



# Providing social support at work matters and spills over to home: a multi-source diary study

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## Abstract

Social support is in its essence a dyadic exchange process – it has important benefits for those who receive and those who provide support. In the present paper, we develop a model integrating insights from mattering and social exchange theories. We propose that self-determined support behaviors satisfy the provider's feelings of mattering, which have a spillover effect on positive emotions at home. In addition, we hypothesize that positive emotions of the support receiver (co-worker) strengthen this indirect relationship. Hypotheses were tested in a sample of 67 dyads of co-workers ( $N = 280\text{--}305$  data points). Results show that autonomous support behaviors positively relate to the provider's positive emotions during the evening via mattering. Furthermore, employees felt that they mattered more and experienced more positive emotions when they supported co-workers with high (vs. low) positive emotions. These findings advance social support, mattering and spillover literatures by showing that brief episodes of helping behavior can satisfy mattering needs at work and help employees experience more positive emotions at home.

**Keywords** Autonomous support provision · Mattering · Happiness · Positive emotions · Social exchange theory

According to a growing body of empirical research, social support can benefit the recipient of support as well as the provider of support (Aknin et al., 2013a, b; Martela & Ryan, 2016). Individuals who provide support, experience more self-esteem, higher levels of energy and are more engaged in their work (Uy et al., 2017; \*Weinstein & Ryan, 2010). By supporting others, employees can proactively satisfy their own basic needs at work and stimulate their level of energy and enthusiasm (Zeijen et al., 2020a, b). However, whereas the beneficial effects of support provision within the workplace have long been established (Uy et al., 2017), it is far less clear whether the support provided at work also

positively influences the providers once they are back home from work.

Uncovering the positive spillover process from work to home is relevant as it emphasizes the important role of support provision at work. Since modern working arrangements have provided many employees with increasing possibilities for hybrid working, work and home life seem more intertwined than ever before (Rodríguez-Modroño and López-Igual, 2021). Employees' positive emotions that originate from work events may also cross over to their partners, once they return home (Bakker et al., 2009; Rodríguez-Muñoz et al., 2014). This underscores the relevance of possible spillover effects of support provision. In the present study, we investigate to what extent the supportive behaviors displayed at work have beneficial effects after work, and if so, through what mechanism the effects may be explained. To recognize the inherent dyadic nature of social support, we also examine the role of the support receiver.

In order to be able to fully capture the temporal character of this process (see Fig. 1 for a visual overview of our research model), we do not only rely on one-time questionnaires but capture the daily impact of support provision during the day on emotions experienced at home in the evening. Such short-term spillover processes

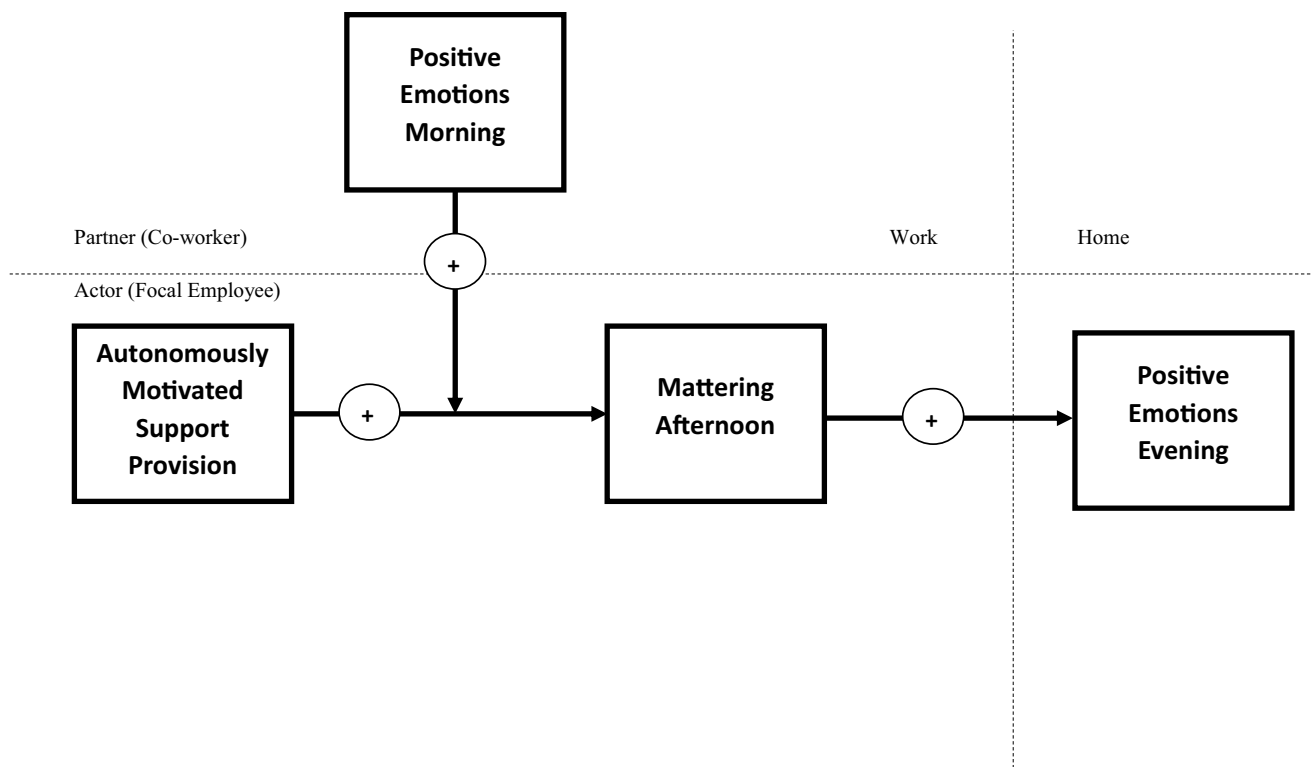
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**Fig. 1** Theoretical Model of Support Provision

