

The 3-phase-model of dyadic adaptation to dementia: why it might sometimes be better to be worse

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Abstract In the next years and decades, the number of old spousal dyads having to deal with the onset and progression of dementia in one partner will increase significantly. Existing research indicates that caregiving for an ill spouse is related to decreased caregiver well-being and high levels of caregiver stress. In this theoretical paper, we argue that three aspects deserve additional theoretical and empirical attention: (a) Some spousal caregivers seem to exhibit stable pattern of individual well-being, (b) dyads may be able to adapt their ways of supporting each other to maintain a maximum of dyadic autonomy, and (c) the progression of the dementia increasingly compromising the individual autonomy is likely to require different behaviors and skills of the dyad to achieve high levels of dyadic well-being. We suggest a 3-phase-model of dyadic adaptation to dementia-related losses of patients' individual autonomy and discuss adaptive processes in three phases of dementia that may allow stable levels of well-being in caregivers over time. Thereby, our model can integrate existing findings and theories and allows deriving areas of future research.

Keywords Dementia · Caregiving · Old age · Theoretical model · Dyad

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Introduction

Most models dealing with caregiving in dementia have focused either on the caregiver and the burden involved in providing support for a partner with dementia or on the course of decline in functioning and autonomy in the person with dementia (for a review, see Braun et al. 2009). In this article, we present a conceptual model that emphasizes the dyadic perspective on caregiving and care receiving when the individual autonomy of the partner with dementia becomes increasingly compromised. The model suggests that with increasing losses of the patient's individual autonomy, dyadic autonomy and well-being can be maintained through different adaptive processes depending on the amount of individual autonomy loss. We will argue that based on the model in some instances dyadic autonomy may be better achieved when individual autonomy is lower than would be predicted from the severity of the illness symptoms. We will start with a short description of the phenomenon of dementia, its progression, and its consequences for autonomy and well-being from a dyadic perspective and then briefly describe our theoretical 3-phase-model of dyadic adaptation to dementia. We will then discuss how existing theoretical concepts map onto our model and finally suggest consequences for future interventions and research. We are thus applying major concepts such as equity theory to better understand the dyadic dynamics in the course of dementia. The combination of the 3-phase-model approach with major dyadic exchange concepts provides novel perspectives on a theoretical as well as a practical level.

Dementia is a progressive disease, and a number of established diagnostic rating scales describe the changes in symptoms in consecutive phases. For instance, the Global Deterioration Scale (Reisberg et al. 1982) roughly

distinguishes seven phases, in which phases 1–2 refer to no or questionable impairment, 3 to mild impairment, 4–5 to moderate impairment, and 6–7 to severe impairment. Clearly these phases have mostly descriptive purposes and tend to underestimate the large variability in individual trajectories and symptom combinations. However, for the purposes of this article, they suggest that in the course of the illness progression the autonomy of an affected individual may be roughly described as mildly, moderately, and severely compromised. In general, from a dyadic perspective the increasing loss of individual autonomy related to the progressing dementia results in increasing and changing needs for instrumental support and care from the spousal partner to maintain dyadic autonomy.

3-Phase-model of dyadic adaptation to dementia

The findings on the impact of caregiving for a partner with dementia in old age are equivocal. Most studies suggest that caregiving for dementia patients by older spouses is associated with higher levels of stress and negative consequences on the caregiver's physical and mental health (Adams 2008; Barnes et al. 1992; Pinquart and Soerensen 2003; Schulz et al. 1990; Vitaliano et al. 2003). In addition, spousal caregivers face changes in the marital relationship. Partners of dementia patients report various domains of loss in the relationship with the patient: emotional closeness and intimacy, having a helpmate, mental stimulation, or recreational companionship (Mittelman et al. 2003). Thus, with the onset of dementia the exchange and assistance toward each other in a spousal relationship can become asymmetrical and unequally balanced. As dementia lasts and/or progresses, patients need constant and increasing instrumental, emotional, and cognitive support and they are at the same time less able to reciprocate these exchanges. However, there are indications that some spousal caregivers manage to maintain well-being and health in the face of a progressing illness. Heru et al. (2004) examined spousal dementia caregivers of moderately disabled partners and found that some carers perceived more reward than burden. Furthermore, the caregivers' quality of life was similar to a control sample, indicating that spousal dementia caregiving can also be personally rewarding. Additionally, both negative and positive changes experienced by caregiving spouses may coexist (Narayan et al. 2001). In fact, spouses may report perceiving caring as fulfilling, satisfying, and affirming while concurrently experiencing negative responses, such as relational deprivation with their partner. That is, although the majority of carers perceive a deterioration of their relationship, at the same time they may report feeling closer to their spouses now than in the past (DeVugt et al. 2003).

