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Knowing your partner is not enough: spousal importance moderates the link between attitude familiarity and ambulatory blood pressure

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Abstract  Close relationships have been linked to cardiovascular morbidity and mortality. More research is needed, however, on the social and biological processes responsible for such links. In this study, we examined the role of relationship-based attitudinal processes (i.e., attitude familiarity and partner importance) on ambulatory blood pressure during daily life. Forty-seven married couples completed a questionnaire regarding their own attitudes, perceptions of their partner’s attitudes, and perceptions of partner importance. They also underwent a 1-day ambulatory assessments of daily spousal interactions and blood pressure. Partner importance was related to better interpersonal functioning (e.g., partner responsiveness) and lower ambulatory systolic blood pressure. More interestingly, partner importance moderated the links between attitude familiarity and both ambulatory systolic and diastolic blood pressure. This statistical interaction revealed that simply knowing a partner’s attitudes was not enough as partner knowledge was primarily related to lower ambulatory blood pressure when they were also viewed as more important. These data are discussed in light of how attitude familiarity and spousal importance may jointly influence health outcomes and the social-cognitive mechanisms potentially responsible for such links.

Keywords  Partner knowledge · Ambulatory blood pressure · Attitudes · Relationships

Introduction

Relationship processes are well-documented predictors of cardiovascular disease outcomes (Barth et al., 2010; Berkman et al., 2000; Cohen, 2004; Holt-Lunstad et al., 2010). However, much less is known about the more specific factors that allow individuals to capitalize on their close relationships in ways that have direct implications for health (Uchino, in press). In the present study, we address this gap by examining the combined influence of partner knowledge and importance in predicting the quality of spousal interactions and ambulatory blood pressure during daily life.

One important factor contributing to smoother relationship exchanges is the knowledge that individuals have regarding their close relationships (i.e., partner knowledge, Fletcher & Kerr, 2010; Gagne & Lydon, 2004). Prior work suggest that greater partner knowledge is linked to more support provision to a partner (Neff & Karney, 2005), greater problem-solving during conflict (Kobak & Hazan, 1991), beneficial relationship cognitions (Lackenbauer et al., 2010), and relationship longevity (Neff & Karney, 2005). Importantly, these relationships-based processes linked to partner knowledge (e.g., support, conflict negotiation) are related to physical health outcomes (Brooks & Dunkel Schetter, 2011; Uchino, 2004).
We have recently proposed that one important aspect of partner knowledge that may play a significant role in shaping partner interactions and long-term health is familiarity with or knowledge of a spouse’s attitudes (Sanbonmatsu et al., 2011). This possibility stems from an enormous body of research that has shown that attitudes guide information processing and behavior (Katz, 1960; Roskos-Ewoldsen & Fazio, 1992; Sanbonmatsu & Fazio, 1990). We hypothesized that if one’s own attitudes provide these important functions, then knowledge of others’ attitudes may be similarly tied to these processes. This may be especially true for relationships as it provide the necessary information on how to respond when a partner’s attitudes are challenged by others (e.g., responsive support provision) or if a partner’s attitudes are a potential source of stress (e.g., avoiding conflict). Consistent with this reasoning, we have found that when partners are familiar with each others’ attitudes, they were less likely to fight, less apt to upset one another, and more responsive to each others’ support needs (Sanbonmatsu et al., 2012). Importantly, we recently reported that such attitude familiarity was related to lower overall ambulatory systolic and diastolic blood pressure during daily life (Sanbonmatsu et al., 2011). These data were the first to link aspects of partner knowledge to a health-relevant outcome as ambulatory blood pressure is an independent predictor of future cardiovascular risk (Pickering et al., 2006).

Although familiarity with a partner’s views appears vital, such knowledge might not always translate into consistent behavior towards the spouse. Partners must be sufficiently motivated to act on that knowledge. One factor that may influence an individual’s motivation to utilize such knowledge is spousal importance. This construct originates from the attitudes literature and is defined as the subjective perception about how much concern and care exists for an attitude object (in this case the spouse, Eaton & Visser, 2008). The importance of the attitude object is distinct from related constructs such as attitude centrality, ego involvement, and personal relevance; and has been related to subsequent behavior and information processing (see Boniger et al., 1995; Eaton & Visser, 2008 for reviews). For instance, attitude objects deemed as important are motivating, accessible in memory, and consistently linked to behavior (Bizer & Krosnick, 2001; Visser et al., 2003).