**Table 1** Overview of perspectives on social support at work

Perspective	Explanation	Authors
Matching Hypothesis	Posits that the type of social support has to match the type of stressor or demand to be most effective	*Viswesvaran et al., 1999
Buffering Hypothesis	Social support attenuates the negative effects of job demands	Bakker & Demerouti, 2017 (The JD-R model); *Karasek, 1979 (demand-control-support model)
Social Exchange Theory	Social exchange perceives social support as a positive treatment that increases the motivation to return the gesture. An important concept in this theory is the reciprocity norm that states that persons who receive something from another party feel obligated to return the favor	*Cropanzano & Mitchell, 2005; *Cropanzano et al., 2017; *Blau, 1964, *Gouldner, 1960 (Norm of Reciprocity)
Conservation of Resources	Social support is seen as a resource that helps to expand and improve existing resource capacity, it reduces stress and burnout	*Hobfoll, 1989; *Hobfoll et al., 2018
Basic Needs Theory (self-determination)	Investigates how social support can fulfill employees basic needs (autonomy, competence & relatedness). Within this perspective the role of support provision received some initial attention	Ryan & Deci, 2000; *Van den Broeck et al., 2008; *Weinstein & Ryan, 2010

This overview is partly based on the integrative review of Jolly et al. (2021) and is not all-encompassing

from behaviours at work to emotion after work still needs further investigation (Zhang et al., 2020), especially since behavioral support (i.e., the extent to which support is offered) received far less research attention in comparison to the so called ‘perceived support’ (i.e., support

that is available when needed; Jolly et al., 2021). In order to provide more clarity on the different perspectives of social support at work we included an overview of different existing perspectives on social support at work in Table 1.

Taken together, the current study contributes to the literature in four ways. First, we contribute to the spillover and support-happiness literatures (Martela & Ryan, 2016; Uy et al., 2017) by examining whether next to their immediate effects, brief episodes of helping behavior at work make the support providers feel better in the evening after work. Second, we contribute to social support and basic needs theories (Deci & Ryan, 2000; \*Weinstein & Ryan, 2010) by investigating whether the universal need to matter represents an important mechanism that explains potential well-being effects of support provision. Whereas previous studies already uncovered that autonomously motivated support provision instigates well-being via the providers' basic needs fulfilment (i.e., autonomy, competence and relatedness, Martela & Ryan, 2016; \*Weinstein & Ryan, 2010), the present study offers additional insights in whether feelings of mattering also explain the provider's well-being. Third, mattering is a concept that refers not only to the identity of oneself, but also to the attitudes and behaviors of others (Elliott et al., 2004; Rosenberg & McCullough, 1981). We contribute to the mattering theory by examining whether next to factors of the 'self' (i.e., autonomous support provision), contextual factors from important 'others' (i.e., receiver's positive emotions at the start of the day) may stimulate the provider's mattering process. Finally, by examining spillover processes on a daily basis and focusing on the motives behind "the degree to which support is offered," we contribute to the literature on social support (Jolly et al., 2021) by providing valuable insights into daily spillover processes from behaviors at work to emotions after work (Zhang et al., 2020).

## Theoretical background

Work and private life are inevitably interconnected (Heller & Watson, 2005). The process through which experiences in one role improve the quality of life in the other role is called an enrichment process (Greenhaus & Powell, 2006). According to the Work-Home Resources (W-HR) model, resources that employees gain at work can accumulate and develop into personal resources, which are taken home and positively influence employees' functioning in their private lives (Ten Brummelhuis & Bakker, 2012). Indeed, previous research has shown that positive experiences at work can benefit employees' feelings, energy and functioning at home (Demerouti et al., 2004; Rodríguez-Muñoz et al., 2014, 2018), which can be explained by an increase in employees' personal resources (Postema et al., 2021).

In addition, we build further on these insights and examine how the benefits of support provision may spillover from work to home. To do so, we embed our research in the mattering theory (Elliott et al., 2004). The psychological

need to matter captures a fundamental human need to feel relevant and important to others (Rayle & Meyers, 2004; Elliott et al., 2004; Martela & Ryan, 2016) which leads individuals to become noticed and feel relevant to others, for instance by helping them (Elliott et al., 2004; Piliavin & Siegl, 2007). When individuals feel that they matter, they experience more social meaningfulness (Marshall, 2001), higher levels of self-worth and well-being (Piliavin, 2009). The experience of mattering therefore likely represents an important personal resource through which support providers enrich their lives (Piliavin & Siegl, 2007). In the present study, we argue that already brief acts of daily support may instigate significant feelings of mattering. In particular, for support providers to derive satisfaction and enjoyment out of helping behavior, helping acts should entail high levels of autonomous motivation (\*Weinstein & Ryan, 2010). This means that providers must either like to help (i.e., intrinsic motivation), value the supportive goal (i.e., identification motivation), or feel that they can express themselves through the helping act (i.e., integration motivation; Ryan & Deci, 2000; \*Weinstein & Ryan, 2010; Zeijen et al., 2020a, b). When employees provide support in this manner, the act of support is experienced as fun, valuable, and important. Autonomous helpers feel a greater sense of closeness to their recipients, feel that they have accomplished something valuable and feel assured in their autonomy to freely decide when and how to provide support (\*Weinstein & Ryan, 2010). In addition to these three basic needs (i.e., the needs for relatedness, competence, and autonomy), we expect that autonomous helpers feel more significant and relevant to recipients because they truly care about the support they provide and therefore experience a higher sense of social meaning (Froidevaux et al., 2016; Rosenberg & McCullough, 1981). Autonomous support providers value the helping act, and therefore likely feel that they made a meaningful contribution and matter more to their co-worker. In addition, autonomously motivated support has been found to be perceived as more meaningful and effective by support receivers because autonomous helpers put more effort into helping, are more enthusiastic in their helping and accomplish more when assisting their recipients (\*Weinstein & Ryan, 2010). Empirically, some evidence exists that shows that the act of support provision satisfies support providers' need to matter (Piliavin, 2009; Piliavin & Siegl, 2007). This line of research has been conducted in a context of community service (i.e., volunteering work), which is most likely autonomously motivated because it concerns voluntary and self-motivated work by nature. In line with this research and taking into account the theorizing and findings of \*Weinstein and Ryan (2010), we hypothesize that autonomously motivated support instigates feelings of mattering.

Hypothesis 1 Daily autonomously motivated provided support positively relates to the provider's daily feelings of mattering.

### **Mattering and the experienced positive emotions at home**

Employees who satisfy their need to matter at work may also benefit from this once they return home after work. Feelings of mattering tell something about employees' personal identity and identities have the ability to cross boundaries, such as the boundary from work to home (Ten Brummelhuis & Bakker, 2012). According to previous research there are multiple pathways through which employees take home their personal resources, for instance through mood/affect, cognition and physiology (Repetti et al., 2009). For mattering, this may concern both the affective and the cognitive route which often co-occur (Damasio, 2001). Furthermore, emotions also emerge via different mechanisms (i.e., cognitive, somatic, behavioral) and often unfold in a self-perpetuating manner (Garland et al., 2010). Employees who are more satisfied in their need to matter at work may experience more positive emotions at home because they think more positively about themselves and therefore feel better about their good deeds. For instance, on days that workers offer their support to colleagues, they may perceive themselves as being more kind, helpful or virtuous (i.e., cognitive route).

