

# Spousal Interrelations in Old Age – A Mini-Review

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## Key Words

Older couples · Health · Well-being · Cognition · Goals

## Abstract

We review findings on spousal interrelations in old age in such key domains as cognition, well-being, and health. Therein, we demonstrate that spousal interrelations may extend developmental options but may also make an individual vulnerable to the experience of loss. We address theoretical questions concerning possible underlying mechanisms, e.g. individual and spousal goal-related processes. Furthermore, we draw attention to important methodological challenges such as identifying processes that operate along different time scales and employing adequate data analytic tools. We propose that aging research may benefit from an examination of interrelations in developmental pathways of multiple co-developing individuals such as spouses and point to the need to disentangle individual from relationship-specific effects.

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## Spousal Interrelations in Old Age

Development does not take place in isolation. Instead, it is often intertwined with other co-developing individuals such as spouses [1–3]. In this review, we propose a theoretical framework for spousal interrelations in old age

and elaborate on the mechanisms through which spouses may extend or limit developmental options and thereby co-produce important aging outcomes concerning cognitive functioning, well-being, and health. In doing so, we address both the theoretical potential of examining spousal interrelations in developmental pathways and the methodological challenges that this line of research has to confront. First, we provide a conceptual overview of theoretical perspectives that emphasize the social embeddedness of lifespan development and aging. Second, we review spousal interrelations in three central domains of functioning and describe potentially underlying mechanisms and outcomes. Third, we highlight a number of central theoretical and methodological challenges and how they may be addressed in future research.

## Conceptual Perspectives on Spousal Interrelations in Old Age

The theoretical perspective of this overview resides at the intersection of lifespan developmental, social, and health psychology. Despite the fact that the approaches we introduce in this section share central assumptions, we believe that identifying the particularities helps us to better understand the important contributions each of these approaches has to offer.

At a conceptual level, more and more lifespan scholars emphasize that embracing a social contextualistic per-

spective is key in understanding human development and aging [4–8]. The underlying idea is that development both influences and is influenced by close others such as marital partners. Drawing on this basic assumption, a promising investigation of spousal interrelations in old age requires that close attention be paid to at least four key features.

First, socially interdependent development entails a *gain-loss dynamic* [5, 7]. At a very general level, understanding spousal interrelations thus has to acknowledge that marital partners can both facilitate and hamper individual development and that it is crucial to identify specific mechanisms that lead to more or less favorable outcomes for everyone involved [4]. More specifically, models of marital relationships point to the multidimensionality of spousal behaviors and emphasize that positive and negative relationship aspects should not be treated as opposite poles on the same dimension. In fact, there is accumulating evidence that positive and negative spousal behaviors within marriage involve different mechanisms and are differentially linked to central outcomes [9–12]. For example, it has been shown that positive relationship features such as positive affect and supportive behaviors predict marital happiness and divorce independent of negative relationship features (e.g. conflict behaviors [10]). In line with the model of successful aging by Rowe and Kahn [13] which emphasizes the pivotal role of an active engagement with life and the maintenance of mental and physical health for aging successfully, we organize this overview along three key domains of functioning, namely cognitive functioning, well-being, and health [5]. We think that these three domains represent a good starting point for asking what we can gain if we extend past research on successful aging that has primarily used the individual as the unit of analysis to consider multiple individuals from the same social unit such as marital partners. The three categories are neither mutually exclusive nor exhaustive. Instead, they should be viewed as broad organizing categories that help us to address how close others such as spouses can contribute to successful aging or make each other more vulnerable to negative aging outcomes in central domains of functioning [14–19].

