ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

ARCHIVIO ISTITUZIONALE
DELLA RICERCA

Alma Mater Studiorum Università di Bologna
Archivio istituzionale della ricerca

The mediational effect of social support between organizational identification and employees' health: a three-wave study on the social cure model

This is the final peer-reviewed author's accepted manuscript (postprint) of the following publication:

Published Version:
Avanzi L., Perinelli E., Bressan M., Balducci C., Lombardi L., Fraccaroli F., et al. (2021). The mediational effect of social support between organizational identification and employees' health: a three-wave study on the social cure model. ANXIETY, STRESS, AND COPING, 34(4), 465-478 [10.1080/10615806.2020.1868443].

Availability:
This version is available at: https://hdl.handle.net/11585/836753 since: 2023-07-27

Published:
DOI: http://doi.org/10.1080/10615806.2020.1868443

Terms of use:

Some rights reserved. The terms and conditions for the reuse of this version of the manuscript are specified in the publishing policy. For all terms of use and more information see the publisher's website.

This item was downloaded from IRIS Università di Bologna (https://cris.unibo.it/).
When citing, please refer to the published version.

(Article begins on next page)

12 October 2024

This is the final peer-reviewed accepted manuscript of:

Avanzi, L., Perinelli, E., Bressan, M., Balducci, C., Lombardi, L., Fraccaroli, F., & van Dick, R. (2021). The mediational effect of social support between organizational identification and employees' health: A three-wave study on the social cure model. *Anxiety, Stress, & Coping*, *34*(4), 465–478. https://doi.org/10.1080/10615806.2020.1868443

The final published version is available online at: https://doi.org/10.1080/10615806.2020.1868443

Terms of use:

Some rights reserved. The terms and conditions for the reuse of this version of the manuscript are specified in the publishing policy. For all terms of use and more information see the publisher's website.

This item was downloaded from IRIS Università di Bologna (https://cris.unibo.it/)

When citing, please refer to the published version.

Abstract

Background and Objectives: Recent research postulated that organizational identification plays an important role in employees' health and well-being. Building on the Social Identity Approach as a framework, we test the so-called *social cure* hypothesis, according to which group-based processes of social support should reduce employees' psychological distress.

Design and Methods: While there is a considerable amount of cross-sectional evidence concerning the positive role played by organizational identification in this dynamic, there is a lack of full panel studies. This study tries to fill this gap by using data from a sample of technical and administrative staff of a medium-sized university in Italy at three time points. Data were analyzed using Cross-Lagged Panel Models.

Results: We found support for the hypothesized longitudinal mediational model. Specifically, strongly identified employees tend to receive more social support, and this in turn reduces psychological distress over time.

Conclusions: This study is the first test of the social cure hypothesis in an organizational context that uses a panel study design. We discuss the theoretical and practical implications for management.

Keywords: Social identity model of stress, organizational identification, psychological distress, social support, panel design, social cure hypothesis

The mediational effect of social support between organizational identification and employees' health: A three-wave study on the social cure model

Since Ashforth and Mael (1989) published their seminal study on the application of the Social Identity Theory in order to understand and manage many important organizational phenomena, hundreds of papers have been published on issues such as voluntary turnover or extra-role behavior (Lee, Park, & Koo, 2015; Riketta, 2005). According to Ashforth and Mael (1989), organizational identification represents "the perception of oneness or belongingness to some human aggregate" (p. 21). Several meta-analyses have highlighted the role played by the organizational sense of belonging to explain the employees' intention to remain, their affective commitment and involvement, as well as many important organizational outcomes, such as job satisfaction, extra-role behaviors, and more recently employees' health and well-being (e.g., Lee et al., 2015; Ng & Allen, 2018; Steffens, Haslam, Schuh, Jetten, & van Dick, 2017). Despite this large amount of empirical research, longitudinal evidence is still missing, and this poses a conceptual as well as empirical problem. Indeed, even if it is often assumed that the results of cross-sectional studies will also hold longitudinally, this is not always the case. As outlined by Maxwell and Cole (2007), "even in very large samples, a cross-sectional analysis can yield evidence of a medium to large direct effect of X on Y even when the actual direct effect in the longitudinal model is zero" (p. 30).

In the limitations section of his meta-analysis on the relation between commitment, trust and identification on one hand, and several outcomes on the other hand (e.g., job satisfaction, turnover intentions, citizenship behaviors), Ng (2015) concluded that "most of the individual studies included in the present meta-analysis used cross-sectional designs" (p. 161). Ng and Allen (2018) drew the same conclusion in their meta-analysis of over 400 independent samples, with the recommendation that "future research should design different longitudinal studies to extend this observation [*the association between organizational attachment and better subsequent health*]" (p. 11). Lee and colleagues' (2015) meta-analysis on the relation between identification and attitudes/behaviors (such as satisfaction and performance) conducted on 114 independent samples,

found only one study using panel data and 10 studies using longitudinal data with time separation between identification and outcomes. Finally, Steffens and colleagues' (2017) meta-analysis on the relation between identification and employees' well-being conducted on 58 samples, found only five longitudinal studies. The authors concluded their limitations section by stating: "There is a need for more studies that employ experimental and intervention as well as longitudinal designs to examine the impact of organizational identifications on individuals' health" (p. 25).

Hence, the present study is an attempt to respond to the call for more longitudinal investigations in this area of research. In a three-wave study, we will test the hypothesis that the effect of organizational identification on employees' psychological distress is mediated by social support. By definition, "mediation implies change over time" (Maxwell & Cole, 2007, p. 24). Thus, three-wave longitudinal studies are essential to fully probe a mediation model. Confirming this mediational path also longitudinally could have important theoretical and practical implications. For example, the enhancement of an employees' sense of belonging to their organization could drive performance, but at the same time better social connection among employees. In this vein, colleagues' support may be a potential resource for helping employees to deal with stressful events or conditions, reappraising them in fruitful ways, and preventing them to unhealthy consequences. This could be especially true for less experienced employees who face many difficulties at the beginning of their career, but also for employees in general, when their organizations undergo substantial change.