In what follows, we argue that existing theoretical approaches could profit from taking the dyadic consequences of the progressing nature and qualitatively different phases of dementia into account. We will discuss how the most prominent approaches to conceptualize dyadic dynamics are related to adaptive changes that may be observed in affected dyads. Specifically, we point out how the dyadic concepts of coping, problem-solving, equity, reciprocity, and cohesion may apply to explaining optimal processes for adaptation for different phases of illness severity. We will first describe the 3-phase-model of adaptation to dementia and then discuss how each of these existing concepts can be used to derive specific predictions for each phase.

It seems obvious that dementia negatively affects the abilities needed to cope with obstacles and stressors in one partner and that one may, as a consequence, expect lower levels in well-being in both partners. The basic model explaining the effects of long-term stressors on caregivers has been the wear-and-tear model. The model suggests that levels of physical and psychological health decline gradually with the length of care (Haley and Pardo 1989; Townsend et al. 1989). However, longitudinal data bearing directly on the wear-and-tear model are ambiguous (Alspaugh et al. 1999; Danhauer et al. 2004; Gaugler et al. 2000; Neundorfer et al. 2001; Powers et al. 2002; Schulz and Williamson 1991). On one hand, stressors such as behavioral problems exhibited by the care recipient as well as role captivity and role overload of the caregiver are predictors for health-related outcomes such as depression in caregivers after controlling for the duration of the illness (Pearlin et al. 1990). On the other hand, depression and role captivity remain stable over time in caregivers (Aneshensel et al. 1995). As caregiving continues into later stages of the illness, overall subjective stress and depression in the caregiver do not seem to intensify past the middle stages of AD in the care recipients (Danhauer et al. 2004; Gaugler et al. 2000). Thus, the wear-and-tear model of caregiving is only weakly supported. Therefore, it needs to be explained why and how some spousal dyads manage to maintain high levels of well-being in the face of increasing losses of autonomy of the patient and increasing and changing demands on the caregiver.

Old couples are also likely to share a history of joint problem-solving and coping, and of adapting their interactions appropriately around events such as childbirth or retirement (e.g., Martin and Wight 2008). Berg and Upchurch (2007) recently presented a model describing dyadic developments and changes experienced by couples with one partner suffering from a chronic illness. The authors emphasize that being confronted with a chronic illness of one partner leads to dyadic coping processes that change over the life span. They outline the relevance of focusing on the

dyadic perspective (e.g., dyadic appraisal, dyadic coping) in caregiver research. However, the progressive nature of dementia and the cognitive impairments of patients with dementia make this illness and the required adaptational processes unique compared to other chronic illnesses, and it is consequently not part of the review. From a psychological point of view, a model addressing dyadic adaptation processes in dementia must specify under which conditions old spousal dyads affected by the onset and progression of losses of individual autonomy caused by the dementia may adapt their interaction patterns to stabilize their dyadic autonomy, i.e., independence from external help and well-being. The empirical findings based on existing theoretical models of dyadic exchange or caregiver burden may partly be due to the fact that dyads with varying levels of dementia severity and caregivers with varying durations and amounts of caregiving, symptoms, and illness onset have been examined (e.g., Gaugler et al. 2000). To provide a framework for these seemingly equivocal empirical findings, we suggest a 3-phase-model of dyadic adaptation to dementia that takes the progressing nature of the illness, the dyadic nature of the effects of the illness on individual autonomy and well-being of both partners, and the adaptational potential of affected dyads into account. We argue that existing theoretical approaches could profit from taking the phase concept presented here into account, because it may help to make more specific predictions about processes potentially contributing to the maintenance of dyadic autonomy and well-being when confronted with dementia. Some existing models may apply well to specific phases, and some models will make different predictions about optimal processes for adaptation for different phases. The model is displayed in Fig. 1 and described in Table 1.

On the one hand, we assume that decreases in individual autonomy related to increases in dementia severity from Phases I to III lead to increases in imbalance which in turn impacts couples' and, more so, caregiver's well-being. Thus, we hypothesize that dyadic exchange has a mediating function between increasing severity and well-being. On the other hand, we assume that a couple's adaptive capacity serves as a moderating factor for the association between dementia severity and well-being. The couple's adaptive capacity is expressed in increased transformations in relationship-supporting processes due to the change in dementia severity from Phases I to III of the spouse. Relationship-supporting processes in close and long-term relationships involve dyadic problem-solving, growing commitment and interdependence, communal orientation, and willingness to sacrifice as well as past and present marital functioning. Dyadic exchange may directly mediate an association between severity of dementia and well-being or it is adapted to the progressive nature of dementia, resulting in a mediating function of *changes* in dyadic exchange between progressing dementia severity and well-being.