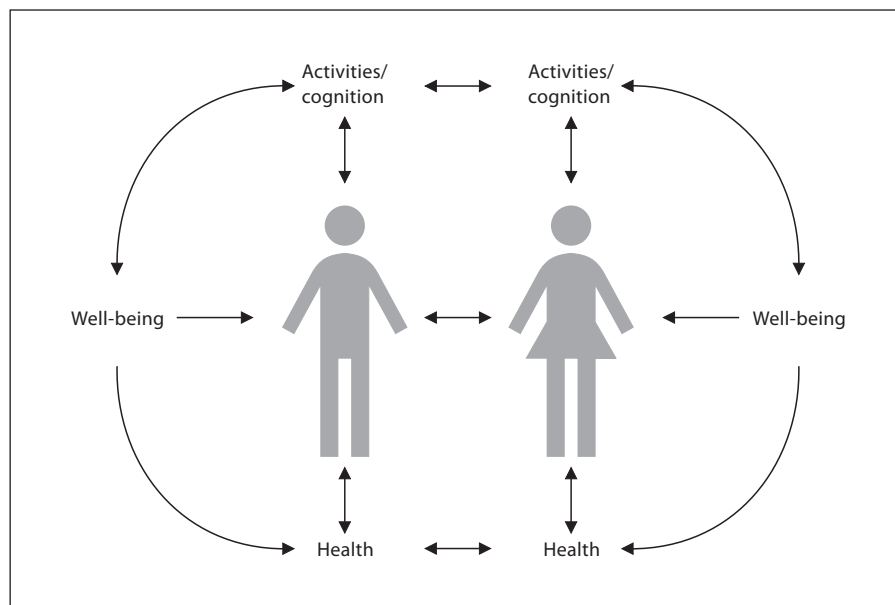
A second characteristic feature of relationships in old age is that they are both *dynamic and idiosyncratic* [20]. The relationship literature shows fairly predictable changes in network composition and functions as people move through different life phases. For example, in comparison to earlier life phases, marital relationships in old age are typically closer and increasingly motivated by the exchange of emotional meaning [21–23]. However, besides these more normative life phase-specific dynamics, older

adult relationships are also highly idiosyncratic. Specifically, older spouses often are long-term teams and share an extended history of joint experiences that are linked to concurrent and earlier roles such as being a parent or grandparent [21, 24]. For example, to care for adult offspring may be a normative experience that many older spouses share, whereas having lost a young child is highly idiosyncratic. When examining spousal interrelations in old age, it is therefore important to acknowledge that marital relationships carry a lot of history and are thus highly idiosyncratic.

Third, people are *active agents* who shape their own development in dynamic interaction with the specific opportunities and constraints afforded by their social environment [4, 5, 8]. This indicates that spousal interrelations cannot be adequately understood without consideration of those personally meaningful objectives that marital partners set and actively try to achieve in the specific context of their relationship [4, 20]. An investigation of spousal interrelations therefore needs to attend to goals and how co-developing partners integrate individual and social aspects of those goals. Goals are cognitive representations of the self that guide behavior over time and express what an individual wants to achieve during a certain phase in life [25–27]. Goals often involve social others such as marital partners either regarding their specific content or in terms of the means for achieving them [28]. For example, in relation to their spouse, older adults may have the goal to optimize the emotional climate in their relationship, and contributing to the developmental success of grandchildren may be a goal that older spouses work on together as a team, e.g. by coordinating each other's activities [29, 30].

Fourth, while these three aspects may address important components of spousal interrelations in general, it is also important to consider the influence of *individual difference* factors [31–33]. For example, past research indicates that women often take a more active role in their social relationships and are more emotionally invested than men [34, 35]. Wives may thus both benefit more and be more vulnerable to spousal interrelations in old age than husbands. Similarly, research addressing spousal interrelations needs to be sensitive to possible influences relating to cultural context, cohort, and socioeconomic status.

Taken together, an examination of spousal interrelations in old age draws attention to (a) how co-developing partners can facilitate and hamper successful aging for everyone involved, (b) the interaction of normative age-related changes in marital relationships and marriage-specific idiosyncrasies, (c) the extent to which spousal in-



**Fig. 1.** Spousal interrelations in cognition, well-being, and health.

terrelations are shaped by the goals that co-developing partners set and pursue, and (d) individual differences in the underlying relationships. Currently, most research investigating social development in old age considers the individual as the unit of analysis and does not specifically include information provided by social partners. Such an approach is important and helps us to better understand individual perceptions of social others in relation to one's own aging outcomes [34]. For example, self-reports concerning spousal behaviors may be associated with subjective well-being within the same individual even though such self-reports do not necessarily have to map onto what the spouse actually did [36–39]. However, examining spousal developmental dynamics and mutual influences requires that information from both partners are considered and can benefit from including multiple individuals from the same social unit (e.g. dyad) as the unit of analysis. To illustrate, we review in the next section the literature that is based on simultaneously considering information from both spouses in three key domains of functioning.

### Spousal Interrelations in Old Age: Findings from Three Domains of Functioning

Married couples comprise a very special, naturally occurring unit in old age. Spouses are typically very close and become even more central in each other's networks

in old age [23, 34]. In addition, older couples share a long history of joint experiences typically originating from several decades of life [7, 40]. Figure 1 illustrates past research which points to spousal similarities and interrelations in cognitive functioning [41–43], well-being, and health [29, 44, 45].

