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Abstract

This research investigates the way in which social support and social strain stemming from spouses, children, and friends have different impacts on emotional states. While previous studies have compared the relative impact of different sources, our research builds upon these studies by (1) comparing various close network ties and (2) leveraging longitudinal data to investigate the causal links between support and strain from different sources and emotional states over time. We analyze individuals who have a spouse, a child, and friends across three waves of the Americans' Changing Lives data. Although we find that social support and strain from all three sources are associated with emotional states, this relationship is not always causal. In the majority of cases, the same people who experience support or strain in their relationships are also more likely to experience more positive or negative emotional states, respectively. Only spousal interactions and child-based strain have a direct causal effect on emotional states.

Keywords

Emotions, hybrid method, social networks, social strain, social support, well-being

Interaction partners are important resources for the development of emotional experiences (Lively & Heise, 2014; Stets & Burke, 2014). However, not all interaction partners are equal. Social well-being scholars have noted that the way in which people experience

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support or strain is dependent on the source (Chen & Feeley, 2014; Okabayashi, Liang, Krause, Akiyama, & Sugisawa, 2004; Walen & Lachman, 2000). While we know that support and strain (what we collectively term *social interaction*) from spouses, family, and friends are correlated with emotional states, scholars have been unable to establish causality between these variables due to various constraints in data and methodological limitations. Therefore, the relative impact of different sources over time remains unclear. Using longitudinal data in conjunction with the hybrid method, we remedy this problem and contribute to the literature by uncovering potential causal pathways more effectively than previous scholars.

We note that the potential influence of interaction partners, such as spouses, may be moderated by the presence or absence of other network ties, such as children. In the current study, we assess individuals that report having spouses, children, and friends in three waves of data. Although network structures often shift throughout the life course (Kahn & Antonucci, 1980), we intentionally hold network structure constant in our statistical models. By mitigating network structure as a source of variation, we are better able to provide a direct comparison between sources of support and strain incorporated in our analyses.

Our work is theoretically framed by the symbolic interactionist perspective (Mead, 1934), which posits that role identities—such as spouse, parent, or friend—provide behavioral expectations. The congruence between these behavioral expectations and actual behaviors is important for emotional well-being. While the size, density, and boundedness of a support system matters (Berkman, Glass, Brissette, & Seeman, 2000), so do the specific roles enacted in an interaction. Different interaction partners prompt different behavioral expectations, which color the experience of social interaction, and could therefore have heterogeneous impact on emotional states.

The current study contributes to the literature using longitudinal analyses to interrogate the relationships between different sources of social interaction and emotional states. We recognize that there are a myriad of ways these variables could be correlated. The first possibility is that the same types of people who cultivate healthy relationships are also more emotionally competent. This predisposition to both conditions would result in correlation between the measures, despite the fact that one condition is not directly affecting the other. In contrast, the second possibility is that support and strain have direct impacts on an individual's emotional states over time. If the relationship were causal, then the measures for social interactions and the measures for emotional states would covary over time. That is to say, as support and strain increases or decreases over time, individuals' emotional states would also significantly and systematically change during the same period. Previous studies have been unable to disentangle these two possibilities. However, in the current study, we utilize a novel statistical technique which combines random and fixed effects models to reveal which of the two aforementioned possibilities is most likely.

To preview our results, we find that for friends, support and strain are only associated with emotional states. This association is largely driven by time-invariant exogenous variables that are omitted from statistical models. In other words, the relationship between social interactions with friends and emotional states is largely spurious. Exogenous factors, such as *individual dispositions*, drive specific people to simultaneously

experience both positive relationships and positive emotional states, despite there being no direct causal link between these measures. Nevertheless, our results also show that some interaction partners do in fact have a *causal impact* on emotional states. In particular, we find that spousal support increases positive emotions, and spousal strain increases negative emotions over time. Finally, the only other source of support or strain that exhibited a direct effect on individuals was child-based strain, which exacerbated an individual's negative emotions.

Social support and social strain

Social support is defined as a social fund from which people can draw instrumental, informative, or emotional assistance (Thoits, 1995). Our research focuses on the emotional aspect of assistance, which we label emotional support (hereafter, when we say support in reference to our own research, we are referring to emotional support.). The benefits of social support are well-documented and include improved health and health maintenance (Seeman, 1996; Uchino, 2006), weight loss (Wing & Jeffery, 1999), better educational outcomes (Bond et al., 2007), and higher well-being (Cohen & Wills, 1985; Rigby, 2000).

Strain is also related to emotional states (DeLongis, Capreol, Holtzman, O'Brien, & Campbell, 2004; Gee & Rhodes, 2003) and is problematic in relationships (Rook, 1990). People who are critical or too demanding are likely to negatively influence others' emotional outcomes, and even well-intentioned friends and family members can be overbearing, critical, and ultimately stress-inducing. Although support and strain are related, strain is qualitatively different than a complete lack of support. Strain requires a negatively charged interaction, whereas a lack of support stems from being geographically or emotionally disconnected from friends and family. Thus, the absence of support does not equate the presence of strain and vice versa. Furthermore, the same interaction partner can produce both support and strain (Fingerman, Hay, & Birditt, 2004), resulting in ambivalence.

Research has demonstrated that support and strain have significant and independent impacts on emotional well-being. Chen and Feeley (2014) found that support did more to increase well-being than social strain did to dampen it. Looking specifically at emotional states, another study found that spousal support decreases long-term negative emotions, yet spousal strain decreases immediate positive emotions (DeLongis et al., 2004). The asymmetry of support and strain in previous work demonstrates their independence as concepts.

Previous empirical findings

Scholars have been interested in different sources of social interaction and how they relate to emotional well-being. Abbey, Abramis, and Caplan (1985) investigated three sources of support—"people in your personal life," "some one person," and "the person closest to you"—to determine which source was most strongly related to emotional well-being. They concluded that sources do indeed matter because it is more important to feel a general sense of support rather than support from a specific source.

