What will I tell you about my marriage? The relationship between attachment and autobiographical memory of married life

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Abstract
The relationship between attachment orientation and the emotional and thematic content of autobiographical memory about marriage in later life was investigated. A total of 242 older married adults received a quick recall interview to retrieve as many events as one could of what happened in his or her marital life. Each event was rated by the participant on its emotional valence, and its thematic content was coded by two raters according to three themes: interaction mode of the couple, life domain, and interpersonal context. Results indicated that attachment security and attachment avoidance, but not attachment anxiety, predicted the emotional valence and relationship-relevant thematic contents (e.g., relationship-maintaining life domain and between-couple interpersonal context) of marital memories. Attachment by gender interactions revealed that men with lower avoidance retrieved more relationship-maintaining events, and women with higher anxiety or lower avoidance retrieved more between-couple events. Implications of results are discussed.

Keywords
Attachment, autobiographical memory, content, marriage, older adult

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Attachment theory postulates that people select and interpret each situation met in life in line with their internal working models (IWMs) of attachment (Bowlby, 1979, 1980). That is, working models of attachment are presumed to influence the processing of social information, such as how attachment-related information is perceived, stored, and recalled. In support of this idea, several studies have demonstrated that attachment styles influence the way people represent their autobiographical memory of attachment-related experience (e.g., Kohn, Rholes, & Schmeichel, 2012; Sutin & Gillath, 2009). These prior studies have focused on attachment effects on the accessibility, emotional valence, and phenomenological characteristics (e.g., vividness, intensity) of autobiographical memories; however, there has been little systematic examination of the content of autobiographical memory and its association with attachment. The content of autobiographical memory reflects what is remembered about life events (Levine, Svo-boda, Hay, Winocur, & Moscovitch, 2002) and thus provides important information about how individuals construct their past experiences. This study contributes to filling this gap in the literature by providing an examination of both emotional and thematic contents of autobiographical memory of married life.

**Theoretical framework: IWMs of attachment and social information processing**

According to attachment theory (Bowlby, 1969, 1973), through repeated interactions with attachment figures, individuals develop cognitive representations of themselves and others, which are referred to as “internal working models” (see also Collins & Allard, 2004). These representations may be activated beyond conscious awareness in future social interactions, such that individuals filter social information through these working models of the self and others (Bowlby, 1979; Collins & Read, 1990; Fraley, 2002). Consequently, working models of attachment provide a rich theoretical framework for understanding the content of autobiographical memories of marriage in adulthood.

Individual differences in IWMs of attachment (also referred to as one’s attachment orientation) are usually assessed in terms of two dimensions of insecurity: attachment anxiety and attachment avoidance (Fraley & Spieker, 2003). A number of studies have revealed the association between attachment orientation and the processing of social information. As higher avoidance reflects chronic attempts to deactivate the attachment system (Edelstein & Gillath, 2008; Shaver & Mikulincer, 2002), avoidant individuals typically drive their attention away from attachment information, such as attachment-related words and emotion expression (Dewitte & De Houwer, 2008; Edelstein, 2006), and suppress the display of emotion (Edelstein, Kean, & Chopik, 2012). Conversely, anxious individuals usually show an oversensitivity to attachment information (Bailey, Paret, Battista, & Xue, 2012; Fraley, Niedenthal, Marks, Brumbaugh, & Vicary, 2006) and difficulties in suppressing negative thoughts (Gillath, Bunge, Shaver, Wendelken, & Mikulincer, 2005), which reflects hyperactivation of the attachment system.

Recently, Dykas and Casssody (2011) elaborated the mechanisms underlying the construction of attachment-related experiences. IWMs of attachment are regarded as schemas that assimilate attachment-related information into memory and generate expectations regarding attachment figures’ likely responses in future relationship contexts (Bretherton & Munholland, 2008). Accordingly, insecure individuals process...
attachment-relevant information in a negatively biased schematic manner; in contrast, secure individuals process information in a more positive fashion. Previous studies have shown that people tend to construct their relationship memories by assimilating new information into their existing relational schema (Dykas, Ehrlich, & Cassidy, 2010; Feeney & Cassidy, 2003; Simpson, Rholes, & Winterheld, 2009). Specifically, insecure individuals (higher anxiety or avoidance) recall more negative attachment-relevant information in memory tasks and view their negative memories with higher emotional intensity (Dykas, Woodhouse, Jones, & Cassidy, 2014), while secure adults recall more positive memories (Pereg & Mikulincer, 2004). In addition, secure individuals recall interactions with attachment figures as more positive over time, whereas insecure individuals recall their interactions as more negative over time (Feeney & Cassidy, 2003).

The role of attachment in autobiographical memory

Among various types of memory, autobiographical memory is particularly relevant to attachment theory and likely to be strongly influenced by IWMs of attachment because it involves memories of the self and of the self in relation to others (Conway, 1992). Hence, it is not surprising that there have been efforts to theorize about and investigate the connections between attachment and autobiographical memory. Loftus and Pickrell (1995) proposed that autobiographical memories are created when people use external social information and existing social–cognitive structures to encode and interpret information about new experiences. Accordingly, IWMs as a kind of mental structure should shape the generation of autobiographical memory (Dykas et al., 2014).

