). In here, Self-Determination Theory (SDT; Deci & Ryan, 2000; Ryan & Deci, 2017) provides one potent theoretical framework to identify key antecedents of meaningful work. At the heart of the theory is the idea that humans have certain innate psychological needs, the satisfaction of which is essential for human wellness, growth (Martela & Sheldon, 2019; Vansteenkiste et al., 2020), and sense of meaningfulness (Martela et al., 2018; Weinstein et al., 2012). The three needs recognized by the theory – autonomy, competence, and relatedness – have been increasingly examined also in the work context as antecedents of various subjective and objective work-related outcomes (Deci et al., 2017; Gagné & Deci, 2005), with a meta-analysis by Van den Broeck et al. (2016) identifying 99 separate studies on basic psychological need satisfaction at work. The satisfaction of these needs has been associated with various beneficial outcomes such as job satisfaction (Unanue et al., 2017), autonomous work motivation (Olafsen et al., 2018), work engagement, affective commitment, and task and proactive performance (reviewed in Deci et al., 2017; Van den Broeck et al., 2016). Furthermore, the needs are highly valued by people around the world (Fischer & Schwartz, 2011), and thus their satisfaction is prone to imbue work with a sense of inherent value and significance. Accordingly, given the fundamental role of basic psychological needs for human wellness and growth (Deci & Ryan, 2000), and for motivational commitment to work (Van den Broeck et al., 2016), having these needs satisfied at work will likely enhance the sense of meaningfulness that people derive from their work (Martela & Riekk, 2018).

More recently, several studies within SDT have examined beneficence alongside the three psychological needs as a fourth psychological predictor of wellness and flourishing (e.g. Martela & Ryan, 2016b, 2020; Titova & Sheldon, 2020; Zhang et al., 2021), as it has been suggested that it could be an enhancement need having an independent effect on well-being (Martela & Ryan, 2020). These studies have shown that, alongside the three psychological needs, beneficence has an independent and important role in predicting both well-being (Martela & Ryan, 2016b) and a sense of meaningfulness (Martela et al., 2018; Martela & Riekk, 2018). Beneficence is thus a potential fourth innate source of meaningfulness, making it important to study beneficence alongside the three needs of SDT when examining antecedents of meaningful work.

In addition to this joint SDT-based theoretical rationale for testing autonomy, competence, relatedness, and beneficence as predictors of meaningful work, more specific reasons can be given for the inclusion of each of them as antecedents of meaningful work, as outlined later. Furthermore, Rosso et al. (2010), in their influential synthesis, identified four broad pathways to meaningful work: Self-connection, individuation, unification, and contribution. The pathways are defined quite broadly by Rosso et al. (2010), but we will argue that the needs of SDT provides one way of operationalizing them into more specific and measurable constructs. Thus the main aim of the present article is to test SDT as a theoretical framework for explaining what makes work meaningful. More particularly, our aim is to study simultaneously four potential psychological pathways to meaningful work – autonomy, competence, relatedness, and beneficence – using a three-wave longitudinal design and a full cross-lagged panel model (CLPM). CLPM allows to control all constructs by its own baseline level as well as by the other lagged constructs. This methodology enables us to recognize which of these four potential predictor are the most robust prospective psychological predictors of meaningful work. While previous studies have explored various potential sources of meaningful work (e.g. Allan et al., 2016; Schnell et al., 2013), recent reviews have pointed out that most of this research has been cross-sectional (Bailey, Yeoman, et al., 2019; Lysova et al., 2019), making it hard to disentangle the direction of influence. Accordingly, longitudinal research, which is able to go beyond mere cross-sectional correlations to examine whether the potential antecedents can predict meaningful work over time, has been called for (Martela & Riekk, 2018; Montani et al., 2020; Rosso et al., 2010). Furthermore, most studies have looked at “single sources of work meaning” in a siloed manner, leading to calls for research that would examine multiple potential sources of meaningful work simultaneously (Rosso et al., 2010, p. 115; Allan, 2017). By using longitudinal design and examining four potential antecedents simultaneously, the present article addressed both of these shortcomings in order to provide more robust evidence for key sources of meaningful work.

The present work thus contributes to research on the antecedents of meaningful work in four ways: 1) It integrates research on meaningful work with research on basic psychological needs at work providing the first longitudinal test of whether these needs are able to predict meaningful work over time. 2) It provides an operationalization of the four pathways as identified by Rosso et al. (2010), and thus the first empirical examination that simultaneously examines each of the four pathways as antecedents of meaningful work. 3) It answers the calls for more longitudinal research that can better establish temporal precedence between constructs. 4) It answers the calls to examine several antecedents simultaneously to identify their independent contributions.

### 1.1. The psychological pathways to meaningful work

The focus of the present article is on the psychological pathways to meaningful work, that is, the psychological experiences required from work in order to experience it as meaningful. Self-Determination Theory (Deci et al., 2017; Deci & Ryan, 2000; Van den Broeck et al., 2016), as noted, postulates three basic psychological needs – autonomy, competence, and relatedness – as essential contributors for well-being, vitality, and growth (Ryan et al., 2010; Ryan & Deci, 2017; Sheldon & Elliot, 1999), for mental and physical health (Ng et al., 2012), and for meaning in life (Martela et al., 2018; Weinstein et al., 2012), with beneficence currently examined as a fourth potential key source of wellness (Martela & Ryan, 2016b, 2020; Titova & Sheldon, 2020) and meaningfulness (Martela et al., 2018). SDT thus postulates autonomy, competence, relatedness, and beneficence as the key psychological pathways to meaningful work.

As noted, this proposal finds an interesting parallel in Rosso et al. (2010), who synthesized the literature by offering four broad pathways to meaningful work: *Self-connection* is about authenticity and self-concordance, *individuation* is about self-efficacy and competence, *unification* is about belongingness and interpersonal connectedness, and *contribution* is about purpose and perceived impact. These pathways correspond surprisingly well with the present SDT-based proposal. *Autonomy* is about a sense of volition and internal locus of causality, thus mapping well onto Rosso et al.'s self-connection. *Competence* is about a sense of mastery and effectance in one's activities, covering thus the individuation pathway of Rosso et al. *Relatedness* is about caring relationships and belonging to a community, thus connecting well with the unification pathway of Rosso et al. *Beneficence* – defined as a sense of prosocial impact – connects well with the contribution pathway of Rosso et al. While Rosso et al. (2010) aimed to provide broad overarching pathways synthesizing many theoretical perspectives,<sup>1</sup> SDT thus provides one way of translating these into more specific and measurable constructs with validated scales, thus making it possible to answer their call to empirically examine how these four pathways simultaneously predict meaningful work.

Furthermore, the four proposed antecedents of meaningful work include both more self-oriented dimensions such as autonomy and competence, and more other-oriented dimensions such as relatedness and beneficence. Thus their simultaneous examination sheds light on the tension between 'self' and 'others' in accounts of meaningful work as highlighted by Bailey, Lips-Wiersma, et al. (2019). In addition to these reasons to study the four pathways collectively, more specific reasons can be given to why each of them is important to study in its own right, as outlined next.