What makes older adult marriages so special? A number of theoretical propositions and empirical research findings paint a fairly positive picture about the dynamics of long-term marriages. Specifically, it has been proposed that as spouses come to know each other over time, they get better at managing conflicts, coordinating their goals, optimizing the emotional climate, and deriving emotional meaning from their relationship [46]. In this vein, older spouses report more positive interactions than their middle-aged counterparts and experience fewer conflicts (e.g. concerning children) [10, 47, 48]. Furthermore, older couples increasingly integrate their developmental perspectives and benefit more from collaborations than younger couples [49].

When looking at this rosy picture of older adult marriage, it is important to acknowledge that many studies have sampled a positively selected group of older couples. First, couples under study typically involve long-term married spouses who have been together for 30 years and more and as such have successfully managed several challenges in the past that drove other marriages apart [10, 50]. Second, these couples often comprise high-functioning spouses aged 60–80 years that are not yet con-

fronted with the dysfunctionalities that characterize advanced old ages [51, 52]. This normative picture of long-term marriage may to some degree be a cohort-specific phenomenon that also has negative implications, for example, when couples stay together despite longstanding conflicts. The picture of late-life marriage may change as future generations such as the baby boomers enter old age with much more diverse relationship histories and patterns [31, 53]. It is thus important to acknowledge that older couples may also face quite a few new age-related challenges, such as dealing with the increased likelihood of declines in health and cognitive functioning of one or both partners [47]. These new tasks can challenge the relationship just as much or even more than prior challenges and bear the potential for both growth and conflict. Hence, despite a generally positive picture of older adult marriages, it is also important to attend to factors that possibly create conflicts and identify circumstances when older adult spouses are seriously challenged.

In the following sections, we present an overview of spousal interrelations in the three key functional domains highlighted in the Rowe and Kahn model of successful aging [13]: (1) cognition in older adult couples, (2) well-being (and lack thereof) in older adult couples, and (3) health, morbidity, and mortality in older adult couples. For each domain of functioning, we will review empirical findings, describe potentially underlying mechanisms, and address open questions that may inform future research.

### *Spousal Interrelations in Cognition*

Research from large-scale longitudinal studies concerning spousal interrelations in old age points to considerable similarities across multiple aspects of cognitive functioning [42, 54] (fig. 1). For example, 14-year longitudinal evidence from the Seattle Longitudinal Study indicates that wives and husbands became increasingly more similar over time in their intellectual abilities [42]. Specifically, Gruber-Baldini et al. [42] report that husbands' performance on an inductive reasoning task predicted their wives' inductive reasoning performance over time. Findings from the Australian Longitudinal Study of Aging also show that perceptual speed for husbands predicted subsequent perceptual speed decline for wives over an 11-year period [55]. Whereas these longitudinal findings provide support for the idea that changes in cognitive functioning are linked among spouses, they are also limited due to their focus on individual level indices of cognitive functioning.

A paradigm that overcomes this specific restriction and may thus help to better understand how spouses may pool their cognitive resources is collaborative cognition. This paradigm specifically targets dyadic cognitive performance outcomes by investigating how older spouses perform on tasks together as a team. Results from laboratory studies concerning spousal collaboration and cooperation on a variety of cognitive tasks speak to the potential of collaboration for older spouses' joint performance outcomes such as increasing story recall and reducing false memories [56, 57]. Importantly, these results further provide evidence that older spouses who collaborate on cognitive tasks achieve better joint outcomes as compared to individual performance or when collaborating with a same-age stranger [56, 58].

Past research using collaborative cognition paradigms has examined a number of different mechanisms that may contribute to spousal cognitive performance outcomes. One key moderator comprises dyadic communication, which seems to facilitate the utilization of joint knowledge and expertise [7, 59]. For example, in a series of studies Dixon and Gould [60] investigated dynamic communication patterns of young and older couples using a collaborative story recall task. Interestingly, similar collaborative performance outcomes emerged for both young and older couples. This relatively high performance of older couples is interpreted as being associated with the older couples increasing their focus away from individual-based recall towards task and strategy discussions during the final third of the task [60]. Hence, effective communication among older couples may represent a means through which older couples may be able to collaboratively compensate for age-related declines in individual cognitive performance. Another important moderator that has been identified is collaboration appraisals [58]. Comparing older spouses and older unrelated dyads, Margrett and Marsiske [58] showed that spouses hold higher expectations concerning collaborations with their spouse than with an unrelated older individual, that older spouses perform better on an everyday problem solving task than strangers, and that appraisals concerning collaboration expectations are positively associated with performance outcomes. Hence, appraisal-related processes seem to represent an important factor in collaborative cognition. Finally, another line of research identified affective exchanges between partners when conjointly working on tasks as a relevant mechanism in determining collaborative performance outcomes [40, 59]. For example, older spouses with high-affiliation exchanges (e.g. frequent cooperative and accommodative