A few studies have focused on the way attachment shapes autobiographical memory in terms of the accessibility and phenomenological features, including vividness, coherence, and emotional intensity (Dykas et al., 2014; Öner & Gülgoz, 2015; Sutin & Gillath, 2009). For example, secure individuals tend to regard their attachment figure as a secure base, which enables them to generate emotional autobiographical memories easily and to regulate negative affect effectively (Mikulincer & Orbach, 1995). However, adults with an avoidant attachment orientation have difficulty retrieving emotional information (Edelstein, 2006). For example, they need more time to recall emotional events that happened in childhood (Dykas et al., 2014), and they fail to retrieve the details of attachment-related events (Fraley & Brumbaugh, 2007; Fraley, Garner, & Shaver, 2000). Additionally, their autobiographical narratives lack coherence and emotional intensity (Conway, Singer, & Tagini, 2004; Sutin & Gillath, 2009). In contrast, anxiously attached adults are more susceptible to negative autobiographical memories and regulate their negative affect less efficiently (Gillath et al., 2005; Mikulincer, Florian, Birnbaum, & Malishkevich, 2002).

Nonetheless, few studies have considered the content features of autobiographical memory. However the content features are valuable in understanding the construction of one’s experiences. For instance, McAdams, Hoffman, Day, and Mansfield (1996) found that people frequently express the theme of communion/intimacy, such as love, in autobiographical memory, and having rich memories on communion/intimacy could enhance the feeling of closeness in one’s relationship (Alea & Bluck, 2007). Although
thematic contents are thought to be important components of autobiographical memory (Conway & Pleydell-Pearce, 2000), examination of the contents of autobiographical memory from an attachment theoretical perspective has been rarely explored (see Sutin & Gillath, 2009, for an exception). Additionally, no prior investigation has examined this among the older adult population.

**Autobiographical memory in later life**

Although there have been several studies on attachment-related autobiographical memory (e.g., Kohn et al., 2012; Öner & Gülgöz, 2015), most of them focus on childhood and early adulthood (e.g., Chae, Goodman, & Edelstein, 2010; Sutin & Gillath, 2009), and it is unknown whether these findings generalize to later life. Previous research on autobiographical memory in later life (without considering links with attachment) has demonstrated that aging effects emerge in many aspects. First, older adults tend to exhibit a preference for positive autobiographical memories (Kennedy, Mather, & Carstensen, 2004). They are likely to retrieve more positive events than negative ones (Berntsen & Rubin, 2002), especially ones that happened recently (Gong, Fu, Wang, Franz, & Long, 2014). Second, older adults’ memories tend to be less specific than those of younger adults (Piolino et al., 2010), and they focus more on semantic information (general knowledge about the self and the world) rather than episodic details (recollection of a specific personal event) in recalling memories (Levine et al., 2002). Additionally, there is a gender difference in the specificity of autobiographical memory among older adults, whereby older women’s memories are more specific and episodic than men’s (Pillemer, Wink, DiDonato, & Sanborn, 2003). Finally, compared with younger adults, older adults’ autobiographical memory is more coherent due to their relatively clearer and more consistent sense of self (Rice & Pasupathi, 2010).

Given the age-related differences described above, the existing links between attachment and autobiographical memory found in younger adults may not generalize to the elderly. Thus, it is valuable to investigate the association between attachment and autobiographical memory among older people, as Bowlby postulated that attachment processes characterize individuals “from the cradle to the grave” (Bowlby, 1973, p. 208).

**Current study**

The current study focused on older adults and investigated the extent to which marital attachment predicted the content of memory for events that happened between the couple during marital life. A technique involving a quick recall interview was used to collect participants’ memories of their marital life events. This method is widely used in autobiographical memory research to investigate the memories that come to mind in a spontaneous, unimpeded fashion (Dritschel, Williams, Baddeley, & Nimmo-Smith, 1992; Ivanoiu, Cooper, Shanks, & Venneri, 2006). Haggerty, Siefert, and Weinberger (2010) were the first to use this task to investigate attachment effects on autobiographical memory, as it was considered an appropriate method for assessing attachment’s organizational function on memory.
Two content aspects of autobiographical memory were assessed: emotional content and thematic content. For emotional content, the self-reported valence of each event was assessed. Based on the schema-driven function of attachment and available studies on autobiographical memory cited above, we hypothesized (Hypothesis 1) that attachment security would predict more positive and fewer negative autobiographical memories of marriage in older adulthood, while attachment insecurity (anxiety and avoidance) would predict fewer positive and more negative memories of marriage in older adulthood.

Regarding the thematic content of autobiographical memories of marriage, we developed a comprehensive coding system. Although there have been some studies on autobiographical memory involving theme-content coding, they typically focus only on a single dimension, such as communal themes (e.g., caring-intimacy and love) (Alea & Bluck, 2007). In this study, every retrieved event was coded on the following three dimensions: the interaction mode of the couple (e.g., constructive, destructive), the life domain in which the event occurred (e.g., daily activity, finance), and the interpersonal context in which the event occurred (e.g., between couple and outside couple). Sample responses for each coded dimension are provided in the method section.