This reasoning fits with the theory behind how experienced meaningfulness instigates positive affect. According to Schutte and colleagues (Schutte et al., 2012) expressive writing interventions (i.e., writing about ideas and emotions related to an aspect in one's life) enhance individuals' positive emotions because it facilitates a cognitive process in which people restructure their thoughts and create personal meaningfulness. Individuals who are more inclined to perceive their environment as understandable and worthwhile perceive a better quality of living and wellbeing (Eriksson & Lindström, 2006, 2007). In line with this, we expect that employees who feel that they mattered more at work likely think more positive about themselves and therefore experience more positive emotions at home. This echoes Aristotelian philosophical principles, according to which, helping others feels good because helpers perceive that they live a virtuous, good and fulfilling life (Ryan & Martela, 2016). Taken together, we expect that even small acts of social support can increase employees' positive emotions at home because such acts contribute to individuals' experience of having done good for others that day. In turn, we expect that employees who have satisfied their need to matter by

actively supporting their co-workers, experience more positive emotions during the evening at home.

Hypothesis 2: The provider's feelings of mattering at work positively relate to the provider's positive emotions during the evening (i.e., spillover effect).

Hypothesis 3: Autonomously motivated support provision during the workday relates to the provider's positive emotions at home via the provider's feeling of mattering during the afternoon at work.

### **The role of the recipient**

Furthermore, to optimally benefit from one's helping acts, it is not only important to consider with what underlying motives the support has been given (\*Weinstein & Ryan, 2010), but also to whom the support is given (Zeijen et al., 2020a, 2020b). In the case of support provision (helping a colleague on a day-to-day basis), it matters considerably how the interaction partner handles the support – will the support be positively received or not? Is the support receiver going to do something meaningful with it? Is the support receiver going to react positively? In this paper, we argue in line with the core idea of the social exchange theory that positive-minded and responsive individuals are more open to social support and expect that support providers are more likely to feel and behave more positively in reaction to positive others (\*Cropanzano & Mitchell, 2005; \*Cropanzano et al., 2017).

Positive emotions are known to improve interpersonal relationship quality and are affiliative signals that project warmth and willingness to cooperate (Sels et al., 2021). They instigate social connectedness because they make people seem non-threatening and approachable (Sels et al., 2021). A person's positive emotions can be seen as pieces of social information with beneficial functions in interpersonal relationships (Van Kleef, 2009). Hence, since emotions offer information to oneself (Schwarz & Clore, 1983), expressions of emotions also reveal information to observers and impact their attitudes, thoughts and behavior (Keltner & Haidt, 1999). In addition, positive emotions of help receivers reduce the helper's uncertainty about whether the help is going to be appreciated. Whereas individuals withhold help when they are uncertain about whether the receiver will value the help (Baumeister & Leary, 1995; Grant & Gino, 2010), expressions of positive emotions signify that the receiver is likely welcoming of the support rather than rejecting or devaluing it. Therefore, when colleagues express positive emotions early on a workday, they set the stage for a cooperative day in which support providers are more likely to benefit from the given support because they feel appreciated. Hence, we do not only contend that the positive state

**Table 2** Means, standard deviations and pearson correlations between the study variables

Variables	<i>M</i>	<i>SD</i>	<i>N</i>	1	2	3	4	5	6	7
1. Positive Emotions Co-worker Morning	6.79	2.00	210	-	-.35**	-.06	-.07	.09	.04	.01
2. Negative Emotions Co-worker Morning	1.92	1.79	210	-.66**	-	.07	.14	.03	.02	-.04
3. Autonomous Support Afternoon	6.30	3.41	197	.20**	.24**	-	.56**	.43**	.04	-.09
4. Controlled Support Afternoon	2.75	2.32	197	.11	-.16**	.49**	-	.32**	.02	-.05
5. Mattering Afternoon	5.68	2.14	223	.09	-.01	.45**	.32**	-	.03	.02
6. Positive Emotions Evening	6.01	1.76	231	.23**	-.12	.40**	.15*	.37**	-	-.09
7. Negative Emotions Evening	1.23	1.46	231	-.23**	.07	-.07	.31**	.14*	-.18**	-

\* $p < .05$ ; \*\* $p < .01$  (2-tailed). Correlations above the diagonal are within-person correlation ( $N = 197\text{--}231$ ). Correlations below the diagonal are respondent-level correlations aggregated over all days and moments ( $N = 280\text{--}305$ ). Means and standard deviations are unstandardized

of the receiving co-worker directly influences the mattering feelings of a support providing employee, but we also predict that positive emotions of support receivers expressed at the start of the day stimulate the support provider to feel extra appreciated and significant about the provided support.

Hypothesis 4: The support receiver's positive emotions relate positively to the support provider's feeling of mattering.

Hypothesis 5: The support receiver's positive emotions moderate the link between the provider's autonomously motivated support provision and their feelings of mattering, in such a way that this link is stronger for high (rather than low) levels of positive emotions.

Hypothesis 6: The receiver's positive emotions during mornings moderate the indirect effect of the autonomously motivated support on the provider's positive emotions during evenings via mattering, such that the effect is stronger when the receiver's positive emotions are high (vs. low).

## Method

### Procedure and sample

For the present study we made use of a fixed interval experience-sampling methodology (ESM; Ohly et al., 2010) to capture the daily support exchange between co-workers in organizations. ESM made it possible to collect multiple moments over the course of multiple work days and use two sources of information (i.e., the support receiver and the support provider). Specifically, we measured the spillover of daily support provision by capturing the amount of provided support, the underlying motivations for the provided support, the feelings of mattering during the afternoon and the positive emotions of the support provider in the evening. The positive emotions of the support receiver were measured at the start of the day because the initial parts of information that individuals identify attract increased attention to that

stimulus and can be seen as the most important indication of that stimulus (i.e., primacy effect; Anderson, 1965).