Social Identity Approach in Organizational Contexts

The Social Identity Approach consists of two related but independent theories: Social Identity Theory and Self-Categorization Theory (Haslam, 2004). It argues that groups are not mere external characteristics of the social environment; rather, they are internalized in a group member's social identity and as a consequence groups affect how individuals perceive, react and manage the social reality itself. Being a member of a specific group partly answers the individual's question of 'Who am I?', contributing to his/her self-definition. Thus, social identities represent that part of an

individual's identity deriving from his/her social affiliations (Tajfel & Turner, 1979). People belong to many groups simultaneously and they shift from one identity to another according to social cues able to activate one identity rather than another. However, some identities tend to be more accessible than others because they are more valued or important for that person (Hogg & Terry, 2000). Being a member of a certain group enables the ingroup members to understand the otherwise incomprehensible and chaotic world around them, to be aware of the norms and constraints regulating correct action within that world, and to be able to mobilize resources from the group to manage the difficulties and the tasks. This approach predicts that there is a qualitative difference between behaviors that are based on an activation of one's personal identity versus his/her social identity.

In organizational contexts, this implies that when employees perceive themselves as members of an organization, department, or team, their attitudes and behaviors will be strongly influenced by those affiliations (Ashforth, Harrison, & Corley, 2008). Indeed, strongly identified employees tend to work harder and to spend efforts on achieving the *organizational* goals and aims, because these become their *personal* goals and aims. Identification acts as an employee's personal driver. It increases employees' motivation and organizational loyalty; and at the same time, it decreases their intention to quit, given that it represents a strong link between employees and their organization. There is abundant empirical evidence showing the positive impact of a strong identification on important job-related attitudes and behaviors, such as commitment, job involvement, turnover intention, in- and extra-role behaviors (Lee et al., 2015; Ng & Allen, 2018; Riketta, 2005). Identification plays a role in terms not only of employees' performance but also of their (ill)-health as has been outlined in the social cure model of social identity.

The *Social Cure* model

Being a member of a group also activates the so-called *social cure* function of one's social identity (Jetten, Haslam, & Haslam, 2012; Haslam, Jetten, Cruwys, Dingle, & Haslam, 2018). The core assumption of this model is that the people's group memberships – and the related social identities – "have important consequences for their health and well-being" (Jetten, Haslam, Cruwys,

Greenaway, Haslam, & Steffens, 2017, p. 790). Belonging to social groups "makes people stronger and healthier because they [group memberships] provide them, among other things, with self-esteem, belonging, meaning, and a sense of purpose, control, and efficacy in life" (Jetten et al., 2017, p. 972). In particular, people could benefit from their memberships, only to the extent they develop a strong identification with that social group. For example, Saeri, Cruwys, Barlow, Stronge and Sibley (2017) found that social connectedness – comprising belongingness, the absence of loneliness, and perceived social support – predicted of health over time in a cross-lagged design in a large national sample in New Zealand (N = 21,227).

The social cure model comprises a complex and large body of theoretical and empirical research. For example, it predicts many conditions under which and mechanisms through which the social identities could affect a person's well-being and health. For example, high status of the group to which people belong, in comparison with the status of other relevant out-groups, can be beneficial for their well-being. On the contrary, when people perceive a threat against their social identities (e.g., social discrimination) this could have negative consequences for their health. The social cure model also predicts a series of expectable behaviors in terms of social creativity, social competition, or personal mobility depending on the perceived permeability group boundaries (Jetten et al., 2017).

Particularly interesting for organizational contexts and for our hypotheses, organizational identification affects employees' health and well-being both directly by satisfying important needs and indirectly because a strong sense of belonging between colleagues increases team spirit which in turn increases social support among team members and a sense of collective self-efficacy (van Dick & Haslam, 2012).

In particular, being a member of a social group satisfies important human needs, such as the need to belong, the need for uncertainty reduction, and that of achieving collective self-esteem (Ashforth et al., 2008). Coherently, there is a positive relation between identification, on the one hand, and employees' health, satisfaction, and well-being, on the other, as shown in a recent meta-

analysis conducted on about 60 studies by Steffens and colleagues (2017). Moreover, a strong identification increases cooperation and collaboration among ingroup members, and this is at the basis of collective action. Employees should be more likely to interpret and manage job tasks and workloads collectively - as “regarding all of us” - instead of individually - “regarding only me” (Junker, van Dick, Avanzi, Häusser, Mojzisch, 2019; van Dick & Haslam, 2012). While many efforts have been made to test the relation between identification and health and well-being, less empirical evidence has been obtained in order to understand “the psycho-social mechanisms underlying the social identity-(ill-)health link” (Junker et al., 2019, p. 1).

In particular, concerning the indirect effect of identification on employees’ well-being, several mechanisms have been hypothesized, not necessarily in contrast to each other. In particular, identification was predicted to increase employees’ well-being by increasing received support (Haslam, O'Brien, Jetten, Vormedal, & Penna, 2005). Following Haslam et al.’s (2005) arguments, social support can reduce the adverse effects of stress on employees’ health through four functions. In particular, social support could provide: a) a sense of acceptance, b) connection with others, c) practical assistance, and d) information how to cope with stressors. A strong identification should increase the probability of receiving (Levine, Prosser, Evans, & Reicher, 2005) and positively interpreting support from colleagues (Frisch, Häusser, van Dick, & Mojzisch, 2014), and strong support represents itself a coping strategy to face both stressors and strain (Viswesvaran, Sanchez, & Fisher, 1999). In fact, employees who receive support from colleagues can mobilize the group resources against stressors when needed. Furthermore, receiving encouragement and aid from co-workers acts as an emotion regulation strategy, helping employees to reappraise negative conditions or events in more constructive terms. Thus, we predict that social support from colleagues acts as a mediator in the relation between employees’ organizational identification and health (Haslam, 2004; van Dick & Haslam, 2012).

Although there is empirical evidence of the mediating role of social support, we noted a lack of a full longitudinal design to test these relationships. In the present study, we will test the

hypothesis based on a full cross-lagged design across three waves. In particular, according to this hypothesis a strong organizational identification should directly increase colleague support and indirectly reduce psychological distress. We tested this hypothesis using a full longitudinal design, in which each variable was collected on each occasion for three time points.