The literature correlating spouses and emotional well-being is particularly rich. Married people have higher levels of satisfaction and self-esteem and are less depressed than cohabitators (Stafford, Kline, & Rankin, 2004). Married people are also happier, at least initially (Stutzer & Frey, 2006). For women, the more their romantic expectations match their experiences, the greater their relational well-being (Holmberg & MacKenzie, 2002). The overall quality of one's spousal relationship also matters. The breadth of a romantic relationship is related to whether women exit the relationship, but men will remain in a relationship that lacks breadth (Flora & Segrin, 2003).

Children are also a potential source of support and strain. Greenfield and Marks (2006) found that parents of burdensome children experienced more negative affect and less positive affect. The parent-child relationship is complex and is more likely to be characterized by ambivalence than other close familial ties (Fingerman et al., 2004). Strain stemming from children could be particularly impactful, as parents are expected to support their children and be especially sensitive to their demands. Dismissing their children's needs contradicts expectations for their role identity, which could be especially harmful for their self-esteem and emotional well-being (Burke & Stets, 2009).

Not all support and strain stem from family members, as people draw from friends and weaker ties. Lepore (1992) found that support from a friend was more beneficial for one's psychological well-being than support from a roommate, and strain from a friend was more harmful than strain from a roommate. Research suggests that friends may be more important for women than for men (Antonucci, Lansford, & Akiyama, 2001). Women are more depressed than men when they do not have a friend in whom to confide. In addition, stressful friendships may not be as damaging for women as for men. This same study found that having a friend who gets on one's nerves is negatively associated with men's life satisfaction but positively associated with women's life satisfaction.

Characteristics of those receiving the support also matter. For example, Native American and Black women with high levels of support report being less depressed than White women receiving the same level of support (Sherman, Skrzypek, Bell, Tatum, & Paskett, 2011). Furthermore, there is a stronger relationship between strain and depression in Native American women than there is with Black and White women. Age also plays a role in how one assesses personal relationships, as older people view close familial relationships with less ambivalence than younger people (Fingerman et al., 2004). Ideally, people receive support from multiple sources at once, as older men with two sources of support report being less depressed than those with one (DuPertuis, Aldwin, & Bossé, 2001).

Like us, other scholars have been interested in multiple sources of social interaction and how they compare relative to one another. Chen and Feeley (2014) investigated the relationship between social interaction from four sources—spouse/partner, children, family, and friends—and life satisfaction. They found that support from a spouse and children increases life satisfaction, with spouses having the strongest relationship, and strain from a spouse decreases life satisfaction. Further, support from a spouse and friends is negatively correlated with loneliness (spouse > friends) and strain from all four sources is positively correlated with loneliness (spouse > friends > children > family). Although related to positive and negative emotional states, life satisfaction and

loneliness are different constructs, and we feel that emotional states merit an independent investigation. Further, their measures were drawn from a cross-sectional portion of their data, which limits their ability to establish causality.

A study of seniors found that support from spouses, children, and others is associated with an increase in life satisfaction (spouses > others > children), and that support from children is associated with decreased depression (Okabayashi et al., 2004). However, strain from all sources failed to be significantly associated with life satisfaction and depression. In this study, son-in-laws, daughter-in-laws, and grandchildren were included in the children category, muddying the distinct contribution of children. Using structural equation modeling, these scholars were also limited by cross-sectional data.

Walen and Lachman (2000) investigated positive and negative moods specifically and considered three sources of support and strain—spouses, friends, and family. They found that social interaction with spouses was most strongly related to positive and negative moods. Support from a spouse was associated with higher positive mood and lower negative mood, while strain had the opposite effect. Support stemming from friends and family was associated with a decrease in negative mood, but strain stemming from friends did not significantly affect mood. In general, support was more strongly associated with a boost in positive mood than strain was with a dampening in positive mood. In addition, both support and strain had comparable impact on negative mood. It is important to note that mood is generally a more enduring concept than emotion, and it is not our intention to conflate the two concepts, which are conceptually distinct. Nevertheless, we feel that Walen and Lachman's (2000) measures of mood, which occurred within 30 days prior to each interview, are conceptually akin to our measures of emotional states, which occurred within 7 days prior to each interview.

While many scholars have been interested in how different sources of support and strain relate to emotional well-being, emotional well-being is a broad construct that encompasses a variety of sub-constructs such as life satisfaction (Antonucci et al., 2001; Chen & Feeley, 2014; Okabayashi et al., 2004), depression (Antonucci et al., 2001; DuPertuis et al., 2001; Okabayashi et al., 2004; Sherman et al., 2011), psychological distress (Lepore, 1992), and quality of life (Abbey, Abramis, & Caplan, 1985). In contrast, we look specifically at positive and negative emotional states, which is most akin to Walen and Lachman's (2000) measures of mood. This contribution is important, because emotional states are a distinct component of emotional well-being. One can imagine a situation in which one reports only moderate positive emotions despite being highly satisfied with life, as emotions are more temporal than satisfaction measures, which are more global. Similarly, moods are more persistent than emotional states, which are fluid and more sensitive to interactional context (Sharp & Kidder, 2013).

Although the aforementioned studies have done much to advance our knowledge on the relationship between sources of social interaction and emotional well-being, these studies leave room for methodological improvements. Our primary methodological critique of the aforementioned studies is that the majority use cross-sectional survey data. Collecting data at a single time point only allows scholars to determine if two variables are correlated and limits their ability to identify whether two measures covary over time. Our study improves upon previous studies because we utilize longitudinal

data in order to uncover these causal and noncausal pathways, a feat that is not possible with cross-sectional data. Therefore, we are not only able to compare the magnitudes of each relationship, as was done in previous works, but we also make the novel contribution of comparing the types of relationship (causal or noncausal) that each source provides. One exception to the cross-sectional pattern was Lepore' (1992), who used longitudinal data to investigate friends and roommates; however, his study did not compare the impact of family members, investigate positive emotions, nor did it compare causal and noncausal pathways.