The participants were recruited in the Netherlands, either face-to-face or through social media (e.g., via Facebook and LinkedIn). Participants could volunteer to participate. There was an additional incentive to participate, which was a restaurant gift card for one of the participating co-worker dyads that was allocated through a raffle. In total, 134 co-workers signed up, resulting in 67 dyads. Participants were asked to respond to one or two daily surveys one week that included 5 working days. Each day comprised three measurement moments: one at the start of the working day between 07:00 and 09:00, one at the end of the working day between 16:00 and 18:00 and one during the evening between 20:00 and 22:00. The focal participant (in this study the support providing employee) received the afternoon and the evening surveys. The co-workers (colleague of the focal participant who is the receiver of the support) received the morning surveys. Altogether, this resulted in  $N = 280$  to 305 data points (see Table 2 for the specific datapoints per variable).

Important to mention is that all of the data that we use in this study comes from a sample of employees that participated in a support provision intervention. Because no significant differences between the intervention and control groups on any of the study variables was found and the manipulation appeared unsuccessful, we decided to use the survey data to test our hypotheses and ignore the experimental manipulation. Thirty-three participants originally participated in the control group and 34 participants in the social support group. All participants received instructions every morning on their phones. In the social support group participants received a message that requested them to provide 'extra' support to their co-worker and participants in the control group received a message with the assignment to keep track of how many tasks they performed during that day. Results of ANOVA's revealed that participants in the intervention group neither reported higher levels of provided support;  $F(1, 60) = 0.02$ ,  $p = 0.888$ , nor did they report different levels of autonomous motivation for the provided



support  $F(1, 58)=0.42, p=0.518$  as compared to the participants in the control group. Furthermore, participants in the intervention group did not report higher levels of received support  $F(1, 53)=2.51, p=0.120$ , feelings of mattering  $F(1, 60)=3.11, p=0.083$ , positive emotions during the evening  $F(1, 58)=3.93, p=0.052$  or negative emotions during the evening  $F(1, 58)=0.81, p=0.371$ , as compared to participants in the control group. Finally, there were no differences in the co-worker's positive emotions  $F(1, 55)=0.12, p=0.727$  nor in the co-worker's negative emotions during the morning  $F(1, 55)=1.47, p=0.230$ . As such, we conclude that it does not matter for the present study variables whether participants were in the support or control group, and we can merge the groups to create one dataset. Notably, whereas no significant effects of group were found, group membership marginally affected positive emotions during the evening ( $p=0.052$ ). Hence, we decided to control for the effects of group on positive emotions in our model.

Next to the ESM surveys, participants received a baseline survey one week before the start of the study with which we measured the demographic variables. From all 134 participants, 14 participants (10%) did not complete the general survey. Therefore, we report the demographics of the 90% of the participants that did fill in the general questionnaire. Dyads consisted of both opposite-sex (woman and men 22.3%) and same-sex couples of co-workers (i.e., two women 30%, two men 28.4%). Participants were 62 women (51.7%) and 58 men (43.3%). The mean age of the sample was 35.42 years ( $SD=12.00$ ). On average, participants worked 5.77 years within their current job ( $SD=6.73$ ) and 35.33 h per week ( $SD=17.02$ ). In total, 6.7% completed high school, 26.7% finished a vocational training, and the remaining 66.7% finished higher education (university or applied sciences). Finally, 19.2% lived with a spouse, 43.3% lived with a spouse and children, 3.3% lived without a spouse and with children, 20.8% lived alone and 13.3% lived with their parents.

### Daily measure

Ohly et al. (2010) advice to use abbreviated scales or single-item measurements when multiple measures per day are required from participants. Since this was the case in our study, we kept the assessments as brief as possible. Items were selected based on factor loadings, and were slightly adapted in formulation to a daily setting when necessary. Finally, to be able to detect more closely what participants were experiencing during the day (Ohnhaus & Adler, 1975) as well as be able to capture small changes (e.g., responsiveness; Du Toit, et al., 2002), we used a Visual Analogue Scales (VAS; i.e., consisting of 100 points) to measure the study variables motivation to support, mattering and experienced emotions. A Visual Analogue Scale is a measurement

instrument that captures concepts ranging across a continuum of values, such as the amount of pain, energy and emotions that people experience. We follow the widely cited recommendations of Onhaus and Adler (1975) and use VAS scales to assess more closely what participants experienced. To investigate the reliability and validity of our constructs we calculated and report the Average Variance Extracted (AVE) and the Composite Reliability (CR) for each construct at the within level. Values of the CR are considered acceptable between 0.6 to 0.7, with values  $>0.7$  better (Shrestha, 2021). Values for AVE have to be  $\geq 0.5$  to confirm convergent validity. Finally, researchers found that the convergent validity can still be considered as sufficient when  $AVE < 0.5$ , the CR is  $> 0.6$ , (Fornell & Larcker, 1981).

**Provided support** Before being able to capture the autonomously motivated support, we first had to assess how much support employees provided to their colleagues. To do so, we used Peeters et al. support measure (1995; embedded on House, 1981), from which we selected the three main types of support: instrumental (e.g., “Today, I helped my coworker with a certain task”), informative (e.g., “Today, I gave my coworker advice about how to approach an issue”), and emotional support (e.g., “Today, I paid attention to the feelings and problems of my coworker”, House & Kahn, 1985). Answers could be given on a 5-point scale ranging from 1 = “not at all” to 5 = “yes, to a very large extent”. The mean Cronbach's  $\alpha=0.86$ .

**Autonomous motivation for the provided support** When participants did not answer the support questions with “1 = not at all”, they were requested to indicate with which motivation they provided support. We used \*Weinstein and Ryan's (2010) motivation to help scale and selected three items. An example is “Today, I provided support to my colleague, because I valued doing so”. The mean Cronbach's  $\alpha=0.97$ .

**Mattering** To measure daily feelings of mattering, we selected two items from the general mattering questionnaire (France & Finney, 2009) and adjusted the items to the day-level. Specifically, we selected two items with the highest factor loading on the ‘reliance’ factor, which captures mattering in relation to seeking support, advice and resources, and fits with the scope of our study. Each item reflects one of the proposed superordinate dimensions by Elliott et al. (2004), which are (1) capturing the belief that others rely on and need you (i.e., Today, my colleague needed me), and (2) capturing the extent to which the other cares for and appreciates you and your actions (i.e., “Today, my colleague appreciated my contribution(s)).

**Positive emotions** Positive emotions of the co-worker during the morning, as well as from the focal participant during the evening were measured with a shortened version of the PANAS (Watson et al., 1988). Specifically, we selected three of the highest scoring items of the positive factor (i.e., proud, excited, and inspired, mean partner morning; the mean Cronbach's  $\alpha = 0.86$ ; mean focal participant evening, the mean Cronbach's  $\alpha = 0.83$ ). Participants filled in the extent to which the affective words represented how they felt during the morning or during the evening. The items refer to key elements of emotional encounters (Barrett & Russell, 1998) and similar sets of brief measures have been used before (e.g., Kashdan & Steger, 2006).

