

Social Support as Mediator of the Stress Buffering Effect of Optimism: The Importance of Differentiating the Recipients' and Providers' Perspective

MANJA VOLLMANN^{1*}, KATJA ANTONIW², FREDa-MARIE HARTUNG¹ and BRITTA RENNER¹

¹University of Konstanz, Konstanz, Germany

²University of Greifswald, Greifswald, Germany

Abstract: Using a dyadic design, this longitudinal study with 85 couples examined whether the stress buffering effect of optimism is due to an actual higher availability of social support or to positive illusions about available social support by taking simultaneously the recipients' and the providers' perspective on social support into account. At baseline, optimism and social support from the recipients' and the providers' perspective were assessed. Perceived stress was measured at 3 months follow-up. Actor–Partner Interdependence Models showed that optimism was prospectively related to lower stress. Social support from the recipients', but not from the providers' perspective, partially mediated this relationship. The results suggest that optimists hold positive illusions about available support and that these illusions account at least partly for the stress buffering effect. Copyright © 2010 John Wiley & Sons, Ltd.

Key words: optimism; pessimism; perceived stress; social support; support provider; support recipient

INTRODUCTION

There is strong evidence that dispositional optimism, the generalized expectancy for good rather than bad things to happen in future, is associated with a multitude of positive health outcomes (for an overview, see Rasmussen, Scheier, & Greenhouse, 2009; Scheier, Carver, & Bridges, 2001). Many studies showed that optimism is related to less mood disturbance and perceived stress in response to a variety of stressful life events as well as to a higher well-being in the absence of specific stressors (e.g. Carver, Smith, Antoni, Petronis, Weiss, & Derhagopian, 2005; Creed, Patton, & Bartrum, 2002; Friedman et al., 2006; Hulbert & Morrison, 2006; Pinquart, Fröhlich, & Silbereisen, 2007; Solberg Nes, Evans, & Segerstrom, 2009). Optimism was also found to promote physical functioning in face of a chronic illness and to foster recovery from major life events and medical interventions (e.g. Brenes, Rapp, Rejeski, & Miller, 2002; Kivimäki, Vahtera, Elovainio, Helenius, Singh-Manoux, & Pentti, 2005; Scheier et al., 1989).

Social support has been discussed as a crucial mechanism mediating the beneficial effects of optimism on health outcomes. This social pathway approach comprises the assumption that optimists are more socially attractive than pessimists and that they are consequently integrated in more extensive and more supportive social networks (Brisette, Scheier, & Carver, 2002; Peterson & Bossio, 2001). The

integration in supportive social networks, in turn, has been found to be an essential determinant of mental and physical health (e.g. Berkman, Glass, Brissette, & Seeman, 2000; Cohen & Syme, 1985; House, Landis, & Umberson, 1988).

Empirical findings seem to support the basic assumption of the social pathway, that is that optimism leads to more social support from the social network. Optimism was found to be connected to a greater friendship network and a higher number of potential support providers in the social network (e.g. Brissette et al., 2002; Segerstrom, 2001b). Furthermore, various studies showed that optimism is positively associated with the amount of social support received from the social network during stressful periods (e.g. Karademas, 2006; Trunzo & Pinto, 2003; Vinokur, Schul, & Caplan, 1987) and the perceived availability of social support in case of need (e.g. Bozo, Gündoğdu, & Büyükaşık-Çolak, 2009; Srivastava, McGonigal, Richards, Butler & Gross, 2006; Symister & Friend, 2003). Optimism has also been related to a greater satisfaction with the available social support from the social network (e.g. Fontaine & Seal, 1997; Hulbert & Morrison, 2006; Segerstrom, 2007). Importantly, there is substantial evidence that both quantitative and qualitative aspects of social support partly mediate the relationship between optimism and positive health outcomes (Abend & Williamson, 2002; Brissette et al., 2002; Dougall, Hyman, Hayward, McFeeley, & Baum, 2001; Luger, Cotter, & Sherman, 2009; Shen, McCreary, & Myers, 2004; Trunzo & Pinto, 2003; Wimberly, Carver, & Antoni, 2008).

Summing up, the various findings suggest that optimists are of better mental and physical health because they have generally more social support from their social network

*Correspondence to: Manja Vollmann, Department of Psychological Assessment and Health Psychology, University of Konstanz, P.O. Box 47, D-78457 Konstanz, Germany. E-mail: manja.vollmann@gmail.com

available than pessimists. However, virtually all previous findings are exclusively based on self-reports of optimists and pessimists as social support recipients. Optimists are expected to see themselves and their social environment more favourably than pessimists because of their attentional bias for positive stimuli, that is their higher attention to positive aspects of situations (Segerstrom, 2001a). Therefore, the question arises whether optimists are indeed provided with more social support or merely perceive their social networks as more supportive than pessimists. In this case, the positive health effects found for optimism would be based on positive illusions about the availability of social support rather than on an actual higher amount of social support provided by the social network.