Method

Organizational Context

Following various normative changes in the public administration in Italy after 2009, in 2012 the national anti-corruption authority (ANAC, *Agenzia Nazionale Anti-Corruzione*) was asked by the Italian Minister of the Ministry of Economy and Finance to coordinate the assessment of employees' well-being in the Italian public services. A commission established by ANAC conducted a survey in order to investigate many important aspects (e.g., well-being, assessment system sharing, and supervisor evaluation). This survey was performed for practical purposes rather than research ones, but a group of Italian researchers has recently provided an initial evaluation in terms of its psychometric characteristics (see Loera et al., 2018). We obtained permission to use data from the contacted university, and to add some other scales (i.e., general health questionnaire) to the final questionnaire.

The university conducted the first evaluation in 2014. Then, a new evaluation was conducted each following year. Unfortunately, in 2015 for a mere technical error, the identification code was not used, and thus we were unable to use the data of that year. Thus, our total data comprises Time 1 (2014) data and two further waves in 2016 and 2017, respectively.

Participants

The survey was sent to all the employees (technical and administrative staff) working at a medium-sized university in northern Italy (697 employees in the first year). Questionnaires were matched by using anonymous codes that respondents created from personal information. This "personal code" consists of alphanumeric characters that only participant could know and it's simple enough to be remembered (e.g., "write the first two letters of your mother's maiden name").

Participation was voluntary and 412 employees completed the questionnaire at Time 1, 385 at Time 2, and 425 at Time 3. The total longitudinal sample comprised 96 employees who participated in each survey at the three time points (13.77% response rate). Most of the sample consisted of women (68.8%) and age was distributed as follows: 40.6% aged under 40, 44.8% between 40 and 50, and 12.5% were aged above 51 years. Of the final sample, 34.4% had less than 10 years of work experience, 41.7% between 11 and 20 years, and 21.9% more than 20 years.

In order to assess potential differences between employees who compiled all surveys (T1, T2, and T3) and those who participated only at Time 1, a series of T-tests were conducted on organizational identification, social support, and psychological distress. Furthermore, two χ^2 tests were performed to determine whether participants' distribution with respect to age and gender varied between waves. Such analyses didn't show statistically significant results. Thus, the final sample of matched participants did not deviate from the larger samples at any of the three waves with – neither with respect to demographics nor the psychological variables of interest.

Measures

Organizational identification. Organizational identification was measured with four items of the survey's dimension "the sense of belonging"[1]. Responses were given on a 6-point scale, ranging from 1 (*not at all*) to 6 (*completely*). Sample items were: "*I am proud when my organization achieves a good result*", "*The values and behaviors practiced in my organization are consistent with my personal values*" (α_{T1} = .79; α_{T2} = .90; α_{T3} = .89).

[1] To further test the validity of this measure, we administered this scale to 102 master students through an online procedure, together with the most commonly used six-item scale by Mael & Ashforth (1992) plus one item of organizational citizenship behaviors ("I help new colleagues to be guided even if not asked"). Some example items for this scale are: "*I am proud when my university achieves a good result*", "*The values and behaviors practiced in my university are consistent with my personal values*" (α = .87). Some example items for Mael & Ashforth's scale are: "*When someone criticizes my university, it feels like a personal insult*", "*When I talk about this school, I usually say 'we' rather than 'they'*" (α = .86). The correlation between these two identification scales was substantial and significant (r = .86, p < .001), and both scales correlated to about the same extent with the OCB item (r = .46, and r = .55, p < .001, for the Mael & Ashforth, and for this scale, respectively). Thus, our scale showed an acceptable degree of construct validity.

Social support. Social support was measured using four items from the original survey's dimension "my colleagues". Responses were given on a 6-point scale, ranging from 1 (*not at all*) to 6 (*completely*). Sample items were: "*I am valued and treated with respect by my colleagues*", "*In my group, those who have information make it available to everyone*" (α_{T1} = .83; α_{T2} = .79; α_{T3} = .85).

Psychological distress. Psychological distress was assessed with the GHQ-12 (General Health Questionnaire; Goldberg 1972; Italian version by Piccinelli, Risoffi, Bon, Cunico, & Tansella, 1993). This scale consists of 12 items with responses ranging along a 4-point Likert scale, with different labels for items worded in the negative (0 = *not at all*, 3 = *much more than usual*) or in positive terms (0 = *better than usual*; 3 = *much less than usual*). By using the conventional binary scoring, the "0" and "1" answers were coded as 0, meaning "no symptom or healthy situation" while answers from "2" to "3" were coded as 1, meaning "presence of symptom or unhealthy situation". High scores corresponded to high psychological distress. A negative sample item was: "*Have you recently lost confidence in yourself?*"; a positive sample item was: "*Have you recently been able to concentrate on what you were doing?*" (α_{T1} = .90; α_{T2} = .87; α_{T3} = .88).

Covariates. We also controlled for age and gender, because previous studies had found effects of both variables on employees' psychological distress (e.g., Ng & Feldman 2010). We did not use organizational tenure since this variable was strongly correlated with age (r_s = .66). Following Becker's (2005) suggestions, we also conducted all analyses with and without controls, which yielded very similar results (see below).

Data Analytic Strategy

In testing our theoretical model, we used a three-wave autoregressive cross-lagged panel model with observed variables. In this mediational model the indirect effect is computed as the product of two cross-lagged paths, namely (a) the path from predictor variable at T1 (i.e., organizational identification) to mediator T2 (i.e., colleague support) and (b) the path from mediator T2 to the criterion variable at T3 (i.e., psychological distress).

Because of the small sample size, we decided to reduce the number of freely estimated parameters by using the observed variables (e.g., Xanthopoulou et al., 2009). Nonetheless, before testing our mediational model, we checked the measurement model and the metric invariance across time for each variable. Since we used the conventional mode to compute the GHQ score, the values of our items were binary (0 or 1); hence for this variable we tested the metric invariance by using the weighted least squares mean and variance adjusted (WLSMV) estimator.