We believe that over time, interactions between individuals high in attitude familiarity and who are seen as important to each other are likely to foster health-relevant relationship processes. For instance, one should be more motivated to utilize such partner knowledge to provide responsive support. In addition, individuals should be more motivated to utilize the knowledge they have of their important partner’s attitudes to maintain harmonious relationships (e.g., avoid conflict). Thus, a first aim of this study was to examine if attitude familiarity and relationship importance jointly influenced relationship functioning during daily life. We predict that attitude familiarity with important relationships enables individuals to better anticipate, influence, and respond to others’ behaviors. The overall effect of these processes would be to foster relationship processes in daily life such as increased responsiveness and other positive interactions. Such interpersonal processes, in turn, are likely to result in beneficial health outcomes over the long-term. Thus, the primary aim of this study was to extend our prior work by re-analyzing links between attitude familiarity and ambulatory blood pressure reported in Sanbonmatsu et al. (2011) to test if the importance of the spouse moderated such links. Consistent with our reasoning above, we predicted that couples high in attitude familiarity and who view each other as important would have the lowest ambulatory blood pressure during daily life.

Method

Participants

Participants included 47 married couples. Overall, the mean age of the sample was 31.5 years, with a median household income of over $40,000. The majority of the sample was White (78%). The following criteria were used to select healthy participants based on our prior work (Cacioppo et al., 1995): no existing hypertension, no cardiovascular prescription medication use, no history of chronic disease with a cardiovascular component (e.g., diabetes), and no recent history of psychological disorder (e.g., major depressive disorder). In addition, as part of the larger program project they had to be employed with no children living at home in order to focus on working marital dyads.

Procedures

Participants were recruited through advertisements placed in local newspapers, workplace newsletters, and flyerts distributed around the community. Potential participants were screened for eligibility and read a standard description of the study’s activities. Eligible participants who agreed to participate were scheduled for their appointments.
(described below) and completed the attitude familiarity questionnaire and a measure of spousal importance. Participants completed this questionnaire separately and were not allowed to discuss their responses.

As part of the larger study protocol, participants completed a one day ambulatory blood pressure assessment, typically from 8 am to 10 pm ($M = 14.01$ h, $SD = .97$). The ambulatory blood pressure assessment included working hours and an evening at home with the spouse on the same day. The ambulatory blood pressure monitor was set to take a random reading within every 30 min window. This random interval-contingent monitoring procedure minimizes participants’ anticipation of a blood pressure assessment that might lead them to alter their activities. Following each ambulatory blood pressure assessment, individuals were instructed to complete questions programmed into a palm pilot device using the Purdue Momentary Assessment Tool (Weiss et al., 2004). The Purdue Momentary Assessment Tool contained questions on basic ambulatory control variables (e.g., posture) and interpersonal processes (see below).

Measures

**Ambulatory blood pressure monitor**

The Oscar 2 (Suntech Medical Instruments, Raleigh, NC) was used to estimate ambulatory SBP and DBP. The Oscar was developed to meet the reliability and validity standards of the British Hypertension Society Protocol (Goodwin et al., 2007). The cuff was worn under the participants’ clothing, and only a small control box (approximately 5.0 × 3.5 × 1.5 inches) attached to the participant’s belt was partially exposed. Outliers associated with artifactual readings were identified using the criteria by Marler et al. (1988). These included: (a) SBP <70 or >250 mmHg, (b) DBP <45 or >150 mmHg, and (c) SBP/DBP <$[1.065 + (.00125 \times DBP)] or >3.0.