**Control variables** Following previous research, we expect that autonomous motivation to support has the potential to influence mattering. Next to autonomous motivation, which is based on intrinsic valuing supportive acts, controlled motivation is part of the same theoretical framework and capture reasons such as feeling ought to support or feeling external pressure to help (\*Weinstein & Ryan, 2010). Because the controlled motivation is part of the self-determined support framework that we use, we decided to control for it. The controlled motivation for support was captured with three items, the mean Cronbach's  $\alpha = 0.73$ ; 1 = not at all true, 7 = very true) such as "Today, I provided emotional or informational support to my colleague, because I would feel like a bad person if I didn't". In addition, we build further on previous studies that revealed that receiving support can also have adverse consequences (Deelstra et al., 2003) and therefore decided to account for any possible negative influences or effects of support provision and include the negative emotions of the co-worker during the morning (i.e., "upset/scared, nervous and jittery"; the mean Cronbach's  $\alpha = 0.76$ ) as well as the negative emotions of the focal employee during the evening (captured with three of the highest scoring items of the negative factor; upset/scared, nervous and jittery; the mean Cronbach's  $\alpha = 0.78$ ). Finally, we control for the intervention vs. control group variable in our model, which is a binary variable (i.e., 1 = social support group or 2 = the control group).

## Statistical analyses

We organized the data in line with a non-exchangeable dyadic Actor-Partner Interdependence Model to study the non-independent data (Cook & Kenny, 2005). The data are non-exchangeable because on the one hand, the focal participants were assigned to groups and the co-worker was not, and, on the other hand, because the co-worker received the surveys at different moments as compared to the focal participant. Moreover, three levels are identified in the data: The dyadic level (level 3, between-dyad,  $N = 67$ ), the individual

level (level 2, between-person,  $N = 134$ ), and the episodic level (level 1, within-person,  $N = 197-231$ ). Since we focus on daily and person level variables, we only distinguish between the daily and person levels. We used Mplus 8.7 (Muthén & Muthén, 2012) to analyze the data.

## Results

### Descriptive statistics

Table 2 provides an overview of the means, standard deviations, and intercorrelations between the study variables. As can be seen, all correlations between the study variables are positive, as expected (i.e., autonomously motivated support provision during the afternoon, co-worker's positive emotions during the morning, mattering during the afternoon and positive emotions during the evening).

### Measurement model

We investigated the validity of our constructs first by conducting a multilevel confirmatory factor analysis. Our hypothesized model consists of seven within-person variables. This encompasses the four hypothesized model variables (i.e., autonomously motivated support provision during the afternoon, co-worker's positive emotions during the morning, mattering during the afternoon and positive emotions during the evening) and the three control variables (i.e., co-worker's negative emotions in the morning, controlled motivated support and negative emotions during the evening). Findings revealed that the seven factors model fitted the data better,  $\chi^2(298) = 494.78$ , CFI = 0.91, TLI = 0.88, RMSEA = 0.048, as compared with models that comprised six latent factors or less, such as the model in which the positive and negative emotions of the partner loaded on one factor ( $\Delta\chi^2(12) \geq 30.59$ ,  $p < 0.001$ ), or in which the positive and negative emotion during the evening loaded on one factor ( $\Delta\chi^2(14) \geq 379.7$ ,  $p < 0.001$ ) or when the autonomous and controlled motivated support provision loaded on one model ( $\Delta\chi^2(14) \geq 152.943$ ,  $p < 0.001$ ).<sup>1</sup> Based on this, we can conclude that our theorized research model fits the data well and we continue with testing the structural analyses using all constructs as intended.

<sup>1</sup> In the six-factor model in which autonomous and controlled motivated support loaded on one factor, we fixed the variance of one item from the controlled motivation questionnaire to zero and in the six-factor model in which positive and negative emotions during the evening loaded on one factor, we fixed the variance of one positive and one negative item to zero so that the models could terminate normally.

## Construct reliability and validity

We calculated the Average Variance Extracted (AVE) and the Composite Reliability (CR) for the constructs with three items at the within level. Results revealed an acceptable or good AVE ( $>0.06$ ) and CR ( $>0.5$ ) for the autonomous motivation for the provided support (CR = 0.96; AVE = 0.90), the partner's positive emotions during the morning (CR = 0.81; AVE = 0.59), and for the positive emotions during the evening (CR = 0.78; AVE = 0.55). Based on these results we infer that the convergent validity for all model variables is confirmed. In addition, findings showed that the AVE values were  $<0.5$ , while the CR values were  $>0.6$  for the controlled motivated support provision (CR = 0.73; AVE = 0.48) and the partners' negative emotions during the morning (CR = 0.61; AVE = 0.38). This means that for these control variables the convergent validity is still sufficient (Fornell & Larcker, 1981). However, regarding the negative emotions during the evening (CR = 0.52; AVE = 0.29) results revealed an AVE  $<0.5$ , while the CR was  $<0.6$ . Therefore the convergent validity for the negative emotions during the evening is not adequate and we will rerun our final analyses without the control variables.<sup>2</sup>

## Null model

The null model provides the intraclass correlation coefficient (ICC) for mattering ( $\rho = 0.37$ ), positive emotions during the evening ( $\rho = 0.53$ ) and the negative emotions during the evening ( $\rho = 0.71$ ). The ICC reveals the amount of variance at the between person level. Based on these ICC's we can infer that there is variance situated at the within person level as well as at the between person level and a multilevel analysis seems appropriate.

## Hypothesis testing

To test Hypothesis 1, which predicts that during afternoons when support is provided in an autonomously motivated way, employees feel that they matter more to others, we investigate the findings presented in Table 3 (Model 2). According to these results, a positive association exists between the autonomously motivated support and the

provider's feelings of mattering ( $\beta = 0.48$ ,  $SE = 0.08$ ,  $t = 5.99$ ,  $p < 0.001$ ). Hypothesis 1 is supported by these results.

Furthermore, we predicted that the provider's feelings of mattering at work would positively relate to the provider's positive emotions during the evening (i.e., spillover effect; Hypothesis 2). Results in Table 3 (Model 2) show a positive relationship between the support receiver's positive emotions during the morning and the support provider's feelings of mattering ( $\beta = 0.19$ ,  $SE = 0.09$ ,  $t = 2.09$ ,  $p = 0.037$ ). Thus, Hypothesis 2 is also accepted.