In general, the model assumes that, first, different activities and strategies are required in the different phases of progressing losses of individual autonomy related to dementia in order to achieve stable levels of dyadic autonomy and well-being. Second, it assumes that dyads differ in the degree to which they are able to respond to these changing requirements. Third, the model suggests that each phase carries different risks for the spousal dyads. While one may assume that a main problem in Phase I may be the identification or diagnosis of the illness itself, the model suggests that the most demanding phase may be the moderate stage in which the ill partner fluctuates in his or

Fig. 1 The 3-phase-model of dyadic adaptation to dementia *P1* caregiving partner, *P2* care receiving partner, partner with dementia

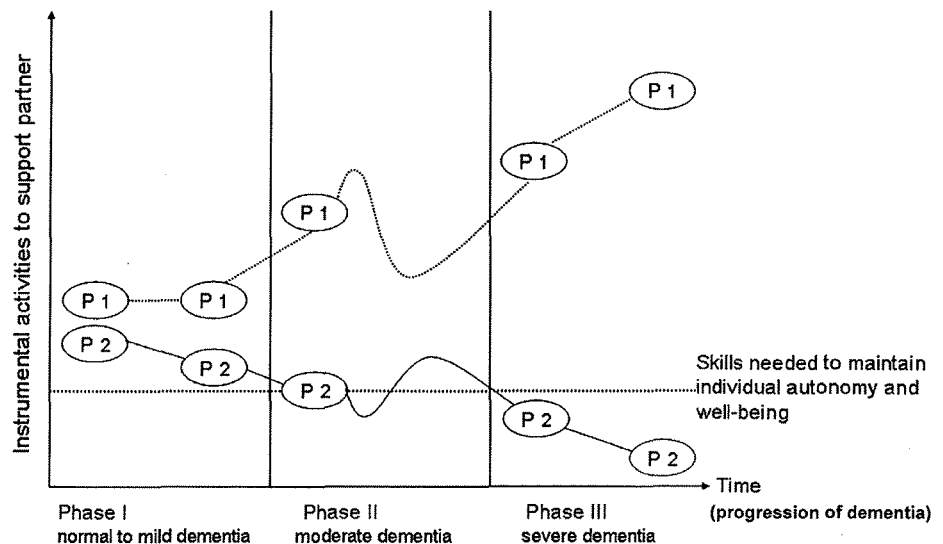


Table 1 Assumed rules for social dyadic exchange and strategies to maintain normal well-being depending on dementia severity

	Phase I	Phase II	Phase III
Assumed best rule for dyadic exchange	Equity	Adaptation	Needs
→Support activities P1	Average	High	Extreme
→Support activities P2	Average	Moderate	Low
Individual autonomy P1	High	Low	High
Individual autonomy P2	High	Moderate	Low
Requirements for dyadic autonomy	Maintain individual autonomy	Frequent assessment of abilities and needs of partner Coping strategies	Reappraisal
Assumed best cognitive strategies	Individual problem-solving	Dyadic problem-solving	Individual-led task management
Strategies to enhance cohesion	Interdependence Communal orientation	Commitment Communal orientation	Willingness to sacrifice External support
Outcome			
Dyadic autonomy and well-being	Normal	Normal	Normal

P1 caregiving partner, *P2* care receiving partner, partner with dementia

her need for instrumental support. In Phase III, the highest risk stems from the need to manage practically all aspects of daily life (e.g., household, regulation of affect and social interactions, and duration of this requirement). Whereas taking over these responsibilities temporarily is a rather typical experience in life, e.g., in the case of an illness or as the consequence of an accident, the ongoing demands at that level may increase the likelihood for secondary risks such as social isolation, lack of social support, or health problems. In short, the 3-phase-model focuses on the dynamic adaptation of caregiver-care recipient dyads. It assumes that adaptation processes of afflicted couples depend on several individual *and* dyadic factors, such as dementia severity, social support, or imbalanced dyadic exchange. In the following sections, we will discuss how existing theoretical concepts map onto the 3-phase-model and outline the model of dyadic adaptation in more detail.