**Ambulatory diary record (ADR)**

Participants were instructed to complete a series of programmed questions following each ambulatory cardiovascular assessment. It was designed to be easy to complete (about 2–3 min) in order to maximize cooperation and assessed information on basic variables that might influence ambulatory blood pressure (Kamarck et al., 1998). These included posture (lying down, sitting, standing), activity level (1 = no activity, 4 = strenuous activity), location (work, home, other), talking (no, yes), temperature (too cold, comfortable, too hot), prior exercise (no, yes), and prior consumption of nicotine, caffeine, alcohol or a meal (no, yes). The second section of the ambulatory diary was adapted from prior work and included 4 items for perceived partner responsiveness (Laurenceau et al., 2005), 2 items for perceived interaction positivity and negativity with the spouse (Campo et al., 2009), 6 items for state self-esteem (Heatherton & Polivy, 1991, and 2 items for disclosure (Reis & Wheeler, 1991).

**Attitude questionnaire**

Husbands and wives indicated their evaluations of 25 different attitude objects on 7 point scales anchored by “very negative” and “very positive” (Fazio et al., 1986; Sanbonmatsu et al., 2011). The items were selected to broadly sample different attitudinal objects and have been used in our prior work on attitudinal processes (Fazio et al., 1986; e.g., money, Wal-Mart, guns, recycling etc.). Spouses also indicated their perceptions of their partners’ evaluations of the same targets on the same scale. Attitude familiarity was computed by calculating the correlation between husbands’ reported attitudes and wives’ perceptions of their attitudes as well as the correlation between wives’ reported attitudes and their husbands’ perceptions of their attitudes. This couples-based approach has advantages over using absolute difference scores as it is better suited to capture correspondence over a broad range of attributes (Luo & Klohnen, 2005). The average level of attitude familiarity in the sample was $r = .52$ (range .06–.81). The attitude familiarity index was not significantly different between men ($r = .50$) and women ($r = .54$) so we averaged the two measures using the Fisher $r$ to $z$ transformation to provide a more reliable overall index of attitude familiarity in couples. The attitude familiarity $z$ scores were used in all analyses detailed below (Cohen & Cohen, 1983).

**Relationship importance**

Spousal importance was assessed via an item from the social relationships index (Campo et al., 2009). Participants were asked to indicate “How important is your spouse to you” on a 1 (not at all important) to 6 (extremely important) scale. As might be expected, spouses overall were rated as very important but with some variability in these ratings ($M = 5.82$, $SD = .47$, range 3–6).

**Statistical model**

We utilized proc mixed (SAS Institute, Littell et al., 1996) in order to examine daily interpersonal functioning and ambulatory blood pressure. Proc mixed uses a random regression model to derive parameter estimates both within and across individuals (Singer, 1998). All factors were treated as fixed (Nezlek, 2008) and proc mixed treats the unexplained variation within individuals as a random factor. One advantage of proc mixed is the ability to model
more accurate covariance structures for the repeated measure assessments. In the present study, we modeled the covariance structure for the two repeated measures factors of dyad (i.e., husband, wife) and measurement occasion (i.e., reading number). Such nested repeated measures designs can be handled in proc mixed by specifying separate covariance structures for each of the factors (Galecki, 2002). Based on the recommendations of Park and Lee (2002), we modeled the covariance matrices for dyad and measurement occasion using the “type = un@ar(1)” option. Importantly, this model allowed us to examine predictors of daily interpersonal processes and ambulatory blood pressure while controlling for the dependency within dyads and measurement occasions. The output of these random regression models were parameter estimates (b) with the appropriate within-subjects covariance structures considered. As recommended by Cambell and Kashy (2002), we used the Satterthwaite approximation to determine the appropriate degrees of freedom.

Results

Preliminary analyses

We first conducted a number of preliminary analyses aimed at examining the potential contribution of extraneous factors such as posture that might need to be statistically controlled in the analysis of ambulatory blood pressure (Kamarck et al., 1998; Marler et al., 1988). Consistent with prior research, results of this initial model revealed that age, gender, household income, body mass, posture, temperature, activity level, prior alcohol, and prior exercise were independent predictors of higher ambulatory SBP (p’s < .05). In addition, age, gender, household income, body mass, posture, activity level, and a prior meal independently predicted ambulatory DBP (p’s < .05). These factors, along with time (i.e., reading number 1, 2) were thus statistically controlled in all analyses involving ambulatory blood pressure (Kamarck et al., 1998).