To clarify the question whether optimists are indeed provided with more social support or merely have optimistically biased perceptions of the availability of social support, the support recipients' perspective of optimists and pessimists needs to be extended by the support providers' perspective via reports from persons of optimists' and pessimists' social networks. Surprisingly, there are only few studies that examined the relationship between optimism and social support from the providers' perspective. The results of these studies suggest that the optimists' perceptions of social support available from the social network are rather positive illusions than veridical reflections of the actual available social support. For example, a series of experimental studies investigating social responses to optimistic and pessimistic targets showed that potential support providers did not differ in their willingness to provide optimists and pessimists with social support, although they evaluated optimists more positively with regard to their personality and their interpersonal attractiveness in comparison to pessimists (Vollmann & Renner, 2010; Vollmann, Renner, Matiba, & Weber, 2007; Vollmann, Renner, & Weber, 2007). Additionally, Vinokur et al. (1987) found that the personal outlook of support recipients was only weakly related to the amount of provided social support reported by significant others. Moreover, it has been demonstrated that optimists' higher perceptions of their partners' supportiveness cannot be explained by an actual higher social support provision of the optimists' partners (Srivastava et al., 2006; Vinokur et al., 1987). Based on these findings, however, the conclusion that positive illusions about social support account for the health promoting effects of optimism can only be tentatively drawn because none of the studies jointly investigated the recipients' and the providers' perspective on social support exchange processes as mediators of the relationship between optimism and health outcomes in a dyadic design.

THE PRESENT STUDY

The present study investigated in a strictly dyadic design both the recipients' and the providers' perspective on social support processes within a close relationship as mediators of the association between optimism and an indicator of mental health. More specifically, it was tested whether optimists' positive illusions about available social support from the

partner or the actual amount of provided social support from the partner¹ is the underlying mechanism linking optimism and lower levels of perceived stress in everyday life.

METHODS

Procedure and participants

The present longitudinal study included a baseline and a follow-up measurement after 3 months. Participants were recruited by posters and flyers disseminated at the campus of the University of Greifswald, Germany. Heterosexual couples who have been involved in their relationship for at least 1 year were invited to participate in a research project on mutual support in close relationships. Once a couple agreed to take part in the study, both partners were provided with questionnaires and asked to fill them in without consulting their partner. The completed questionnaires were returned by mail using pre-stamped addressed envelopes.

A total of 111 couples completed the questionnaires at baseline. Of these, 85 couples completed the questionnaires also at follow-up. For the final sample, the average length of relationship was 4.12 years ($SD = 4.38$; range 1–27) and 60% of the couples were cohabiting. Participants' age ranged from 18 to 51 years with a mean age of 25.17 years ($SD = 5.65$). The majority of the participants were students (63%), while the remaining participants were either employed (31%) or unemployed (6%). Drop-out analyses showed that the final sample did not differ from the sample that completed only the baseline questionnaires regarding age and length of relationship. Moreover, the two samples did not differ on any variable examined in this article, except for social support from the recipients, perspective with lower levels reported by participants who dropped out of the study ($M = 5.58$, $SD = 1.31$ vs. $M = 6.00$, $SD = 0.93$), $t(220) = -2.55$, $p < .05$, $d = 0.37$).

Measures

Optimism as well as social support from the recipients' and the providers' perspective were measured at baseline. Perceived stress was assessed at the follow-up measurement. The means, standard deviations and intercorrelations between all variables are presented in Table 1.

Dispositional optimism

Optimism was measured using the German version of the Life Orientation Test revised (LOT-R; Glaesmer, Hoyer, Klotzsche, & Herzberg, 2008; Scheier, Carver, & Bridges, 1994). The LOT-R consists of six items (plus four filler items) with half of the items framed in an optimistic and pessimistic manner, respectively (e.g. 'In uncertain times, I usually expect the best' and 'I hardly ever expect things to go

¹It is important to note that the providers' perspective on social support exchange processes could be influenced by multiple factors, such as personality traits, perceptions of the helpfulness of supportive behaviors or situational demands. Thus, the partner reports of provided support might not accurately reflect the actual social support exchange. However, it can be seen as a proxy for the actual amount of support available for the recipient.

Table 1. Means, standard deviations and intercorrelations between the variables ($N = 170$)

	<i>M (SD)</i>	Social support recipients perspective	Social support providers perspective	Perceived stress
Optimism ^a	3.67 (0.69)	.28***	.19*	-.25**
Social support recipients, perspective ^b	6.00 (0.93)		.39***	-.22**
Social support providers, perspective ^b	5.96 (0.85)			-.13
Perceived stress ^c	2.19 (0.52)			

^aScale range: 1–5.^bScale range: 1–7.^cScale range: 1–4.* $p < .05$.** $p < .01$.*** $p < .001$.

my way'). Responses were given on a 5-point scale from 1 'strongly disagree' to 5 'strongly agree'. This measure was scored so that higher scores indicate greater optimism. Cronbach's alpha was .79.

Social support from the recipients' perspective

To assess the recipients' perspective of social support available from the partner in past and future, participants rated the two items 'How much did your partner support you within the last 6 months when you were confronted with a stressful situation?' and 'How much will your partner support you in future when you are confronted with a stressful situation?' on a 7-point scale from 1 'not at all' to 7 'very much'. As the ratings were highly correlated ($r = .73$, $p < .001$), the items were averaged to obtain a single index for social support from the recipients' perspective.

Social support from the providers' perspective

To measure the providers' perspective of social support provided to the partner in past and future, participants rated the two items 'How much did you support your partner within the last 6 months when s/he was confronted with a stressful situation?' and 'How much will you support your partner in future when s/he is confronted with a stressful situation?' on a 7-point scale from 1 'not at all' to 7 'very much'. These ratings were also highly correlated ($r = .70$, $p < .001$), thus, the items were averaged to obtain a single index for social support from the providers' perspective.