First, the interaction mode of the couple was of interest because of its relevance to attachment. For example, previous studies have shown that attachment orientation affects one’s perception and memory of diverse aspects of couple interaction, such as conflict (Beck, Pietromonaco, DeBuse, Powers, & Sayer, 2013; Cusimano & Riggs, 2013), support (Campbell, Simpson, Boldry, & Kashy, 2005; Collins & Feeney, 2004; Kane et al., 2007), and separation (Gillath et al., 2005). Correspondingly, we hypothesized (Hypothesis 2), regarding the schema-driven processing of couple interactions, that attachment security would be strongly predictive of more memories of events representing constructive interactions (e.g., sharing happiness, sharing responsibility, and support), while attachment insecurity (anxiety and avoidance) would be predictive of more events representing destructive interactions (e.g., conflict and isolation).

Second, the life domain in which the event occurred was coded in order to examine whether attachment influences one’s memory of particular life domains (e.g., health, daily activities, and finances). Based on studies examining personal life stories (e.g., Rubin, Bernsten, & Hutson, 2009) and existing measures of life events (Scully, Tosi, & Banning, 2000), we included six categories in this coding system: health and security, daily activity, personal development, entertainment, finance, and relationship-maintaining domains. According to attachment theory (Mikulincer, Gillath, & Shaver, 2002), the attachment system is activated in particular relationship contexts. Therefore, we hypothesized (Hypothesis 3.1) that attachment differences would be shown only on events that are related to the relationship-maintaining domain (e.g., marriage anniversary, expression of love, and reunion); and specifically (Hypothesis 3.2) that attachment security and anxiety would be positively associated with memories of relationship-maintaining events, while attachment avoidance would be negatively associated with these memories.

Finally, the interpersonal context in which the event occurred was coded because of the cultural specificity of this sample. Chinese culture is regarded as an interdependent culture in which a broader social context is particularly important for an individual’s life (Wang & Conway, 2004). For older Chinese people, it is common for them to live in an extended family or stem family such that they usually maintain close contact with their
children and relatives (Chen & Silverstein, 2000). As a result, they are expected to retrieve information about others when recalling memories of marriage life regardless of their attachment style. However, the attachment system is most influential in the processing of attachment-related information (Dewitte, Koster, De Houwer, & Buysse, 2007). Thus, we hypothesized (Hypothesis 4.1) that not only between-couple events but also outside-couple events would be reported by the participants; however, attachment differences in autobiographical memories would be shown only on events that occurred between the couple. Additionally, previous work has shown that highly avoidant individuals tend to draw their attention away from attachment-related information and diminish its influence (Dewitte & De Houwer, 2008), while highly anxious individuals direct their attention to and ruminate about attachment-related information (Bailey et al., 2012; Öner & Gülgoz, 2015). Accordingly, we hypothesized (Hypothesis 4.2) that higher attachment security and anxiety would be associated with more memories of events occurring between the couple, while higher attachment avoidance would be associated with fewer of such events.

We also considered gender differences in the associations between attachment orientation and autobiographical memory content. Although Bowlby (1969, 1973) proposed that attachment processes normatively apply to all individuals, gender differences have been found in some studies. For example, attachment avoidance has been associated with decreases in relationship satisfaction for both males and females, whereas attachment anxiety has shown a negative correlation only with females’ reports of relationship quality (Kane et al., 2007; Mondor, McDuff, Lussier, & Wright, 2011). Gender has also moderated associations between attachment and sexual goals (Impett, Gordon, & Strachman, 2008), caregiving sensitivity (Millings & Walsh, 2009), interaction with the opposite sex (Feeney, Noller, & Patty, 1993), and other relationship-related motivations and behaviors. However, gender is rarely considered as a potentially influential factor in the way attachment affects one’s cognition, and it is often treated as a control variable. In the current study, we conducted exploratory analyses to examine the potential interactive effects between gender and attachment orientation in predicting both emotional and thematic content of autobiographical memory.

Method

Participants

The participants were part of a large project about marital attachment among older adults in China. The project recruited a total of 697 married older adults aged over 60 years and living in communities in Beijing, China. All were required to be currently in a marriage of at least 20 years. From this sample, 242 individuals (mean age \( = 68.35 \pm 5.32 \) years) participated in the current study. A series of screening tests including the clock-drawing test (CDT; Shulman, Shedletsky, & Silver, 1986) and the Chinese version of the 15-item Geriatric Depression Scale (GDS-15; Burke, Roccaforte, & Wengel, 1991) were adopted to exclude responses biased by cognitive impairment and emotional disorder. Four adults who scored less than 3 on the CDT or greater than 8 on the GDS-15 were excluded from data analysis. The final 238 participants (138 females) ranged in age from 60 to 85 (mean
age = 67.93 ± 5.23 years). They had received an average of 11.21 (SD = 3.83) years of education, and their average length of marriage was 43.38 (SD = 6.64) years.