speech) achieved better performance outcomes on collaborative decision-making and errand running tasks than spouses with low-affiliation exchanges [59]. Interestingly, findings concerning moderators of collaborative cognition imply that spousal collaborations typically serve multiple goals simultaneously. For example, older spouses may not exclusively focus on the goal of maximizing collaborative performance outcomes, but also pursue the task in a way that respects the other partner and serves the relationship.

Targeting questions about spousal goals thus represent a promising avenue to the study of collaborative cognition in older couples. For example, following propositions of socioemotional selectivity theory [22], it may be that older adults focus on the regulation of emotions during any task that involves their spouse even when they are not instructed to do so. Past work from unrelated individuals, which indicates that differences in goal content are linked to strategy use and cognitive performance outcomes, raises the important question how relationship goals may influence collaboration outcomes [61–63]. Second, it would be interesting to examine if spouses pursue individual goals or shared goals that may or may not overlap between partners [4]. For example, older spouses who share few goals may develop less positive or even negative attitudes towards collaborations, and they may become reluctant to collaborate if solving a task together with their spouse violates individual goals or indicates a loss of independence [64]. Third, it may be useful to look not only at goal contents, but also at structural relations among spousal goals. Specifically, the dyadic organization of goals (i.e., whether they are in conflict or complementary) may also determine the ability and willingness to collaborate effectively. Hence, considering how goals motivate spousal collaborations may provide important insights into the potentials and drawbacks of social interrelations in cognition in old age.

Another important area of inquiry that may promote a better integration of past long-term longitudinal and lab-based research relates to the larger time course and sequencing of tasks [40]. For example, current collaborations may be related to earlier tasks because they draw on each spouse's expertise in solving a task and thus reflect the specific division of labor that may have developed over time in a long-term relationship [40]. In addition, current collaborations may also be related to expectations about future tasks because suboptimal individual performance on a current task may be a reasonable price to pay if it ensures that future tasks can still be approached in a collaborative fashion. For example, older adults may in-

corporate their spouse's suggestions (e.g. in an errand running task) although they anticipate that this suggestion may not be necessary to solve a given problem, simply to not discourage the spouse from making a contribution to future tasks that require a coordinated effort of both partners (e.g. for a medical decision). Hence, research looking at collaborative cognition in the context of long-term marital relationships may benefit from examining if and how patterns of past collaborations and expectations concerning future collaborations affect the way that older spouses work on a given task.

### *Spousal Interrelations in Well-Being*

Marriages can account for the highest highs and the lowest lows in emotional experience in adulthood [46]. Consequently, a considerable body of research addresses emotional experiences in partnerships [for an overview, see 10]. Several large-scale studies point to spousal interrelations in well-being and depression in old age [45, 65–68] (fig. 1). For example, Bookwala and Schulz [65] report from the Cardiovascular Health Study that spouses aged >65 years old were highly similar on various measures of well-being including affective-emotional aspects (e.g. depression) and cognitive-evaluative components (e.g. life satisfaction). Even though spousal interrelations have been observed for both positive and negative emotions, negative emotions seem to be more contagious than positive emotions [10, 69]. These findings support the notion that older adult's well-being is associated with their respective spouse. However, past work often does not include any dyadic measures that could be used to address potential moderators and mediators of these spousal associations among individual-level constructs.