Perceived stress

Perceived stress was measured with the German version of the Perceived Stress Questionnaire (PSQ; Fliege, Rose, Arck, Levenstein, & Klapp, 2001; Levenstein *et al.*, 1993). The PSQ contains four subscales each with five items assessing tension (e.g. 'I felt exhausted'), worries (e.g. 'It seemed that my problems mount up'), demands (e.g. 'I felt hounded') and joy (e.g. 'I was full of energy'). Items were answered with respect to the past 3 months on a 4-point scale from 1 'hardly ever' to 4 'mostly'. This measure was scored so that higher scores reflect greater perceived stress. Cronbach's alpha was .91.

Analyses

Data were analyzed by using the Actor–Partner Interdependence Model (APIM; Kashy & Kenny, 1997; Kenny, Kashy, & Cook, 2006). The APIM was designed to deal with violations of statistical independence associated with data from couples. One advantage of the APIM is that within-person effects (actor effects) and between-person effects (partner effects) can be separately estimated while controlling for confounding due to partner similarity. Actor effects capture the influence of an individual's predictor variable on that individual's outcome variable, for example the influence of an individual's optimism on his/her own perceived stress (paths labelled *a* in Figure 1). Partner effects represent the influence of an individual's predictor variable on that individual's partner's outcome variable, for example the influence of an individual's optimism on his/her partner's perceived stress (paths labelled *b* in Figure 1). Additionally, it is also possible to test extended models that include mediator variables such as social support from the individual's and from the partner's perspective.

Structural equation modelling with Mplus 5.2 was used to estimate the APIMs. Prior to estimating each APIM, it was tested whether dyad members were distinguishable by gender using the omnibus test of distinguishability (Kenny *et al.*, 2006). The omnibus test simultaneously evaluates gender differences in mean levels, variances and covariances. When no evidence was found that couple members could be distinguished by gender, the APIM was specified for interchangeable dyads by constraining the actor effects and the partner effects to the same value across gender (Kenny *et al.*, 2006; Olsen & Kenny, 2006). Means, intercepts and variances of women and men were also constrained to be equal. Mediation effects were additionally estimated by bootstrap analyses as recommended by Shrout and Bolger (2002).

RESULTS

Optimism and perceived stress

At first, the basic APIM linking optimism to perceived stress was estimated (see Figure 1). As there was no evidence from the omnibus test that couples could be distinguished by

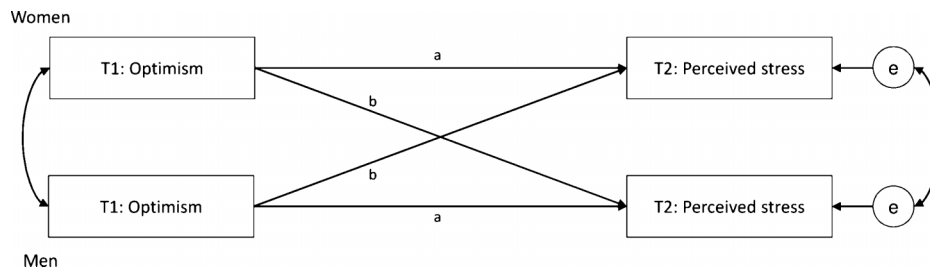


Figure 1. Actor-Partner Interdependence Model (APIM). Actor effects (paths *a*) capture the influence of an individual's predictor variable on that individual's outcome variable. Partner effects (paths *b*) represent the influence of an individual's predictor variable on his/her partner's outcome variable.

gender, $\chi^2(6, N = 85) = 1.06, p = .98$, the APIM was specified for interchangeable dyads.

The analysis revealed a significant actor effect, $\beta = -0.25, p < .001$ (paths *a*), indicating that more optimistic individuals reported lower levels of stress than less optimistic individuals. The partner effect, however, was not significant, $\beta = 0.00, p = .96$ (paths *b*), which indicates that an individual's stress level was unrelated to the optimism of that individual's partner. The correlation between partners' optimism was $0.19, p = .06$, indicating a weak tendency for optimists to be partnered with other optimists. The correlation between residuals for perceived stress was $0.16, p = .13$.

A further APIM with the interaction between partners' optimism as an additional predictor of perceived stress yielded a non-significant relationship effect, $\beta = -0.06, p = .44$, suggesting that the level of stress reported by an individual was not related to the combination of partners' optimism.

Optimism, perceived stress and social support

Having established that optimism is related to perceived stress, the extended APIM tested whether this relationship is mediated by social support. The extended APIM included social support from both the recipients' and the providers' perspective (see Figure 2). As the omnibus test was not statistically significant, $\chi^2(20, N = 85) = 28.76, p = .09$, the APIM was specified for interchangeable dyads.

Actor effects were specified from optimism to perceived stress (paths *a*) and to the recipients' perspective of social support (paths *d*) as well as from the recipients' perspective of social support to perceived stress (paths *e*). These within-person effects relate to the questions whether an individual's optimism is associated with his/her report of available social support and whether the individual's report of available social support is related to his/her perceived stress. To ensure an unambiguous interpretation of these actor effects, the respective partner effects were additionally specified and included as control paths. Furthermore, the indirect effect of optimism on perceived stress via social support from the recipients' perspective was estimated (paths *d* \times *e*) in order to investigate whether the relationship between an individual's optimism and his/her lower levels of stress is mediated

by his/her report of available social support from his/her partner.