**Procedure**

Participants were interviewed in their own homes. After obtaining informed consent, the study was administered in three steps. First, participants provided demographic information and completed health questionnaires. Second, they recalled and reported marital events during a quick recall interview. Finally, they completed the depression scale and cognitive function assessment, followed by the marital attachment measure. The study took approximately 40 min, and participants received ¥50 Yuan as compensation for their time.

**Measures**

**Autobiographical memory of marriage.** A quick recall interview was used to investigate the participants’ autobiographic memory of their marriage. There were three steps to complete this measure. First, for the recall phase, each participant was given 2 min to recall as many events as possible that happened between him/her and the spouse during the marriage. Second, during the 5-min retrieval/reporting phase, each participant was asked to orally report those events one by one in brief sentences, without providing details about the event. All responses within the 5 min were tape-recorded. Third, for the valance-evaluating phase, the events they reported were presented to the participants, and they were asked to identify the emotional valence as one of three categories, that is, positive, negative, or neutral. The average proportions of positive and negative events retrieved by males and females are shown in Table 1.

**Coding.** Each event was coded in terms of three thematic contents of the autobiographical memory: the mode of couple interaction in the event, the life domain in which the event occurred, and the interpersonal context of the event. First, the interaction mode was coded into one of the five categories: conflict, isolating, support, sharing happiness, and sharing responsibility. Conflict and isolating were regarded as destructive modes and the other three as constructive modes. A description and example for each interaction mode is as follows: (1) conflict: negative interaction happened between the couple that could impair the family functioning, such as arguments and disagreement (e.g., “I argued with my husband because he did not take good care of our child”); (2) isolating: a stressful event happened to one while the other was not present or did not lend a hand, which could be harmful to the family functioning (e.g., “I did not have my husband by me when I was having our first baby”); (3) support: one did something in order to help the other, which is beneficial to the family functioning (e.g., “My wife took care of me when I was in the hospital”); (4) sharing happiness: positive things shared by the couple members (e.g., “We traveled to Canada together”); and (5) sharing responsibility: stressful things coped with by the couple together that could improve the family functioning (e.g., “We together looked for my demented mother after she got lost”).
Second, the life domain was coded into one of six categories: (1) health and security: the event was about disease, caregiving, death, loss, and other topics related to health and physical safety (e.g., “My husband carried me on his back to the hospital when I had a bone fracture”); (2) daily activity: the event was about housework and other typical occurrences in daily life (e.g., “My wife cooked for me before I came home”); (3) personal development: the event was about a work issue, self-growth, children’s education, and so on (e.g., “My wife completed her project successfully, and I was proud of her”); (4) finance: the event focused on properties and standards of material living (e.g., “We bought a big house and decorated it together”); (5) entertainment: the event involved leisure activities (e.g., “We joined the tennis club together”); and (6) relationship-maintaining events: the event was about emotional communication, reunion, marriage anniversary, giving birth, and so on (e.g., “My husband quarreled with others when he was out of town, and then I wrote a letter to calm him down”).

Finally, the interpersonal context was coded as occurring either outside the couple or between the couple. When the event involved only the couple, it was coded as “between couple” (e.g., “My husband made a dressing table for me”). Otherwise, the event was further coded into one of four “outside-couple” contexts, that is, peer involved (e.g., “We argued because my husband lent money to his colleague without informing me”), parent involved (e.g., “We went back to his hometown to visit his father”), children involved (e.g., “My son left his backpack when he went to school and we looked for him”), and grandchildren involved (e.g., “My granddaughter was born, and we were both very happy”).