We then tested a series of competing models. We started by testing the model in which all autoregressive paths and all cross-sectional covariances among observed variables in the same time, and all cross-lagged paths were estimated, without any constraints (M1). In the subsequent three models, we constrained one pair of paths at a time in order to test whether the reversed model was a good model as well. The reversed model was the model in which psychological distress was the predictor, colleague support the mediator, and organizational identification the criterion variable. In particular, in the second model (M2) we fixed to zero the paths from colleague support T1 to organizational identification T2 and from colleague support T2 to organizational identification T3. In the subsequent model (M3) we fixed to zero the path from psychological distress T1 to organizational identification T2 and from psychological distress T2 to organizational identification T3. In the fourth model (M4) we fixed to zero the path from psychological distress T1 to colleague support T2 and from psychological distress T2 to colleague support T3.

The Statistical Package for Social Science (SPSS) 25 and M*plus* 8 (Muthén & Muthén, 1998-2017) were used to perform the analyses. The goodness of fit of each model was evaluated using the χ^2 test, the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Root-Mean-Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). For CFI and TLI we considered as acceptable values > .90, for RMSEA and SRMR values < .08. For model comparison purposes, we accepted a nested model if constraints did not significantly worsen the previous model, as evidenced by a non-significant likelihood ratio test ($\Delta\chi^2$) and by a difference in CFI (ΔCFI) lower than .01 (Cheung & Rensvold, 2002). Finally, the

critical values for the upper and lower confidence limits for indirect effects were computed using the bias-corrected bootstrap method on 5000 resamplings. We considered those 95% confidence intervals not including the value of 0 (Preacher & Hayes, 2008) significant.

Power Consideration

In order to test the adequacy of the statistical .,-power of our sample for investigating the hypothesized mediational paths (organizational identification T1 → colleague support T2, colleague support T2 → psychological distress T3), we ran a simulation analysis. In particular, we specified an autoregressive cross-lagged panel model with three constructs across 3 time-points. Latent variables were specified to be composed by one observed indicator, latent variances were all fixed to be 1, and residual variance for each observed indicator was fixed to be 0; in this way unstandardized and standardized estimates (for both autoregressive and cross-lagged paths) have equal values, hence facilitating interpretation. We specified all autoregressive paths to be 0.50 (|.50| corresponds to a large effect size according to Cohen, 1992), whereas hypothesized cross-lagged paths for "organizational identification T1 → colleague support T2" and "colleague support T2 → psychological distress T3" to be 0.25 and -0.25, respectively (|.25| corresponds to low/medium effect size, according to Cohen, 1992). This analysis was run with pwrSEM (Wang & Rhemtulla, in press) and a spreadsheet for replicating this analysis and shows results is available in Appendix A. Results showed that with 1000 simulations, $N = 96$, and $\alpha = .05$, power for organizational identification T1 → colleague support T2 was .86, whereas power for colleague support T2 → psychological distress T3 was .85, thus over the recommended threshold of .80 (Boomsma, 2013; Muthén & Muthén, 2002; Wolf et al., 2013).

Results

Table 1 reports the means, standard deviations, and correlations among the variables studied. Regarding concurrent correlations, at the cross-sectional level all correlations were in the expected direction with organizational identification positively related to colleague support, and with both organizational identification and colleague support negatively related to psychological

distress. All but one correlations were significant, ranging from $r = -.18$, $p = .08$ to $r = .57$, $p < .001$. Regarding the longitudinal correlations, each variable showed a certain level of construct stability with re-test correlations ranging from $r = .38$ to $r = .82$, $p_s < .001$. Finally, regarding the cross-lagged correlations, from T1 to T2 they ranged from $r = -.10$, $p = .322$ to $r = .39$, $p < .001$, and from T2 to T3 they ranged from $r = -.16$, $p = .119$ to $r = .50$, $p < .001$.

Regarding the measurement models, we computed two separate models, one for organizational identification and one for colleague support, with four items each loading on a single latent construct. We found evidence of configural invariance across the three time points, with acceptable fit for both organizational identification ($\chi^2 = 59.484$, $df = 39$, $p = .019$; CFI = .975; TLI = .958; RMSEA = .074; SRMR = .061), and colleague support ($\chi^2 = 68.607$, $df = 39$, $p = .002$; CFI = .952; TLI = .918; RMSEA = .089; SRMR = .067). Each factor loading was statistically significant at $p < .001$, and the size of the factor loadings across time ranged from .57 to .95 for organizational identification and from .52 to .92 for colleague support. Furthermore, by constraining the factor loadings for each item to be equal across three time points, we found also evidence for metric invariance. In particular, the metric invariance model for organizational identification showed an adequate fit to the data ($\chi^2 = 62.145$, $df = 45$, $p = .045$; CFI = .979; TLI = .970; RMSEA = .063; SRMR = .066), and it did not worsen in comparison with the configural invariance model fit: $\Delta\chi^2 = 2.661$, $df = 6$, $p = .850$; ΔCFI = -.004. Moreover, for colleague support the metric invariance model showed an adequate fit to the data ($\chi^2 = 77.670$, $df = 45$, $p = .002$; CFI = .947; TLI = .922; RMSEA = .087; SRMR = .080), and it did not worsen in comparison with configural invariance model fit ($\Delta\chi^2 = 9.063$, $df = 6$, $p = .170$; ΔCFI = .005).

Regarding GHQ, the fit of the configural model was good (WLSMV-based $\chi^2 = 745.651$, $df = 591$, $p < .001$; CFI = .954; TLI = .951; RMSEA = .052). Factor loadings were all significant at $p < .001$ and ranged from .62 to .96. By constraining the factor loadings for each item to be equal across three time points, we found also evidence for metric invariance. In particular, the metric invariance model for GHQ showed an adequate fit to the data (WLSMV-based $\chi^2 = 762.074$, $df =$

613, $p < .001$; CFI = .956; TLI = .955; RMSEA = .050), and it did not worsen in comparison with the configural invariance model fit: ΔWLSMV-based χ^2 = 32.058, *df* = 22, *p* = .076; ΔCFI = -.002.

