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Interactive effects of social support and social conflict on medication adherence in multimorbid older adults

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ABSTRACT

With increasing age and multimorbidity, medication regimens become demanding, potentially resulting in suboptimal adherence. Social support has been discussed as a predictor of adherence, but previous findings are inconsistent. The study examines general social support, medication-specific social support, and social conflict as predictors of adherence at two points in time (6 months apart) to test the mobilization and social conflict hypotheses. A total of 309 community-dwelling multimorbid adults (65–85 years, mean age 73.27, 41.7% women; most frequent illnesses: hypertension, osteoarthritis and hyperlipidemia) were recruited from the population-representative German Ageing Survey. Only medication-specific support correlated with adherence. Controlling for baseline adherence, demographics, physical fitness, medication regimen, and attitude, Time 1 medication-specific support negatively predicted Time 2 adherence, and vice versa. The negative relation between earlier medication-specific support and later adherence was not due to mobilization (low adherence mobilizing support from others, which over time would support adherence). Social conflict moderated the medication-specific support to adherence relationship: the relationship became more negative, the more social conflict participants reported. Presence of social conflict should be considered when received social support is studied, because well-intended help might have the opposite effect, when it coincides with social conflict.

Introduction

Individuals with multiple chronic conditions (multimorbidity) often face the problem of complex treatment regimens, as the number of medications increases with the number of diseases (Tinetti, Bogardus, & Agostini, 2004). Whereas adherence rates are relatively high among patients with acute conditions, those with chronic conditions often fail to follow their prescribed treatment reasonably closely during the long-term course of their illness (e.g., Doggrell, 2010). Poor medication adherence, however, adds to the burden of multimorbidity, as it can worsen overall health status, lead to medication-related hospital admissions, and increase mortality (Simpson et al., 2006).

A substantial body of research has examined predictors of adherence to medication as prescribed. Beyond demographic and socio-economic factors (e.g., age, gender, education), characteristics of the disease and treatment (e.g., chronic versus acute diseases, number of medicines), and individual resources (e.g., health status, medication beliefs), in particular the effects of social resources (e.g., social network characteristics, perception of support, receipt of support) have been researched intensively (DiMatteo, 2004a, 2004b; Doggrell, 2010; Schüz, Marx, et al., 2011; Schüz, Wurm, et al., 2011). However, the effects of these social resources on health are not unequivocally positive. There is consistent evidence that social interactions such as social conflict or receiving social support can also negatively affect physical and mental health and specific health behaviours, particularly in older adults and those with chronic conditions (Hays, Saunders, Flint, Kaplan, & Blazer, 1997; Scholz et al., 2012; Uchino, 2009).

These negative effects have been explained with regard to mobilization effects (low adherence mobilizing higher social support resulting in a negative relation; Uchino, 2009; Väänänen, Vahtera, Pentti, & Kivimäki, 2005), mismatches in the operationalization of outcome and social support (Aaronson, 1989; Tay et al., 2013), or the

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effects of social conflict between provider and recipient, which might render support detrimental (Holt-Lunstad, Uchino, Smith, & Hicks, 2007). Together with the multidimensional nature of social resources, these inconsistent effects of social resources on adherence in older adults require a more nuanced approach, considering different types and levels of specificity of social influences.

Social resources and risk factors for health and well-being in older adults

Received (enacted) social support describes the experience of receiving help, whether or not this help was solicited (Uchino, 2009). There is evidence for positive effects of receiving social support, e.g., on effective coping and physical functioning in persons with chronic diseases (for an overview, see Schwarzer & Knoll, 2007). However, other studies find no relations (e.g., Brown, Nesse, Vinokur, & Smith, 2003) or even negative relations between received support and physical and mental health, especially in older and chronically ill adults (Hays et al., 1997; Seeman, Bruce, & McAvay, 1996). These negative effects were found for both receiving tangible social support that negatively affects functional health (Uchino, 2009) and emotional support that has been found to negatively affect quality of life (Warner, Schüz, Wurm, Ziegelmann, & Tesch-Römer, 2010).

One explanation for negative effects of receiving support might be that it is beneficial only at times when the recipient needs help, requests support, and when the support needs are met, hence when adequate support is received (Bolger & Amarel, 2007). Although research has shown that social support measures in a non-behaviour-specific format can predict health behaviour to some extent (Uchino, 2009), behaviour-specific operationalizations of received social support are assumed to be more predictive of health behaviours (Aaronson, 1989). General measures of support should, therefore have lower associations with specific health measures due to a failure to capture the nature of support in response to specific health behaviour-related needs (Tay et al., 2013).