### Table 1. Attachment dimension scores and event ratios for autobiographical memories for males and females.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Dimension</th>
<th>Category</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment</td>
<td>Anxiety</td>
<td></td>
<td>2.60 ± 1.21</td>
<td>2.43 ± 1.00</td>
</tr>
<tr>
<td></td>
<td>Avoidance</td>
<td></td>
<td>3.00 ± 1.41</td>
<td>3.11 ± 1.37</td>
</tr>
<tr>
<td></td>
<td>Security</td>
<td></td>
<td>5.73 ± 0.77</td>
<td>5.61 ± 0.87</td>
</tr>
<tr>
<td>Emotional valence</td>
<td>Positive</td>
<td></td>
<td>0.75 ± 0.32</td>
<td>0.57 ± 0.34</td>
</tr>
<tr>
<td></td>
<td>Neutral</td>
<td></td>
<td>0.01 ± 0.05</td>
<td>0.04 ± 0.13</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td></td>
<td>0.25 ± 0.32</td>
<td>0.39 ± 0.34</td>
</tr>
<tr>
<td>Theme</td>
<td>Interaction mode</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conflict</td>
<td></td>
<td>0.16 ± 0.27</td>
<td>0.20 ± 0.29</td>
</tr>
<tr>
<td></td>
<td>Sharing happiness</td>
<td></td>
<td>0.27 ± 0.31</td>
<td>0.24 ± 0.30</td>
</tr>
<tr>
<td></td>
<td>Sharing responsibility</td>
<td></td>
<td>0.17 ± 0.23</td>
<td>0.11 ± 0.20</td>
</tr>
<tr>
<td></td>
<td>Support</td>
<td></td>
<td>0.33 ± 0.32</td>
<td>0.31 ± 0.33</td>
</tr>
<tr>
<td></td>
<td>Isolating</td>
<td></td>
<td>0.08 ± 0.17</td>
<td>0.15 ± 0.23</td>
</tr>
<tr>
<td>Life domain</td>
<td>Health and security</td>
<td></td>
<td>0.20 ± 0.25</td>
<td>0.26 ± 0.27</td>
</tr>
<tr>
<td></td>
<td>Daily activity</td>
<td></td>
<td>0.13 ± 0.21</td>
<td>0.12 ± 0.23</td>
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<tr>
<td></td>
<td>Personal development</td>
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<td>0.15 ± 0.22</td>
<td>0.14 ± 0.23</td>
</tr>
<tr>
<td></td>
<td>Finance</td>
<td></td>
<td>0.11 ± 0.21</td>
<td>0.08 ± 0.18</td>
</tr>
<tr>
<td></td>
<td>Entertainment</td>
<td></td>
<td>0.15 ± 0.24</td>
<td>0.12 ± 0.22</td>
</tr>
<tr>
<td></td>
<td>Relationship maintaining</td>
<td></td>
<td>0.24 ± 0.26</td>
<td>0.25 ± 0.26</td>
</tr>
<tr>
<td>Interpersonal context</td>
<td>Peers involved</td>
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<td>0.02 ± 0.09</td>
<td>0.03 ± 0.12</td>
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<td></td>
<td>Parents involved</td>
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<td>0.07 ± 0.13</td>
<td>0.09 ± 0.19</td>
</tr>
<tr>
<td></td>
<td>Children involved</td>
<td></td>
<td>0.11 ± 0.15</td>
<td>0.17 ± 0.23</td>
</tr>
<tr>
<td></td>
<td>Grandchildren involved</td>
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<td>0.01 ± 0.05</td>
<td>0.03 ± 0.11</td>
</tr>
<tr>
<td></td>
<td>Between couple</td>
<td></td>
<td>0.73 ± 0.22</td>
<td>0.66 ± 0.31</td>
</tr>
</tbody>
</table>

**Note.** SD = standard deviation. Data are presented as M ± SD.
involved (e.g., “We went to the U.S. to take care of our pregnant daughter”), and grandchildren involved (e.g., “Our first grandchild was born, and both of us loved her very much”).

The categorization of the autobiographical contents was coded independently by two trained raters. The percentage of agreement between the two raters on the thematic contents of interaction mode, life domain, and interpersonal context were 88, 85, and 97 for males, and 92, 79, and 94 for females, respectively. Additionally, the $\kappa$ values were .84, .83, and .94 for males, and .89, .75, and .90 for females, respectively. Any inconsistent codes were discussed by the two raters until both reached an agreement. Finally, we calculated the total number of events in each category for every participant.

A total of 1,027 events of autobiographical memory were collected for all the participants. As the total number of retrieved events differed among the participants, we calculated the event ratio for each category (i.e., the proportion of the number of events in a specific category to the total number of events) for each participant and used these ratios in subsequent data analyses. The means and standard deviations of the event ratio within each memory category for males and females are presented in Table 1.

Marital attachment. Marital attachment was assessed using the Older Adults’ Marital Attachment Scale (OAMAS; Wang, Yang, Wang, & Miller, 2015). This measurement was the first to target marital attachment for older adults. Different from general two-dimensional measures, the authors assessed three dimensions of attachment for older people in China (Wang et al., 2015; Zhai, Li, Wei, & Wang, 2010). OAMAS contains 15 items assessing marital attachment anxiety (4 items, e.g., “my wife/husband only seems to notice me when I’m angry”), marital attachment avoidance (6 items, e.g., “I do not like to stay too close to my wife/husband”), and marital attachment security (5 items, e.g., “It is easy for me to be affectionate with my wife/husband”). Items were rated on a Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). Previous studies have shown that this measurement has good psychometric properties and is valid to predict marital behaviors, such as spousal support and conflict (Wang, Wang, & Chen, 2012; Wang, Wang, Fu, Jiang, & Zhai, 2014). The Cronbach’s $\alpha$s for the subscales of anxiety, avoidance, and security in this study are .69, .88, and .76 for males, and .72, .90, and .83 for females, respectively. Means and standard deviations for each dimension for males and females are shown in Table 1.

Results

Hypotheses were tested using a series of hierarchical multiple regression analyses. In the first step, age and length of marriage were entered as control variables. In the second step, the standardized scores of three attachment dimensions and gender (coded 1 for female and −1 for male) were entered to test the hypotheses that attachment dimensions would predict the contents of autobiographical memory. In the third step, the two-way interactions of gender and each of attachment dimensions were entered to examine whether gender moderates the relationship between attachment and the contents of autobiographical memory.
Attachment predicting the emotional content of retrieved events

To examine whether attachment predicts the emotional content of autobiographical memory, the event ratios of positive and negative memories were used as dependent variables in regression analyses. Consistent with predictions regarding the schema-driven influence of attachment on memories of emotional content (Hypothesis 1), results revealed that attachment security marginally predicted fewer negative memories ($b = -.15, SE = .03, t = -1.92, p = .057$), and attachment avoidance predicted fewer positive memories ($b = -.18, SE = .03, t = -2.28, p = .024$) and more negative memories ($b = .17, SE = .03, t = 2.06, p = .040$). However, attachment anxiety was not significantly associated with the emotional content of autobiographical memories ($p_s > .560$). Additionally, the tests of interactions between the attachment dimensions and gender were not significant ($p_s > .076$), indicating that gender did not moderate attachment effects on the emotional content of autobiographical memory.