### 1.2. Autonomy as a pathway to meaningful work

Autonomy means a sense of volition and internal locus of causality in one's undertakings where one feels ownership for one's actions (Chirkov et al., 2003; Deci & Ryan, 2000). Within SDT, autonomy is seen as one of the basic psychological needs of human beings, with a large research body showing its importance for various indicators of well-being (reviewed in Ryan & Deci, 2017), including evaluations of meaningfulness (Martela et al., 2018; Martela & Ryan, 2016a). Experimental studies have shown the importance of constructs somewhat associated with autonomy, such as true self-concept accessibility (Schlegel et al., 2009) and perceived true-self knowledge (Schlegel et al., 2011) for meaning in life. Within research on meaningful work, several researchers have similarly argued that self-realization, which is about "self-connectedness, authenticity, and how much we are able to realize and express ourselves through our work" (Martela & Pessi, 2018, p. 7), is a key path to what makes work meaningful (Lepisto & Pratt, 2017; Roessler, 2012; Rosso et al., 2010), with one cross-sectional study connecting self-concordance to the meaningfulness of job tasks (Zhang et al., 2018) and another demonstrating that individual and professional autonomy in nursing was positively related to most dimensions of meaningful work (Both-Nwabuwe et al., 2019). The argument is that when people have a sense of ownership of their work, feeling that they are able to do what truly interests them, this makes the work feel personally meaningful for them. However, with the exception of a few cross-sectional investigations (Both-Nwabuwe et al., 2019; Martela & Riekkii, 2018), autonomy has not been examined as a source of meaningful work. Accordingly, the present study offers the first longitudinal examination of the influence of autonomy on meaningful work, controlling for the baseline level of meaningful work.

**Hypothesis 1.** Sense of autonomy at work will have a positive relationship with subsequent meaningful work, controlling for baseline level of meaningful work.

### 1.3. Competence as a pathway to meaningful work

Competence is about a sense of mastery, efficacy, and effectance in one's activities (Deci & Ryan, 2000; Van den Broeck et al., 2016). Similar to autonomy, self-determination theory sees it as one of the basic psychological needs the satisfaction of which is crucial for well-being, growth, and integrity (Deci et al., 2017; Ryan & Deci, 2017; White, 1959). In addition to studies showing the importance of competence for important work-related outcomes such as job satisfaction, less burnout, and task performance (reviewed in Van den Broeck et al., 2016), it has been proposed that competence could also be an important predictor of meaningfulness of life in general (Weinstein et al., 2012), and meaningfulness of work in particular (Martela & Riekkii, 2018). If one is not able to accomplish anything at work, this could be detrimental for one's sense of meaningfulness, while having a high sense of mastery and effectance at work could make the work feel personally meaningful as one would feel one is able to make an impact through one's work. For example, perceived task performance has been connected to meaningfulness found in specific job tasks (Zhang et al., 2018). However, the only study we are aware of examining competence and meaningful work empirically provided mixed cross-sectional evidence, with competence being connected to meaningful work in Finland and India but not in US (Martela & Riekkii, 2018), making it important to further examine competence, especially using research methods that go beyond cross-sectional associations. Accordingly, the present study provides the first longitudinal examination of the relation between competence and meaningful work, thus providing more robust evidence about the direction of influence between the two variables.

**Hypothesis 2.** Sense of competence at work will have a positive relationship with subsequent meaningful work, controlling for baseline level of meaningful work.

<sup>1</sup> Thus, besides having themes clearly overlapping with the respective needs, Rosso et al.'s (2010) pathways typically include also other themes besides them. For example, contribution includes transcendence, and individuation includes self-esteem. SDT thus represents one way of narrowing them down, but not the only way.

#### 1.4. Relatedness as a pathway to meaningful work

Relatedness reflects the extent to which a person feels that one is connected to others, has caring relationships, and belongs to a community. Having such a sense of relatedness and belonging is arguably fundamental for human motivation (Baumeister & Leary, 1995) and a basic psychological need (Deci & Ryan, 2000). Within research on meaning in life, relatedness has emerged as one of the most robust predictors of meaningfulness, with several experimental studies demonstrating its role in people's evaluations of the meaningfulness of their lives (e.g. Lambert et al., 2010, 2013; Stillman et al., 2009).

Relatedness and belonging has also been argued to be crucially important for meaningful work (Rosso et al., 2010; Schnell et al., 2019). It has been associated with important work outcomes such as engagement, affective commitment, and proactive performance (reviewed in Van den Broeck et al., 2016). One cross-sectional study has connected relatedness with meaningful work (Martela & Riekk, 2018) and another showed various dimensions of positive work relationships to correlate positively with meaningful work (Colbert et al., 2016). A longitudinal study, in turn, demonstrated that community belonging predicted meaningful work on both between-person and within-person levels (Allan et al., 2020). However, previous longitudinal research has shown that the link between social connectedness and meaning in life is bi-directional, with meaningfulness predicting future sense of relatedness and connection-building behavior (Stavrova & Luhmann, 2016). This makes it crucial to examine the relationship between relatedness and meaningful work longitudinally, to examine the direction of influence between the two constructs.

**Hypothesis 3.** Sense of relatedness at work will have a positive relationship with subsequent meaningful work, controlling for baseline level of meaningful work.

#### 1.5. Beneficence as a pathway to meaningful work

Beneficence is about the sense of prosocial impact and feeling one is contributing positively to the lives of other people, a feeling typically arising when one is engaging in prosocial behavior (Martela & Riekk, 2018; Martela & Ryan, 2016b). Prosocial behavior has been shown to be an important contribution to human well-being (e.g. Aknin et al., 2013; Dunn et al., 2008) as well as work performance (e.g. Grant, 2008; Grant et al., 2007), with increasing amount of research also connecting it to heightened experiences of meaningfulness (Klein, 2017; Martela & Ryan, 2016a; Van Tongeren et al., 2016). Many researchers have argued that contributing towards others could be a crucial part of what makes work meaningful (Bailey et al., 2017; Martela & Pessi, 2018; Rosso et al., 2010). Indeed, empirical research has tended to find that beneficence and generativity are strongly related to meaningful work (Allan et al., 2014; Martela & Riekk, 2018; Schnell, 2011), and the influence of prosocial behavior on meaningful work has been validated in both longitudinal (Allan, 2017), and experimental work (Allan et al., 2018). Thus, prosocial behavior and sense of beneficence as predictors of meaningful work have received much support, making it important to include prosocial impact in an examination of psychological antecedents of meaningful work.

**Hypothesis 4.** Sense of beneficence at work will have a positive relationship with subsequent meaningful work, controlling for baseline level of meaningful work.