A further potential explanation for negative relationships between received support and health is that those who are in greatest need (i.e., who are experiencing significant adverse events that threaten health) mobilize more social support from their environment in response to their need (*mobilization hypothesis*). Over time, these relations should reverse: whereas cross-sectionally received support coincides with adverse events, the longitudinal outcomes of received support should be positive (Schwarzer & Leppin, 1991; Uchino, 2009; Väänänen et al., 2005).

Since negative effects of receiving support have been observed in both cross-sectional and longitudinal studies, an alternative explanation of the adverse effects of receiving social support might be the *social conflict hypothesis*. *Social conflict* describes the potentially negative sides of social interactions, including the expression of negative affect, disregard and disaffirmation. It has consistently been associated with adverse effects for health and well-being in older and chronically ill adults (Everson-Rose & Lewis, 2005; Krause & Rook, 2003). This indicates that individuals may experience high levels of support and social conflict simultaneously, which implies no or only small correlations between receiving support and social conflict (Argyle & Furnham, 1983). The presence of conflict in relationships does not only affect outcomes directly, but may be responsible for rendering the effects of support on well-being negative, thus acting as a moderator (Holt-Lunstad et al., 2007; Liang, Krause, & Bennett, 2001). This is of particular relevance for older adults, as they were found to experience high levels of social conflict, mostly with their children and family (Krause & Rook, 2003).

Social support and medication adherence

These considerations are particularly important in the domain of adherence, since a meta-analysis revealed that most studies of the relationship of social influences to medication adherence have employed general and non-behaviour-specific social support measures (DiMatteo, 2004a). DiMatteo found that unidimensional measures of social resources such as structural network characteristics or *general received* and *anticipated* social support relate positively to medication adherence in the aged and chronically ill (DiMatteo, 2004a). However, general social support has exhibited negative effects on adherence under certain circumstances as well (Hamilton, Razzano, & Martin, 2007).

It has been suggested that characterizing social support in a behaviour-specific manner, such as asking recipients whether interaction partners reminded them to take, bought or organized their medication, should provide better prediction of medication adherence (Aaronson, 1989; Tay et al., 2013). Few studies have measured the receipt of medication-specific social support, and results of these studies are inconsistent. For example, Stirratt et al. (2006) found that receiving medication-specific support predicted adherence in HIV-positive patients. However, in a study of hypertensive older adults with a co-morbid cardiovascular disease, medication-specific support predicted worse medication adherence (Friedberg et al., 2009) and in a study on patients with epilepsy, medication-specific support predicted increased anxiety, which predicted decreased medication self-management (Dilorio et al., 1996). Studies of patients with diabetes further reported practical assistance with metabolic control to be unrelated to adherence (Burroughs, Pontious, & Santiago, 1993). A study of HIV patients found received support (consisting of both emotional support and medication-specific support) to be unrelated to adherence (Simoni, Frick, Lockhart, & Liebovitz, 2002), whereas patients with organ transplantation reported both negative and positive effects of receiving support on their medication adherence (Scholz et al., 2012). Although these studies operationalized social support in a behaviour-specific format, they generated inconsistent results.

Aims of the study

This study therefore aims to clarify the role of social resources and risk factors (support and conflict) on medication adherence over time in multimorbid older adults – a high-risk population with both complex medication regimens and a particular need for improvement in medication adherence. We examined associations of general and medication-specific support with medication adherence to find out whether received medication-specific social support relates more strongly to adherence than general received support. Previous studies have considered support as a driver behind adherence, and have not considered the potential mobilizing role of non-adherence in eliciting support. To disentangle this and explain possible negative associations between medication-specific support and adherence, we examined bidirectional relationships over a six-month period to explore the mobilization hypothesis (whether lower adherence evokes more support from the network). We also examine whether social conflict acts as a moderator in this relationship. The study hence aims to concurrently test the *mobilization* (Väänänen et al., 2005), and *social conflict* hypotheses (Holt-Lunstad et al., 2007).

Method

Participants and procedure

Participants for this study were recruited from the third assessment wave of the German Ageing Survey (DEAS, Wurm, Tomasik,