Attitude familiarity and spousal importance as predictors of daily interpersonal processes

We first examined the association between attitude familiarity and spousal importance with diary measures of perceived partner responsiveness, perceived interaction positivity, perceived interaction negativity, state self-esteem, and self-disclosure while couples were at home together during the evening. In these analyses we statistically controlled for age, gender, and income. We also statistically controlled for relationship length in order to rule out the possibility that greater familiarity with important relationships were simply a function of having been with them longer. As reported in Sanbonmatsu et al. (2011), attitude familiarity was linked to greater partner responsiveness, home positivity, state self-esteem; and lower home negativity (p’s < .01). In new analyses, partner importance was also related to greater partner responsiveness (b = .22, t = 2.01, p < .05), home positivity (b = .27, t = 2.44, p < .02), state self-esteem (b = .26, t = 2.98, p < .01), and marginally lower home negativity (b = –.17, t = 1.82, p = .07).

To evaluate the statistical interaction among these variables, both attitude familiarity and relationship importance were centered and the cross-product of these centered terms served as the test of the interaction after co-varying the respective main effects (Aiken & West, 1991). Inconsistent with our predictions, none of these diary items evidenced an attitude familiarity × spouse importance interaction (p’s > .20).

Attitude familiarity and spousal importance as predictors of ambulatory blood pressure during daily life

As reported in Sanbonmatsu et al. (2011), attitude familiarity was a significant predictor of lower ambulatory SBP and DBP (p’s < .05). New analyses first examined if relationship importance also predicted ambulatory blood pressure independent of control variables like posture, age, body mass index, and relationship length (see above). Consistent with prior work linking attitude importance to significant outcomes, greater spousal importance was linked to lower daily life ambulatory SBP (b = –2.33, t = 1.97, p < .05) but not DBP (b = –1.29, t = 1.60, p = .11). Thus, being married to a partner that one views as important or valued appears beneficial for one’s ambulatory SBP.

We next evaluated the statistical interaction of attitude familiarity and relationship importance on ambulatory blood pressure. Consistent with our hypotheses, relationship importance moderated the link between attitude familiarity on both ambulatory SBP (b = –9.52, t = 2.67, p = .008) and DBP (b = –7.37, t = 3.04, p = .003).2 We

2 We focused on ambulatory SBP and DBP given their established prospective links to cardiovascular disease risk (Pickering et al., 2006). However, we also examined related measures of mean arterial pressure (MAP), pulse pressure (PP, SBP–DBP) and the rate-pressure product (RPP, SBP*HR/100). The results were similar as reported for ABP when examining MAP or PP for the spousal importance main effects and the spousal importance × attitude familiarity interactions (p’s < .05). RPP is typically examined in the context of clinical populations (e.g., hypertensives) as a measure of myocardial demand. One might thus expect that the links in the current study might be weaker as we used a relatively healthy sample. Consistent with this possibility, the main effect of spousal importance on RPP was not significant and the spousal importance × attitude familiarity interaction was marginally significant (p = .07).
examined the form of these interactions by plotting predicted values one standard deviation above and below the mean for attitude familiarity and relationship importance. As shown in Fig. 1, the lowest ambulatory blood pressure was seen when individuals were both high in attitude familiarity and the relationship was deemed more important. The three-way interactions between attitude familiarity, spousal importance, and gender were not significant suggesting these links were apparent across both husbands and wives.

Discussion

Prior work has demonstrated the importance of partner knowledge for interpersonal functioning (Fletcher & Kerr, 2010; Gagne & Lydon, 2004). The main aim of this study was to extend prior work by examining the moderating role of relationship importance on links between attitude familiarity and health-relevant biological processes. New findings from these analyses suggest that relationship importance is related to better interpersonal functioning (e.g., partner responsiveness) and lower ambulatory SBP during daily life. More important, we also found that the combination of both high attitude familiarity and importance was related to the lowest ambulatory SBP and DBP. These findings extend prior work by specifying the conditions under which partner knowledge may be most influential on health. More specifically, these data suggest that simply knowing a spouse’s views is not enough as individuals need to also value their partner in order to maximize its potential health relevance.

