

## Autobiographical Memory



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### Overview

Autobiographical memory involves a constructive process in which individuals make sense of their experiences to form coherent life stories and a narrative identity. Adolescence is an important period for developing autobiographical memory and constructing a life story through narrative meaning-making. The ways in which adolescents remember and narrate the events and stories of who they are further have important implications for their well-being. In general, younger adolescents tend to have lower levels of well-being when they attempt more narrative meaning-making, whereas older adolescents tend to have greater levels of well-being when they attempt more meaning-making. Chronological age, gender, culture, and socioeconomic status of youth interact to inform the relationship between autobiographical memory, narrative meaning-making, and well-being.

## Autobiographical Memory

Autobiographical memory is the capacity to organize and integrate past events or memories into a personal life narrative (Fivush, 2011; Pillemer, 1998). This form of memory is important to short- and long-term planning, developing and maintain a sense of self, maintaining social bonding, and clarifying a sense of purpose. Whereas basic autobiographical memory capabilities emerge over preschool years (Bauer, 2007; Nelson & Fivush, 2004), it is during adolescence that youth begin to construct complex and integrated narratives from life events. This is due in part to the maturing of formal cognitive operations like autobiographical reasoning during early adolescence (Habermas & Bluck, 2000). In addition to cognitive and neurological changes, youth also experience new social demands during adolescence in their roles with school, family, and peers that may prompt them to engage in more identity construction and searching for meaning through autobiographical memory (McAdams, 2001).

### Narrative Meaning-Making and Autobiographical Memory

The development of autobiographical memory during adolescence involves the increasing capacity to link together past events into a personal history that can describe past, present, and future selves. The construction of an integrative life

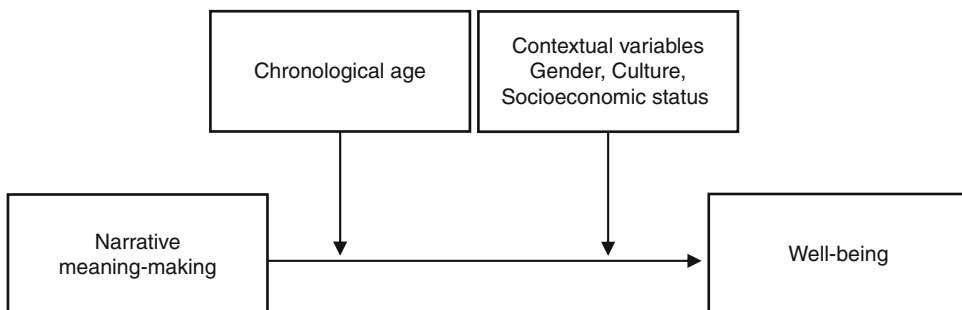
story from one's autobiographical experiences, goals, and desires is an act of personal storytelling known as narrative meaning-making (Fivush, 2011; McAdams & McLean, 2013; Wang, 2013; Wang et al., 2017). Narrative meaning-making is an important feature of autobiographical memory development during adolescence that constitutes the ability to explain how past events influence other events or aspects of the self, which builds from many narrative features such as coherence, elaboration, complexity, and emotional expressiveness (Fivush, 2011; Habermas & Bluck, 2000). It further entails a constructive process modulated by individuals' sense of self (Conway & Pleydell-Pearce, 2000) and conditioned by sociocultural forces (Wang, 2013, 2021a).

### Autobiographical Narratives and Well-Being During Adolescence

Autobiographical memory plays an important role in adolescent well-being through narrative meaning-making, a process that is moderated by age. Engaging in more narrative meaning-making is associated with greater levels of well-being in adults and older adolescents (aged 16 years and older), whereas younger adolescents often experience a negative association (e.g., McLean et al., 2010). This pattern is not uniform across socio-cultural contexts, however. Research has highlighted that in addition to chronological age, the contextual factors of gender, culture, and socioeconomic status (SES) also play key roles

in moderating the association between well-being and narrative meaning-making during adolescence (see Fig. 1).