However, most research linking prosocial behavior and task significance to meaningful work has tended to focus solely on this factor, leading Allan (2017, p. 181) to call for future longitudinal studies that would examine “the incremental validity of task significance predicting meaningful work” over other characteristics of the job. At the same time research within SDT has argued for and found evidence showing that the well-being benefits of prosocial behavior can in some cases be mediated by the satisfaction of the needs for autonomy, competence, and relatedness (Martela & Ryan, 2016a; Weinstein & Ryan, 2010). The argument is that most prosocial acts, in involving a positive contact with the person helped, improves one's sense of relatedness, while also improving one's sense of competence in as much as one feels effective in helping the other. Furthermore, these acts often align with the helper's values and intrinsic motivation, thus satisfying one's sense of autonomy. It can thus be argued that having a sense of prosocial impact does not influence meaningfulness directly, but through improving a person's sense of relatedness, competence, and autonomy. Accordingly, two opposing hypotheses can be proposed: First, those arguing for the direct importance of beneficence on meaningful work hypothesize that the link between beneficence and meaningful work will remain significant, even when controlling for the influence of the three psychological needs (Martela & Riekk, 2018). In contrast, some research within SDT suggests that the three needs would fully mediate the relationship between a sense of prosocial impact and meaningful work (Weinstein & Ryan, 2010).

**Hypothesis 5a.** The link between beneficence and meaningful work remains significant when controlling for the influence of these three needs.

**Hypothesis 5b.** The three psychological needs for autonomy, competence, and relatedness will mediate the relationship between beneficence and meaningful work.

## 2. The present research

The present study examines autonomy, competence, relatedness, and beneficence as potential prospective predictors of meaningful work in a longitudinal sample, to test SDT as a framework to understand sources of meaningfulness, while also addressing calls for research going beyond cross-sectional research and testing only one potential predictor at a time (Lysova et al., 2019; Montani et al., 2020; Rosso et al., 2010). To test our hypotheses, we conducted a three-wave longitudinal study, using a cross-lagged panel model.



CLPM allows to study, in the same model, the links from the four psychological pathways to meaningful work, as well as the reverse associations. Exploring the directionality of this link helps to establish temporal precedence between each of the pathways and meaningful work. We wanted to examine, first, whether there would be a prospective link between an individual pathway and meaningful work when controlling for baseline levels of meaningful work. And second, whether the potential link between an individual pathway and meaningful work would remain significant when all four antecedents were simultaneously tested, thus controlling for the influence of each other. This latter investigation tests for the robustness of the associations between psychological pathways and meaningful work, thus helping to identify those psychological pathways that have independent relations with meaningful work not affected by the influence of other factors.

## 2.1. Methods

### 2.1.1. Participants and procedure

We collected data on three occasions with three months between each wave, among a large sample of adult Chilean workers. Three months was chosen as the interval, to allow enough time for change to occur on study variables, in line with previous examinations of psychological factors at work that have found change in study variables over this length of time (e.g. Allan et al., 2020; Duffy et al., 2014; Huyghebaert et al., 2018).

Our research was part of a 3-year project on happiness and well-being at work, funded by the Chilean government. A university in Chile provided us with a list of their alumni emails to which online surveys were sent to. All participants in all the three waves were contacted by e-mail using Qualtrics software. Our research was approved by the Ethics and Research Committee of the same university. We also followed the American Psychological Association and the Declaration of Helsinki ethical guidelines. We sought informed consent from all study participants, who were explained in general terms what the longitudinal study was about. In each wave of the study, respondents were notified that the survey would be available for only one week. In total, 631 Chilean working adults completed the measurements in T1, with 240 respondents completing T2 survey, and 148 of them responding to T3 survey. Thus, 148 workers (23.45% of wave 1) answered all three surveys. These participants were between the ages of 24 and 82 (Mean age = 44.87), and 56.8% were male. We also collected data about education, managerial position, and salary. In terms of education, highest education for 1.9% was high-school, for 9.5% technical education, for 58% undergraduate degree (e.g. BA), and for 30.6% graduate degree (e.g. MA). They were working in different positions such as CEO/General Manager (10.9%), area manager (14.6%), deputy area manager (25.7%), employees without dependents (39.5%), and freelance workers (9.4%). In terms of monthly salary (presented in US\$), 22.6% earned between 273 and 1090; 28.6% earned between 1090 and 1908, 22.5% earned between 1908 and 2998, and 21.3% earned between 2998, and 10,520. In other words, the sample was mostly well-educated with higher salary than the average of the Chilean population, given that the average monthly labor income for Chile was US\$826 (National Institute of Statistics of Chile, 2020). Regarding attrition, those who left the survey ( $N = 483$ ) did not differ significantly from those who answered all three waves, in terms of gender, meaningful work, autonomy, competence, relatedness, or beneficence, but there was a significant difference as regards age ( $t[213.08] = 4.24, p < .001$ ) with older participants being more likely to remain in the study across the three waves.

### 2.1.2. Measures

All the questions were translated from English into Spanish using a standard back translation procedure (Brislin, 1970). First, a native Chilean academic (fluent in both Spanish and English), not familiarized with the topic of the present study, translated the original scales from English ("version 1") to the Spanish ("version 2"). Second, another native Chilean academic (fluent in both Spanish and English), not familiarized with the topic of the present study, translated back "version 2" to English ("version 3"). Third, a native English-speaker (fluent also in Spanish), together with a native Chilean researcher from the present team (fluent in English), compared "version 1" and "version 3" of the translations. Very minor differences were found, which were solved between both of them.

**Meaningful work.** To assess subjective sense of meaningful work, we used Presence of Meaning in Life Questionnaire (MLQ-P; Steger et al., 2006), adapted to work context (e.g. "My work has a clear sense of purpose" and "I have a clear idea of what gives meaning to my work"). MLQ-P was chosen as it has been validated in the Spanish language with good psychometric properties (Góngora & Castro, 2011), and following their advice to omit one item due to poor psychometric qualities, we used four out of five items of the original MLQ-P. Participants responded on a scale from 1 (never) to 7 (very often). Reliabilities were good at T1 ( $\alpha = 0.93$ ), T2 ( $\alpha = 0.94$ ) and T3 ( $\alpha = 0.93$ ). Longitudinal confirmatory factor analysis (CFA) with metric invariance showed a good fit (CFI = 0.99, RMSEA = 0.04, SRMR = 0.05).

**Autonomy, competence, and relatedness.** We used a work-context adapted version (Schultz et al., 2015) of the satisfaction scales of the Basic Psychological Needs Satisfaction And Frustration Scale (Chen et al., 2015). The satisfaction scales include four items for autonomy (e.g. "I feel that my decisions at work express who I really am"), four for competence (e.g. "I trust that I can do things well in my work"), and four for relatedness (e.g. "I feel that the people I care about at work also care about me"). Participants responded on a 7-point Likert scale ranging from 1 (not true at all) to 7 (very true). Each subscale showed good internal reliability: For autonomy T1 ( $\alpha = 0.92$ ), T2 ( $\alpha = 0.92$ ), and T3 ( $\alpha = 0.93$ ), for competence T1 ( $\alpha = 0.91$ ), T2 ( $\alpha = 0.89$ ), and T3 ( $\alpha = 0.94$ ), and for relatedness T1 ( $\alpha = 0.95$ ), T2 ( $\alpha = 0.95$ ) and T3 ( $\alpha = 0.94$ ). Longitudinal CFA with metric invariance demonstrated a good fit for these three measures (autonomy: CFI = 0.98, RMSEA = 0.06, SRMR = 0.06; competence: CFI = 0.97, RMSEA = 0.05, SRMR = 0.05; relatedness: CFI = 0.97, RMSEA = 0.07, SRMR = 0.04).