The results of the hypothesis test is depicted in Table 2. As can be seen, the model without any constraint (M1) showed a good fit to the data (χ^2 = 12.794, *df* = 9, $p = .172$; CFI = .99; TLI = .97; RMSEA = .066; SRMR = .022). In Model 2 (M2) we constrained the paths from colleague support to organizational identification in both time lags (T1-T2 and T2-T3) to zero; both such paths were not statistically significant in M1 (β = .09, *p* = .343, β = .00, *p* = .996, for T1-T2 and T2-T3 path, respectively). The fit of the model was adequate and the constraints did not significantly worsen the model fit ($\Delta\chi^2$ = 1.025, *df* =2, $p = .599$). In Model 3 (M3) we constrained the paths from psychological distress to organizational identification in both time lags (T1-T2 and T2-T3) to zero; in M2 the first path (T1-T2) was not statistically significant (β = .00, *p* = .881), while the second (T2-T3) was small but significant (β = -.05, *p* = .026). Again, the model fit did not significantly worsen ($\Delta\chi^2$ = 4.865, *df* = 2, $p = .088$).

In the fourth model (M4) we constrained the path from psychological distress to colleague support in both time lags (T1-T2 and T2-T3) to zero; in M3 the first path (T1-T2) was small but statistically significant (β = -.07, *p* = .006), while the second (T2-T3) was small and not significant (β = -.05, *p* = .070). However, in this case the model fit significantly worsened ($\Delta\chi^2$ = 10.410, *df* =2, $p = .005$). Thus, our final model was M3 (see Figure 1).

Thus, Model 3 is the preferred model; M*plus* syntax for replicating Model 3 is available in Appendix B. As can be seen in Figure 1, organizational identification at T1 significantly predicted colleague support at T2 (β = .21, *p* = .024), and in turn, colleague support at T2 significantly predicted psychological distress at T3 (β = -.21, *p* = .016). The sign and the significance of these paths supported our mediational hypothesis. To corroborate our results, findings from a bootstrap analysis with 5000 resamples attested to the significance of the indirect effect (unstandardized indirect effect = -0.158; 95% CI: -0.459, -0.015). The final model, without covariates, explained a substantial amount of variance in psychological distress T3, i.e. 51.8% (R^2 = .518, *z* = 7.157, *p* <

.001). None of the theoretically alternative mediational models were supported, considering that at least a mediation path *a* (from predictor to mediator variables) or *b* (form mediator to criterion variable) across times was not significant.

We tested our final model (M3) also with gender and age as covariates, but the results remained substantially unchanged and confirmed our expectations for both model fit (χ^2 = 18.60, *df* = 13, *p* = .136; CFI = .99; TLI = .95; RMSEA = .068; SRMR = .035) and indirect effect (-.183; 95% CI: -0.477, -0.035). Specifically, age was uncorrelated to any of the other variables across times, while gender (1 = female, 2 = male) showed a significant relation only with organizational identification T1 (β = .26, *p* = .008) and with psychological distress T1 (β = -.25, *p* = .008).

Discussion

A large amount of evidence originating from different literatures highlights the role of social factors for (good) human health. For example, incorporating the results from about 150 studies, Holt-Lunstad and colleagues (Holt-Lunstad, Smith, & Layton, 2010) showed that social integration and social support are two of the mostimportant predictors of lower mortality, as evidenced by odd-ratios indicating a large effect size and larger than other important and more established risk factors such as smoking, physical activity, or obesity. The authors concluded that "social relationship factors [*have*] to be added to" the list of more traditional risk factors such as nutrition, smoking or exercising (p. 14). Also, the work and organizational psychology literature has extensively studied psychosocial factors with respect to their potential impact on both employees' performance and health – however, appropriate research designs to establish the temporal order of the relations have rarely been used (see for an exception: Crane, Louis, Phillips, Amiot, & Steffens, 2018).

Following the Social Identity Approach, we tested a full cross-lagged mediation model in which colleague support mediated the relationship between organizational identification and employees' health. The results fully supported our expectations and are in line with existing cross-sectional evidence. A strong sense of belonging indirectly reduced psychological distress over time, increasing the support perceived from colleagues. In this way, we provided evidence for a

psychosocial mechanism postulated by several authors in previous theoretical and empirical papers (i.e., Junker et al., 2019; van Dick & Haslam, 2012), but we did so using a more appropriate and relatively rare design. In fact, to the best of our knowledge, this is the first time that a full longitudinal design with three waves across altogether four years has been used to test the aforementioned hypothesis, in the organizational literature. Organizational identification provides employees with a "psychological basis for receiving and benefiting from the support of other in-group members" (Haslam et al., 2005; p. 365). This is because employees will tend to recognize, accept, and correctly interpret more easily the received support when it comes from ingroup members (Frisch et al., 2014; Levine et al., 2005). Colleague support in turn, provides the employee with additional resources to cope with stress, in terms of emotional, practical, and instrumental means.

Our findings highlight the importance of considering, in both evaluation and activities aiming at the prevention of work-related stress, the impact of group processes on employees' health and well-being. Sometimes, organizations seek to maximize the competition among individuals or groups in order to achieve the best performance – for instance by individual awards ("employee of the month") or bonus systems based on individual performance only. However, this orientation may have a negative role in terms of stress and employees' well-being, reducing the possibility to develop team spirit and organizational identity. An employee's sense of belonging to his or her organization is an important driver of his/her efforts and extra-role behaviors, and at the same time it increases cooperation and reciprocal support among colleagues. The perception of a supportive work environment increases employees' confidence that they can successfully deal with stressors at work. Furthermore, colleague support can act as an emotion regulation strategy, helping employees cope with negative events, reappraising them in more positive and constructive terms. This could be particularly useful for younger employees in their socialization phase or for colleagues having troubles in their lives.