There are a number of secondary critiques of previous studies that we address in our research. While several of the aforementioned studies investigate children as a source of support or strain, they do not investigate the relative impact of children compared to other sources (Greenfield & Marks, 2006) or they only investigate positive outcomes (Chen & Feeley, 2014). Walen and Lachman (2000) investigated multiple sources and both positive and negative moods, but their analysis did not include children. In addition, Okabayashi, Liang, Krause, Akiyama, and Sugisawa (2004) include children, but several other family ties, such as the spouses of children and grandchildren, are included in their measure. Our study specifies support and strain stemming from children more precisely, revealing children's unique contribution to emotional states in a fashion that was not previously possible.

The current study

Our main contribution is methodological. Responding to other scholars' call for longitudinal data (Antonucci et al., 2001), we use innovative modeling strategies to remedy previous limitations by disentangling correlative and causal relationships. This distinction is important because certain people could have a predisposition for healthy emotions and their relationships could benefit from this advantage. Furthermore, other studies were limited by small convenience samples (Abbey et al., 1985) or older samples (Antonucci et al., 2001; Chen & Feeley, 2014; Okabayashi et al., 2004), which prevents generalizability. Though we intentionally restrict our sample to include people who were married with children and friends, our analysis provides a fuller, more nuanced picture of the causal nature of social interaction and emotional states.

We make a second contribution by identifying the relative impact of parent-child interactions on parents' emotional states. Specifically, we add children as a source of support and strain, which is important for three reasons. First, although children have less relational experience than their parents' spouses and same-age peers, they hold a special position in the family. Their role as a child activates a parental identity (Burke & Stets, 2009). Parents are expected to be a primary source of support for their children, so leaning too heavily on one's children challenges behavioral expectations. Similarly, criticism from children challenges the parental role identity, producing a negative emotional state. Therefore, this role relationship could make parents especially sensitive to support or strain from children. Second, parent-child relationships change throughout the life course (Kahn & Antonucci, 1980), and aging parents often rely on their children to care for them. This increased dependence also makes children an important source of

support or strain. Therefore, the way in which child-based support or strain impacts emotional states merits investigation.

Building on previous research using longitudinal data, executing a novel methodology, and extending the role relationships investigated, we ask two questions.

Question 1: Is there a relationship between social interaction stemming from different sources and emotional states?

Question 2: More specifically, are the relationships between interaction partners and emotional states the result of an indirect correlation or a direct causal pathway?

Methods

Participants and data

We use the Americans' Changing Lives (ACL) data set. The sampling frame for the data set consists of all adults in the U.S. The first wave of the survey was administered in 1986. It included 3,617 respondents that ranged from 25 years to 95 years in age. The subsequent waves of data were collected in 1989, 1995, 2002, and 2011. These follow-up interviews were administered to the surviving participants of the original sample group. By 2011, the sample included a smaller sample size of 1,427 respondents.

The survey data we used had missing cases for three distinct reasons. First, the survey over sampled an older population in 1986. By 2011, a number of the participants were deceased. Second, survey attrition contributed to the missing cases. Third, many of the missing cases were missing by design. In contrast to truly missing data—responses missing due to nonresponse on the part of the respondent—missing by design means that participants skipped specific questions because they were irrelevant to them. For example, if respondents had no children, then they were asked to skip the question regarding relationships with their children.

In our analyses, we used listwise deletion instead of multiple imputation (MI) or full information maximum likelihood (FIML) to address missing data in the sample. MI and FIML would have been inappropriate for dealing with the responses that were missing due to respondent mortality and data missing by design because such observations simply did not exist (Allison, 2002). Therefore, filling the missing cells with data as if they had existed would have been a misrepresentation of the responses. When there is survey attrition, entire waves of data are unanswered. Estimating all the responses for a participant in a particular wave of data would also undermine the potential findings that individuals change over time.

Although utilizing listwise deletion resulted in a lower sample size of 1,640 participants, it had the added benefit of holding network structures constant in our analysis. All of these participants had a spouse, a child, and friends when responding to the survey. This was a core component to our statistical design because individuals with different network structures might experience sources of social interaction differently. For example, people without children may experience spousal relationships differently than those with children. Incorporating respondents with similar network structures reduces this source of variation in our models.

Dependent variables

Our analysis focuses on how sources of social interaction impact positive and negative emotional states. Both measurements of emotional states refer to how an individual felt during the previous week. Each was constructed by combining a number of manifest variables that represent the latent concept of positive and negative emotional states.

The first dependent variable, positive emotional state, is a composite of two separate variables. Participants were asked “In the past week: I felt happy” and “. . . I enjoyed life.” These variables were combined in a scale with a Cronbach’s α coefficient of .71. Because this particular scale was only comprised of two measures, we also calculated the Spearman–Brown split-half scale reliability coefficient (see Eisinga, Te Grotenhuis, & Pelzer, 2013) utilizing the following formula

$$r_{\text{SB1}} = \frac{(k \times r_{ij})}{[1 + (k - 1) \times r_{ij}]}$$

where r_{SB1} is the Spearman–Brown split-half reliability, r_{ij} is the Pearson correlation between forms i and j , and k is the total sample size divided by sample size per form.

Using this method also yielded a scale reliability coefficient of .71.

For each question, participants were given three possible options: (1) hardly ever, (2) some of the time, and (3) most of the time. These three choices were the response options for all the variables in this section. The resulting scales were standardized so that one unit change represents a standard deviation increase or decrease from the average.

The second dependent variable, negative emotional state, was a composite of three variables. Participants were asked “In the past week: I felt sad,” “. . . I felt depressed,” and “. . . I felt lonely.”¹ This scale resulted in a Cronbach’s α coefficient of .79. This scale was also standardized for ease of interpretation.

Independent variables

We focus on three sources: spouses, children, and friends. The spouse category includes romantic partners who were living with the respondent. In each case, respondents were asked similar questions and provided identical response categories. Respondents were first asked to respond to the following four statements:

- How much does your husband/wife/partner make you feel loved and cared for?
- How much is he/she willing to listen to you when you need to talk about your worries or problems?
- How much do you feel your husband/wife/partner makes too many demands of you?
- How much is he/she critical of what you do?

