

## COMMENTARY

# Longitudinal studies of older couples as a promising approach to understanding mechanisms of changes in cognition and mental health

Commentary on “Longitudinal associations between cognitive functioning and depressive symptoms among couples in the Mexican Health and Aging Study” by Monin *et al.*

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There is an extensive literature demonstrating that multiple dimensions of social isolation are associated with poorer cognitive functioning in older adults (Evans *et al.*, 2019). Having social relationships and interactions has been associated with less cognitive decline and lower rates of dementia (Penninkilampi *et al.*, 2018), increasing cognitive reserve (Stern, 2009) and promoting cognitively enriching experiences (Hertzog *et al.*, 2008). A longitudinal study by Liu *et al.* (2020) found spousal older adults had significantly lower odds of developing dementia compared to unmarried healthy older adults. Another longitudinal study found years of spousal education were associated with less cognitive decline in healthy older adult spousal partners (Xu, 2020).

As adults grow older, their social relationships may become more selective, and their social networks become smaller. Older adults may choose to spend more time with close family members and friends rather than meeting new friends and socializing with acquaintances (Carstensen *et al.*, 2003). A narrower focus on spousal and other close relationships may be especially advantageous in preserving or enhancing cognitive health of older adults. With the growing literature on the associations of social relationships and psychological, mental, and physical health outcomes (Holt-Lunstad *et al.*, 2015), marriage has become a central focus of studies on relationships and health, primarily because couples have a unique influence on one another's health (Smith *et al.*, 2014).

Research has shown a significant bidirectional association between older adult cognitive functioning and depressive symptoms such that older adults with depressive symptoms have poor cognitive

performance (Zhu *et al.*, 2022) and poor cognitive functioning is significantly associated with greater depressive symptoms in healthy older adults (Perrino *et al.*, 2008). Studies have examined the reciprocal relationship between cognitive functioning and depressive symptoms over time in spousal older adult couples (Lee *et al.*, 2012), but few have examined these associations within a specific cultural context.

Social relationships can be influenced by cultural contexts, and the extent to which social relationships are associated with health may differ cross-culturally as well. Cultural variations in the link of self in the relationship and the regard to emotions can impact relationship quality (Campos, 2015). With respect to link of self, people in cultures that favor independent ideals may require less social support in relationships and practice acceptance to cope with life changes; whereas individuals in cultures that value interdependent ideals may seek social assurances and support to cope with changes. The extent to which cultural ideals of independence and interdependence are attained in one's social relationship may also contribute to one's psychological health (Campos, 2015). These cultural ideals may be especially important within spousal relationships and the unique influence of spouses on one another's cognition and depressive symptoms. Another important cultural variation when examining social relationships and its impact on psychological health is the role of emotion expression. In cultures that value emotion suppression to maintain social relationships, emotion suppression is not associated with negative psychological health (Campos, 2015). According to the review by Campos (2015), people who tend to suppress their

emotions in their social relationships and live in cultures that encourage and value the expression of emotions will most likely face psychological challenges. This aspect of emotion suppression within the spousal relationships may be specifically important in addressing negative psychological outcomes in Hispanic cultures which value positive emotion expression to generate and maintain social interaction (Campos, 2015).

The study by Monin *et al.* (in press) in *International Psychogeriatrics* provides important insights into the bidirectional associations between older adult spouses' cognitive functioning and depressive symptoms over time using a longitudinal, dyadic path analysis with the actor-partner interdependence model. This study makes a unique research contribution by examining whether previous findings using the actor-partner independence model previously reported by Monin *et al.* (2018) in a US sample also occurred in older Mexican couples, thus highlighting the importance of examining whether findings in one society are replicable or differ across cultures. The study used a representative sample from the Mexican Health and Aging Study (MHAS), a unique dataset that links spousal data and provides extensive information on the impact of disease on the health, function, and life span of adults ages 50 and older. Depressive symptoms and cognitive function were assessed over time from 2012 to 2018, and extensive socio-demographic covariates included age, sex, language (Spanish vs. English), number of children, employment status, education, ADLs, IADLs, comorbidities, pain, and smoking status. Statistical analyses involved a generalized estimating equations approach that included both husbands and wives simultaneously and each interview (time) for cognitive functioning and depressive symptoms. Two separate crossed-lag actor-partner interdependence structural equation models were used to examine the directionality of the association between cognitive functioning and depressive symptoms. The first model assessed cognitive functioning when depressive symptoms were the outcome, while the second model assessed depressive symptoms when cognitive functioning was the outcome. Possible gender effects were also examined for both models. The results showed that one's own depressive symptoms and cognitive functioning each prospectively predicted changes in one's own follow-up cognitive functioning and depressive symptoms. Thus, within individuals, depressive symptoms and cognitive functioning are intertwined and the effects are not specific to outcome. However, the only partner effect found in the study for both husbands and wives was that one's depressive symptoms predicted more depressive