The model highlights evidence from autobiographical memory research that individual differences in how past events are recalled and interpreted are associated with indicators of well-being. In the adult literature, it is well established that individuals who narrate their lives in richer detail and with greater coherency and emotional expression also report fewer symptoms of depression and anxiety, lower levels of stress, and greater levels of purpose, meaning, and other indicators of well-being (for a review, see Adler et al., 2015). However, this pattern of results does not directly map onto findings with adolescents. For example, youth between the ages 8 and 12 years who engaged in more attempts of explanation and resolution when narrating difficult personal experiences reported increased levels of anxiety afterward than their peers who did not attempt explanation or resolution (Fivush et al., 2007). This negative trend of well-being results seem to hold until around the age of 16 years: Similarly, younger adolescents (i.e., younger than 16 years) who engage in more narrative meaning-making show lower levels of well-being, including greater levels of depressive symptoms and lower levels of self-esteem, whereas older adolescents (i.e., older than 16 years) who engage in more narrative meaning-making show greater levels of well-being, including lower levels of depressive



**Autobiographical Memory, Fig. 1** The development of autobiographical memory in adolescence. Narrative meaning-making of autobiographical experiences influences adolescent well-being, a process moderated by contextual and developmental factors

symptoms and greater levels of self-esteem (McLean et al., 2010).

According to sociocultural perspectives, autobiographical memory develops in the process where children and youth learn from others (i.e., families, peers, media, etc.) about how to remember and share personal experiences in narrative forms appropriate for their social and cultural groups (Fivush, 2011; McLean et al., 2007; Wang, 2013; Wang et al., 2017). Research on the dyadic interaction between youth and their parents and peers supports this sociocultural explanation of developmental change in autobiographical narratives. For instance, McLean & Jennings (2012) found that mothers were more likely than peers to ask elaborative questions, reiterate statements, negate, and provide new interpretations of events in memory conversations with their children between the ages of 12 and 15 years. These parental conversation behaviors scaffold youth in the organization and interpretation of autobiographical event information. Over the course of adolescence, youth continue to develop autobiographical storytelling capabilities through practice with others and acquire skills to create, edit, and reconstruct senses of self. Accordingly, older adolescents can form more adaptive autobiographical narratives for well-being not simply because they are chronologically older, but because they have had more practice and support from parents, peers, and the broader society.

The model further recognizes that not all practices through scaffolding and socialization are enacted equally across youth (Fivush, 2011; Wang, 2013; Wang et al., 2017). Youth may experience different effects according to how their gender is socialized, the culture in which they are situated, and their socioeconomic status in which they are developing, as well as the interactions between each of these factors. For example, girls and boys may be socialized in narration differently, the narrative themes that are scaffolded for youth may vary according to cultural values, and not all youth may have the privilege of accessible adult narrative scaffolding depending on SES. In turn, all of these factors may affect the pattern between narrative

meaning-making and well-being. Furthermore, given that pubertal development meaningfully relates to each of these factors (e.g., increases across chronological age, may act as an intensified period for gender, is treated differently across cultures, and is more likely to onset earlier in lower-income populations), it is important to also consider how developmental age can also inform and interact with the moderating effect of these factors.

### **Chronological Age, Autobiographical Memory, and Well-Being**

Autobiographical memory develops gradually across childhood and adolescence (Bauer, 2007; Fivush, 2011; Wang, 2013). Accordingly, chronological age is an important factor when considering narrative meaning-making and its relation to well-being given that the narratives that youth are capable of at 12 years of age may be significantly different than youth at 16 years of age. Although basic autobiographical memory capabilities emerge at the preschool age or even earlier, it is during adolescence that youth begin to construct integrative narratives from life events that form a narrative identity (Fivush, 2011; Nelson & Fivush, 2004). Prior to adolescence, children are more likely to focus on single events in their autobiographical memory recall. With the transition into adolescence, youth are increasingly capable of constructing autobiographical narratives that encompass multiple thematically related episodes (Habermas & Bluck, 2000). Research suggests that it is not until about 12 years of age that youth begin to consistently link single events together to create a causal narrative (Habermas & de Silveira, 2008).

Autobiographical narratives also become more coherent and personally integrated as chronological age increases. Compared with youth who are 8 years of age, those who are 12 years and older demonstrate more causal coherence (i.e., accounting for how earlier events cause later events) and thematic coherence (i.e., deriving an organized set of meanings around life events) in their narratives, and this coherence continues to increase across

adolescence (Habermas & de Silveira, 2008). Furthermore, in a study that examined how 8-, 12-, and 16 year-old youth included interpretive information in their narratives, Pasupathi & Wainryb (2010) found that 16 year-old youth included more interpretive information and built more long-term conceptions of the self in their narratives than younger youth.