**Beneficence.** We used the work-context adapted version (Martela & Riekk, 2018) of the beneficence satisfaction scale developed by Martela and Ryan (2016b; see also Martela & Riekk, 2018). The scale included 4 items (e.g., "at work, I feel that my actions have a positive impact on the people around me", "the things I do in my work contribute to the betterment of society"). Participants responded

on a Likert scale ranging from 1 (not true at all) to 7 (very true). Reliabilities were good at T1 ( $\alpha = 0.92$ ), T2 ( $\alpha = 0.89$ ) and at T3 ( $\alpha = 0.90$ ). Longitudinal CFA with metric invariance demonstrated a good fit (CFI = 0.98, RMSEA = 0.05, SRMR = 0.07).

## 2.2. Data analysis

For descriptive statistics and reliability, we used IBM SPSS Statistics (Version 25), while Mplus 8.0 (Muthén & Muthén, 2017) was used for structural analysis (CLMP). Before testing the models, we examined the distribution, asymmetry coefficients, and kurtosis coefficients of all constructs and found them appropriate (George & Mallery, 2010), except for relatively high kurtosis for competence (T1: 6.45; T2: 6.58; T3: 9.25). The results of the Little MCAR test (Little, 1988) showed that the missing data were completely at random ( $[\chi^2(62)] = 45.52, p = .942$ ). We used full maximum likelihood estimation to deal with missing data.

We used two CLPM models to test each main hypothesis. In the first model (Model 1, M1), we test a prospective link between an individual pathway (autonomy: M1a, competence: M1b, relatedness: M1c, and beneficence: M1d) and meaningful work, controlling for baseline levels of meaningful work. In the second model (Model 2, M2), we test the link between an individual pathway and meaningful work, controlling for the influence of the other three potential pathways. For both model 1 and 2, each construct was modelled as possible antecedent as well as a potential consequence of the other constructs included in each model, controlling by stability effects. In other words, we modelled lagged paths from each construct to all other constructs as well to itself at successive points of time. Following Kline (2016), each latent variable was allowed to covary with all the other latent variables within each time point, “either between covariates, or between the disturbances of endogenous variables measured at the same time” (p. 139). Following Jöreskog (1979), we included auto-correlated error terms between each latent variable observed indicator across waves. The fit of the models were evaluated using chi-squared statistics, RMSEA, CFI and SRMR, with the following standards for good (or acceptable) fit (Hu & Bentler, 1999): RMSEA < 0.06 (< 0.08), and CFI > 0.95 (> 0.90), and SRMR < 0.09 (0.10).

### 2.2.1. Measurement model and invariance test

We started with a twenty-five-factor measurement model where all constructs were allowed to covary. To test for invariance, we constrained all the factor loadings to be equal across waves. Model fit was acceptable,  $\chi^2(1575) = 3387.07, p < .001$ ; CFI = 0.92; RMSEA = 0.043. Next, we tested an unconstrained model. The model fit was also acceptable  $\chi^2(1545) = 3342.70, p < .001$ ; CFI = 0.92; RMSEA = 0.042. We compared these two models, using the criteria of the CFI, RMSEA and Expected Cross-Validation Index (ECVI). Cheung and Rensvold (2002) showed that the assumption of invariance is satisfied if the reduction in the CFI is less than 1% when the restriction is imposed. Indeed, when comparing the two models the change in CFI was lower than 1% ( $\Delta$  CFI = 0.001). Therefore, it can be concluded that the pattern of the loading factors was invariant through the waves, for all the constructs. The assumption of invariance is also supported when the difference in RMSEA is lower than 0.01 (Chen, 2007) and when the constrained model has an ECVI smaller than the unconstrained model (Browne & Du Toit, 1992). The changes in RMSEA ( $\Delta$ RMSEA = 0.00) and in ECVI ( $\Delta$ ECVI = -0.02) satisfied these criteria. Therefore, the assumption of invariance is tenable. Because of that, we kept loadings constrained across waves in all further models.

## 3. Results

Descriptive statistics and zero-order correlations between all variables are presented in Table 1.

**Model 1** tested a prospective link between an individual pathway (autonomy: M1a, competence: M1b, relatedness: M1c, and beneficence: M1d) and meaningful work, controlling for baseline levels of meaningful work, through a three-wave CLPM model in which we restricted the loadings (measurement invariance), and the autoregressive and cross-lagged path coefficients. Following Cole et al. (2005), we made the simplifying assumption of constraining autoregressive and cross-lagged paths to be invariant over time (i.e.,  $T1 \rightarrow T2 = T2 \rightarrow T3$ ). Because the time-distance between each wave was the same (three months), we assumed that there is no conceptual or theoretical reasons to expect that they may differ across the time points. This procedure allows us to estimate a more parsimonious model as well as to gain statistical power. We followed the same procedure in all further models.

**Model 1a** examined the prospective link between autonomy at work and meaningful work (see Fig. 1). The fit of the model was acceptable ( $[\chi^2(233)] = 677.21, p < .001$ , RMSEA = 0.06, CFI = 0.95, SRMR = 0.07). Supporting H1, we found that autonomy at work was a positive prospective predictor of meaningful work<sup>2</sup> ( $\beta = 0.25$ , [95% CI 0.13, 0.37],  $p < .001$ ), with meaningful work not predicting autonomy.

**Model 1b** examined the prospective link between competence at work and meaningful work (see Fig. 2). The fit of the model was acceptable ( $[\chi^2(233)] = 576.94, p < .001$ , RMSEA = 0.05, CFI = 0.95, SRMR = 0.098). Competence at work was not a prospective predictor of meaningful work ( $\beta = 0.09, p = .06$ ), although the relation was marginally significant. Therefore, H2 was not supported. Additionally, we found that meaningful work was a positive prospective predictor of competence ( $\beta = 0.19$ , [95% CI 0.08, 0.29],  $p < .001$ ).

**Model 1c** examined the prospective link between relatedness at work and meaningful work (see Fig. 3). The fit of the model was acceptable ( $[\chi^2(233)] = 568.63, p < .001$ , RMSEA = 0.05, CFI = 0.96, SRME = 0.08). Relatedness at work was not a prospective

<sup>2</sup> In reporting the results throughout the paper, we report standardized paths between T1 and T2. Paths between T2 and T3 may be found in their respective figures, but not reported in the text given that they are similar in significance and magnitude to the reported paths as we restricted the paths to be equal across waves.