Some evidence of the reverse direction from psychological distress to colleague support was also apparent in our final model. In particular, there was a significant negative path from psychological distress T1 to colleague support T2. This reciprocal relationship can mean that employees with poor psychological health tend to perceive less support over time from their colleagues. People suffering from depression or with cognitive difficulties (i.e., difficulties in concentrating, poor ability to make decisions, sleeping difficulties, and so on) may be more isolated, and it is likely that they are less able to seek support or to interpret it correctly when received, or finally, they could withdraw from social situations in general. In another context, Saeri and colleagues (2017) found similar results, with a reciprocal relationship from distress to social connectedness being significant over time, even if lower in magnitude than the hypothesized path (from social connectedness to distress). Our findings can also mean, however, that there is less actual support because distressed employees lack the capacity to recognize that support provision offered by their colleagues or, when they do perceive that support is needed, lack the capacity to actually request help. The direction of the link between support and membership on the one hand and employees' health on the other should be clarified in future experimental studies, even if it may be reasonable to assume a reciprocal influence. However, compared with alternative mediational models, only the one we predicted showed a significant indirect effect. This means that, at least in our sample, we did not find evidence either for the model in which social support mediates the relation between psychological distress to organizational identification or for the model in which organizational identification mediates the relation between psychological distress to social support. All in all, these results let us confident that lack of connectedness related to a poor health condition, rather than represent an outcome of employees distress, should be better considered as a health risk factor (Saeri et al., 2017). This would imply that the creation of workplace environments with high level of social identification and supportive climate should be contemplated as employees' health and well-being prevention and promotion activity.

This study has also some limitations, which may suggest new directions for future research. First, we chose the time lag of our research for convenience reasons and not for theoretical ones. One year of time lag could be a reasonable amount to ascertain our hypothesized relations, but more theoretical efforts should be devoted to understanding the actual role played by time in order to identify the best time lag. Moreover, Zapf, Dormann, and Frese (1996) suggested using the same time interval between all waves in a full longitudinal design. Unfortunately, we were unable to do this, so that our results may be at least partially biased by this non-equivalent time lag across the waves. Thus, in future research we suggest the use of other and equivalent time lags for comparison purposes. Another limitation concerns the self-reported nature of our data, which increased the likelihood of common method variance effects. However, given that our design was longitudinal, this should have reduced the risk (Doty & Glick, 1998). Nevertheless, future studies could use also objective measures: for example, a checklist to observe and quantify actual support exchanged among colleagues (Panari, Guglielmi, Ricci, Tabanelli, & Violante, 2012). Third, our final longitudinal sample was relatively small. Even if this situation is not so rare in longitudinal design (Ford & Tetrick, 2011; Simbula, Guglielmi, & Schaufeli, 2011), future studies should test this hypothesis with larger samples. Finally, we used psychological distress as a criterion variable that represented a measure not specifically related to work. Future studies might use more work-related measures of distress, such as burnout or psychophysical complaints.

Despite these limitations, we think that our paper contributes to the current literature by answering the call for full longitudinal design in order to provide strong empirical evidence of theoretically-based hypotheses. Our findings suggest that organizations should direct their efforts to improving employees' health and well-being not only individually, for example by promoting personal training for specific employees or through work design initiatives, but also by increasing the sense of belonging to the organization. In particular, organizations could boost team spirit by providing team-directed rewards and incentives and assigning team goals. Moreover, they could encourage initiatives designed to increase their employees' feelings of being "at home" in the

workplace and part of a family, through ceremonies and other common events (Steffens et al., 2017). Again, organizations could choose and promote a positive communication and leadership style able to increase the sense of belonging among employees (van Dick et al., 2018). That such interventions work has recently been demonstrated by a meta-analysis of Steffens and colleagues (in press). They showed, in a summary of 27 intervention studies, that identity-increasing measures had a significant effect on a range of health and clinical outcomes in various groups of vulnerable people, such as depressive patients. We believe that our results highlight that also non-clinical populations such as employees in work settings would benefit from leaders paying more attention to group identities and team spirit!

References

Ashforth, B. E., Harrison, S. H., & Corley, K. G. (2008). Identification in organizations: An examination of four fundamental questions. *Journal of Management, 34*, 325-374.

Ashforth, B. E., & Mael, F. (1989). Social identity theory and the organization. *Academy of Management Review, 14*, 20-39.

Becker, T. E. (2005). Potential problems in the statistical control of variables in organizational research: A qualitative analysis with recommendations. *Organizational Research Methods, 8*, 274-289.

Boomsma, A. (2013). Reporting Monte Carlo studies in structural equation modeling. *Structural Equation Modeling: A Multidisciplinary Journal, 20*(3), 518–540. https://doi.org/10.1080/10705511.2013.797839

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal, 9*, 233-255.

Ciampa, V., Balducci, C., Avanzi, L., Fraccaroli, F. (2018). The effect of perceived organizational change on psychological well-being and work-related stress: A longitudinal study. *Psicologia Sociale, 13*, 251-266.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*(1), 155–159. https://doi.org/10.1037/0033-2909.112.1.155

Crane, M. F., Louis, W. R., Phillips, J. K., Amiot, C. E., & Steffens, N. K. (2018). Identity centrality moderates the relationship between acceptance of group-based stressors and well-being. *European Journal of Social Psychology, 48*, 866-882.

Doty, D., & Glick, W. (1998). Common methods bias: Does common methods variance really bias results? *Organizational Research Methods, 1*, 374–406.

Ford, M. T. & Tetrick, L. E. (2011). Relations among occupational hazards, attitudes, and safety performance. *Journal of Occupational Health Psychology, 16*, 48-66.

Frisch, J. U., Häusser, J. A., van Dick, R., & Mojzisch, A. (2014). Making support work: The interplay between social support and social identity. *Journal of Experimental Social Psychology, 55*, 154-161.

Goldberg, D. P. (1972). *The detection of psychiatric illness by questionnaire*. Oxford: Oxford University Press.

Haslam, S. A. (2004). *Psychology in organizations: The social identity approach*. London: Sage.

Haslam, C., Jetten, J., Cruwys, T., Dingle, G. A., & Haslam, S. A. (2018). *The new psychology of health: Unlocking the social cure*. New York, NY: Routledge.

Haslam, S. A., O'Brien, A., Jetten, J., Vormedal, K., & Penna, S. (2005). Taking the strain: Social identity, social support, and the experience of stress. *British Journal of Social Psychology, 44*, 355-370.

Hogg, M. A., & Terry, D. J. 2000. Social identity and self-categorization processes in organizational contexts. *Academy of Management Review, 25*, 121-140.