symptoms over time in the partner. Cognitive functioning did not predict subsequent changes in depressive symptoms or cognitive functioning in partners over time. These associations did not differ between husbands and wives. These results did differ from Monin *et al.*'s (2018) findings with US couples, which found that there were partner effects for spouse's depressive symptoms predicting subsequent cognitive functioning over time.

In the current paper, Monin *et al.* (in press) do an admirable job of suggesting possible reasons for the differences in these findings. For example, the authors note that differences in measures across the studies, and other methodological differences, make the comparisons imperfect. They also offer suggestions on cultural mechanisms, noting that previous research suggests that older Mexicans have larger social networks than Mexican younger adults, and that social network may not narrow with age as is often found in US studies. This is intriguing in that it suggests culture-specific variations in the operation of socioemotional selectivity theory (Carstensen *et al.*, 2003). Fung *et al.* (2008) have addressed this issue of the possible cultural specificity of various aspects of socioemotional selectivity theory. They review evidence and provide results suggesting that the key motivations affecting older adults and their social relationships (viewing future time as limited and valuing close relationships) are likely universal, but that cultures may vary in which individuals within the social network (spouses, family or nonfamily, extended family) are part of one's inner circle in late life.

Monin *et al.* (in press) study is an outstanding example of the creative use of data from diverse samples, using a longitudinal design, rigorous statistical approaches, and a strong theoretical framework. A recent themed issue of *International Psychogeriatrics* (August 2021) included attention to several important issues in longitudinal studies of aging that are relevant to the current study and that suggest future extensions of this work with older couples. Cano-López *et al.* (2021) reported on the results of a longitudinal study within individuals of the effects of depressive symptoms on cognitive functioning in older adults and found that education moderated this relationship. Depression affected subsequent cognitive functioning only among those with low educational attainment. In a commentary on this paper by Cano-López *et al.* (2021), Reppermund (2021) notes the potential value of studying changes in complex instrumental activities of daily living (IADL) such as the ability to manage medications and prepare meals as an important mechanism of understanding changes in the association of depressive symptoms and cognitive functioning over time. While Monin *et al.* (in press) did

carefully control for education and IADL in their analyses, perhaps effects across partners are modified by risk and protective factors such as educational attainment, and variables such as changes in IADL may be considered not only as covariates but as mechanisms.

Future studies can build on this work and expand the research questions to examine other possible mechanisms that may influence cognitive and mental health of spousal older adults. The authors mention how spouses share similar environments and stressors and how a partner copes with a stressor that can influence each partner's health outcomes through several pathways including psychological and behavioral ones. Research has found supportive and straining aspects of relationships to be integral parts in the association between social relationships and health outcomes (Campos, 2015). A spouse's perceived social support from own's spouse may help a spouse better cope with stressors, and social support may mediate the relationship between cognitive and mental health spousal dyadic relationships. Having social support within a spousal relationship may also improve marital quality. Related to this, a dyadic study found that older men's perception of negative marital quality was associated with increased cognitive decline, which was not found in older women (Liu *et al.*, 2021). Therefore, future studies may benefit from examining such relationship factors and how they may modify changes in cognition and mood in older couples.

Overall, the study by Monin *et al.* (in press) provides an exemplary approach to studying the complex relationship between psychosocial factors such as depressive symptoms, and cognitive functioning, while also addressing the challenge of understanding how these effects vary across cultures. Future researchers may need to acknowledge and incorporate aspects of sociocultural diversities within relationships in their research in order to broaden our understanding of the association of social relationships with health.

### Conflict of interest

None.

### Description of authors' roles

The authors, William E. Haley and Joanne Elayoubi, equally contributed to the manuscript, revised, read, and approved the submitted version.

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