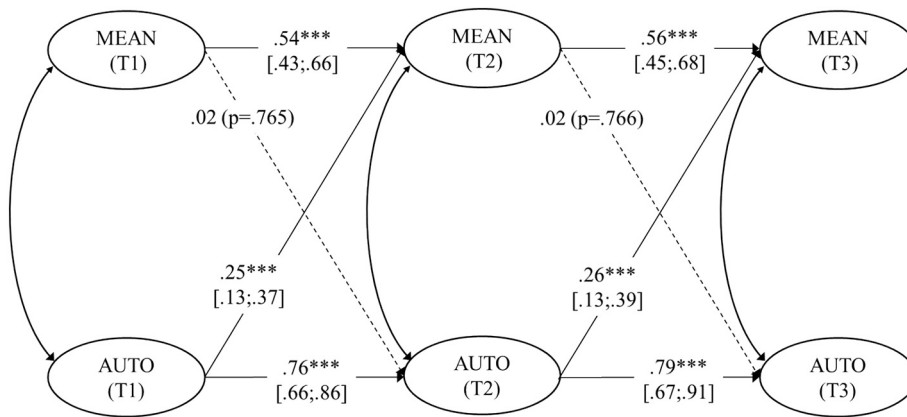
**Table 1**Descriptives and inter-correlations for all variables at T1, T2 and T3 (T1:  $N = 631$ ; T2:  $N = 240$ ; T3:  $N = 148$ ).

	<i>M</i>	<i>S</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Autonomy T1	5.14	1.59															
2. Autonomy T2	5.20	1.54	0.70**														
3. Autonomy T3	5.22	1.61	0.68**	0.78**													
4. Competence T1	6.31	0.93	0.42**	0.30**	0.25**												
5. Competence T2	6.32	0.93	0.33**	0.39**	0.40**	0.37**											
6. Competence T3	6.37	0.88	0.22**	0.29**	0.37**	0.48**	0.43**										
7. Relatedness T1	5.50	1.43	0.51**	0.39**	0.36**	0.41**	0.29**	0.35**									
8. Relatedness T2	5.51	1.41	0.44**	0.47**	0.44**	0.30**	0.43**	0.35**	0.61**								
9. Relatedness T3	5.59	1.44	0.42**	0.36**	0.49**	0.29**	0.29**	0.52**	0.61**	0.67**							
10. Beneficence T1	5.67	1.43	0.59**	0.56**	0.42**	0.49**	0.39**	0.27**	0.53**	0.46**	0.47**						
11. Beneficence T2	5.74	1.32	0.52**	0.56**	0.47**	0.28**	0.39**	0.37**	0.44**	0.53**	0.51**	0.77**					
12. Beneficence T3	5.89	1.29	0.48**	0.44**	0.50**	0.39**	0.28**	0.55**	0.63**	0.56**	0.68**	0.64**	0.73**				
13. Meaningful Work T1	4.19	0.93	0.71**	0.61**	0.49**	0.52**	0.28**	0.23**	0.48**	0.41**	0.38**	0.65**	0.60**	0.51**			
14. Meaningful Work T2	4.20	0.95	0.60**	0.65**	0.48**	0.31**	0.37**	0.32**	0.36**	0.43**	0.29**	0.52**	0.63**	0.43**	0.73**		
15. Meaningful Work T3	4.25	0.88	0.58**	0.68**	0.73**	0.28**	0.39**	0.50**	0.39**	0.47**	0.54**	0.52**	0.67**	0.64**	0.60**	0.66**	

Note. T1: Time 1; T2: Time 2; T3: Time 3.

\*\*  $p < .01$ .

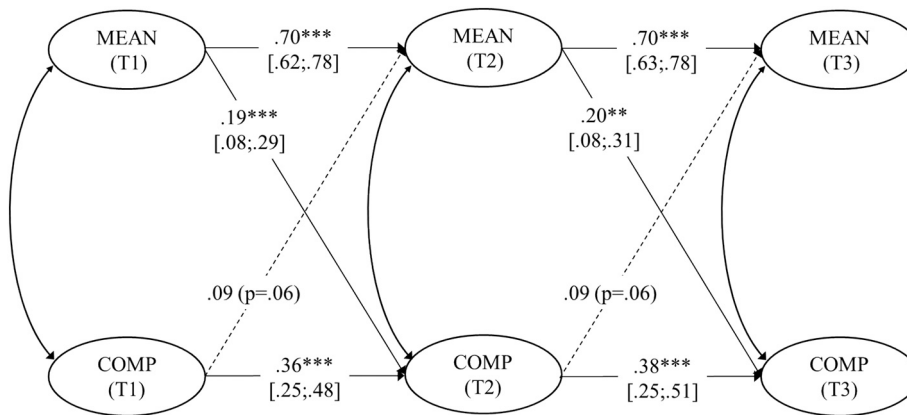




$$\chi^2(233) = 677.21, p < .001; \text{CFI} = .95; \text{RMSEA} = .06; \text{SRMR} = .07$$

**Fig. 1.** Model M1a. Structural longitudinal model for the associations between meaningful work and autonomy.

Note: Coefficients shown are standardized paths. To improve visual clarity, the covariances between latent variables, errors, and loadings are not shown. Loadings are all between 0.78 and 0.96 ( $p < .001$ ). MEAN = Meaningful work; AUTO = Autonomy. T1: Time 1; T2: Time 2; T3: Time 3. Solid lines = significant paths. Dashed lines = not significant paths. Confidence intervals are reported in square brackets for significant paths. \*\*\*  $< 0.001$ , \*\*  $< 0.01$ , \*  $< 0.05$ .



$$\chi^2(233) = 576.94, p < .001; \text{CFI} = .95; \text{RMSEA} = .05; \text{SRMR} = .098$$

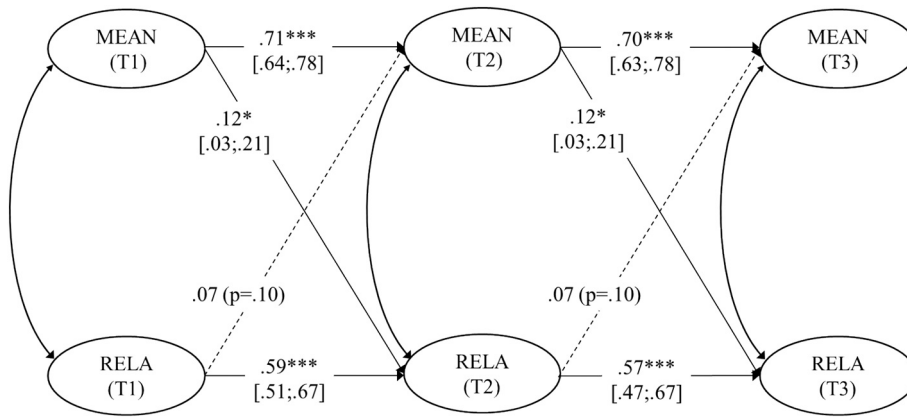
**Fig. 2.** Model M1b. Structural longitudinal model for the associations between meaningful work and competence.

Note: Coefficients shown are standardized paths. To improve visual clarity, the covariances between latent variables, errors, and loadings are not shown. Loadings are all between 0.80 and 0.97 ( $p < .001$ ). MEAN = Meaningful work; COMP = Competence. T1: Time 1; T2: Time 2; T3: Time 3. Solid lines = significant paths. Dashed lines = not significant paths. Confidence intervals are reported in square brackets for significant paths. \*\*\*  $< 0.001$ , \*\*  $< 0.01$ , \*  $< 0.05$ .

predictor of meaningful work ( $\beta = 0.07, p = .10$ ), although the relation was marginally significant. Therefore, H3 was not supported. Additionally, we found that meaningful work was a positive prospective predictor of relatedness ( $\beta = 0.12, [95\% \text{ CI } 0.03, 0.21], p < .05$ ).