Holt-Lunstad, J., Smith, T.B., Layton, J.B., 2010. Social relationships and mortality risk: A meta-analytic review. *PLoS Medicine, 7*, 2–20.

Jetten, J., Haslam, C., & Haslam, S. A. (2012). *The social cure: Identity, health, and well-being*. Hove and New York, NY: Psychology Press.

Jetten, J., Haslam, S. A., Cruwys, T., Greenaway, K. H., Haslam, C., & Steffens, N. K. (2017). Advancing the social identity approach to health and well-being: Progressing the social cure research agenda. *European Journal of Social Psychology, 47*, 789-802.

Junker, N. M., van Dick, R., Avanzi, L., Häusser, J. A., & Mojzisch, A. (2019). Exploring the mechanisms underlying the social identity–ill-health link: Longitudinal and experimental evidence. *British Journal of Social Psychology, 58*, 991-1007.

Lee, E-S., Park, T-Y., & Koo, B. (2015). Identifying organizational identification as a basis for attitudes and behaviors: A meta-analytic review. *Psychological Bulletin, 141*, 1049-1080.

Levine, M., Prosser, A., Evans, D., & Reicher, S. (2005). Identity and emergency intervention: How social group membership and inclusiveness of group boundaries shapes helping behavior. *Personality and Social Psychology Bulletin, 31*, 443–453.

Loera, B., Brondino, M., Civilleri, A., Ingusci, E., Pace, F., Pasini, M., & Converso, D. (2018). L'attenzione per il benessere organizzativo nella pubblica amministrazione italiana. Analisi critica del questionario CIVIT/ANAC [Well-being in the Italian Public Administration. Evaluating the validity of CIVIT/ANAC questionnaire]. *Psicologia Sociale, 13*, 267-296.

Mael, F., & Ashforth, B. E. (1992). Alumni and their alma mater: A partial test of the reformulated model of organizational identification. *Journal of Organizational Behavior, 13*, 103-123.

Maxwell, S. E., & Cole, D. A. (2007). Bias in cross-sectional analyses of longitudinal mediation. *Psychological Methods, 12*, 23-44.

Moreno-Abril, O., de Dios Luna-del-Castillo, J., Fernandez-Molina, C., Jurado, D., Gurpegui, M., Lardelli-Claret, P., & Galvez-Vargas, R. (2007). Factors associated with psychiatric morbidity in Spanish schoolteachers. *Occupational Medicine, 57*, 194–202.

Muthén & Muthén, B. O. (2002). How to use a Monte Carlo study to decide on sample size and determine power. *Structural Equation Modeling: A Multidisciplinary Journal, 9*(4), 599–620. https://doi.org/10.1207/S15328007SEM0904_8

Muthén, L. K., & Muthén, B. O. (1998-2017). *Mplus User's Guide. Eighth Edition*. Los Angeles, CA: Muthén & Muthén.

Panari, C., Guglielmi, D., Ricci, A., Tabanelli, M. C., & Violante, F. S. (2012). Assessing and improving health in the workplace: an integration of subjective and objective measures with the STress Assessment and Research Toolkit (St.A.R.T.) method. *Journal of Occupational Medicine and Toxicology*, *7*, 1-8.

Piccinelli, M., Risoffi, G., Bon, M. G., Cunico, L., & Tansella, M. (1993). Validity and test-retest reliability of the Italian version of the 12-item general health questionnaire in general

practice: A comparison between three scoring methods. *Comprehensive Psychiatry, 34*, 198-205.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*, 879-891.

Ng, T. W. H. (2015). The incremental validity of organizational commitment, organizational trust, and organizational identification. *Journal of Vocational Behavior, 88*, 154-163.

Ng, T. W. H., & Allen T. D. (2018). Organizational attachment and health. *Journal of Vocational Behavior, 107*, 1-14.

Ng, T. W. H., & Feldman, D. C. (2010). The relationships of age with job attitudes: A meta-analysis. *Personnel Psychology, 63*, 677–718.

Riketta, M. (2005). Organizational identification: A meta-analysis. *Journal of Vocational Behavior, 66*, 358–384.

Saeri, A. K., Cruwys, T., Barlow, F. K., Stronge, S., & Sibley, C. S. (2017). Social connectedness improves public mental health: Investigating bidirectional relationships in the New Zealand attitudes and values survey. *Australian & New Zealand Journal of Psychiatry, 52*, 365-374.

Simbula, S., Guglielmi, D., & Schaufeli, W. B. (2011). A three-wave study of job resources, self-efficacy, and work engagement among Italian schoolteachers. *European Journal of Work and Organizational Psychology, 20*, 285-304.

Steffens, N. K., Haslam, S. A., Schuh, S. C., Jetten, J., & Van Dick, R. (2017). A meta-analytic review of social identification and health in organizational contexts. *Personality and Social Psychology Review, 21*, 303-335.

Steffens, N. K., La Rue, C. J., Haslam, C., Walter, Z. C., Cruwys, T., Munt, K. A., Haslam, S. A., Jetten, J., & Tarrant, M. (*in press*). Social identification-building interventions to improve health: A systematic review and meta-analysis. *Health Psychology Review*, DOI: 10.1080/17437199.2019.1669481

Tajfel, H. & Turner, J.C. 1979. An integrative theory of social conflict. In Austein, W. and Worchel, S. (eds), *The Social Psychology of Inter-Group Relations*, 2nd edition. Chicago: Nelson Hall.

van Dick, R., & Haslam, S.A. (2012). Stress and well-being in the workplace: Support for key propositions from the social identity approach. In: J. Jetten, C. Haslam, & S. A. Haslam (eds.), *The social cure: Identity, health, and well-being* (pp. 175-194). Hove and New York, NY: Psychology Press.

van Dick, R., Lemoine, J. E., Steffens, N. K., Kerschreiter, R., Akfirat, S. A., Avanzi, L., … Haslam, S. A. (2018). Identity leadership going global: Validation of the Identity Leadership Inventory across 20 countries. *Journal of Occupational and Organizational Psychology, 91*, 697-728.