Our analyses revealed both a main effect and interactions involving relationship importance on ambulatory blood pressure. In terms of main effects, we found that relationship importance was a predictor of lower ambulatory SBP only. Of course, the trend was the same on DBP which may reflect the greater reliability of SBP (Lloyd-Jones et al., 1999). Moreover, it is likely that attitude familiarity entails greater active coping in anticipating and dealing with specific relationship issues. Active coping has been linked to greater beta-adrenergic activation which is more evident on measures of SBP (Obrist, 1981). This issue notwithstanding, there are several potential psychosocial explanations for this link. First, important relationships are more supportive which have been linked to positive relational and health outcomes (Holt-Lunstad et al., 2010). Over the course of long-term relationships such as marriage, such positive interactions may result in lower exposure/reactivity to stressors and more positive affective experiences (Cohen, 2004; Uchino, 2004). This interpretation is consistent with our diary assessments that found spousal importance linked to greater partner responsiveness, home positivity, and state self-esteem. It is important to note, however, that the range of scores for spousal importance was restricted such that most spouses were rated as very or extremely important. Although this restriction of range might be expected to mask any findings, it does raise the issue of whether these links hold at lower levels of spousal importance. Future studies will be needed to address these issues sampling on more days and a broader range of couples who might be more distressed.

We also found relationship importance to moderate the previously documented association between attitude familiarity and ambulatory blood pressure. Based on the larger attitudes literature, it would be expected that individuals might be especially motivated to utilize partner knowledge if the spouse is viewed as relatively more important (Eaton & Visser, 2008). In addition, attitude objects deemed important are more accessible in memory (Bizer & Krosnick, 2001; Visser et al., 2003). Thus, knowledge of an important partner’s attitudes are likely to be consistently linked to health-relevant social behavior (e.g., greater support, conflict avoidance). However, inconsistent with this prediction, we did not find an attitude familiarity × spousal importance interaction on daily interpersonal functioning. Although the reasons for these null findings are unclear, it may be that these interpersonal diary assessments needed to be obtained over a longer period of time (not simply one night) to adequately capture more complex processes as reflected by the attitude familiarity × spousal importance interaction. In comparison, ABP was measured over the work day and night at home and hence may reflect more longer-term influences associated with these relationship processes. Future

Fig. 1 Predicted ambulatory SBP (top) and DBP (bottom) levels one standard deviation above and below the mean for attitude familiarity and relationship importance.
research will be needed to directly examine the more precise cognitive and social processes which are mediating these associations.

We should also emphasize that our conceptualization of relationship importance originates from the attitudes literature given our interest in attitudinal processes (see Eaton & Visser, 2008). We were not able to find much direct work in relationship science that explicitly examines relationship importance in married couples. One question that arises is potential links between attitude importance and likely related constructs such as closeness and quality (Aron et al., 1991; Rusbult et al., 1998). In the present study, we included a measure of relationship closeness based on self-other representations (Aron et al., 1991). Interestingly, relationship importance and closeness were not significantly related to each other ($r = .24$ for husbands, $r = .14$ for wives). Ancillary analyses also revealed that none of the previous links with ambulatory blood pressure were altered when statistically controlling for relationship closeness. We also examined relationship quality in terms of supportive or ambivalent spouses (e.g., Uchino et al., 2001) and found this classification to be unrelated to spousal importance ($p > .14$). Controlling for this index of relationship quality also did not alter any of the findings from our main ambulatory blood pressure analyses. These data suggest that relationship importance may be a relatively unique moderator of ambulatory blood pressure although certainly an examination of a broader range of related constructs in relationship science is needed.3

Although our data suggest that greater attitude familiarity and spousal importance are linked to positive health outcomes, there may be conditions under which these links may not hold. For instance, based on the larger attitude literature, these associations may be further moderated by whether the partners’ attitudes are liked or respected. It is possible that individuals might be motivated to use partner knowledge in a manipulative or controlling manner when that person is important to them. Tracking early relationships processes (e.g., newlyweds) may be useful to examine this “darker side” of attitude familiarity before such behaviors potentially lead to relationship break-up.