Hypothesis 3 posited that the positive relationship between autonomously motivated support and the provider's feelings of mattering would be stronger when the support is given to a co-worker who experienced positive emotions during the morning. Examining the results in Model 3, we can see that the interaction term between the autonomously motivated support and the co-worker's positive emotions during the morning is a significant predictor of the providers' feelings of mattering ( $\beta = 0.13$ ,  $SE = 0.06$ ,  $t = 2.21$ ,  $p = 0.027$ ). We investigated the pattern of this interaction by computing a simple slope analyses (Preacher et al., 2006). As can be seen in Fig. 2, the findings show that when the support is given to a colleague who experienced low positive emotions during the morning ( $-1SD$ ), the slope relating autonomous motivation to support and the provider's feelings of mattering is significant and positive (estimate = 0.18,  $S.E. = 0.05$ ,  $z = 3.72$ ,  $p = 0.002$ ). However, as predicted, when the support is given to a colleague who experienced high positive emotions during the morning ( $+1SD$ ), the positive link between autonomous motivation to support and the provider's feeling of mattering is stronger (estimate = 0.28,  $S.E. = 0.05$ ,  $z = 5.83$ ,  $p < 0.001$ ). According to the test for regions of significance, the link became significant when the positive emotions of the co-worker are higher than  $-2.49$  (i.e., the SD of positive emotions is 1.17). This implies that the provider's feelings of mattering are higher when the support is provided to a co-worker who experienced high positive emotions during the morning. Findings support Hypothesis 3.

According to Hypothesis 4, feeling that one matters more to others during the afternoon at work relates positively to positive felt and expressed emotions at home, during the evening. Table 3 (Model 2) shows a positive relationship between the support provider's feelings of mattering during the afternoon and their level of self-reported positive emotions during the evening ( $\beta = 0.13$ ,  $SE = 0.06$ ,  $t = 2.346$ ,  $p = 0.019$ ). This means that with increasing feelings of mattering, support providers feel more positive emotions during the evening, which supports Hypothesis 4.

Hypothesis 5 predicted that autonomously motivated support provision in the afternoon relates positively to the provider's positive emotions experienced during the evening, via the experience of mattering in the afternoon. According

<sup>2</sup> It could be suggested that the three negative emotions (upset/scared, nervous and jittery) do not correlate sufficient enough to form one factor because the control variable *negative emotions during the evening* had an AVE less than 0.5, while the composite reliability was not higher than 0.6 (Fornell & Larcker, 1981). Future research may want to combine other negative emotions. For the current model we want to emphasize that this concerns a control variable and our hypothesized model remains the same when omitting the control variables from the model.



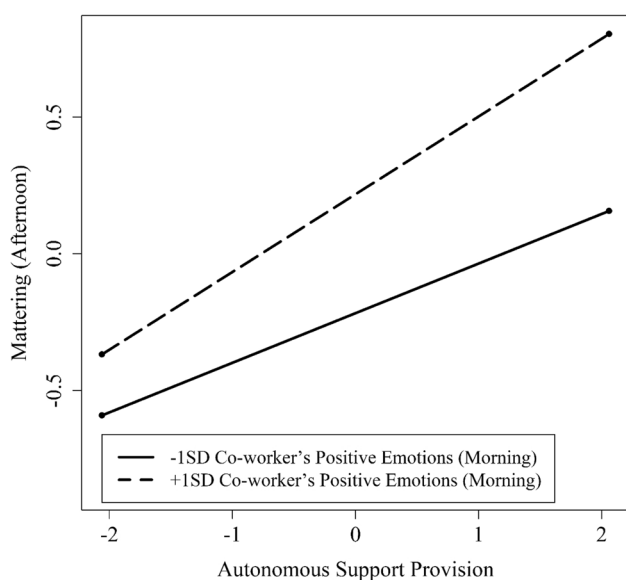
**Table 3** Standardized multilevel estimates for the moderated mediation models with the partner interactions estimating feelings of mattering during the work day and positive emotions at home

Predicting variables	Direct Relationship Model			Moderated Mediation Model		
	Model 2			Model 3		
	Mattering afternoon	Negative emotions evening	Positive emotions evening	Mattering afternoon	Negative emotions evening	Positive emotions evening
	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)
<b>Actor: support provider</b>						
Autonomous support afternoon	.48***(.08)	-.11* (.05)	-.00 (.06)	.47***(.08)	-.11*(.05)	-.00 (.06)
Controlled support afternoon	.10 (.13)	.03 (.05)	-.04 (.07)	.10 (.13)	.03 (.05)	-.04 (.07)
Mattering afternoon	-	.07 (.05)	.13* (.06)	-	.07 (.05)	.13* (.06)
Intervention Vs Control Group	-	-.12 (.13)	.07 (.12)	-	-.12 (.13)	.07 (.12)
<b>Partner: support receiver</b>						
Positive emotions morning	.19* (.09)	-.03 (.03)	.02 (.05)	.19* (.09)	-.03 (.03)	.02 (.05)
Negative emotions morning	.01 (.07)	-.03 (.06)	.02 (.05)	-.00 (.07)	-.03 (.06)	.02 (.05)
<b>Interaction</b>						
Autonomous support afternoon actor x Positive emotions morning partner	-	-	-	.13* (.06)		
<b>Indirect effect</b>						
Autonomous support → Mattering → Positive emotions evening	.06* (.03)			.06* (.03)		
<b>Moderated mediated<sup>#</sup></b>						
-1SD positive emotions partner morning		-		-.47 (.26)		
+ 1SD positive emotions partner morning		-		.56* (.26)		
Difference test between -1SD and + 1SD		-		-1.03* (.52)		
<b>Residual variance components</b>						
Within-person variance ( $\sigma^2$ )	.70***(.09)	.98***(.03)	.98***(.02)	.68***(.09)	.98***(.03)	.98***(.02)
<b>Additional information</b>						
-2 log likelihood H0	-720.812			-718.943		
Scaling correction factor for MLR	1.2449			1.2270		
$\Delta$ -2 log likelihood H0	519.196			1.869		
CFI	1.00			.99		
TLI	1.00			.96		
RMSEA	.000			.029		

\* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$ . Model 2 is compared to an only intercept Model (Model 1; -2 log likelihood=-1240.008, Scaling Correction Factor= 1.4441,  $\Delta$ -2 log likelihood H0=519.196; # Moderated Mediation values are unstandardized)

to the results of Model 2, Table 3, indeed the indirect effect between the autonomously motivated support and the provider's positive emotions during the evening, via the provider's feelings of mattering is positive and significant ( $\beta = 0.06$ ,  $SE = 0.03$ ,  $t = 1.965$ ,  $p = 0.049$ ). When employees provide more autonomously motivated support to their co-workers, support provider's feel that they matter more and experience more positive emotions during the evening. As such, the data support Hypothesis 5.