Partner effects were specified from optimism to the providers' perspective of social support (paths *b*) as well as from the providers' perspective of social support to the recipients' perspective of social support (paths *c*). These between-person effects refer to the questions whether optimism is related to the partner's report of provided social support and whether there is a relative agreement between both, provider and recipient regarding their social support exchange. To ensure an unequivocal interpretation of these partner effects, all respective actor effects were included as control paths. Finally, the indirect effect of optimism on perceived stress via social support from the providers' and the recipients' perspective was estimated (paths *b* \times *c* \times *e*) in order to investigate whether the relationship between an individual's optimism and his/her lower levels of stress is mediated by the partner's report of provided social support and the individual's report of available social support from his/her partner.

Social support from the recipients' perspective as mediator of the relationship between optimism and perceived stress

The analysis revealed a significant actor effect of optimism on social support from the recipients' perspective, $\beta = 0.17, p < .05$ (paths *d*). More optimistic individuals reported higher amounts of available social support from their partners than did less optimistic individuals, independent of the partners' reports of provided social support. The actor effect of social support from the recipients' perspective on perceived stress was also significant, $\beta = -0.18, p < .05$ (paths *e*), indicating that individuals reporting higher amounts of available social support perceived less stress than individuals reporting lower amounts of available social support. Finally, the indirect effect of optimism on perceived stress through social support from the recipients' perspective was marginally significant, $-0.03, p = .08, 95\% \text{ CI} = (-0.08, 0.01)$ (paths *d* \times *e*). The direct effect of optimism on perceived stress was somewhat reduced in comparison to the basic model, but remained significant, $\beta = -0.21, p < .01$ (paths *a*). Thus, there is a slight tendency that the effect of optimism on less perceived stress

is partially mediated by higher amounts of available social support reported by the optimists.

Social support from the providers' perspective as mediator of the relationship between optimism and perceived stress

A significant partner effect of optimism on social support from the providers' perspective was obtained, $\beta = 0.16$, $p < .05$ (paths *b*), indicating that partners of more optimistic individuals reported higher amounts of provided social support than partners of less optimistic individuals. The partner effect of social support from the providers' perspective on social support from the recipients' perspective also attained significance, $\beta = 0.29$, $p < .001$ (paths *c*). Individuals whose partners reported higher amounts of provided social support were more likely to report higher amounts of available social support than individuals whose partners reported lower amounts of provided social support, indicating relative agreement between partners about social support exchange processes. However, the indirect effect of optimism on perceived stress through social support from the providers' and the recipients' perspective was not significant, $\beta = -0.01$, $p = .14$, 95% CI = $(-0.02, 0.00)$ (paths $b \times c \times e$).

In order to consider the possibility that an individual's stress perceptions are directly influenced by the partner's report of provided social support (c.f., invisible support, Bolger, Zuckerman, & Kessler, 2000), an additional partner effect from the providers' perspective of social support to perceived stress was specified together with the respective actor effect as control path. This APIM revealed a non-significant partner effect of social support from the providers' perspective to perceived stress, $\beta = -0.08$, $p = .34$, as well as a non-significant indirect effect of optimism on perceived stress through social support from the providers' perspective, $\beta = -0.01$, $p = .38$, 95% CI = $(-0.04, 0.02)$. Thus, there is little evidence that the positive effect of optimism on perceived stress is mediated by the provided social support reported by the optimists' partners.

DISCUSSION

The present study examined in a dyadic design whether the stress buffering effect of optimism is due to positive illusions about available support or to actual more available support by taking simultaneously the recipients' as well as the providers' perspective on social support processes into account.

The present findings confirm previous research showing that optimism is prospectively related to lower levels of perceived stress in everyday life (e.g. Boland & Cappeliez, 1997; Chang, 2002). The findings also replicate past studies indicating that optimists report more social support from the recipients' perspective (e.g. Brissette *et al.*, 2002; Karademas, 2006; Srivastava *et al.*, 2006; Wimberly *et al.*, 2008) and extend these studies by demonstrating that this effect even remains when controlling for social support from the providers' perspective. More specifically, optimists perceive their partners as more supportive than do pessimists, independent of the partners' actual supportiveness. Importantly, the stress buffering effect of optimism seems to be partly due to social support from the recipients' perspective. Thus, optimists may experience less stress because they perceive their partners as being more supportive. This finding is in line with studies showing that perceived and received social support partially mediate the relationship between optimism and better psychological well-being when facing stressful situations (e.g. Luger *et al.*, 2009; Shen *et al.*, 2004; Trunzo & Pinto, 2003; Wimberly *et al.*, 2008). However, it should be noted that the direct effect of optimism on perceived stress remained significant when controlling for social support and in comparison to previous studies, the indirect effect of optimism via social support from the recipients' perspective was somewhat smaller. The smaller mediating social support effect might be due to the fact that the present study was conducted in an everyday life setting whereas previous studies focused on patients confronted with a severe chronic stressor. The present findings might therefore indicate that in the absence of a chronic or severe stressor, personal resources such as optimism might be more important for the actual adjustment than social resources