The first two questions are measures of support, and the last two questions are measures of strain. The same four questions were asked about the respondent’s child(ren) and friends. For all of the abovementioned questions, the possible response options were

(1) a great deal, (2) quite a bit, (3) some, (4) a little, and (5) not at all. The responses were reverse coded so higher answers indicate an increase in support or strain.

We took the average of the two support measures to create a support variable. The same technique was used for the latter two strain variables. Thus, we ultimately constructed six unique independent variables: spousal support, spousal strain, child support, child strain, friend support, and friend strain. Although our measures of support and strain diverge from some scholars, our measures of support are identical to those used by Okabayashi et al. (2004), and our measures of strain overlap with multiple scholars (Chen & Feeley, 2014; Okabayashi et al., 2004).

Control variables

Social support varies not only in quality but also in quantity (Berkman et al., 2000). Therefore, we included the number of respondent's confidants in the analysis. Respondents were asked, "Thinking of all your family and friends, including your spouse/partner, child(ren), and parents, is there anyone in your life with whom you can really share your very private feelings and concerns? If yes, then how many?" We used this "how many" question to create the *number of confidants* variable.

We controlled for *total family income* because income is associated with emotional well-being. It is also positively correlated with age. Income was recorded as an ordinal variable with 10 categories. All income categories were recorded to their mean, and all dollar amounts were converted to their 2011 equivalents. We also included a variable for the sex of the respondent.

For *education*, respondents reported the level of education they had completed by choosing one of the following categories: less than a high school diploma, high school diploma, some college, 4-year degree, and graduate degree. For this measure, less than a high school diploma was the reference category. The survey only collected education data during the first wave of analysis. However, because the average age of the respondent was 54 in Wave 1, we would not expect to see a substantial change in the overall amount of education that would have been reported in subsequent waves.

We incorporated two separate metrics for age in the model. The first metric was a continuous measurement of the respondent's *age* during the time of data collection in each wave. We also incorporated a squared term for the respondent's age to capture any nonlinear relationships with age in our models. It is important to note that we only incorporated the quadratic term into the final models in which this term was significant. The second age-related variable was distinct from the first in that it captured an individual's cohort. We created a categorical variable that captured each individual's age at the time of the first survey, which we labeled *age category*. The three categories were (a) below 45 years, (b) 45–65 years, and (c) above 65 years. The categorical nature of this variable allowed us to determine if groups of people raised in a similar time period significantly differed from others. Second, grouping the age groups together eliminated problems of collinearity in the model. The means and standard deviations for the variables can be found in Table 1.

Table 1. Means and standard deviations for individuals included in the final sample.

	Mean	Standard deviation
Positive emotion	0.132	0.911
Negative emotion	−0.222	0.868
Age range	59.904	11.815
Spousal support	4.167	0.881
Spousal strain	2.176	0.940
Child support	4.179	0.860
Child strain	1.850	0.860
Friend support	3.962	0.831
Friend strain	1.665	0.733
Confidants	8.354	11.470
Age in Wave 1		
<45	0.359	0.480
45–65	0.413	0.492
>65	0.228	0.420
Income	6.108	2.888
Male	0.423	0.494
Retired	0.323	0.468
Education	3.113	1.394
Number of children	1.894	1.409
Observations		2,268
Individuals		1,641

Note. Americans' Changing Lives study, 1986–2011.

Excluded variables

In our final model, we excluded *relationship status* and *race/ethnicity* as controls. Both measures lacked theoretical and statistical support for their inclusion in the final analysis. Our respondent pool was pruned to only include those with a spouse or partner. Therefore, the inclusion of one's marital status was redundant to our analysis. To test the effect of adding these variables to the model, we generated a nested random effects regression in which the constrained model did not include relationship status or race. The random effects regressions were generated using maximum likelihood estimation to allow for a comparison of the model fit. All measures of race and marital status were insignificant in this model. Furthermore, we compare the constrained model, which did not include race, with the full model, which did include race. The constrained model resulted in a better model fit based on the Bayesian information criterion (BIC statistic).

Hybrid model

To analyze the indirect and direct effects support and strain have on positive and negative emotional states, we use a hybrid (i.e., mixed effects) model, which combines the strengths of the random and fixed effects models (Allison, 2009). Utilizing the hybrid analysis allows us to infer causal directions more effectively than either the random or fixed effect model alone. In this section, we briefly discuss the differences between the fixed, random,

and hybrid models in order to demonstrate how the latter can leverage data to investigate potential causal relationships more effectively than either of its component parts.

Fixed effects models omit time-invariant predictors, even those that are unmeasured. Therefore, they have the advantage of producing coefficients that are unbiased by the omission of time-invariant predictors. This is due to the fact that fixed effects models strictly measure within individual variation. Each of the coefficients in this type of model is calculated by taking the difference between an individual's measure in a specific wave and the mean of that measure across all waves. Time-invariant metrics are dropped from the analysis because the difference between any time-specific measure and the mean measure is zero. Although the exclusion of time invariant measures and between individual variation leads to unbiased coefficients, it also leads to less efficient coefficients because of lower sampling variability.

The random effects model differs from the fixed effects model because it can account for time-varying coefficients. Because the random effect model is capable of incorporating static and time-variant measurements, there are fewer restrictions imposed on the random effects model. Thus, the coefficients generated are more efficient than the ones that would be generated by the fixed effects counterpart. However, this efficiency comes at the cost of having potentially biased coefficients. Unlike fixed effects models, the coefficients of random effects models are impacted by the omission of confounding time-invariant variables that remained unmeasured.

Random effects models are also unable to distinguish between the random and fixed effects of time-varying coefficients. In fact, random effects models are based on the assumption that the within and between variation are the same and therefore combine the two metrics into a single coefficient (Neuhaus & Kalbfleisch, 1998).