Attachment predicting the thematic content of retrieved events

First, hierarchical multiple regression analyses were conducted predicting the interaction mode of the couple represented in the autobiographical memories (Hypothesis 2). The ratios of composite variables representing constructive interaction (averaged ratios for support, sharing happiness, and sharing responsibility) and destructive interaction (averaged ratios for conflict and isolation) were used as dependent variables. The results revealed that avoidance was associated with more memories of destructive interaction ($b = .18, SE = .03, t = 2.26, p = .025$) and fewer memories of constructive interaction ($b = -.18, SE = .03, t = -2.26, p = .025$). Additional analyses considering each interaction mode individually indicated that avoidance was associated with more memories of between-couple conflict ($b = .26, SE = .02, t = 3.17, p = .002$). No other attachment effects were significant for avoidance, anxiety, or security, and there were no significant interactions between attachment and gender ($p_s > .112$).

Second, a series of hierarchical multiple regressions were conducted predicting the life domains of the autobiographical memories (health and security, daily activity, personal development, finance, entertainment, and relationship maintaining). Consistent with our hypotheses (Hypothesis 3.1), attachment orientation was not associated with memories about any other life domain ($p_s > .063$) except for relationship maintaining. Specifically, consistent with Hypothesis 3.2, individuals with higher levels of attachment security were more likely to retrieve relationship-maintaining memories ($b = .18, SE = .02, t = 2.19, p = .030$). However, the anxiety and avoidance dimensions did not significantly predict relationship-maintaining memories ($p_s > .224$). Additionally, there was a significant interaction between avoidance and gender predicting relationship-maintaining memories ($b = .17, SE = .02, t = 2.00, p = .046$). Simple slope tests revealed that, for males, lower attachment avoidance was marginally associated with more relationship-maintaining memories ($b = -.24, SE = .03, t = -1.85, p = .065$); however, there was no association between avoidance and relationship-maintaining memories for females ($b = .10, SE = .03, t = 0.91, p = .364$; Figure 1).
Finally, a series of hierarchical multiple regression analyses were conducted predicting the interpersonal context of the autobiographical memory (between couple, parent involved, peer involved, children involved, and grandchildren involved). As we expected, both between-couple and outside-couple events were reported by participants. Among the total events, 30.96% are events involving people outside the couple. However, significant associations were found not only between attachment and memories for between-couple events but also between attachment and memories for events involving children, which partly supports Hypothesis 4.1. Specifically, individuals with higher attachment avoidance retrieved fewer events that happened between the couple \( (b = -.19, SE = .02, t = -2.25, p = .025; \text{Hypothesis 4.2}) \) but more events involving their children \( (b = .23, SE = .02, t = 2.78, p = .006) \). However, inconsistent with the hypothesis that greater attachment security and anxiety would predict more memories of between-couple events (Hypothesis 4.2), no significant associations were found \( (ps > .228) \). Instead, the results showed a significant interaction between attachment insecurity and gender predicting the memory of events that occurred between the couple (Avoidance \( \times \) Gender: \( b = -.38, SE = .03, t = 3.50, p = .001; \text{Figure 2} \)) or lower anxiety (avoidance: \( b = .30, SE = .03, t = 2.61, p = .010; \text{Figure 3} \)) recalled the fewest between-couple events, but there was no association between attachment and recall of between-couple events for males (avoidance: \( b = .07, SE = .04, t = 0.53, p = .594, \text{Figure 2} \); anxiety: \( b = -.11, SE = .03, t = -0.98, p = .329, \text{Figure 3} \)).

**Discussion**

The purpose of this investigation was to examine the links between attachment orientation and the emotional and thematic content of autobiographical memory about
marriage in later life. Results revealed significant associations between attachment orientation and the emotional valence of marital autobiographical memories as well as certain aspects of the thematic content of marital autobiographical memories of older adults. The findings followed two main patterns. First, attachment security and

**Figure 2.** The interaction between avoidance and gender predicting autobiographical memory for between-couple events.

**Figure 3.** The interaction between anxiety and gender predicting autobiographical memory for between-couple events.

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avoidance, but not attachment anxiety, significantly predicted the emotional and thematic contents of marital memories (without considering moderation by gender). Second, with regard to the thematic content of marital memories, relationship-related aspects of the autobiographical memories, such as interaction mode of the couple, relationship-maintaining life domain, and between-couple interpersonal context, were more likely to be predicted by attachment orientation. In addition, results revealed some interesting effects in which gender moderated the link between attachment orientation and the content of marital memory in older adulthood. Next, we discuss findings regarding links between attachment orientation and the emotional and thematic content of autobiographical memory of marriage, followed by a discussion of gender effects.