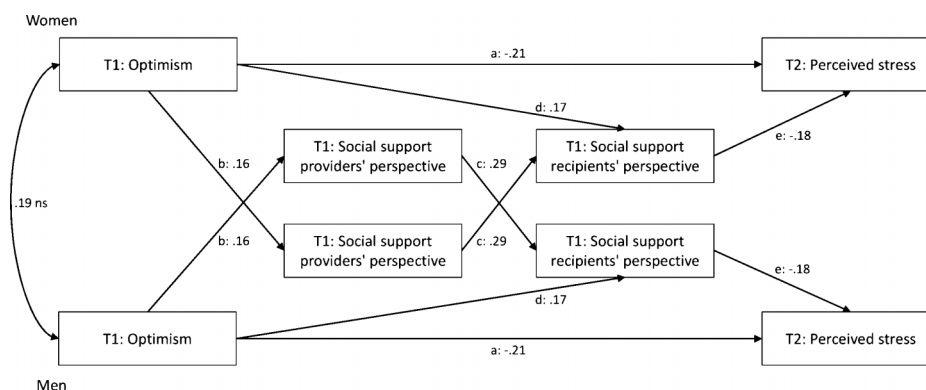


Figure 2. Extended APIM linking optimism to perceived stress via social support processes. Paths with the same letter were constrained to the same value. Standardized path coefficients are reported. All coefficients were statistically significant unless otherwise noted. In order to enhance figure clarity, control paths as well as covariances between residuals for social support from the providers' perspective ($r = .20$, $p = .05$), social support from the recipients' perspective ($r = .17$, $p = .11$) and perceived stress ($r = .18$, $p = .09$) are not displayed.

which in turn might be more prominent as stress buffering mechanism when events deviating from the daily routine occur.

With regard to the relationship between optimism and social support from the providers' perspective, the present results show that optimists' partners report a slightly higher supportiveness towards their partners than do pessimists' partners. Moreover, the findings suggest that the optimists' higher perceptions of available social support can in part be explained by an actual higher supportiveness of their partners. These results might be considered as being inconsistent with studies reporting no associations between the support recipient's optimism and the supportiveness of members of the network (Vollmann & Renner, 2010; Vollmann et al., 2007a,b). This inconsistent pattern of results across studies may result from discrepancies in the context in which social support exchange processes were examined. The present study examined social support from the providers' perspective towards an intimate partner in everyday life, whereas the former studies examined the willingness to provide social support towards an unknown person in an experimental setting. Social support processes probably change in the course of time, so that differences in the amount of social support provision depending on the recipient's personality may become more visible in close relationships than in first encounters. Optimists compared to pessimists are probably more likely to ask close others for social support and less likely to withdraw from their social network when coping with stressful situations (e.g. Chang, 1998; Scheier et al., 1994). Supporting the notion that the impact of personality on supportiveness may change when relationships develop over time, Vinokur et al. (1987) found similar to the present study also a weak association between optimism and the amount of social support provided by significant others. However, the observed effect of optimism on the partner's supportiveness was rather small, suggesting that other factors than the personal outlook on life may be more powerful in eliciting social support reactions (cf., Dunkel-Schetter & Skokan, 1990).

Of particular interest is the question whether the relationship between optimism and perceived stress is mediated by social support from the providers' perspective. Although optimists' partners reported higher amounts of provided social support, partners considerably agreed on the amount of exchanged social support, and the perception of higher amounts of available social support resulted in lower levels of perceived stress, a mediation could not be confirmed. Having the work of Bolger and colleagues about invisible social support in mind (Bolger et al., 2000; Gleason, Iida, Shrout, & Bolger, 2008), one could argue that the support recipient does not necessary have to be aware of the social support provided by the partner, but that the partner's supportiveness rather has a direct effect on the support recipient's perceived stress. However, the present data do not support this assumption as the level of perceived stress was unrelated to the partner's supportiveness. Consequently, also invisible social support processes cannot serve as a mediator of the relationship between optimism and perceived stress. Thus, the present study provides little evidence that the

supportiveness of the partner accounts for the stress buffering effect of optimism.

How can these findings be integrated to answer the question whether the stress buffering effect of optimism is due to an actual higher amount of social support provided by the partner or rather to an optimistically biased perception of available social support? The results show that optimism is related to higher amounts of social support both from the recipients' as well as from the providers' perspective. Moreover, the optimists' perceptions of higher amounts of available social support are to some extent grounded in reality. These findings oppose the assumption that optimists hold positive illusions, but rather suggest that optimists notice that they are provided with more social support than pessimists. At the same time, however, the results also show that optimists still have higher perceptions of available social support when already taken the partners' actual higher supportiveness into account. This implies that optimists perceive their partners as more supportive as they actually are, thus they have positive illusions about the amount of social support available from their partners. Importantly, this higher perception of available social support, but not the partners' actual supportiveness partly accounts for the stress buffering effect of optimism. This finding strongly suggests that the relationship between optimism and perceived stress is due to optimists' positive illusions about available social support and cannot be explained by the actual amount of social support provided by the partner.

Some limitations of the present study need to be acknowledged. First, the study focuses on social support exchange processes between intimate partners and the results cannot be generalized to other persons of the social network, such as family members and friends, since results from previous studies found the kind of relationship to be an important factor (e.g. Bozo et al., 2009). Moreover, future research might profit from incorporating characteristics of the dyad, such as quality of the relationship and history of prior support exchange, as these factors are also influencing dyadic social support processes (cf., Dunkel-Schetter & Skokan, 1990).