**Model 1d** examined the prospective link between beneficence at work and meaningful work (see Fig. 4). The fit of the model was acceptable ( $[\chi^2(233)] = 499.55, p < .001, \text{RMSEA} = 0.04, \text{CFI} = 0.97, \text{SRMR} = 0.07$ ). Supporting 4a, we found that beneficence at work was a positive prospective predictor of meaningful work ( $\beta = 0.22, [95\% \text{ CI } 0.11, 0.33], p < .001$ ) but meaningful work did not predict beneficence.

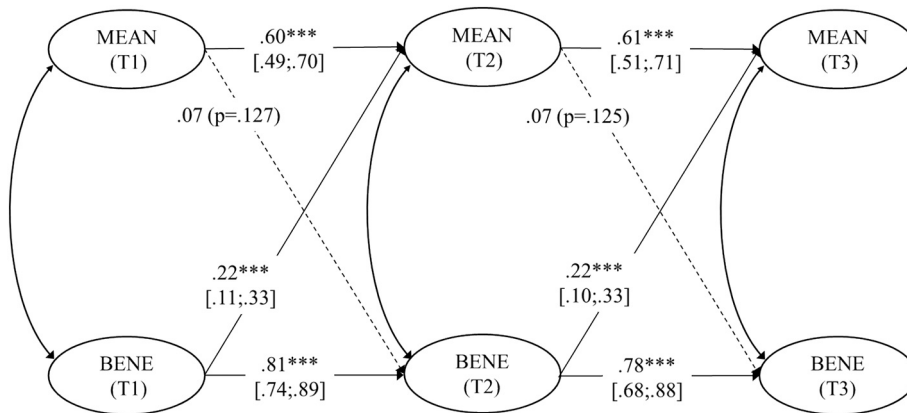
**Model 2** used one single model to test the hypothesis H5a, while also providing a robustness check for Hypotheses 1–4 by examining whether the relations would remain significant when controlling for the other potential predictors of meaningful work. To test this model, we established a structural cross-lagged reciprocal model to determine the relationships between autonomy, competence, relatedness, beneficence and meaningful work over time. All constructs were represented as potential antecedents and as



$$\chi^2(233) = 568.633, p < .001; CFI = .96; RMSEA = .05; SRMR = .08;$$

**Fig. 3.** Model M1c. Structural longitudinal model for the associations between meaningful work and relatedness.

Note: Coefficients shown are standardized paths. To improve visual clarity, the covariances between latent variables, errors, and loadings are not shown. Loadings are all between 0.82 and 0.98 ( $p < .001$ ). MEAN = Meaningful work; RELA = Relatedness. T1: Time 1; T2: Time 2; T3: Time 3. Solid lines = significant paths. Dashed lines = not significant paths. Confidence intervals are reported in square brackets for significant paths. \*\*\*  $< 0.001$ , \*\*  $< 0.01$ , \*  $< 0.05$ .



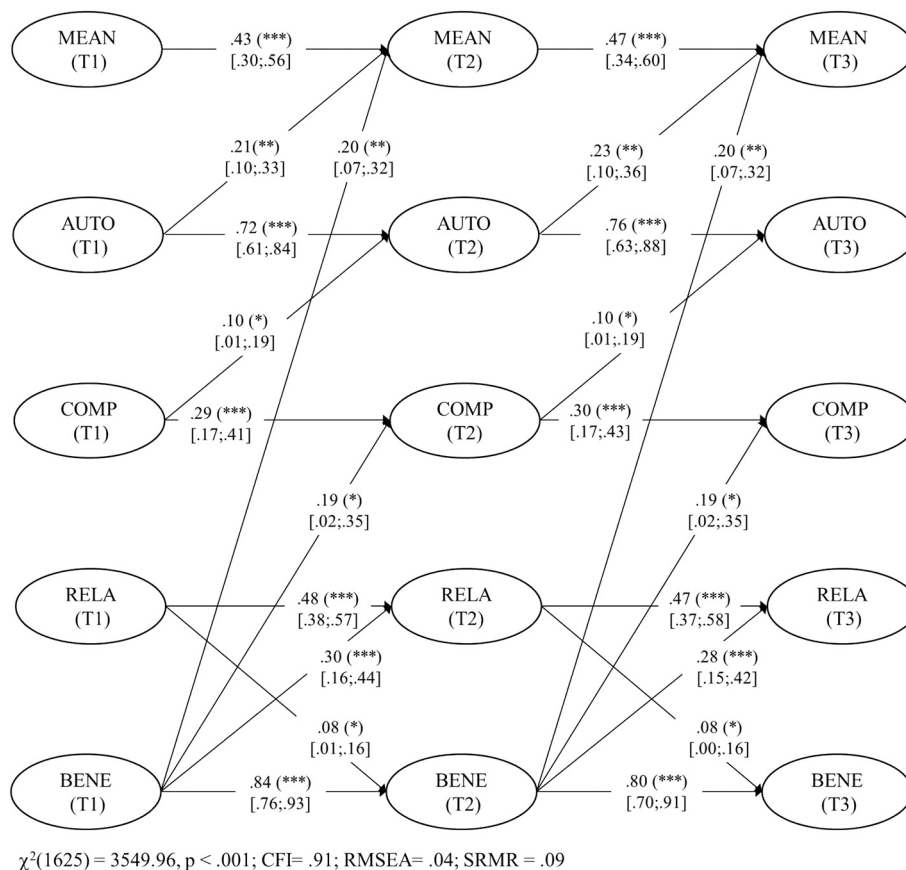
$$\chi^2(233) = 499.55, p < .001; CFI = .97; RMSEA = .04; SRMR = .07$$

**Fig. 4.** Model M1d. Structural longitudinal model for the associations between meaningful work and beneficence.

Note: Coefficients shown are standardized paths. To improve visual clarity, the covariances between latent variables, errors, and loadings are not shown. Loadings are all between 0.73 and 0.97 ( $p < .001$ ). MEAN = Meaningful work; BENE = Beneficence. T1: Time 1; T2: Time 2; T3: Time 3. Solid lines = significant paths. Dashed lines = not significant paths. Confidence intervals are reported in square brackets for significant paths. \*\*\*  $< 0.001$ , \*\*  $< 0.01$ , \*  $< 0.05$ .

potential consequences of the other constructs, while controlling for stability effects (Fig. 5). As in Model 1, we restricted the loadings and paths to be equal across waves. For visual clarity, only the significant paths are shown. Model fit was acceptable ( $[\chi^2(1625)] = 3549.96, p < .001, RMSEA = 0.04, CFI = 0.91, SRMR = 0.09$ ).