There are several limitations of this work that should be noted. First, this is one of the first studies to link partner attitude knowledge and importance to health-relevant physiological outcomes so its links to other health-relevant measures (e.g., inflammation) and other forms of partner knowledge (e.g., traits) need to be examined. Second, the relatively small sample of couples is a limitation and replications with larger, more diverse couples at different stages of relationship development will be important. Finally, the correlational nature of these data also caution against causal statements as there may be unmeasured variable that influence these links in more complex ways. For instance, the social skills of a partner may influence both the degree of attitude familiarity via appropriate self-disclosure and how much that spouse is valued. Follow-up work that examines these processes over time (e.g., newlyweds) or by manipulating these dimensions in a laboratory setting might provide the basis for stronger causal inferences. These limitations notwithstanding, these data are among the first to document the biological correlates of partner knowledge and opens opportunities to more fully explore integration with health-relevant outcomes.

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References


Cambell, L., & Kashy, D. A. (2002). Estimating actor, partner, and interaction effects for dyadic data using PROC MIXED and

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3 A related measure of interest is also that of attitude similarity (Byrne et al., 1986). We indexed this construct by computing the correlation between spouses actual attitudes. As might be expected in established relationships, attitude similarity and familiarity were highly correlated ($r = .81$) which is likely a reflection of both selection and ongoing relationship interactions (Luo & Klohnen, 2005). However, statistically controlling for attitude similarity did not alter the spousal importance main effect or attitude familiarity × spousal importance interactions ($p’s < .05$).
Lackenbauer, S. D., Campbell, L., Rubin, H., Fletcher, G. J. O., &
Fletcher, G. J. O., & Kerr, P. S. G. (2010). Through the eyes of love:
Fazio, R. H., Sanbonmatsu, D. M., Powell, M., & Kardes, F. R.
Fletcher, G. J. O., & Kerr, P. S. G. (2010). Influence of love and
Kamarck, T. W., Shiffman, S. M., Smithline, L., Goodie, J. L., Paty, J.
Lackenbauer, S. D., Campbell, L., Rubin, H., Fletcher, G. J. O., &
pressure level on JNC-VI staging. Joint national committee on the
prevention, detection, evaluation, and treatment of high blood
Hypertension, 34, 381-385.
quality in newlyweds: A couple centered approach. Journal of
Personality and Social Psychology, 88, 304-326.
The statistical analysis of treatment effects in 24-hour ambula-
try blood pressure recordings. Statistics in Medicine, 7,
Neft, L. A., & Karney, B. R. (2005). To know you is to love you: The
implications of global adoration and specific accuracy for marital
relationships. Journal of Personality and Social Psychology, 88,
social and personality psychology. Social and Personality Psychology
Compass, 2, 842-860.
Obrist, P. A. (1981). Cardiovascular psychophysiology: A perspec-
Park, T., & Lee, Y. J. (2002). Covariance models for nested repeated
measures data: Analysis of ovarian steroid secretion data. Statistics in Medicine, 21, 143-164.
pressure monitoring. New England Journal of Medicine, 354,
value of attitudes: Attitude accessibility as a determinant of an
object’s attraction in visual attention. Journal of Personality and Social Psychology, 63, 198–211.
Sanbonmatsu, D. M., Uchino, B. N., Wong, K. K., & Seo, J. Y.
(2012). Getting along better: The role of attitude familiarity in
Sanbonmatsu, D. M., & Fazio, R. H. (1990). The role of attitudes in
the importance of knowing your partner’s views: Attitude familiarity is associated with better interpersonal functioning and lower ambulatory blood pressure in daily life. Annals of Behavioral Medicine, 41, 131–137.
Uchino, B. N. (2004). Social support and physical health: Under-
standing the health consequences of our relationships. New
Haven, CT: Yale University Press.
Uchino, B. N. Understanding the links between social ties and health:
Visser, P. S., Krosnick, J. A., & Simmons, J. (2003). Distinguishing the cognitive and behavioral consequences of attitude impor-
tance and certainty: A new approach to testing the common-
Constructing EMA studies with PMAT: The Purdue momentary assessment tool user’s manual. West Lafayette, IN: Purdue University Military Family Research Institute.