The present study is among the first ones which do not only include the social support recipients' perspective but also the social support providers' perspective allowing to explicitly comparing the mediating effect of both perspectives on the relationship between optimism and mental health in a dyadic design. However, assessing actual provided social support is notoriously difficult since basically it is a relational concept. A behaviour might be intended as being supportive by the provider, but in fact it is not effective for the recipient or the other way round, people might even not notice when their behaviour is perceived as being supportive. Thus, the providers' perspective is only one facet which might help to complement the picture with clear pros and cons. Hence, our findings are a first step providing support for the assumption that optimists have positive illusions about the availability of social support from their partners, but the providers' perspective on social support does not necessarily reflect the 'real' supportive behaviour as such, but represents only a proxy for the actual amount of

exchanged social support, which might be influenced by multiple factors, for example perceptions of the helpfulness of supportive behaviours (e.g. Dunkel-Schetter, Blasband, Feinstein, & Herbert, 1992).

Additionally, in the present study, both social support from the recipients' and the providers' perspective were measured on a rather generic level both with regard to the time span as well as to the specificity of behaviour. Assessing social support based on specific supportive behaviours in circumscribed situations during the recent past might reveal different results as it leaves less room for interpretation and memory effects. Furthermore, social support was measured by self-reports of the support recipients and the support providers. As it has been shown that optimists and pessimists differ regarding the attentional biases for positive and negative stimuli (Segerstrom, 2001a), it would be interesting for further studies to observe supportive behaviours in actual interactions as suggested by the PERSOC model (Back *et al.*, 2011) in order to obtain a more detailed idea of the social support exchange processes.

Finally, the study was conducted in the context of everyday life and should be replicated in contexts in which one of the partners or even the entire couple is confronted with a stressful event. Such a setting would allow applying a more dynamic perspective by investigating short-term and long-term changes of perceived stress as a function of optimism and social support exchange processes. Acknowledging these limitations, the results of this study emphasize the importance of differentiating the recipients' and providers' perspective in social support processes.

To conclude, the present study provides some evidence for the social pathway linking optimism and better psychological well-being via a higher amount of available social support when social support processes were reported from the recipients' perspective. In contrast, for social support processes reported from the providers' perspective, no mediating effects could be verified. These results emphasize the importance of differentiating the recipients' and the providers' perspective when examining social support exchange processes as mediator of the relationship between optimism and health outcomes. Furthermore, they underline previous research suggesting that the perception of having social support available has a higher impact on favourable outcomes than the actual amount of available social support (e.g. Helgeson, 2003). Optimists' positive illusions of having social support available rather than the actual amount of social support provided to them predominantly account for the optimists' lower levels of perceived stress. One interesting avenue for further research might be to examine whether relationship parameters such as relationship satisfaction and commitment to the relationship are also due to the optimists' positive illusions about the supportiveness of their partners.

ACKNOWLEDGMENTS

This paper was written during the membership of Manja Vollmann and Freda-Marie Hartung in the network

'Personality and Social Relationships' (www.persoc.net; funded by the German Research Foundation DFG, BA 3731/2-1). The authors would like to thank all members of the PERSOC-network for their helpful comments on an earlier version of this paper.

REFERENCES

- Abend, T. A., & Williamson, G. M. (2002). Feeling attractive in the wake of breast cancer: Optimism matters, and so do interpersonal relationships. *Personality and Social Psychology Bulletin*, 28, 427–436. DOI: 10.1177/0146167202287001.
- Back, M. D., Baumert, A., Denissen, J. J. A., Hartung, F.-M., Penke, L., Schmuckle, S. C., *et al.* (2011). PERSOC: A unified framework for understanding the dynamic interplay of personality and social relationships. *European Journal of Personality*, 25, 90–107. DOI: 10.1002/per.811
- Berkman, L. F., Glass, T., Brissette, I., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social Science & Medicine*, 51, 843–857. DOI: 10.1016/S0277-9536(00)00065-4.
- Boland, A., & Cappeliez, P. (1997). Optimism and neuroticism as predictors of coping and adaptation in older women. *Personality and Individual Differences*, 22, 909–919. DOI: 10.1016/S0191-8869(96)00251-6.
- Bolger, N., Zuckerman, A., & Kessler, R. C. (2000). Invisible support and adjustment to stress. *Journal of Personality and Social Psychology*, 79, 953–961. DOI: 10.1037/0022-3514.79.6.953.
- Bozo, Ö., Gündoğdu, E., & Büyükaşık-Çolak, C. (2009). The moderating role of different sources of perceived social support on the dispositional optimism-posttraumatic growth relationship in postoperative breast cancer patients. *Journal of Health Psychology*, 14, 1009–1020. DOI: 10.1177/1359105309342295.
- Brenes, G. A., Rapp, S. R., Rejeski, W. J., & Miller, M. E. (2002). Do optimism and pessimism predict physical functioning? *Journal of Behavioral Medicine*, 25, 219–231. DOI: 10.1023/A:1015376510466.
- Brissette, I., Scheier, M. F., & Carver, C. S. (2002). The role of optimism in social network development, coping, and psychological adjustment during a life transition. *Journal of Personality and Social Psychology*, 82, 102–111. DOI: 10.1037/0022-3514.82.1.102.
- Carver, C. S., Smith, R. G., Antoni, M. H., Petronis, V. M., Weiss, S., & Derhagopian, R. P. (2005). Optimistic personality and psychosocial well-being during treatment predict psychosocial well-being among long-term survivors of breast cancer. *Health Psychology*, 24, 508–516. DOI: 10.1037/0278-6133.24.5.508.
- Chang, E. C. (1998). Dispositional optimism and primary and secondary appraisal of a stressor: Controlling for confounding influences and relations to coping and psychological and physical adjustment. *Journal of Personality and Social Psychology*, 74, 1109–1120.
- Chang, E. C. (2002). Optimism-pessimism and stress appraisal: Testing a cognitive interactive model of psychological adjustment in adults. *Cognitive Therapy and Research*, 26, 675–690.
- Cohen, S. & Syme, S. L. (Eds.), (1985). *Social support and health*. San Diego, CA: Academic Press.
- Creed, P. A., Patton, W., & Bartrum, D. (2002). Multidimensional properties of the LOT-R: Effects of optimism and pessimism on career and well-being related variables in adolescents. *Journal of Career Assessment*, 10, 42–61. DOI: 10.1177/1069072702010001003.
- Dougall, A. L., Hyman, K. B., Hayward, M. C., McFeeley, S., & Baum, A. (2001). Optimism and traumatic stress: The importance of social support and coping. *Journal of Applied Social Psychology*, 31, 223–245. DOI: 10.1111/j.1559-1816.2001.tb00195.x.