We found that beneficence at work ( $\beta = 0.20, [95\% \text{ CI } 0.07, 0.32], p < .002$ ) was a prospective and significant predictor of meaningful work, when controlling for the influence of the three needs. Therefore, Hypothesis 5a was supported. Autonomy at work ( $\beta = 0.21, [95\% \text{ CI } 0.09, 0.33], p < .001$ ) was also a prospective and significant predictor of meaningful work, even when controlling for the other predictors. Additionally, we found that competence was a positive prospective predictor of autonomy ( $\beta = 0.10, [95\% \text{ CI } 0.01, 0.19], p < .05$ ) and beneficence was a significant and positive predictor of competence ( $\beta = 0.19 [95\% \text{ CI } 0.02, 0.35], p < .05$ ) and relatedness ( $\beta = 0.30 [95\% \text{ CI } 0.16, 0.44], p < .001$ ). Relatedness was a positive prospective predictor of beneficence ( $\beta = 0.08, [95\% \text{ CI } 0.01, 0.16], p < .05$ ). Each variable was preceded by its own lagged variable (stability path) and no other significant relationship emerged. Finally, as a robustness check, we repeated the analyses for hypotheses 1–5 controlling for gender and age. The results remained virtually the same.



**Fig. 5.** Model 2. Structural longitudinal model for the associations between meaningful work and autonomy, competence, relatedness and beneficence.

Note: Coefficients shown are standardized paths. To improve visual clarity, the covariances between latent variables, not significant paths, errors and loadings are not shown. Loadings are all between 0.74 and 0.98 ( $p < .001$ ). MEAN = Meaningful work; AUTO = Autonomy; COMP = Competence; RELA = Relatedness and BENE = Beneficence. T1: Time 1; T2: Time 2; T3: Time 3. Solid lines = significant paths. Confidence intervals are reported in square brackets for significant paths. \*\*\*  $< 0.001$ , \*\*  $< 0.01$ , \*  $< 0.05$ .

### 3.1. Testing the mediational hypothesis

In line with hypothesis H5b, we tested whether the three psychological needs for autonomy, competence, and relatedness will mediate the relationship between beneficence and meaningful work. To test such longitudinal mediation, we built a structural equation modeling following the recommendation of Maxwell et al. (2011). We conducted a longitudinal design where autonomy, competence, and relatedness at T2 mediates the association between beneficence at T1 and meaningful work at T3. All variables were controlled by their own stability paths. For consistency we only report the results for a restricted model, in which we restricted the loadings and paths to be equal across waves. We used Mplus and conventional indirect and direct effects approach (see, e.g., MacKinnon, 2008; Hayes, 2013). Also, bootstrap standard errors for the indirect effects were obtained by using 5000 replications. The model fit was acceptable:  $\chi^2(1638) = 3597.27, p < .001$ ; CFI = 0.91; RMSEA = 0.044; SRMR = 0.127. Beneficence at T1 was a positive prospective predictor of relatedness ( $\beta = 0.22$ , [95% CI 0.10, 0.34],  $p < .01$ ) and competence ( $\beta = 0.25$ , [95% CI 0.00, .48],  $p < .05$ ) at T2; but the relation was not significant with autonomy ( $\beta = 0.08$ ,  $p = .308$ ) at T2. Relatedness ( $\beta = -0.02$ ,  $p = .712$ ) and competence ( $\beta = 0.07$ ,  $p = .358$ ) at T2 were not significant predictors of meaningful work at T3. However, autonomy at T2 was a positive prospective predictor of meaningful work at T3 ( $\beta = 0.27$ , [95% CI 0.10, 0.44],  $p < .01$ ). Importantly, beneficence at T1 was not a predictor of meaningful work at T3 ( $\beta = 0.07$ ,  $p = .560$ ). The total indirect effect from beneficence at T1 to meaningful work at T3 was not significant ( $\beta = 0.03$ ,  $p = .362$ ). The specific indirect effects from beneficence at T1 to meaningful work at T3, through autonomy at T2 ( $\beta = 0.02$ ,  $p = .362$ ), relatedness at T2 ( $\beta = -0.01$ ,  $p = .718$ ), and competence at T2 ( $\beta = 0.02$ ,  $p = .485$ ) were not significant. The results thus do not support our mediation hypothesis, and therefore hypothesis H5b is rejected.

## 4. Discussion

Drawing from self-determination theory, this article proposed four key psychological pathways to meaningful work, testing them in

a large sample of Chilean workers using a longitudinal design. The results – both when each of the predictors was examined separately and when they were examined together – tell a clear story: Autonomy and beneficence emerge as the two key prospective predictors of meaningful work. When autonomy was examined alone, controlling for baseline meaningful work, it had a medium size effect ( $\beta = 0.25$ ) on prospective meaningful work, and when one controlled for the three other predictors, this effect remained virtually unchanged ( $\beta = 0.21$ ). Similarly, when beneficence was examined alone, controlling for baseline meaningful work, it had a medium size effect ( $\beta = 0.22$ ) on prospective meaningful work, which remained virtually unchanged when controlling for the other predictors ( $\beta = 0.20$ ). Autonomy and beneficence thus seem to be two key predictors of future levels of meaningful work, with effects that are independent of each other. This speaks to the paradox of meaningful work highlighted by Bailey, Lips-Wiersma, et al. (2019): They note how meaningfulness seems to be about self-fulfillment and self-actualization, but also about other people and making a contribution. Here we show how the more self-oriented autonomy and the more other-oriented beneficence both independently contribute to a sense of meaningful work. The present work thus shows that meaningfulness is not only about connecting with the self (autonomy) nor about contributing towards others (beneficence) but that both of these aspects independently contribute to sense of meaningful work. This seems to confirm the theoretical proposal by Martela & Pessi (2018, p. 1) who conceptualized meaningful work as being about self-realization as “the intrinsic value of the work for the person in question” and broader purpose as “the intrinsic value of work beyond the person in question.” Autonomy makes work valuable for the self, and beneficence makes work valuable for others, thus providing two complementing key dimensions of meaningful work.

In contrast, competence and relatedness, which have been previously linked to meaningful work cross-sectionally (e.g., Martela & Riekk, 2018) did not predict future levels of meaningful work, when controlling for baseline levels of meaningful work. While this does not preclude the possibility that they have a weak positive effect not captured by the statistical power of the current study (when examined individually, their  $p$  values, 0.06 for competence, 0.10 for relatedness, seemed to approach significance), this suggests that at least their influence is not as strong as the impact that autonomy and beneficence have on meaningful work. This is interesting given that previous theoretical and cross-sectional work has linked competence (Martela & Riekk, 2018) and relatedness (e.g., Rosso et al., 2010; Schnell et al., 2019) to meaningful work. It might be that when thinking about the meaningfulness of their work, people focus on the meaningfulness of the work tasks, and thus do not think about the relationships they have at work. Future research should establish whether there are situations, contexts, or cultures where the impact of competence and relatedness on meaningful work is stronger.

The present work thus contributes to research on meaningful work by answering the calls for testing theoretically derived proposals about key sources of meaningful work (Bailey, Yeoman, et al., 2019; Rosso et al., 2010) and by integrating SDTs basic psychological needs to research on meaningful work as called for by Allan et al. (2016). The study provides also one way of operationalizing and testing the four pathways to meaningful work as identified by Rosso et al. (2010). While it must be emphasized that Rosso et al. define the four pathways very broadly, thus making also other operationalizations possible, the present study lends support for seeing self-connection and contribution as crucial pathways to meaningful work. Interestingly, Lips-Wiersma and her colleagues (e.g., Lips-Wiersma, 2002; Lips-Wiersma & Wright, 2012) have also proposed four dimensions of meaningful work that seem to have considerable overlap with the present four pathways: *Developing and becoming self* comes close to autonomy, *Expressing full potential* comes close to competence, *Unity with others* comes close to relatedness, and *Serving others* is close to contribution. The convergence between the SDT-based framework, Rosso et al.’s framework, and Lips-Wiersma et al.’s framework is noteworthy, especially given that they have been developed independently from each other. To the extent that SDTs needs and Lips-Wiersma’s four dimensions overlap, the present work informs also that stream of research. The similarities between these three frameworks calls for future clarificatory and synthesizing work.