**Attachment orientation predicting the content of autobiographical memory of marital life**

As expected, the current study found that attachment predicts the emotional content (the valance) and some aspects of thematic content of autobiographical memories. Regarding the emotional content, more avoidant adults retrieved more negative and fewer positive autobiographical events; in contrast, more secure adults tended to retrieve fewer negative memories. The significant role attachment plays in emotional information processing has been documented in previous work. According to attachment theory and research (Bretherton & Munholland, 2008), secure individuals holding a positive view of others tend to perceive and process relationship-related information with a positivity bias, whereas avoidant adults (who hold more negative representations of others) have a negative filter for processing and encoding social information. The current results showing that attachment orientation predicts the emotional content of autobiographical memories provide support for this attachment-schematic information processing hypothesis (Dykas & Cassidy, 2011). It may be argued that the results concerning avoidant attachment in this study is inconsistent with views that avoidant adults tend to adopt a deactivating strategy for information processing, such as inhibiting attention to negative information (Edelstein & Gillath, 2008; Mikulincer et al., 2002) and having difficulty in accessing negative memories in cued recall tasks (e.g., Dykas et al., 2014). However, recent work suggests that both schema-consistent processing and deactivation strategies can occur simultaneously. Haggerty et al. (2010) found that avoidant individuals tend to retrieve more negative attachment memories (schema-driven processing) but rate them as low in emotional intensity (a deactivating strategy). In addition, attachment avoidance has been associated with both low accuracy in detecting attachment-related information and a highly negative schematic bias in information processing (Overall, Fletcher, Simpson, & Fillo, 2015).

With regard to the thematic content of autobiographical memory, two major findings can be drawn as supportive evidence for our hypotheses. First, consistent with previous findings (e.g., Simpson et al., 2009), this study revealed that attachment predicted contents of autobiographical memory that were relationship relevant, including the couple interaction mode reflected in the events (constructive/destructive interactions), the specific life domain of relationship maintaining (e.g., marriage anniversary), and events with a between-couple interpersonal context. These findings support the idea that
the attachment system is activated most strongly in attachment-relevant contexts and is most influential in predicting attachment-relevant content of autobiographical memories (Gillath, Giesbrecht, & Shaver, 2009).

Second, it is noteworthy that avoidance was the attachment dimension that was most predictive of the thematic content of marital autobiographical memories (as it was for emotional content as well). For example, avoidance was negatively associated with memories of constructive interaction and with memories of between-couple events. This may reflect that avoidant individuals actually have experienced fewer constructive interactions and fewer between-couple events to recall, and/or it may reflect the biased social information processing and deactivating strategies discussed above. It is also interesting to note that avoidant attachment might be exceptionally predictive of the autobiographical memories of older adults, as research shows that people become less anxious but potentially more avoidant as they age (Cusimano & Riggs, 2013). This is consistent with research that has found stronger effects of attachment avoidance on social information processing among older than younger adults (e.g., Kafetsios & Sideridis, 2006).

Consistent with the idea that older adults may become less anxious over time, the mean levels for attachment anxiety were lower than those for avoidance in this sample (see Table 1). The relatively lower mean level of attachment anxiety in the current sample may have contributed to the absence of main effects for anxiety in predicting autobiographical memory. However, because there was still variability in levels of anxious attachment in this sample, another possible explanation may lie in the ambiguous working models that anxiously attached adults hold. According to attachment theory (Bowlby, 1979; Hazan & Shaver, 1987), these individuals have had positive experiences with attachment figures; however, their attachment figures have not been consistently responsive. Consequently, they build their working models based on both positive and negative attachment experiences. Reflecting these ambivalent representations, empirical studies have shown that anxious individuals are ambivalent in their responses to attachment-related information. For example, they show similarly high arousal to both positive and negative attachment-related information (Vrtička, Sander, & Vuilleumier, 2012), although sometimes they show greater brain activation only to negative attachment information (e.g., Zilber, Goldstein, & Mikulincer, 2007), and they have been simultaneously receptive to and rejecting of their spouse’s support behavior (Feeney & Thrush, 2010). Thus, the ambivalence of anxious adults may have obscured effects on autobiographical memory (although there was one effect of attachment anxiety moderated by gender that we discuss below).