What are the mechanisms underlying spousal interrelations in well-being in old age? Carstensen et al. [46] propose that in old age, spouses increasingly focus on a positive emotional climate in their relationship and become better at regulating both their own and their spouses' emotions. Using laboratory tasks, they provide evidence that older adult couples show fewer negative emotions than middle-aged couples during conflict discussions and that they report fewer sources of disagreement [29, 70]. In addition to these age differences, the authors also point to several gender differences in negative affectivity and emotion-regulation strategies [29]. For example, in long-term married couples wives were much more likely to express their emotions, both positive and negative emotions, whereas husbands exerted more emotional withdrawal and defensiveness [29]. Another important mechanism that has been examined in laboratory studies

relates to the transformation of negative emotions in long-term marriages. For example, research on older couples indicates that older spouses show more *sentiment override* than middle-aged couples [71]. This essentially means that elderly spouses systematically interpret their partner's behavior during a conflict situation more favorably than external observers view the respective behavior. It remains to be investigated if such positive sentiment override also leads to fewer negative affect transmissions and helps de-escalate conflict thereby contributing to more optimal emotional functioning in late-life marriages.

A thorough examination of the dynamics associated with spousal interrelations in well-being may benefit from an extension of the methodological repertoire beyond laboratory and large longitudinal studies to also include time-sampling methodologies. Time-sampling studies capture daily processes as participants undergo their normal daily-life routines and allow a very fine-grained analysis of how emotions are transmitted within partnerships. Second, it may also be useful to further differentiate broadly-defined negative affect categories. Specifically, we propose a more fine-grained approach that examines discrete emotions within marriages. For example, it would be interesting to see if a particular emotion in one partner (e.g. anger) transmits into a different emotion (e.g. sadness) in the respective spouse and whether this differs in husbands and wives [69].

### *Spousal Interrelations in Health, Morbidity, and Mortality*

Health problems are omnipresent in old and very old age [51, 72]. Marital relationships have repeatedly been shown to relate to better physical and mental health as well as longer lives as compared to singles [15, 16, 73]. However, past research suggests that such positive associations of marriage need to be qualified by the social dynamics within a given relationship [15, 16, 72]. Large-scale studies highlight spousal similarities in important health measures including blood pressure [74], health behaviors [75], and chronic conditions [76]. It thus seems to be the case that older spouses' health behaviors and conditions are closely interrelated [77, 78] (fig. 1). However, the specific mechanisms linking health and morbidity in older spouses are still not well understood.

Evidence accumulated so far indicates that spousal behaviors and health are dynamically linked in several important, partially gender-specific ways. To begin with, health problems of one spouse can affect the other spouse's behaviors and feelings [79–82]. For example, a recent

time-sampling study indicates that husbands' daily health symptoms were associated with high spousal negative affect, whereas wives' daily health symptoms were related to low spousal positive affect [82]. In addition, various indicators of marital quality seem to play an important moderating role in such associations [81, 82]. To illustrate, the above relationships were particularly strong when husbands reported high marital satisfaction. This further suggests that wives in satisfied marriages may be particularly vulnerable to the negative consequences of husband's health symptoms. Another line of inquiry suggests that the opposite temporal sequence might also exist in that behaviors of one spouse can affect health outcomes of the other spouse. For example, time-sampling research by Holtzman and DeLongis [83] demonstrates that satisfaction with spousal behaviors relates to declines in concurrent pain levels in chronic arthritis patients. Finally, spousal declines in health in old age almost inevitably place the other spouse into the role of the caregiver at some point and ultimately widowhood [84–86]. Caregiving and widowhood tend to be female experiences. A description of the caregiving and bereavement literatures, however, is beyond the scope of this article [for overviews, see 87, 88].

Past research using time-sampling methods has provided important insights into the daily-life processes and dynamics associated with spousal behaviors and health [82, 83]. An important extension of this research would be to supplement self-reports by an assessment of more objective or functional health indices in order to identify the underlying physiological mechanisms [16, 89]. For example, an assessment of salivary cortisol in daily life can provide important additional information on the transmission of stress, over and above what may be reflected in spousal self-reported experiences. Furthermore, it also needs to be demonstrated how daily-life processes accumulate over time and ultimately manifest in clinically relevant health outcomes. This is particularly important because acute physiological reactivity is adaptive in the short-term because it activates the necessary energy to meet external demands, but it may become maladaptive in the long-term [90]. In other words, repeated stress exposure may lead to cumulative wear and tear of physiological stress systems and be linked to both morbidity and mortality [90]. Hence, future research may benefit substantially if daily-life processes are addressed as part of longitudinal studies that also provide information on long-term consequences in terms of spousal morbidity and mortality. Finally, it would be interesting to examine how spouses actively influence and shape their

transitions into new roles (e.g. becoming a caregiver). Past research on younger couples and unrelated older individuals suggests that disengagement from unattainable goals and reengagement into alternative goals may represent an important mechanism that relates positively to a variety of health outcomes [91]. It thus appears conceivable that older adults who transition into caregiving and replace unrealistic old goals concerning their spouse by new goals that they can achieve even if the spouse is frail, may benefit in terms of mental and physical health.