Our final hypothesis stated that the receiver's positive emotions during the morning moderate the indirect path between the autonomously motivated support and the support provider's positive emotions during the evening via mattering, such that the effect is stronger when the co-worker's positive emotions during the morning are high (vs. low). Table 3 (Model 3) shows that the indirect path is significant and positive when the support is provided to a co-worker who experienced high positive emotions in the morning (estimate = 0.56, S.E. = 0.26,



**Fig. 2** The relationship between the intrinsic motivation for the provided support during the afternoon and the feelings of mattering, moderated by the positive emotions of the co-worker during the morning

$t = 2.116, p = 0.034$ ). On the other hand, the indirect path is not significant when the support is given to a co-worker who experienced low positive emotions in the morning (estimate =  $-0.47$ , S.E. =  $0.26$ ,  $t = -1.797, p = 0.072$ ). The results show that provided support only satisfies the feelings of mattering and fosters positive feelings during the evening when the support is given to positive co-workers. Thus, Hypothesis 6 was also supported.

Finally, we re-analyzed the final model without control variables (Model 3; without partner's negative emotions during the morning, negative emotions during the evening and the controlled motivated support provision). Results revealed that all findings remained the same.<sup>3</sup>

## Discussion

The present study investigated whether employees can proactively contribute to their own sense of mattering and stimulate their emotional wellbeing at home by conducting small acts of support at work. We examined this spillover effect within a dyadic context and tested whether support receivers strengthen this process. According to the results,

employees indeed feel they matter more at work on days they proactively provide autonomously motivated support to colleagues which positively influences their emotional well-being at home. In addition, findings revealed that both the support provider's satisfaction of the need to matter and positive emotions were higher when the support was given to positive co-workers as compared to when the support was given to less positive co-workers. In what follows, we discuss the most important contributions that we make with these findings.

## Theoretical contributions

The first contribution that we make with this study is that we reveal an important role for support behaviors during the workday in terms of the work-to-home spillover process (Ten Brummelhuis & Bakker, 2012; Zhang, et al., 2020). According to the current research, autonomously motivated support provision can be seen as a powerful strategy for employees with which they can actively contribute to their feelings of self-worth and relevance, and contribute to the experience of positive emotions at home. These findings complement previous spillover studies that showed that recognition from one's supervisor can trigger work-to-home enrichment through increasing positive mother-child interactions at home (Gassman-Pines, 2011). However, a relevant difference between the current and Gassman-Pines' study is that whereas employees cannot control how much recognition they will receive at work, they are able to influence why and to what extent they provide support at work. Hence, this research contributes to spillover theory (Greenhaus & Powell, 2006) by exemplifying a proactive approach that workers can use to become or keep feeling relevant and with which they can increase their emotional well-being at home. At the same time, these findings complement the proposed self-determination activities of Bakker and Van Woerkom (2017). These activities include self-leadership, job crafting, playful work design, and strengths use, which are proposed to satisfy employees' psychological needs (amongst other outcomes). Current findings add to the categorization of Bakker and Van Woerkom that even small acts of support provision at work may function as a strategy with which employees can proactively influence their need fulfillment, and boost their emotional well-being at home, after work. Finally, our findings regarding the spillover of support provision to the experience of positive emotions at home are in agreement with another more recent, study which revealed that also other small proactive behaviors at work (i.e., daily job crafting) enhance positive outcomes in employees' private life via their personal resources (Postema et al., 2021). According to this study, employees felt more engaged at work on days they proactively optimized their job characteristics which positively influenced their running pace during

<sup>3</sup> We also examined whether the results remained the same without the control variables in our model. Results showed that both the direction and significance of all relationships remained the same. Hence, we conclude that the control variables did not influence our hypothesized model findings, and the results are above and beyond the control variables.

the evening. The current study offers a new perspective to complement this earlier finding by showing that proactive behaviors do not necessarily need to be aimed at one's own needs and wishes in order to create a positive spillover to employees' private life (i.e., which is the case with job crafting behavior). Rather, proactive behaviors may also target the needs and wishes of others and instigate a positive spillover for the employee that provides the support. Hence, by assisting and supporting the needs and wishes of others, employees may also profit from this and gain more personal resources and more positive emotions at home.

The second contribution of this study is that our findings showed that the universal need to matter (Elliott et al., 2004; Rosenberg & McCullough, 1981) concerns a relevant psychological mechanism explaining the well-being effects of support provision. According to the present study, the need to matter explains the well-being effects of autonomously motivated support but not the effects of controlled motivated support. Current findings therefore underscore the relevance of considering the underlying motives with which support is given when investigating the explanatory mechanisms of well-being effects of support provision. In a similar vein, the findings also expand previous research from Piliavin and Siegl (2007) who theorized and found that feelings of mattering explain well-being effects of community participation (Piliavin & Siegl, 2007). By revealing that helping one's colleagues instigates feelings of mattering within a formal work setting, we validate the message of previous research that as long as the support is given for 'the right' reasons, support providers can reap benefits from actively helping others (Deci & Ryan, 2000; \*Weinstein & Ryan, 2010). Finally, by showing that the need to matter may be an important psychological mechanism explaining well-being effects of behavior at work, our study also fits with previous research that showed that next to the three basic needs of the self-determination theory (i.e., need to feel related, competent and autonomous, Deci & Ryan, 2000; Zeijen et al., 2020b) there are other relevant human needs that explain why pro-social behaviors enhance well-being (i.e., need for benevolence, Martela & Ryan, 2016; need for meaningfulness, Rahmadani et al., 2019).