- Dunkel-Schetter, C., Blasband, D. E., Feinstein, L. G., & Herbert, T. B. (1992). Elements of supportive interactions: When are attempts to help effective? In S. Spacapan, & S. Oskamp (Eds.), *Helping and being helped: Naturalistic studies* (pp. 83–114). Thousand Oaks, CA: Sage Publications.
- Dunkel-Schetter, C., & Skokan, L. (1990). Determinants of social support provision in personal relationships. *Journal of Social and Personal Relationships*, 7, 437–450. DOI: 10.1177/0265407590074002.
- Fliege, H., Rose, M., Arck, P., Levenstein, S., & Klapp, B. F. (2001). Validierung des “Perceived Stress Questionnaire” (PSQ) an einer deutschen Stichprobe. *Diagnostica*, 47, 142–152. DOI: 10.1026/0012-1924.47.3.142.
- Fontaine, K. R., & Seal, A. (1997). Optimism, social support, and premenstrual dysphoria. *Journal of Clinical Psychology*, 53, 243–247. DOI: 10.1002/(SICI)1097-4679(199704)53:3<243::AID-JCLP7>3.0.CO;2-S.
- Friedman, L. C., Kalidas, M., Elledge, R., Chang, J., Romero, C., Husain, I., et al. (2006). Optimism, social support and psychosocial functioning among women with breast cancer. *Psycho-Oncology*, 15, 595–603. DOI: 10.1002/Pon.992.
- Glaesmer, H., Hoyer, J., Klotzsche, J., & Herzberg, P. Y. (2008). Die deutsche version des Life-Orientation-Tests (LOT-R) zum dispositionellen Optimismus und Pessimismus. *Zeitschrift für Gesundheitspsychologie*, 16, 26–31. DOI: 10.1026/0943-8149.16.1.26.
- Gleason, M. E. J., Iida, M., Shrout, P. E., & Bolger, N. (2008). Receiving support as a mixed blessing: Evidence for dual effects of support on psychological outcomes. *Journal of Personality and Social Psychology*, 94, 824–838. DOI: 10.1037/0022-3514.94.5.824.
- Helgeson, V. S. (2003). Social support and quality of life. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation*, 12, 25–31. DOI: 10.1023/A:1023509117524.
- House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationships and health. *Science*, 241, 540–545. DOI: 10.1126/science.3399889.
- Hulbert, N., & Morrison, V. (2006). A preliminary study into stress in palliative care: Optimism, self-efficacy and social support. *Psychology, Health & Medicine*, 11, 246–254. DOI: 10.1080/13548500500266664.
- Karademas, E. C. (2006). Self-efficacy, social support and well-being. The mediating role of optimism. *Personality and Individual Differences*, 40, 1281–1290. DOI: 10.1016/j.paid.2005.10.019.
- Kashy, D. A., & Kenny, D. A. (1997). The analysis of data from dyads and groups. In H. Reis, & C. M. Judd (Eds.), *Handbook of research methods in social psychology* (pp. 451–477). New York: Cambridge University Press.
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. New York, NY: Guilford Press.
- Kivimäki, M., Vahtera, J., Elovainio, M., Helenius, H., Singh-Manoux, A., & Pentti, J. (2005). Optimism and pessimism as predictors of change in health after death or onset of severe illness in family. *Health Psychology*, 24, 413–421. DOI: 10.1037/0278-6133.24.4.413.
- Levenstein, S., Prantera, C., Varvo, V., Scribano, M. L., Berto, E., Luzzi, C., et al. (1993). Development of the Perceived Stress Questionnaire: A new tool for psychosomatic research. *Journal of Psychosomatic Research*, 37, 19–32. DOI: 10.1016/0022-3999(93)90120-5.
- Luger, T., Cotter, K. A., & Sherman, A. M. (2009). It's all in how you view it: Pessimism, social relations, and life satisfaction in older adults with osteoarthritis. *Aging & Mental Health*, 13, 635–647. DOI: 10.1080/13607860802534633.
- Olsen, J. A., & Kenny, D. A. (2006). Structural equation modeling with interchangeable dyads. *Psychological Methods*, 11, 127–141. DOI: 10.1037/1082-989X.11.2.127.
- Peterson, C., & Bossio, L. M. (2001). Optimism and physical well-being. In E. C. Chang (Ed.), *Optimism & pessimism: Implications for theory, research, and practice* (pp. 127–145). Washington, DC: American Psychological Association. DOI: 10.1037/10385-000.
- Pinquart, M., Fröhlich, C., & Silbereisen, R. K. (2007). Optimism, pessimism, and change of psychological well-being in cancer patients. *Psychology, Health & Medicine*, 12, 421–432. DOI: 10.1080/13548500601084271.
- Rasmussen, H. N., Scheier, M. F., & Greenhouse, J. B. (2009). Optimism and physical health: A meta-analytic review. *Annals of Behavioral Medicine*, 37, 239–256. DOI: 10.1007/s12160-009-9111-x.
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, 67, 1063–1078. DOI: 10.1037/0022-3514.67.6.1063.
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (2001). Optimism, pessimism, and psychological well-being. In E. C. Chang (Ed.), *Optimism & pessimism: Implications for theory, research, and practice* (pp. 189–216). Washington, DC: American Psychological Association. DOI: 10.1037/10385-000.
- Scheier, M. F., Matthews, K. A., Owens, J. F., Magovern, G. J., Lefebvre, R. C., Abbott, R. A., et al. (1989). Dispositional optimism and recovery from coronary artery bypass surgery: The beneficial effects on physical and psychological well-being. *Journal of Personality and Social Psychology*, 57, 1024–1040. DOI: 10.1037/0022-3514.57.6.1024.
- Segerstrom, S. C. (2001a). Optimism and attentional bias for negative and positive stimuli. *Personality and Social Psychology Bulletin*, 27, 1334–1343. DOI: 10.1177/01461672012710009.
- Segerstrom, S. C. (2001b). Optimism, goal conflict, and stressor-related immune change. *Journal of Behavioral Medicine*, 24, 441–467. DOI: 10.1023/A:1012271410485.
- Segerstrom, S. C. (2007). Optimism and resources: Effects on each other and on health over 10 years. *Journal of Research in Personality*, 41, 772–786. DOI: 10.1016/j.jrp.2006.09.004.
- Shen, B. J., McCreary, C. P., & Myers, H. F. (2004). Independent and mediated contributions of personality, coping, social support, and depressive symptoms to physical functioning outcome among patients in cardiac rehabilitation. *Journal of Behavioral Medicine*, 27, 39–62. DOI: 10.1023/B:JOBM.0000013643.36767.22.
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, 7, 422–445. DOI: 10.1037/1082-989X.7.4.422.
- Solberg Nes, L., Evans, D. R., & Segerstrom, S. C. (2009). Optimism and college retention: Mediation by motivation, performance, and adjustment. *Journal of Applied Social Psychology*, 39, 1887–1912. DOI: 10.1111/j.1559-1816.2009.00508.x.
- Srivastava, S., McGonigal, K. M., Richards, J. M., Butler, E. A., & Gross, J. J. (2006). Optimism in close relationships: How seeing things in a positive light makes them so. *Journal of Personality and Social Psychology*, 91, 143–153. DOI: 10.1037/0022-3514.91.1.143.
- Symister, P., & Friend, R. (2003). The influence of social support and problematic support on optimism and depression in chronic illness: A prospective study evaluating self-esteem as a mediator. *Health Psychology*, 22, 123–129. DOI: 10.1037/0278-6133.22.2.123.
- Trunzo, J. J., & Pinto, B. M. (2003). Social support as a mediator of optimism and distress in breast cancer survivors. *Journal of Consulting and Clinical Psychology*, 71, 805–811. DOI: 10.1037/0022-006X.71.4.805.
- Vinokur, A., Schul, Y., & Caplan, R. D. (1987). Determinants of perceived social support: Interpersonal transactions, personal