### **Outlook: Target Questions for Future Research**

The foregoing review demonstrates the great potential of extending our focus on individual developmental pathways to an examination of spousal interrelations in old age. To conclude the article, we want to revisit the four key features highlighted earlier and speculate how future research may advance our knowledge concerning (1) gains and losses associated with spousal interrelations, (2) age-related dynamics and idiosyncrasies of spousal interrelations, (3) an agentic perspective on spousal interrelations, and (4) the important role of individual difference characteristics.

#### *Spousal Interrelations Have a Gain-Loss Dynamics*

Lifespan researchers have long acknowledged that social others can both facilitate and hamper individual development [4, 5, 7]. In line with this general argument, we propose that an examination of spousal interrelations in old age may offer insights into the potential of close others in buffering the challenges posed by old age and in fostering a level of independence that cannot be achieved alone. At the same time, we also contend that close others may make an individual vulnerable and put him or her at risk of experiencing earlier or accelerated decline. It may thus be important to ask, for example, what happens to a social system if one partner experiences significant health problems. How does this partner benefit from the presence of a spouse, and conversely how is the respective spouse affected by having a partner for whom resources are taxed in the health domain? It appears reasonable to expect that substantially different spousal dynamics emerge as a consequence [for an example in the context of caregiving, see 92].

The present overview targeted spousal interrelations in three domains of functioning that have been identified as key for successful aging and demonstrated that cognition, well-being, and health are systematically linked be-

tween spouses [13]. This approach should only be seen as a first step in posing new questions concerning the dynamics of spousal interrelations in old age. An important next step will be to identify key relationship characteristics (e.g. marital satisfaction) and examine if and how they may affect spousal interrelations similarly or differentially across domains of functioning. In addition, future research on spousal interrelations needs to go beyond merely describing the existence of spousal interrelations in domains of functioning that have traditionally been investigated in unrelated individuals. In other words, we need to target new areas that shed more light on antecedents, correlates, and consequences of spousal interrelations and the mechanisms they entail from a relationship perspective. For example, it would be interesting to ask how spousal differences in relationship perceptions may affect the integration of developmental perspectives. Finally, disentangling different relationship dimensions, such as affiliation and control [11], and mechanisms, e.g. concerning the role of positive and negative relationship features [9, 93], will allow for a more detailed examination of the complexities inherent in spousal interactions over time.

Above and beyond such substantive questions, we also suggest that close attention be paid to the selection of an adequate time frame of investigation. For example, whereas time-sampling methods may be particularly well suited to address moment-to-moment spousal dynamics in daily life, it may also be important to examine how daily-life processes may accumulate over time and manifest in more long-term outcomes that take months and years to manifest. This requires that researchers make theoretically informed choices regarding the time scales and critical age periods or transitions under study.

#### *Spousal Interrelations Reflect Normative Age-Related Dynamics and Idiosyncrasies*

As people move through the lifespan, their social relations change in a fairly predictable way [21–23]. However, they also accumulate nonnormative experiences that are not shared with their same-aged peers [20]. We propose that when examining spousal interrelations in old age, it is important to disentangle individual-level effects from relationship-related effects. One exemplar question concerning spousal interrelations in well-being in old age would be the following: When managing social conflicts, is it that older spouses typically rely on individual-level characteristics (e.g. age-related accumulation of experiences), on relationship-specific characteristics (e.g. positive sentiment override), or some combination of both? In

addition, it is important to acknowledge that research on elderly spouses is typically based on couples with long relationship histories. This may change with the aging baby boomers who enter old age with much more diverse relationship experiences both in terms of past histories of divorce and remarriage as well as being married versus cohabitating in old age. Studying the ageing baby boomers may thus provide particularly useful insights into the differential operation of individual and relationship-specific influences, for example in disentangling the effects of age and length of marriage.