The hybrid model combines the benefits of the random and fixed effects models while overcoming the potential weaknesses associated with each. The hybrid model is achieved by including both the person-specific means, as well as the deviations from the person-specific means in the same model. The following equation demonstrates how this separation is accomplished

$$y_{it} = \mu_t + \beta(\mathbf{x}_{it} - \mathbf{x}_i) + \gamma\mathbf{x}_i + \gamma\mathbf{z}_i + \alpha_i + \varepsilon_{it}$$

In the hybrid equation, β is the vector coefficient for the time-variant component of the variance in \mathbf{x}_i . This is the exact equation used to generate the coefficients in a fixed effects model. Therefore, the β coefficients are unbiased by omitting time-varying variables in the model. Further, γ is the vector coefficient for the time-variant component in \mathbf{x}_i , as well as the time-variant vector \mathbf{z}_i in the model. In a random effects model, the coefficients would be a weighted average of β and γ because the model assumes that these two measures are equivalent. In the hybrid model, these two measures are distinct, thus the γ coefficients representing the between-individual variation are not biased by the confounding of within-individual variance in the model.

By running a single model that accounts for both between- and within-individual variation, we are able to answer two separate yet equally important questions. First, holding all else equal, *do individuals with higher support or strain report different levels of positive and negative emotional states than individuals with lower support or strain?*

Second, *do individuals who transition from low to high support or strain (or visa-versa) also report changes in their emotional states?*

These two questions, as well as the types of coefficients they subsequently reflect, clarify the relationship between interpersonal relationships and emotional states by isolating patterns of correlation and covariance over time. The first question addresses correlation between the variables of interest within the population, yet does not account for how individuals change over time. The first question is substantively different than the second because the latter refers to how relationships and emotional states covary within the same individual over time. This focus on covariance over time is a stronger indicator of a causal pathway between the quality of relationships and an individual's emotional state.

These questions relate directly back to the statistical models which incorporate coefficients that represent within- and between-individual variance of the dependent variables. If a within-individual coefficient were significant in the results section, then this would indicate that changes in the dependent variable significantly covaried with the independent variable over time at the individual level. This finding would support the case for a causal relationship. However, if the results bear significant between-individual coefficients yet insignificant within-individual coefficients, then the models would indicate that the two variables were correlated in the population, yet do not covary for individuals over time. This second finding would indicate that the relationship was correlative rather than causal because there would be no temporal evidence to support a cause and effect relationship.

Statistical analysis

We constructed two hybrid models to analyze the relationship between support and strain stemming from different sources and emotional states. In the first hybrid model, we used positive emotional states as the dependent variable, and in the second model, we use negative emotional states as the dependent variable. In each of the equations, we analyzed the effect of support and strain from spouses, children, and friends. The *between-person* variables demonstrate relationships that are correlative, and the *within-person* variables demonstrate relationships that are causal. The aforementioned controls were also incorporated into the models.

We used a series of postestimation commands to compare the magnitude of the coefficients generated by the hybrid model. Specifically, we used Wald tests to determine whether the impact of support and strain from different sources significantly differ from one another. These direct comparisons are possible because identical scales were utilized in the construction of the social interaction variables stemming from spouses, children, and friends. Furthermore, the comparisons allowed us to answer the titular question, *who matters most?*

Results

Between-individual variation and positive emotions

Table 2 shows the hybrid models for both positive and negative emotional states. When accounting for between-individual differences, spousal support has the strongest relationship with positive emotional states, reaffirming the findings of Walen and Lachman

Table 2. Hybrid model results predicting positive and negative emotions.

	Positive emotions		Negative emotions	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Intercept	2.950	7.455	−11.39	6.957
<i>Sources of social influence (between)</i>				
Between spouse support	0.215***	0.028	−0.196***	0.0258
Between spouse strain	−0.0630*	0.027	0.103***	0.0251
Between child support	0.0925***	0.028	−0.0312	0.0262
Between child strain	−0.0563	0.030	0.0909**	0.0278
Between friend support	0.0671*	0.028	−0.0803***	0.0263
Between friend strain	−0.0427	0.033	0.0526	0.0311
<i>Sources of social influence (within)</i>				
Within spouse support	0.135**	0.050	−0.106*	0.0441
Within spouse strain	−0.0788	0.047	0.0851*	0.0418
Within child support	0.0410	0.049	−0.0447	0.0435
Within child strain	−0.0575	0.053	0.109*	0.0469
Within friend support	0.0235	0.048	−0.00620	0.0425
Within friend strain	0.0260	0.053	−0.0603	0.0463
<i>Between individual controls</i>				
Confidants	0.000571	0.002	−0.00340	0.00192
Income	0.0254*	0.010	−0.0324***	0.00948
Male	0.0407	0.043	−0.178***	0.0407
Retired	0.0228	0.055	−0.0160	0.0515
Education	0.0197	0.017	−0.0388*	0.0159
Number of children	−0.00732	0.016	0.00424	0.0149
Individual age	0.000823	0.004	−0.0417*	0.0178
Individual age ²	—	—	0.0003*	0.0001
<i>Age category (1986)</i>				
45–65	0.0242	0.0865	0.0216	0.0812
+65	−0.0224	0.135	0.0953	0.127
<i>Wave</i>				
Wave 2	−0.0438	0.0428	0.108**	0.0387
Wave 3	−0.0329	0.102	0.239*	0.103
<i>Within individual controls</i>				
Confidants	0.00107	0.003	−0.00182	0.00241
Income	−0.00523	0.021	−0.0330	0.0187
Retired	−0.0559	0.083	0.0252	0.0742
Number of children	0.160	0.147	−0.0504	0.132
Individual age	−0.00426	0.004	−0.00673	0.0182
Individual age ²	—	—	3.05e-05	0.000146
Observations	2,265		2,265	
Number of individuals	1,640		1,640	

Note. The “within” prefix denotes coefficients reflecting within-individual variation. The “between” prefix coefficient denotes coefficients reflecting the between-individual variation. Americans’ Changing Lives study, 1986–2011.