Models of equity and reciprocity and dyadic exchange across the three phases

In a close relationship with intact levels of individual autonomy, interactions may be best explained by changes in equity and reciprocity (Baikie 2002; Blau 1964; Homans 1961; Thibaut and Kelley 1959; Walster et al. 1973). According to equity theory, a relationship is imbalanced when the ratio between costs and rewards of one partner deviates from the ratio of the other partner. Individuals receiving disproportionately few rewards are expected to feel under-benefited, and individuals receiving disproportionately many rewards are expected to feel over-benefited. Equity theory further predicts that people who feel

inequitably treated in their relationship will become distressed (Walster et al. 1973). These distressing emotions can lead both partners in an inequitable situation to work either to restore real, actual equity by changing the balance of costs and rewards, to restore psychological equity by changing their own perceptions and those of the partner in order to make balance seem fair, or to end the relationship (Walster et al. 1978). Relationships vary in the degree of reciprocity in the exchange process. However, equity theory suggests that long-term intimate relationships are less subject to the norm of immediate reciprocity than casual relationships or relationships in the early stages of development (Antonucci 1990). Thus, a spouse's care for a sick partner represents a continuation of the ongoing exchange that occurred over the course of their relationship. Relationships based on more general reciprocity can endure one-way flows of help for a sustained length of time. Only if the norm of reciprocity is violated over the long term, the relationship may become intolerably burdensome and stressful (Call et al. 1999).

Very little is known about equity within relationships of couples who have to cope with the development of a serious illness in one partner (Kuijjer et al. 2002). The general case may be that healthy partners' contributions to the relationship increase, whereas the ill partners' contributions may decrease because of physical and cognitive limitations and emotional strains (Cutrona 1996; Thompson and Pitts 1992). In terms of equity theory, the assumption can be made that couples facing a serious illness will become inequitable (imbalanced) in such a way that ill partners are likely to feel over-benefited and their healthy partners are likely to feel under-benefited. Inequity will lead to lower well-being and relationship satisfaction

(McCulloch 1990; Murstein et al. 1977; Rook 1987; Sprecher and Schwartz 1994; VanYperen and Buunk 1994).

How can equity and reciprocity be fruitfully adapted within the 3-phase-model? One may assume that a rule of equity and a norm of reciprocity are highly adaptive when both individuals in the relationship are in principle able to function autonomously, because they provide rewards for independence. Consequently, it should be most adaptive for the dyadic autonomy and well-being in Phase I if spousal caregivers maintain their own level of autonomy instead of supporting the partner unnecessarily, thus avoiding over- and under-benefiting in the relationship. However, in Phase II with intermittent times of clear need for support and in particular in Phase III with constantly high levels of need of support, equity, and reciprocity may not be possible any more.

As already mentioned, Walster et al. (1978) suggested three possible reactions to inequity in relationships. Applied to social exchange within couples in which one partner is suffering from dementia, this suggests that not all strategies are equally likely to be successful. In addition, the selection and use of particular strategies depend on available cognitive abilities to jointly solve everyday problems. Restoring actual equity may be particularly difficult when inequity is caused by unchangeable characteristics of the illness as in Phase III. Ending the relationship is probably not a realistic option for long-term married couples who tend to have a high commitment toward marriage (Rusbult and Buunk 1993). Therefore, from the dyadic perspective of the 3-phase-model psychological restoration in terms of changing perceptions may be the most adaptive response (Sprecher 1992). Psychological restoration may include reappraising domains of reciprocity, e.g., a balanced exchange of emotional support may compensate for an imbalanced exchange of instrumental support. In fact, Wright and Aquilino (1998) demonstrated that the care recipient's supportive behavior influences caregiver well-being and relationship satisfaction. The more emotional support was reciprocated the less was the subjective burden and the higher the marital satisfaction. In addition, the results indicate that receiving support and help from the care recipient enhances the well-being of the caregiver. In contrast, the impact of emotional support exchange was the same across different types of disabilities, indicating that an imbalanced exchange increased the subjective burden for the caregiver. Nonetheless, when high levels of disabilities are present as in Phase III, the effect of reciprocal exchange on burden diminishes, and caregiver burden is nearly constant regardless of the number of balanced exchanges (Wright and Aquilino 1998). In sum, despite the potential benefit of restoring perceived equity in a long-term caregiving relationship in

which the partners become increasingly interdependent and committed toward each other, it is not clear under which circumstances restoration is adaptive and how dyads could be supported in using this strategy.