We further propose that taking advantage of recent methodological advances [e.g. the dual change score model; 94] allows us to better understand spousal interrelations as processes that dynamically unfold over time. Employing such contemporary methodologies allows capturing timed cross-lagged associations between spouses' developmental change trajectories. As such, it can address the direction and size of dynamic associations between spouses as related to (a) the domain considered (e.g. cognition vs. emotion), (b) the time metric examined (daily stress vs. long-term longitudinal change over several years), and (c) the age groups under study (middle-aged vs. old age). Further methodological tools, however, are necessary to thoroughly differentiate the effects of individual characteristics, selective mating (i.e. pre-existing conditions), and exposure to shared environmental circumstances that may contribute in different ways to dyadic interrelations in the various domains [95, 96].

#### *Spousal Interrelations Originate from Purposeful Behavior*

Throughout the lifespan, individuals actively shape their own development, for example, by setting and pursuing goals [5, 97]. Taking individuals as producers of their own development seriously requires one to investigate how they affect their developmental outcomes in relation to other co-developing persons such as spouses [4, 8]. In other words, in order to adequately capture important sources of spousal interrelations in old age, researchers need to attend to the goals that individuals set for themselves, goals that they have for their spouses, and goals that they pursue together as a team. This opens the way for several important research questions: First, it may be interesting to ask how personal goals are related to individual and dyadic problem solving [98]. For example, older adults who set self-focused goals may be less likely to use their spouse as a resource when solving problems in daily life even though dyadic problem solving is

perceived to be more effective than individual problem solving [99]. Another important question to ask relates to the organization of goals at the level of the couple. For example, older adults whose goals are well integrated within their relationship may engage in more interdependent daily activities whereas older adults whose goals are in conflict may be subject to many relationship-generated obstacles. Finally, it may be interesting to ask how long-term married couples negotiate their individual goals and how this affects collaborative problem solving strategies and effectiveness. Therein, it may be equally important to investigate the antecedents and consequences of successful problem solving as well as instances when spousal attempts to solve problems end up making them worse [100].

#### *Spousal Interrelations as Related to Individual Differences*

Each individual spouse brings his or her own background to the relationship that may or may not be shared with the respective partner. It is therefore important to attend to the influence of individual differences in culture, socioeconomic status, or gender on spousal interrelations in old age. For example, spousal interrelations in cognition may result from husbands influencing their wives, wives influencing their husbands, or husbands and wives mutually influencing each other. Initial evidence for gender-specific unidirectional pathways comes from the Australian Longitudinal Study of Aging, which shows that perceptual speed for husbands preceded and predicted subsequent perceptual speed decline for wives. In contrast, little evidence was found for the opposite unidirectional pattern or a bidirectional association between husbands and wives [43]. While this study demonstrated differential predictive effects using categories of gender (wives vs. husbands), it would be interesting to see if other categorizations of spousal characteristics may show a similar or different lead-lag pattern over time (e.g. labor force status: employed partner vs. unemployed partner; personality: outgoing partner vs. introverted partner). At a more general level, such a methodological approach would permit to demonstrate that spousal similarities (as evinced in cross-sectional research) may be partially brought about by mutual influences between partners [42]. Another important target of future research relating to individual differences may be to address the heterogeneity and differential aging of spouses. As an extension of research utilizing multiple-indicator information at a person level [101, 102], such an approach could illustrate that differential spousal similarities and



dynamics may emerge in different subgroups of spouses. For example, Ko et al. [44] cross-sectionally identified various subgroups of middle-aged and older adult married couples with distinct profiles across cognitive, health, personality, and social support constructs. Using longitudinal data from married couples, future research may address more specifically that such differential cross-domain profiles are not only a consequence, but also a source of continued differential aging.

## Summary and Conclusions

This review advanced the notion that individual development influences and is influenced by co-developing persons throughout the lifespan and into old age. We started by elaborating what an investigation of spousal interrelations in developmental pathways has to offer. Therein, we point to the importance of considering that spousal interrelations involve gains and losses, that they reflect both normative age-related changes and idiosyncrasies, that they are governed by the goals that close others have and that they relate to individual difference characteristics. Research on spousal interrelations in old age

demonstrates the potential of investigating mutual influences among spouses in such central domains of functioning as cognition, well-being, and health. In our conclusion, we propose that future research would benefit from an investigation of spousal dynamics, for example, as one partner experiences age-related declines in functioning. This requires that close attention be paid to the selection of an adequate time frame and appropriate data-analytic tools. In addition, it is important to disentangle the various sources of spousal interrelations in old age that may originate within the individual, the relationship, or both. One promising way to address these sources may be to examine the goals through which older adults actively influence their own development in the context of their marital relationships.

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