*** $p < .001$; ** $p < .01$; * $p < .05$.

(2000). Increased spousal support is associated with an increased positive emotional state. A direct comparison of the coefficients reveals that positive spousal support has a 232% greater correlation than support from children, and a 320% greater correlation than support from friends. A Wald test comparing coefficients confirms that the correlation stemming from spousal support is significantly larger than those stemming from children and friends.

An interesting result in this section was the stark difference between support and strain. Support from all three sources is significantly correlated with more positive emotional states. However, of the three sources of strain, only the strain stemming from spouses is significantly correlated with lower positive emotional states. The other two sources are insignificant predictors of positive emotional states, meaning that having straining children and friends is not significantly associated with lower positive emotion.

Within-individual variation and positive emotions

The purpose of the within-individual coefficients is to investigate the causal link between support and strain stemming from various sources and emotional states. In the case of positive emotions, only spousal support is shown to have a significant causal link to positive emotions. That is to say, as spouses become more supportive over time, individuals report more positive emotional states. This was not the case for support from children and friends, despite being correlated with positive emotions.

In the case of social strain, none of the within-individual metrics are significant predictors of positive emotions. This finding demonstrates that as spouses, children, and friends exerted more strain, there is no significant change on the reported level of positive emotions.

Between-individual variation and negative emotions

We analyzed the strength of the relationship between support and strain and an individual's reported negative emotional state across respondents. Similar to the results for positive emotional states, we found that spouses have the greatest overall correlation with negative emotional states. Spousal support and friend support are the only types of support to be negatively correlated with negative emotional states. Furthermore, the correlation between spousal support and negative emotional states is 244% greater than the correlation of support stemming from friends. A Wald test confirms that the difference between spousal support and friend support is statistically significant.

For the between-individual coefficients regarding strain, we found significant correlations between strain and negative emotions stemming from both spouses and children. Although the coefficient for spousal strain is greater in magnitude than that of child strain, the Wald test comparing the coefficients demonstrates that there is no significant difference between the measures. Finally, we find no significant correlation between friend-based strain and negative emotional states.

Within-individual variation and negative emotions

Similar to positive emotional states, both support and strain from spouses have a significant causal link to individual's negative emotional states in the predicted directions. However, the results for negative emotional states differ slightly from positive emotions in that child-based strain is also a significant causal factor. The magnitude of child-based strain is similar in size to that of spouse-based strain.

Model controls

There were a number of controls that we added to the model which have been the focus of previous studies. Unsurprisingly, the results show that individuals who earn high incomes are more likely to report positive emotional states and less likely to report negative emotional states than their poorer counterparts. Interestingly, this pattern is not observed at the within-person level. That is to say, as the same individual earns a greater amount money throughout her life, she is no more likely to report positive emotional states than when she was earning less money. The same null finding holds true for negative emotional states.

The models also provide insight into the relationship between age and emotional states. While nonlinear relationships have been found between age and certain social well-being measures (Keyes, 1998), other researcher suggests that positive emotions increase with age (Carstensen et al., 2011). In contrast to this previous work, we find no relationship between chronological age and positive emotional states, but we do find a nonlinear correlation between age and negative emotional states. Although we use a quadratic term to model the relationship between age and negative emotional states, the asymmetrical nature of the curve suggests a "leveling off" rather than pure parabolic trend. Based on the coefficients, we know that as people age, they are more likely to report negative emotional states. This trend reverses at the apex of the curve which we calculate to be approximately 65 years of age. However, it is important to note that 90% of the responses in our data are from people at 34–74 years of age, thus leading to the conclusion that the nonlinear pattern is asymmetric.

Finally, we probed the correlation between gender and emotional states. Although gender does not significantly correlate with positive emotional states, we find that it does significantly correlate to negative emotional states. All else equal, men are in fact less likely to report negative emotional states than their female counterparts. To put the magnitude of the gender effect into context, being a man has the same benefit as making US\$5,500 more per year on negative emotional outcomes.

Discussion

This article contributes two novel findings to the literature on emotional well-being. First, our results illustrate a clear hierarchy for sources of support and strain. Overall, spouses are most influential on emotional states, children are second, and friends are the least. This finding is consistent with previous work (Chen & Feeley, 2014), particularly in the way that it highlights the importance of spouses as a source of support (Okabayashi

et al., 2004). Furthermore, we find that there is an internal hierarchy within spousal interactions. Spousal support is more predictive of both positive and negative emotional states than spousal strain. In addition, we demonstrate that the role of children as an influential force should not be overlooked. Although support from children does not directly impact a parent's positive or negative emotional states, child-based strain significantly increases a parent's negative emotional state. Thus, children who exert strain on their parents have more of an impact on emotional states than those who are supportive.

Second, the hybrid methodology implemented in this study contributes to the literature by providing further insights into how support and strain are linked to emotional states. We utilized a novel methodology to disentangle the issue of correlation or causality, a relationship that has been unspecified in the literature. We nuance the assumption that support and strain are directly linked to emotional outcomes. This link only exists for spouses and it only partly exists for children. Friends providing support or strain did not cause changes in emotional states. Our findings contribute to the literature by showing that emotional states are dependent on *who* is providing the support or strain. Furthermore, some changes in emotional states are not driven by interaction partners, but are the result of unspecified exogenous factors.

Because spouses have the most impact on emotional states, it is especially important to consider the mechanisms that may be driving their influence. For example, the strength of the spousal findings could be a function of interaction frequency (Burke & Stets, 2009). Because our sample included spouses and live-in partners, we expect these significant others to interact more frequently than friends and children, especially adult children who no longer live at home. Spouses have more opportunities to be loving, caring, and willing to listen, but they also have ample opportunities to be critical and demanding. Unfortunately, our data did not measure interaction frequency, so our hypothesis remains subject to future inquiry.