Models of cognitive collaboration across the three phases

It may be assumed that dyadic problem-solving and the negotiation and distribution of responsibilities within old couples provides an enormous potential for adapting to a situation in which one partner becomes chronically ill, and consequently, a number of studies have examined the adaptation to chronic illnesses (for an overview, see Berg and Upchurch 2007; Bodenmann 2005). There are very few studies on adaptive collaboration in partners with dementia, because the cognitive impairments represent both a critical event like any other chronic illness and an impairment of the cognitive abilities needed to adapt to the situation in one partner (see Berg and Upchurch 2007). As the sharing of responsibilities and management of problem-solving puts a cognitive load on both partners, this should become increasingly difficult as the cognitive impairments increasingly limit the part being shared by the partner with dementia. In fact, when comparing older dyads' dyadic cognitive performance to nominal group performance, i.e., the pooled, non-redundant performance of two individuals, real dyads typically perform worse than nominal dyads (Andersson and Rönnerberg 1995; Basden et al. 1997; Johansson et al. 2005; Ross et al. 2004). Based on this finding, a very efficient strategy in Phase I would be the attempt to independently solve problems that each partner is confronted with and to communicate about the best possible solution (see Martin and Wight 2008). In Phase II, it seems most adaptive to renegotiate responsibilities for everyday tasks such as medication regimens and life management to adapt to the changes in abilities in one partner. Consequently, focusing on coping with the situation "as a team" may support dyadic cohesion despite the partner's declines in cognitive abilities. In Phase III, the most adaptive strategy for the partner without dementia would be to take over the lead in solving everyday problems to allow a focus on the exchange of emotional feedback between partners to stabilize the relationship (Wright and Aquilino 1998).

Models of marital functioning and cohesion enhancement across the three phases

Marital functioning may become disrupted in spousal dyads due to the fact that the ill partner cannot maintain the

spousal relationship as before. In the framework of general systems theory, three core dimensions have emerged which have been integrated into the Circumplex model of marital and family functioning by Olsen (1989). The core dimensions are cohesion, adaptability, and communication. Marital cohesion is defined as the degree of emotional bonding or support spouses provide toward one another. Marital adaptability is the ability of spouses to change the power structure, role relationships, and relationship rules in response to situational and developmental stress and therefore focuses on the ability of the spouses to change. Marital functioning is thus dynamic responding to stressors over the life course, resulting in corresponding changes in the couple's styles of cohesion and adaptability.

In the context of dementia caregiving, the spousal caregiver has to cope with the increasing loss of shared intimacy and emotional support in the relationship with the ill spouse. Coping with loss, therefore, requires a capacity to relinquish attachments and gain emotional distance. At the same time, a couple's natural response to progressive illnesses such as dementia is toward increased cohesion, often creating a dilemma where the caregiving spouse is likely to be pulled in opposite directions. Adaptability or the spouses' ability to modify roles and responsibilities within the marriage also becomes critically important in dementia (Rankin, Haut, & Keefover, 2001). This requirement is most obvious in Phase II in which the partner has to constantly re-assess the needs of the ill partner and to ideally respond with a maximum support for the individual autonomy of the ill partner. Empirically, Rankin et al. (2001) examined the relation between current marital functioning and caregiver depression in spousal caregivers. Results indicated that losses associated with emotional rather than instrumental support were more salient in understanding depressive reactions in spousal caregivers. Marital cohesion (intimacy and emotional support) rather than the caregiver's perceptions of marital adaptability (role structure and responsibilities) emerged as the important factor in predicting caregiver outcomes associated with marital functioning. While spousal caregivers may be able to compensate for their spouse's functional deficits (e.g., capacity to participate in decision-making activities) and instrumental decline (e.g., cooking, driving) without major psychological distress, losses of intimacy, and companionship were not as easily tolerated (Rankin et al. 2001). In fact, the absence of perceived cohesion within the spousal relationship may lead to multiple grief reactions among spouse caregivers. These may include the loss of a core relationship, loss of self (i.e., self as spouse), and loss of the "idealized" relationship (Rankin 1994).

Thus, Phase II is characterized by the highest cognitive demands on dyadic problem-solving, the highest burden on

assessing the needs of the ill partner and tailoring the optimal mix of coping strategies, and the highest burden on marital cohesion. From a resource standpoint, it may be speculated that higher levels of individual dependence (as in Phase III) would be more adaptive for relationship quality and stability in spouses with one partner suffering from dementia. If the partner with dementia would behave more dependently, it would reduce the burden of the healthy partner to constantly assess the current need levels of the ill partner and to constantly match support to current need levels at the cost of more instrumental support than would be required on the basis of the existing abilities of the ill partner. One may assume that within some couples, there may be a tendency to reduce assessment burden, whereas in others there may be a tendency toward maximum individual autonomy of the partner with dementia. Thus, in this sense and given no external support, it may sometimes be "better to be worse" to stabilize the relationship and the dyadic well-being (see also Baltes 1996; Baltes and Wahl 1996 for dependence support scripts in professional care). However, at this point there are no longitudinal data to test this assumption. In addition, if this assumption is true, then it would not so much be the caregiving itself, but rather the cognitive costs of constant need assessment and constant support-tailoring in Phase II that may lead to an increased relationship stress that causes the observed health outcomes in dementia-caregiving spouses. Thus, it needs to be shown to which degree assessment support and tailoring support may reduce the relationship stress on caregiving spouses. In any case, our 3-phase model makes testable predictions that seem counter-intuitive from the standpoint of a stress \times coping framework on caregiving stress.