Finally, consistent with the attachment-schematic information processing hypothesis (Dykas & Cassidy, 2011), among a variety of themes for couple interaction mode (i.e., support, conflict, isolating, sharing happiness, and sharing responsibility), avoidance predicted fewer memories of constructive interaction (a composite of support, sharing happiness, and sharing responsibility) and greater memories of destructive interaction (a composite of conflict and isolating). In addition, when examining the themes individually, there was only a significant association between attachment avoidance and greater memories of conflict. These results suggest that (a) avoidant individuals are particularly negatively biased in their autobiographical memories of marriage, and/or (b)
avoidant individuals may in fact experience a greater number of negative interactions in their marriages, thus leading them to weight these interactions heavily on their autobiographical memories. It is particularly interesting that avoidant individuals have greater memories of conflict in their marriages. Given prior research showing that the attachment system tends to be activated most strongly under stressful/threatening circumstances (Mikulincer et al., 2002), it makes sense that conflict situations would be particularly salient/memorable for avoidant individuals who may be especially threatened by these interpersonal situations (and who also may be most likely to experience them). This is consistent with research showing that marital conflict is a common interpersonal threat and that the experience of it is likely to be influenced by IWMs of attachment (Simpson, Rholes, & Phillips, 1996). Additionally, the strong links between avoidance and autobiographical memories of negative interaction behaviors in the marriage (particularly conflict) may reflect the negative model of others that avoidant individuals hold. These findings are also consistent with previous research showing that avoidant individuals construct their memory about conflict with attachment figures in a more negative way (Feeney & Cassidy, 2003; Simpson et al., 2009).

**Attachment × gender effects on the content of autobiographical memory of marital life**

This investigation revealed that gender was a significant moderator of the relationship between attachment and some of the contents of marital memories. First, a significant interaction between attachment and gender was found in predicting autobiographical memories for relationship-maintaining events. Specifically, men (but not women) with higher attachment avoidance showed the tendency to report fewer relationship-maintaining events. One explanation for this may be that women tend to be more relationship oriented than men. For instance, Alea and Bluck (2007) demonstrated that women are intimacy oriented and that they are likely to use autobiographical memories of relational events as a tool to achieve their intimacy goal. In addition, Reis (1998) argued that females are more likely than males to pursue intimacy. Thus, it is understandable that avoidant men, but not avoidant women, tended to recall fewer relationship-maintaining autobiographical events.

Second, we found that females (but not males) with lower avoidance or higher anxiety were more likely to retrieve between-couple autobiographical events. These results are consistent with previous research (Shaver & Mikulincer, 2002) showing that avoidant individuals attempt to distance themselves from close relationships, while anxious individuals are preoccupied by close relationships. However, these results emerged only for women in this study and suggest that anxious women are particularly focused on between-couple issues. The absence of this effect among males is noteworthy and requires further examination.

**Strengths, limitations, and future directions**

This study has several strengths. First, it is the first study to examine the extent to which attachment orientation predicts the content of autobiographical memory in older adulthood. Older adults with a long marital life were selected as the current sample. Because
they have a large repertoire of lifetime memories, they were considered to be an ideal sample for investigating how attachment influences the emotional valence and thematic content of autobiographical memories. An additional strength of this study is that it includes a multidimensional perspective in assessing autobiographical memory content.

Concerning limitations of this study, readers should be cautious when generalizing the findings to other contexts or samples. The participants in this study were Chinese older adults who had been married for approximately 40 years. These characteristics may result in unique responses on both attachment measures and assessments of autobiographical memory. First, old-age and long-term marriage may contribute to a positive bias in recalling relationship-related memories (Hatch & Bulcroft, 2004; Kennedy et al., 2004). Second, the specific cultural context of the current sample may yield attachment orientations that differ in some ways (e.g., in the degree of avoidant and anxious attachment represented) compared to Western adults (Wei, Russell, Mallinckrodt, & Zakalik, 2004). Thus, it is unclear whether the present results would generalize to Western older adults with shorter marriages. In addition, although the findings support theoretical predictions, they also raise additional questions. For example, it will be important to understand the null effects of attachment anxiety on autobiographical memory, to gain greater insight into the role of working models of attachment in information processing. In the current study, we reasoned that the null effects for anxiety might be due to an age-related effect or to the ambivalent nature of anxious individuals. However, another possibility may involve the quick recall task, in which participants were not permitted to engage in deep information processing. The nature of the recall task might have mitigated the effects of attachment anxiety on the contents of autobiographical memories.

In future work, further efforts could be invested into examining attachment effects on autobiographical memories using a deep recall task and adopting some narrative analyses, which may provide a more vivid picture of the role of attachment orientation on the construction of an individual’s autobiographical experiences. Additionally, it will be valuable to take a dyadic perspective, namely, taking partner effects into account, when examining attachment effects on autobiographical memory. It is arguable that the attachment orientation of each member of the couple will interact to predict the autobiographical memories of each partner. Finally, a cross-cultural perspective will be important to consider in future research examining attachment effects on autobiographical memory. For example, more research must consider the cross-cultural validity and reliability of attachment measurement. In addition, future research must consider that the content of autobiographical memories of marital life embedded in different cultures may vary. For example, in individualistic cultures such as the U.S., fewer outsiders might be included in marital autobiographical memories, and thus different patterns of association with attachment orientation may be revealed.

**Conclusion**

In summary, results from the current study suggest that attachment plays an important role in shaping one’s autobiographical memory of marital life among older adults. Attachment avoidance, and to a lesser extent attachment security, were more predictive
of the content of autobiographical memory than attachment anxiety. Results also indicated that, although attachment is a universal phenomenon, some of its effect on autobiographical memory may differ for males and females. This research provides a foundation for future work that considers attachment influences on autobiographical memories across the life span and across cultures.

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