- outlook, and transient affective states. *Journal of Personality and Social Psychology*, 53, 1137–1145. DOI: 10.1037/0022-3514.53.6.1137.
- Vollmann, M., & Renner, B. (2010). Better liked but not more supported: Optimism and social support from a provider's perspective. *Applied Psychology: Health and Well-Being*, 2, 362–373. DOI: 10.1111/j.1758-0854.2010.01039.x.
- Vollmann, M., Renner, B., Matiba, K., & Weber, H. (2007a). Unterschiedliche Wertschätzung, aber gleiche Unterstützungsbereitschaft: Soziale Reaktionen auf Optimisten, Pessimisten und Realisten aus der Geberperspektive. *Zeitschrift für Gesundheitspsychologie*, 15, 168–176. DOI: 10.1026/0943-8149.15.4.168.
- Vollmann, M., Renner, B., & Weber, H. (2007b). Optimism and social support: The providers' perspective. *The Journal of Positive Psychology*, 2, 205–215. DOI: 10.1080/17439760701409660.
- Wimberly, S. R., Carver, C. S., & Antoni, M. H. (2008). Effects of optimism, interpersonal relationships, and distress on psychosexual well-being among women with early stage breast cancer. *Psychology & Health*, 23, 57–72. DOI: 10.1080/14768320701204211.

Copyright of European Journal of Personality is the property of John Wiley & Sons, Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.