Strategies related to dyadic cohesion across the three phases

Communal orientation in long-term relationships

Communal relationships can be viewed as relationships characterized by long-term reciprocity in their exchange pattern. Due to the long-term communality between partners, they become sensitive to the needs of one another. Caregiving couples in highly communal relationships feel responsible for the welfare of the other partner and do not feel exploited when the other partner cannot reciprocate the help received (Williamson and Schulz 1995). Caregivers in highly communal relationships less likely attribute distress to the care recipient than to the illness condition (Williamson et al. 2001). Although highly communal caregivers will experience depressed affect, these emotions should be directly related to the loss of the couples' interpersonal

interactions rather than being related to perceived burden. Pre-illness as well as present high communality in caregiving relationships may determine caregiving outcome for both the caregiver and the care recipient (Williamson and Schulz 1990; Williamson et al. 1998). Findings based on the theory of communal relationships indicate that communal partners do not feel exploited when one partner cannot reciprocate aid to the other partner (Clark and Waddell 1985) and they are more inclined to feeling good after having helped their partners (Williamson and Clark 1992). Thus, in historically communal spousal dyads, providing care simply means continuing to meet the other's needs as those needs arise, knowing that the partner would do the same if the situations were reversed. Although these caregivers may be saddened by watching a spouse decline in health and by losses in the rewarding aspects of their previous relationships, they remain generally concerned about providing the quality of care necessary to ensure the partner's welfare (Williamson and Shaffer 1998). Findings also suggest that, when pre-illness marital relationships are characterized by fewer mutually communal behaviors, caregivers may experience depressed affect because they are neither accustomed to meet their partner's needs on a regular basis nor to having their partners attend to their own needs (Williamson and Shaffer 1998). Furthermore, less communal caregivers are likely to provide care more out of duty or obligation than concern for the recipient's welfare (Williamson and Schulz 1995). Although caregivers in pre-illness communal relationships are genuinely concerned with the welfare of the partner, they will still miss the intimacy and mutual concern that may no longer be apparent in the relationship and therefore will experience some depressed affect as a result of this interpersonal loss. Williamson and Shaffer (1998) reported that depressed affect among caregivers in highly communal relationships was directly related to deterioration in the couples' interpersonal behavior and interactions. In contrast, caregivers whose relationship with the care recipient has been historically characterized by less communal behavior may perceive providing care as burdensome. Furthermore, partners can become so linked, to the extent that a departure from self-interest that benefits the partner may not be experienced as a departure from self-interest (Van Lange et al. 1997). This shift toward a communal orientation of a relationship may help to enhance the willingness to sacrifice for the partner or the relationship, due to the fact that they do not differentiate between what is good for them and what is good for the relationship. Based on the reciprocity of communal orientation, communality should be most adaptive in the transition from healthy to mild forms of dementia (Phase I), but also supporting adaptive processes in Phase II to the degree of independence of the ill partner and Phase III with respect to the enhancement of willingness to sacrifice.

Interdependence and commitment in close relationships across the three phases

As partners become more interdependent in Phase I, it would be most adaptive if partners depart from acting on the basis of their own self-interest and instead tend to act on broader goals associated with the relationship. Within close long-term relationships, partners should become more interdependent and they should move from concern with self-interested preferences to concern with mutual outcomes for self and partner, which goes along with increasing commitment in Phase II (Kelley 1979; Kelley and Thibaut 1978).