A final contribution of this study is that we uncovered the effects of support provision on the provider's sense of mattering and a spillover effect to the provider's positive emotions in light of to whom the support is given. As we investigated the support process within a dyadic setting, we explicitly recognized that both the social support and mattering concepts do not develop within a vacuum but depend on the presence of others (Shumaker & Brownell, 1984; \*Cropanzano & Mitchell, 2005; \*Cropanzano et al., 2017; Rosenberg & McCullough, 1981). We addressed the positive emotions of the support receiver as important factor that strengthens the resource accumulation and spillover

processes of the provider. The positive emotions of support receivers directly increased the extent to which support providers feel seen. This implies that positive emotions indeed have an interpersonal function (Sels et al., 2021) which does not only provide social information to oneself (Schwarz & Clore, 1983), but also to observers whose cognitions, attitudes, and behavior may be influenced (Keltner & Haidt, 1999; Van Kleef, 2009). The present findings thus exemplify the interpersonal function that positive emotions may have for others' feelings of mattering. In addition, current findings reveal that the positive emotions of support receivers strengthen the indirect relationship between the provided support and the experienced positive emotions of the support providers via mattering feelings. This shows that the strength of the positive spillover effect depends on and is strengthened by contextual factors – in this case the emotions of other individuals (W-HR Model; Ten Brummelhuis & Bakker, 2012).

Finally, the findings that the emotional state of co-workers can influence the feelings of mattering of employees also implicates that mattering as a personal resource does not only refer to the identity of oneself, but also depends on the emotional state of others. Although the definition of mattering clearly refers to feeling 'important/needed/significant' to others (Elliott et al., 2004; Rosenberg & McCullough, 1981), no study that we know of investigated the effects of others on the mattering concept. As such, the present study adds to the mattering literature that next to factors of the 'self', contextual factors from important 'others' may be relevant to consider in future studies (Rayle & Myers, 2004; Rayle, 2006; Rayle & Chung, 2007; Dixon & Kurpius, 2008).

## Future research

Future research may want to shed light on additional boundary conditions (i.e., moderators) in the link between support provision and mattering. First of all, in addition to the receiver's emotions, other factors from the receiver that are particularly relevant for social exchange could act as a moderating factor for the effects of helping others. For example, the receivers' experienced emotional pressure during support episodes has been found important for the extent to which support providers fulfilled their basic needs through helping (Zeijen et al., 2020a, 2020b). It is therefore conceivable that the extent to which support receivers are in need of support influences the extent to which support receivers experience that they mattered while helping. Moreover, next to factors of the support receiver, factors of the support provider may be important to investigate. For example, social value orientations highlight whether an individual focuses on enhancing outcomes for the self or whether an individual is focused more on enhancing mutual outcomes. These orientations are known to influence prosocial behavior and mutual

support processes (De Cremer & Van Lange, 2001) and are therefore potentially relevant for support provider's mattering processes at work. Finally, while the present research shows that providing social support increases the support providers' levels of positive emotions, previous research has also shown that there may be reciprocal links between support provision and positive emotions. Positive emotions are theorized to instigate social connectedness, improve the relationship quality and seem to predict prosocial behavior (Sels et al., 2021; Snippe et al., 2018). In turn, prosocial behavior appears to determine higher levels of positive emotions (Snippe et al., 2018). Future research could therefore focus on uncovering to what extent reciprocal links exist between support provision and positive emotions.

### Implications for practice

Based on the present findings, we can retract a couple of practical implications. First, the act of providing support to others can be considered an important tool to help individuals increase their day-to-day well-being and positive experience after work. In particular, this knowledge may be helpful for employees who struggle with finding meaning in their day-to-day work life such as employees who experience boredom at work (Harju et al., 2016). Supervisors and managers can inform their employees on the benefits of helping colleagues for the providers of help. Moreover, employers can facilitate more opportunities for employees to offer support and thereby fulfill their daily needs at work (see also Zeijen et al., 2020b). For example by stimulating employees to work together rather than to work alone or organize brainstorm meetings in which employees can inform each other where they are struggling with and others can offer help. Another way to stimulate employees to provide more support to each other is by giving the right example. Through often offering and giving help to others, supervisors show that it is okay to provide and receive help and the threshold for others to do so may be lowered. Finally, our research showed that support provision may instigate a positive spill-over effect and enrich employees' emotional well-being at home. According to previous studies, sharing the positive events, such as the moments in which one provided support to one's colleagues can further enhance these beneficial effects of prosocial events at work (i.e., called interpersonal capitalization; Ilies et al., 2017). Sharing about one's prosocial behaviors or events can take place at home and at work to consolidate the well-being effects, but can also be semi-formally facilitated at work. For instance, supervisors may introduce a short round before or after a standard daily or weekly meeting in which employees share their highlights. Supervisors may provide examples of prosocial behaviors themselves in order to prime and inspire their team members. However, we stress that this should be done within a

safe environment and should be seen as voluntary, so that it does not lead to feelings of obligation.

### Limitations

Several limitations should be discussed. The first limitation is all variables are captured using self-reports. Therefore, the results may be contaminated by common method variance (Podsakoff et al., 2003). However, because we made use of two sources of information (receiver and provider) and temporally separated the assessment of the predictors (i.e., positive emotions of the support receiver measured during the morning), mediator (i.e., mattering measured during the afternoon) and outcome (i.e., positive emotions measured during the evening), it is less likely that the relationships found in the current study were affected by common method bias (i.e., Ohly et al., 2010; Podsakoff et al., 2003). Nevertheless, we recommend that future researchers include other-reports or objective measures to replicate the current findings. For example, lab studies or field-studies could make use of ICT possibilities that record instances of support provision among colleagues and self-reports could then assess the personal experiences and feelings. Another limitation is that because we made use of data retracted from a sample that participated in an unsuccessful intervention (meaning that there were no significant effects of the intervention on any of the study variables), further studies are needed to determine the robustness of our results. Hence, more research is needed to replicate the current findings using a sample that did not undergo an intervention. Furthermore, it could be that the exchange processes between three or more colleagues function substantially different as compared to dyadic exchange processes. Future researchers may want to follow-up on this with research that explores what factors influence the exchange of social support within work groups, for instance, with interview techniques or network analyses.

### Conclusion

In this study, we uncovered that by providing support to colleagues at work employees feel that they matter more at work and experience more positive emotions after work, at home. In addition, findings show that support providers reap even more benefits from helping their colleagues when the support is aimed at positive colleagues. In other words, when employees support colleagues who experience and express more positive emotions at work, support providers feel that they matter more at work and therefore experience more positive emotions after work. In line with the Aristotelian

philosophy, the present study thus emphasizes that employees who do good for others also do good for themselves.

**Author contributions** Marijntje E.L. Zeijen: Data curation; Formal analysis; Investigation; Methodology; Project administration; Writing – original draft; Writing – review & editing.

Arnold B. Bakker: Conceptualization; Validation; Supervision; Writing – review & editing.

Paraskevas Petrou: Supervision; Validation; Writing – review & editing.

**Data availability** The dataset generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

## Declarations

**Conflict of interest** The authors report no conflict of interest.

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