Our analysis also revealed the important role that children play in the maintenance of emotional well-being. Although receiving support from children did not significantly increase positive emotional states or decrease negative emotional states, strain from a child significantly increased negative emotional states. Our findings provide a more holistic understanding of family dynamics. Although Chen and Feeley (2014) found that spousal strain decreased life satisfaction, our findings show that children were a stronger predictor of negative emotional states than spouses. Thus, spouses may contribute to more global self-assessment, while children may be the driver for more temporal negative emotions. Children are not an important source of support, but strain produced from children has important emotional consequences. Several factors could be driving this finding. First, receiving support from a child—even emotional support—could be seen as a violation of role norms. Spouses and friends are expected to provide support throughout life. In contrast, support from children can signal a transition into late adulthood, which requires a shift in one's self concept. According to symbolic interactionism, this change in meaning can have emotional consequences (Lively & Heise, 2014). Children's support can be interpreted as a slight to one's competence and independence and can even negatively impact their emotional well-being (Silverstein, Chen, & Heller, 1996). Second, children may be less sensitive to the increasing physical and

financial needs of their parents as they age, especially in the early stages of decline. Although children are expected to care for their elderly parents, such expectations do not necessarily prompt action (Silverstein, Gans, & Yang, 2006). If there is a lag between parents' decreased self-sufficiency and children's awareness of such changes, parents may feel that their children are in fact too demanding and critical. Third, carrying the burdens of one's children is consistent with the behavioral expectations for parents. Thus, reacting emotionally to child-based strain could be perceived as a successful enactment of a positive role identity (Stets & Burke, 2014), signaling that they are sensitive and caring parents.

Compared to people with little support from friends, people who received great support reported increased positive emotion and decreased negative emotion. However, when investigating the relationship within individuals, we find no significant effects. Therefore, a causal relationship does not exist, meaning that the correlative findings are the result of an exogenous factor. The lack of causality is supported by the finding that as these relationships became more or less supportive over time, there was no change in the respondents' emotional states. In general, the same people who cultivate healthy friendships also have healthy emotional well-being. The friendships are not creating the emotional well-being. One explanation is that friends are easier to replace than family members. If a friend is not supportive or causes strain, people can seek companionship elsewhere. In contrast, individuals are less likely to self select out of spousal and parental relationships due to the financial cost of a divorce, as well as the lifelong commitment that each relationship represents.

Knowing who matters most in a support system is important because people should know in whom to seek support and which relationships can be most toxic. While all strain should be minimized, straining friends are easiest to navigate emotionally. However, a person should consider making more concrete steps to reduce strain stemming from spouses and children. Such knowledge is beneficial to practitioners who help clients navigate multiple sources of strain at once. Our research also suggests that practitioners will have more success if they focus on decreasing strain from a child than if they focus on increasing support from a child. Mitigating behaviors that are perceived to be too critical or demanding can reduce negative emotional states in the parent.

Limitations and future directions

There are several limitations to this study that open doors for future inquiry. First, our universe of cases was limited to individuals who had friends, were married, and had children over 16 years of age. Although this decision was intentional and allowed us to control for network structure, exploring how different network arrangements moderate the relationship between social interaction and emotional states would be a fruitful endeavor. In addition, we were unable to capture how role relationships shift over time, based on one's position in the life course, which is an important area for future inquiry.

Second, our data present limitations. While our measures overlap with those of previous scholars (Antonucci et al., 2001; Chen & Feeley, 2014; Okabayashi et al., 2004; Walen & Lachman, 2000), we were unable to use well-validated scales for support, strain, and emotional states. Ideally, we would have replicated measures from previous

studies, but we were limited by what existed in the ACL. Because we use a U.S. sample, this research also has limited generalizability. Furthermore, survey data are not equipped to measure certain interactional factors that could be driving the results found between individuals. Qualitative methods could help future researchers specify these mechanisms.

Third, we theorize that interaction frequency is important in predicting the overall impact of support and strain on emotions. We expect that sources with less contact with the respondent would have less impact than sources with frequent contact. If our findings are the result of interaction frequency and not role relationships, then we might expect children and friends to have a more direct impact on emotions if they share a residence with the respondent. However, frequency of contact was not measured in our data set and is a point of clarity to be addressed in future studies.

Finally, emotions are the result of immediate interactions. The length of time between survey waves limited our methodology to a hybrid model that combined fixed and random effects. However, analyzing data with smaller intervals between waves would allow scholars to implement methodologies such as cross-lagged structural equations models, which would produce more pronounced temporal results.

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Open research statement

This research was not pre-registered. The data and materials used in the research are available upon request by emailing kpierce2@nd.edu.

Note

1. All three of these variables are included in the Center for Epidemiologic Studies Depression Scale (CES-D), which is a well-validated measure for depressive symptoms. Because the CES-D scale includes 20 variables, we felt that our measures could not appropriately capture the construct of depression. Therefore, we chose to refer to our scale as a negative emotional state.

References

- Abbey, A., Abramis, D. J., & Caplan, R. D. (1985). Effects of different sources of social support and social conflict on emotional well-being. *Basic and Applied Social Psychology*, 6, 111–129.