Furthermore, the present work contributes also to research on basic psychological needs at work by showing that of the three needs identified by self-determination theory, it is especially autonomy that seems to be crucially important for meaningful work. Previous studies have linked autonomy to several beneficial organizational outcomes including work engagement, low levels of burnout, and self-rated performance (reviewed in Deci et al., 2017; Van den Broeck et al., 2016), with the present research demonstrating its importance for meaningful work as well. Similarly, beneficence has been linked to important outcomes such as intrinsic motivation and work performance in previous studies (e.g. Grant, 2008; Grant et al., 2007), with the present study showing it to be important for meaningful work as well. From the point of view of SDT, where some previous work has showed how the three psychological needs can explain the well-being effects of prosocial behavior (Martela & Ryan, 2016a; Weinstein & Ryan, 2010), the direct relation of beneficence to meaningful work was particularly interesting, demonstrating that the satisfaction of the three psychological needs do not account for this connection.

Beyond the hypothesized relationships between the study variables, we found some prospective links that were not part of our study hypotheses. Competence emerged as a prospective predictor of autonomy, relatedness as a prospective predictor of beneficence, and beneficence as a prospective predictor of competence. It thus could be that instead of competence directly influencing sense of meaningful work, it could have an impact on autonomy, which in turn then influences meaningful work. Perhaps one feels one’s competence is ‘wasted’ if one is not able to use it for tasks one finds interesting and worth doing. However, when one feels one is competent in certain tasks, this might make work feel more self-endorsed and thus increase a sense of autonomy over time. Similarly, relatedness could lead one to want to contribute towards those one feels a sense of relatedness with, thus increasing sense of contribution over time, and it is only through this contribution one feels the meaningfulness of one’s work is realized. However, given that we did not hypothesize these links, they should be treated as post-hoc findings, and our attempts to explain them should be treated as speculations. We suggest that future research should examine whether these effects are robust and whether they could be theoretically explained. Be that as it may, these links do not undermine the key findings of our study, which emerged both when controlling for the influence of other predictors and when not controlling for them.

#### 4.1. Limitations and future research

While the longitudinal nature of the study is its strength compared to mostly cross-sectional previous studies of meaningful work, it also has certain key limitations. First, since we used self-reported data, common method bias issues may emerge. However, this problem can be mitigated due to the longitudinal design of the CLPM (Podsakoff et al., 2003). Furthermore, we are not aware of a different method for collecting data about psychological need satisfaction and a subjective sense of meaningfulness. Second, the study was conducted with a sample of relatively highly educated and compensated employees from one country, Chile, so we should be careful with cross-cultural generalizations. While it is also a strength of the study that it answers the need to conduct studies outside North America (Bailey, Yeoman, et al., 2019) going also beyond the traditional Western-Eastern paradox (Vignoles et al., 2016), it is still important to replicate the results in other countries to identify potential cultural effects. Third, although the longitudinal design provides evidence of temporal precedence from autonomy and beneficence to meaningful work, this design does not rule out the possibility that a third variable could be involved. Thus, causality cannot be demonstrated with this method, and we call for future studies to examine these relations using experimental methods and investigating possible moderators or mediators. Fourth, six months is a relatively short time span in the work life, and thus might not involve many major changes as regards meaningful work. Future studies could thus examine longer time spans or focus on participants who have experienced a significant change as regards their work role during the study period. Fifth, our focus has been on the psychological pathways to meaningful work. As pointed out by various reviews, factors affecting meaningfulness can operate on several levels, ranging from individual dispositions to cultural norms and various societal and legal factors (Lysova et al., 2019; Rosso et al., 2010). Future research should investigate how these factors at other levels influence and interact with the psychological pathways examined in the present study. Furthermore, we welcome other operationalizations of Rosso et al.'s (2010) pathways to meaningful work to see whether the results are specific to the present way of associating them with the psychological needs of the SDT. Finally, we measured meaningful work by adapting MLQ-P to the work context, as no validated meaningful work scales were available in Spanish at that time. We encourage researchers to replicate the results with other, better-validated meaningful work scales such as the WAMI (Steger, Dik, & Duffy, 2012).

#### 4.2. Practical implications

Given the importance of meaningful work for attracting and retaining talent as well as employee motivation, engagement, and performance (Bailey, Yeoman, et al., 2019; Martela & Pessi, 2018; Rosso et al., 2010), knowing how to foster a sense of meaningfulness in employees is crucially important for the managers and other organizational stakeholders. This study provides support for the existence of two key pathways to increase meaningfulness: autonomy and beneficence. This provides managers more concrete tools to improve the meaningfulness of work.

First, much research has been conducted on the importance of autonomy-supportive management practices for employee motivation and well-being (e.g. Baard et al., 2004; Deci et al., 2017). Concrete guidelines have been derived on how to improve the sense of autonomy of the employees, which emphasize providing reasons and justifications for various rules and targets, treating people as responsible agents, avoiding controlling language, allowing people to make choices about how they pursue their goals, and providing informative and constructive feedback of the progress of the employees.

Second, there is also much research on how to improve employees' sense of beneficence and positive impact (Grant, 2008, 2011). Making the impact concrete, allowing the employees a chance to directly interact with those benefiting from their work, and sharing stories within the organization about how customers have been helped are ways of strengthening the sense of beneficence. These guidelines can thus be used to foster a sense of autonomy and beneficence at work – and through them a sense of meaningfulness of work.

### 5. Conclusion

Viktor Frankl (1963, p. 166) notes that “what man actually needs is not a tensionless state but rather the striving and struggling for some goal worthy of him.” The present study has provided evidence for the importance of autonomy and beneficence for a sense of meaningful work. Autonomy and beneficence are thus arguably what makes striving at work valuable and worthy. Both have been previously shown to be important to employee motivation and even achievement, thus emerging as key factors the managers ought to support in order to have motivated, committed, and engaged employees who also find their work meaningful. In addition to the many instrumental benefits of autonomy and beneficence, they seem to be something worth promoting just for the sake of themselves. Indeed, building a work life where employees are able to thrive through having a strong sense of autonomy and beneficence is a meaningful goal in itself.

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#### CRedit authorship contribution statement

Conceptualization: F.M., M.G., W.U., S.A., D.B., A.E.



Methodology: W.U., M.G.

Formal analysis: W.U., M.G.

Writing – Original Draft: F.M.

Writing – Review & Editing: F.M., M.G., W.U., S.A., D.B., A.E.

Final version accepted by: F.M., M.G., W.U., S.A., D.B., A.E.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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