Viswesvaran, C., Sanchez, J. I., & Fisher, J. (1999). The role of social support in the process of work stress: A meta-analysis. *Journal of Vocational Behavior, 54*, 314–334.

Wang, Y. A., & Rhemtulla, M. (in press). Power analysis for parameter estimation in structural equation modeling: A discussion and tutorial. *Advances in Methods and Practices in Psychological Science*.

Wolf, E. J., Harrington, K. M., Clark, S. L., & Miller, M. W. (2013). Sample size requirements for structural equation models: An evaluation of power, bias, and solution propriety. *Educational and Psychological Measurement, 73*(6), 913-934. https://doi.org/10.1177%2F0013164413495237

Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2009). Reciprocal relationships between job resources, personal resources and work engagement. *Journal of Vocational Behavior, 74*, 235–244.

Zapf, D., Dormann, C., & Frese, M. (1996). Longitudinal studies in organizational stress research: A review of the literature with reference to methodological issues. *Journal of Occupational Health Psychology, 1*, 145–169.

Table 1

Means, Standard Deviations and Correlations among study variables

	M	*SD*	1	2	3	4	5	6	7	8	9
1. Organizational Identification T1	4.18	0.99	1								
2. Colleague Support T1	4.02	1.09	.46**	1							
3. Psychological Distress T1	4.63	3.52	-.18	-.28**	1						
4. Organizational Identification T2	4.35	1.07	.64**	.36**	-.10	1					
5. Colleague Support T2	4.09	1.07	.39**	.50**	-.33**	.56**	1				
6. Psychological Distress T2	4.59	3.38	-.21*	-.22*	.55**	-.30**	-.45**	1			
7. Organizational Identification T3	4.23	1.22	.59**	.31**	-.18	.82**	.50**	-.36**	1		
8. Colleague Support T3	3.96	1.24	.27**	.38**	-.31**	.41**	.64**	-.47**	.57**	1	
9. Psychological Distress T3	4.85	3.61	-.04	-.15	.51**	-.16	-.42**	.71**	-.30**	-.54**	1

Note. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$

Table 2

Model fits of the predicted and alternative model tests

	χ^2	*df*	*p*	CFI	TLI	RMSEA	SRMR	AIC	MC	$\Delta\chi^2$	Δdf	*p*
M1: No constraint	12.794	9	.172	0.991	0.967	0.066	0.022	2897.154				
M2: CS → OI fixed to be zero	13.819	11	.243	0.993	0.980	0.052	0.027	2894.179	M2 Vs M1	1.025	2	0.599
M3: PD → OI fixed to be zero	**18.684**	**13**	**.133**	**0.986**	**0.966**	**0.067**	**0.041**	**2895.044**	**M3 Vs M2**	**4.865**	**2**	**0.088**
M4 PD → CS fixed to be zero	29.094	15	.016	0.966	0.926	0.099	0.073	2901.454	M4 Vs M3	10.410	2	0.005

Note. CS = Colleague Support; OI = Organizational Identification, PD = Psychological Distress. CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual; MC = Model Comparison. M1 = no constraint were imposed; M2 = the paths from colleague support T1 to organizational identification T2 and from colleague support T2 to organizational identification T3 were fixed to be zero; M3 = the paths from psychological distress T1 to organizational identification T2 and from psychological distress T2 to organizational identification T3 were fixed to be zero; M4 = the paths from psychological distress T1 to colleague support T2 and from psychological distress T2 to colleague support T3 were fixed to be zero.

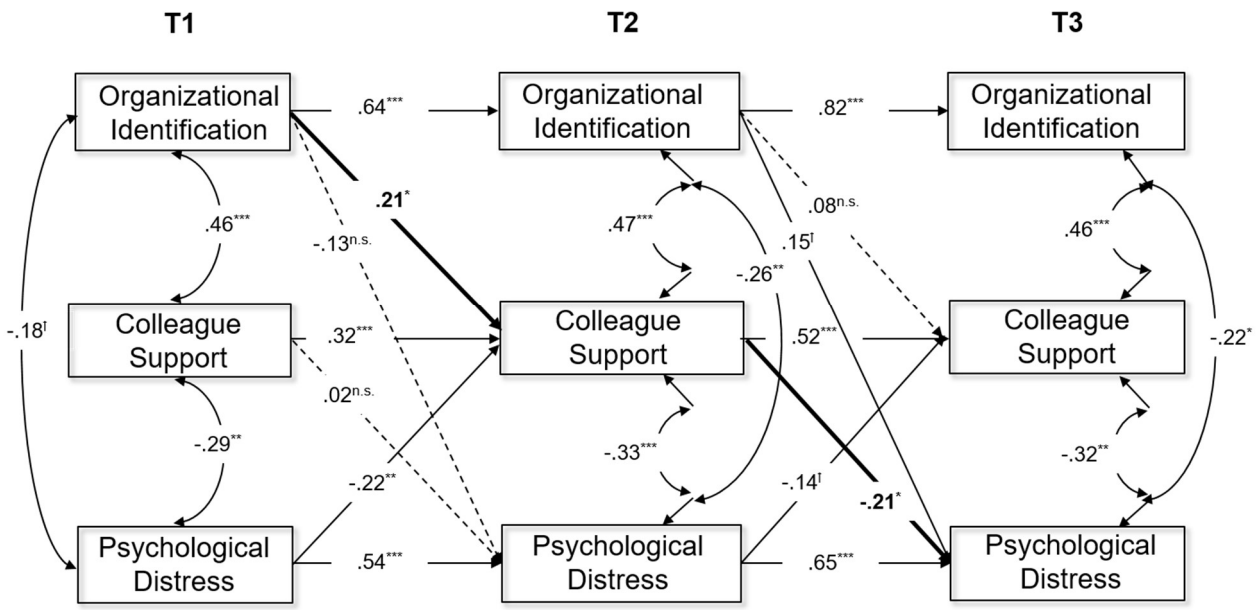

Figure 1. Best fitting model. Mediation paths were highlighted in bold. Non-significant paths are represented by dotted lines. $^{n.s.}$ not statistically significant, $^{\dagger}p$ <.10, $^{*}p$ <.05, $^{**}p$ <.01, $^{***}p$ <.001.