Commitment is a central motive in ongoing and long-term relationships (Van Lange et al. 1997). Commitment may be explained by the fact that in long-term relationships, engaging in relationship-supporting behaviors on earlier occasions may lead to direct personal benefit on later occasions, when a partner feels inclined to reciprocate (Axelrod 1984). In addition, relationship-supporting behavior may communicate a committed person's co-operative, long-term orientation—in such that behavior that is contrary to self-interest may provide evidence of an individual's feelings toward the partner (Kelley 1979). As a result, as relationships become more committed they become less exchange oriented and closer to a communal orientation of their relationship (Clark and Mills 1979). In general, in these long-term involvements, individuals have a sense that their relationship will go on for some time into the future. Thus, it becomes less essential that they immediately get out of it equal to what they put in (Whitton et al. 2002). This seems particularly adaptive in Phase II. Spouses in long-term marital relationships are often highly committed and thus more easily accept imbalance of social exchange. Subjective commitment summarizes the nature of an individual's dependence on a partner and represents broad long-term orientation toward a relationship. Strong commitment also promotes a variety of relationship maintenance behaviors. Commitment processes are explained by referring to the structure of an individual's interdependence with a partner (Rusbult and Buunk 1993). Commitment summarizes prior experiences of dependence and directs reactions to new situations (e.g., willingness to sacrifice when outcomes are non-correspondent as in Phase III). It represents a long-term orientation, including feelings of attachment to a partner and the desire to maintain in a relationship, for better or worse. In fact, in Phase III high levels of commitment predict tendencies to engage in relationship-supporting behaviors, even when such behaviors are costly and stand in opposition to direct self-interest. Thus, interdependence and commitment are adequate strategies to explain optimal adaptation to dementia in spousal dyads in Phases I

and II, and to the degree of dependence of the ill partner in Phase III.

Willingness to sacrifice in close relationships across the three phases

Associated with the development of a long-term orientation of a relationship and the shift toward a communal orientation in the relationship is a growing willing to sacrifice for the relationship (Whitton et al. 2002). Sacrificing means to forego self-interest to benefit the partner or maintain peace in a relationship (Whitton et al. 2002). These acts of sacrifice are intended to promote the well-being of a partner or the relationship and involve the departure of a priori, self-interested preferences (Van Lange et al. 1997). Willingness to sacrifice is positively associated with higher levels of dyadic adjustment, strong commitment, and higher relationship satisfaction (Whitton et al. 2002). Van Lange et al. (1997) assume that commitment promotes willingness to sacrifice and that sacrifice in turn strengthens the couple's functioning. This should be particularly important the more the dyadic autonomy depends on one partner taking over the responsibilities for daily functioning, i.e., in Phase III as actual equity cannot be restored.

Research implications

We have presented a 3-phase-model of dyadic adaptation to dementia, assuming that with the increasing loss of individual autonomy in one partner different requirements have to be met to achieve a maximal level of dyadic autonomy and well-being. We have tried to demonstrate that existing theoretical concepts can be mapped onto the 3-phase-model, and that using existing models to specify hypotheses about adaptational processes of dyads adjusting to the changing needs with increasing losses of autonomy through three phases leads to new and partly counterintuitive predictions from an individual perspective.

It must be noted that presenting a general phase model of dyadic development has some obvious limitations. The three phases of individual autonomy loss are necessarily a simplification of the variability of the phenomenon of old dyads affected by dementia. The phases may suggest a normative flow for each affected individual and dyad and an underestimation of the variability in the trajectories of adaptation. Another point to consider is that we have purposely focused on the dyads as the unit of analysis. On one hand, this increases the potential heuristic value of the model. On the other hand, it leaves open the possibility that the dynamics of adaptation depend on the specific situation of married dyads, e.g., because married individuals can only adapt their behavior within the limits provided by

their feeling of obligation toward their spouse whereas that may not be true for unmarried dyads or friendship relationships. In general, we believe the consideration of the changing requirements presented by dementia as a progressing illness affecting cognitive and communication skills will in both cases also create adaptational pressure, but with other behavioral options, e.g., terminating the relationship, the model might have to be specified further. As a general model, it is flexible enough, but it clearly will have to be specified in the future how the predictions differ when other and larger numbers of social network partners are included in such a model. What is more, our focus on the dyad has not allowed us to include aspects of extra-dyadic resources such as other familial and non-familial social partners, professional carers, or financial resources, and this clearly limits the generalizability of our suggestions. Nevertheless, we have tried to demonstrate that the integration of a developmental and a dyadic approach combined with a focus on an actively adapting dyad provides important new avenues for future theoretical and empirical work on the dyadic orchestration of resources to maintain autonomy and well-being in old age. The model provides a conceptual basis to integrate theories and empirical findings on the effects of caregiver burden and health, the effects of relationship-supporting processes designed to facilitate the achievement of relationship equity, and on the effects of relationship dynamics on the dependency behavior of individuals suffering from dementia.

Overall, adaptive processes seen in pro-relationship transformations in close and long-term relationships seem to function as moderator for the association between increasing losses of individual autonomy related to dementia severity and well-being across three phases of dementia. Spousal dyads may revert to processes which are inherent to close and long-term relationships. Within the caregiving context transformations toward stronger pro-relationship behaviors may become more important. Those relationship-supporting behaviors such as dyadic problem-solving, growing interdependence, commitment, communal orientation, and willingness to sacrifice as well as the dynamics of marital functioning may shape the couple's adaptive capacity to maintain spousal exchange on other grounds than equity exchange and may function as moderator between severity of dementia and well-being.