- Allison, P. D. (2002). Missing data: Quantitative applications in the social sciences. *British Journal of Mathematical and Statistical Psychology*, 55, 193–196.
- Allison, P. D. (2009). *Quantitative Applications in the Social Sciences: Fixed effects regression models*. Thousand Oaks, CA: SAGE Publications, Inc. doi:10.4135/9781412993869
- Antonucci, T. C., Lansford, J. E., & Akiyama, H. (2001). Impact of positive and negative aspects of marital relationships and friendships on well-being of older adults. *Applied Developmental Science*, 5, 68–75.
- 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.
- Bond, L., Butler, H., Thomas, L., Carlin, J., Glover, S., Bowes, G., & Patton, G. (2007). Social and school connectedness in early secondary school as predictors of late teenage substance use, mental health, and academic outcomes. *Journal of Adolescent Health*, 40, 357–e9.
- Burke, P. J., & Stets, J. E. (2009). *Identity theory*. New York, NY: Oxford University Press.
- Carstensen, L. L., Turan, B., Scheibe, S., Ram, N., Ersner-Hershfild, H., Samanez-Larkin, G. R., . . . Nesselroade, J. R. (2011). Emotional experience improves with age: Evidence based on over 10 years of experience sampling. *Psychology and Aging*, 26, 21.
- Chen, Y., & Feeley, T. H. (2014). Social support, social strain, loneliness, and well-being among older adults: An analysis of the Health and Retirement Study. *Journal of Social and Personal Relationships*, 31, 141–161.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98, 310.
- DeLongis, A., Capreol, M., Holtzman, S., O'Brien, T., & Campbell, J. (2004). Social support and social strain among husbands and wives: A multilevel analysis. *Journal of Family Psychology*, 18, 470–479.
- DuPertuis, L. L., Aldwin, C. M., & Bossé, R. (2001). Does the source of support matter for different health outcomes? Findings from the Normative Aging Study. *Journal of Aging and Health*, 13, 494–510.
- Eisinga, R., Te Grotenhuis, M., & Pelzer, B. (2013). The reliability of a two-item scale: Pearson, Cronbach, or Spearman-Brown? *International Journal of Public Health*, 58, 637–642.
- Fingerman, K. L., Hay, E. L., & Birditt, K. S. (2004). The best of ties, the worst of ties: Close, problematic, and ambivalent social relationships. *Journal of Marriage and Family*, 66, 792–808.
- Flora, J., & Segrin, C. (2003). Relational well-being and perceptions of relational history in married and dating couples. *Journal of Social and Personal Relationships*, 20, 515–536.
- Gee, C. B., & Rhodes, J. E. (2003). Adolescent mothers' relationship with their children's biological fathers: Social support, social strain and relationship continuity. *Journal of Family Psychology*, 17, 370–383.
- Greenfield, E. A., & Marks, N. F. (2006). Linked lives: Adult children's problems and their parents' psychological and relational well-being. *Journal of Marriage and Family*, 68, 442–454.
- Holmberg, D., & MacKenzie, S. (2002). So far, so good: Scripts for romantic relationship development as predictors of relational well-being. *Journal of Social and Personal Relationships*, 19, 777–796.
- Kahn, R., & Antonucci, T. (1980). *Convoys over the life-course: Attachment, roles and social support*. In P. B. Baltes & O. Brim (Eds.), *Life span development and behavior* (pp. 253–286). New York, NY: Academic Press.
- Keyes, C. L. M. (1998). Social well-being. *Social Psychology Quarterly*, 61, 121–140.

- Lepore, S. J. (1992). Social conflict, social support, and psychological distress: Evidence of cross-domain buffering effects. *Journal of Personality and Social Psychology*, 63, 857.
- Lively, K. J., & Heise, D. R. (2014). *Emotions in affect control theory*. In J. Stets & J. Turner (Eds.), *Handbook of the Sociology of Emotions*. Vol 2. Dordrecht: Springer.
- Mead, G. H. (1934). *Mind, self and society* (Vol. 111). Chicago, IL: University of Chicago Press.
- Neuhaus, J. M., & Kalbfleisch, J. D. (1998). Between-and within-cluster covariate effects in the analysis of clustered data. *Biometrics*, 54, 638–645.
- Okabayashi, H., Liang, J., Krause, N., Akiyama, H., & Sugisawa, H. (2004). Mental health among older adults in Japan: Do sources of social support and negative interaction make a difference? *Social Science & Medicine*, 59, 2259–2270.
- Rigby, K. (2000). Effects of peer victimization in schools and perceived social support on adolescent well-being. *Journal of Adolescence*, 23, 57–68.
- Rook, K. S. (1990). Parallels in the study of social support and social strain. *Journal of Social and Clinical Psychology*, 9, 118–132.
- Seeman, T. E. (1996). Social ties and health: The benefits of social integration. *Annals of Epidemiology*, 6, 442–451.
- Sharp, S., & Kidder, J. L. (2013). *Emotions*. In J. DeLamater & A. Ward (Eds.), *Handbook of social psychology* (pp. 341–367). Dordrecht: Springer.
- Sherman, A. M., Skrzypek, A., Bell, R., Tatum, C., & Paskett, E. D. (2011). The contribution of social support and social strain to depressive symptoms in African American, Native American, and European American women. *Journal of Social and Personal Relationships*, 28, 1104–1129.
- Silverstein, M., Chen, X., & Heller, K. (1996). Too much of a good thing? Intergenerational social support and the psychological well-being of older parents. *Journal of Marriage and the Family*, 58, 970–982.
- Silverstein, M., Gans, D., & Yang, F. M. (2006). Intergenerational support to aging parents: The role of norms and needs. *Journal of Family Issues*, 27, 1068–1084.
- Stafford, L., Kline, S. L., & Rankin, C. T. (2004). Married individuals, cohabiters, and cohabiters who marry: A longitudinal study of relational and individual well-being. *Journal of Social and Personal Relationships*, 21, 231–248.
- Stets, J. E., & Burke, P. J. (2014). Emotions and identity nonverification. *Social Psychology Quarterly*, 77, 387–410.
- Stutzer, A., & Frey, B. S. (2006). Does marriage make people happy, or do happy people get married? *The Journal of Socio-Economics*, 35, 326–347.
- Thoits, P. A. (1995). Stress, coping, and social support processes: Where are we? What next? *Journal of Health and Social Behavior*, 37, 53–79.
- Uchino, B. N. (2006). Social support and health: A review of physiological processes potentially underlying links to disease outcomes. *Journal of Behavioral Medicine*, 29, 377–387.
- Walen, H. R., & Lachman, M. E. (2000). Social support and strain from partner, family, and friends: Costs and benefits for men and women in adulthood. *Journal of Social and Personal Relationships*, 17, 5–30.
- Wing, R. R., & Jeffery, R. W. (1999). Benefits of recruiting participants with friends and increasing social support for weight loss and maintenance. *Journal of Consulting and Clinical Psychology*, 67, 132.