The 3-phase-model has the advantage of providing a conceptual framework to identify particular research needs for the transition to increasing levels of individual autonomy loss related to mild, moderate, and severe dementia. For Phase I, it requires the longitudinal examination of dyadic dynamics at the onset of dementia. Typically, this group is underrepresented in dementia research, because inclusion criterion for most studies is an available

diagnosis. However, individuals with a diagnosis in such an early stage are rather exceptional. In addition, Phase I characteristics as described by the model suggest that focusing on the well-being of the non-demented partner seems to be the optimal strategy for maintaining dyadic well-being. Empirical data are needed to examine interdyadic and interindividual differences in knowledge and use of this strategy and their relation to intraindividual and intradyadic well-being. For Phase II, the model makes different predictions. That is, the model suggests that the spouse with dementia may be pushed toward increased dependency. Although from an individual perspective this may increase the burden on providing instrumental support by the non-demented partner, from a dyadic perspective it reduces the ambiguity and effort related to performances above and below thresholds of individual autonomy (i.e., when on "good days" the patient may be able to perform behaviors independently, on "bad days" may need assistance) may stabilize external support as well as a focus on intradyadic emotional support. A similar case has been made for caregiving relationships of professional carers (Baltes 1996; Baltes and Wahl 1996). For Phase III, the model again makes different predictions. It suggests the key importance of external support when severe dementia is lasting over extended time periods. Although from an individual perspective external help would be the optimal match for the needs of the partner with dementia, from a dyadic perspective the model predicts that external help may only be acceptable to the degree that it does not endanger dyadic autonomy, commitment, or the willingness to sacrifice. This would be the case with particular conditions related to the progression of the illness such as the beginning and ongoing of incontinence. However, empirical research is necessary to determine what factors increase acceptance of use of external support by the partner with dementia and thus improve well-being in the non-demented partner. This, in turn, might positively influence the dyadic well-being by allowing the spouse with dementia to display autonomous behaviors without risking negative social consequences for the non-demented partner.

To investigate the adaptation of affected spousal dyads, both spouses have to be included in future research differentiating between the three phases of dementia progression (see Braun et al. 2009). Since the model makes different predictions with respect to the processes supporting dyadic well-being, these predictions may be tested within cross-sectional studies focusing on samples of spouses in a comparable phase of autonomy loss related to the illness. Moreover, to observe adaptational processes within couples, longitudinal study designs examining dyadic social exchange processes over time will provide an answer to the question of what kind of adaptive processes

take place when a dementing illness lasts or becomes more severe in order to maintain dyadic and individual well-being. Given the central importance of Phase II with the highest demands on caregiving spouses, we suggest a focus on this particular phase in which we speculate higher levels of dependence might, in the short term, increase spousal cohesion, but may, in the long term, have negative consequences for both partners.

Potential practical implications

We believe that our 3-phase-model will provide a basis for theory-based development of intervention strategies utilizing the adaptive capacities not only of individuals, but also of the afflicted couples or other social systems. First of all, the model suggests that despite increasing caregiver burden and increasing threats to individual autonomy, through dyadic adaption processes dyads may be successful in stabilizing their dyadic well-being. What is more important, it suggests that when dyads are successful in maintaining their well-being, then this is due to their active role and not because of some pre-existing constellation of abilities or skills. Thus, the model implies that adaptation of dyads can be learned and supported, because dyadic well-being is not simply a function of existing skills and it acknowledges the enormous efforts of dyad members to maintain well-being. Second, the model emphasizes stability as an important outcome of interventions. Whereas in most intervention evaluation studies the goal typically is to improve well-being, in the face of dementia a positive outcome may be the stabilization of well-being. Thus, the model allows to frame and justify practical interventions in the area of dementia that focus on the stability of important functional outcomes such as well-being or dyadic autonomy. For example, with our model the question becomes how do dyads orchestrate their resources to achieve stable levels of well-being versus the question if a particular intervention does on average increase well-being. Third, the model suggests that intervention targets in dementia should include the affected dyad versus a sole focus on the affected individual. The model suggests that dyads may prioritize their actions toward maintenance of their dyadic autonomy, whereas health care provision prioritizes their actions typically on individual autonomy. To the degree that the consequences for effective support differ, as we have tried to argue, interventions may not be accepted and effective.

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