In addition, adolescents show age-related increases in their ability to navigate paradox and contradiction in autobiographical information when narrating memories. Prior work indicates that contradiction in self-narratives is least frequent in early adolescence, peaks in middle adolescence, and decreases in late adolescence (Harter & Monsour, 1992; McLean et al., 2010). This pattern suggests that early adolescents may not yet have the cognitive capabilities to navigate contradiction in understanding the self and that late adolescents develop the autobiographical skills to organize and resolve conflicting autobiographical information. Middle adolescents may have the ability to compare and recognize contradictory information about the self, but not yet have the ability to resolve these contradictions.

The complexity of meaning-making in autobiographical narratives also increases with age across adolescence, whereby late adolescents are more likely to describe insights (e.g., a meaning is inferred that applies to broader life) and younger adolescents are more likely to describe lessons (e.g., implications for behavior in similar situations) about an event (McLean, 2005). Given that insights may more strongly map onto well-being, these findings may explain the moderation effect of age on the relation between narrative meaning-making and well-being. Another explanation for why youth get better at making meaning in their narratives that it is adaptive for well-being is that youth need space from the initial onset of events before creating meaningful narratives about them (Habermas & Reese, 2015).

Notably, chronological age may not be the only or best indicator of developmental change as it does not necessarily map onto the sweeping suite of biological, cognitive, and social development during adolescence. For instance, the developmental pattern between well-being and narrative meaning-

making across adolescence has been partially attributed to ongoing cognitive development in early and middle adolescence. Yet cognitive development may coordinate with the biological changes of puberty during the transition into adolescence (Moura et al., 2017). Autobiographical functions, including episodic memory, are housed in the prefrontal and temporal regions of the brain, which are the last brain regions to mature (Gogtay et al., 2004; Svoboda et al., 2006). Changes to these regions of the brain may be triggered by the onset of puberty such that coordinated growth is driven by an individual's maturation phase as opposed to a chronological age effect (Moura et al., 2017; Peper et al., 2009). Given that age at pubertal onset can vary significantly from one individual to another, assessing pubertal development in youth may be a better proxy measure to capture cognitive and other aspects of development during this period than chronological age. Initial work suggests that girls who start puberty earlier than peers do not necessarily engage in more meaning-making, but their attempts at meaning-making are linked to greater depressive symptoms compared to peers (Koch & Mendle, 2022). In addition to age, other individual characteristics such as physiological reactivity may also interact with narrative meaning-making in shaping youth well-being (Song et al., 2021).

## **Gender, Autobiographical Memory, and Well-Being**

Research has suggested gender differences in the emotionality and detailedness of autobiographical memories across childhood and into adulthood although gender effects are not consistently observed. When gender effects are observed, the direction is such that girls tend to construct more emotionally laden narratives of both negative and positive personal memories than boys (Bauer et al., 2003; Buckner & Fivush, 1998). Adolescent girls also tend to engage in more elaboration, emotional expression, and self-reflection in narrating autobiographical memories than boys (Bohanek & Fivush, 2010; Grysman & Hudson, 2013). These patterns of results hold regardless of

reported salience of gender identity, which suggests that gender differences in autobiographical memory may be implicit and deeply embedded in self-expression (Grysmen et al., 2016; Grysmen et al., 2017). Gender effect on autobiographical memory is not consistently observed across studies (e.g., Grysmen & Wang, 2021), however, suggesting the complex influences of changing individual beliefs and gender ideologies.

In terms of well-being, the patterns of association between gender differences and autobiographical memory are mixed. Some research suggests that adolescent boys benefit more from a well-being standpoint than do adolescent girls when they tell elaborate and emotionally rich autobiographical narratives (Bohanek & Fivush, 2010; McLean & Breen, 2009). Other research shows that greater levels of narrative coherence are associated with poorer psychological functioning (i.e., greater levels of depressive symptoms, lower levels of self-esteem, and lower life satisfaction) for adolescent boys and not adolescent girls when narrating turning-point memories (Chen et al., 2012). In addition, narrative meaning-making has been associated with poorer well-being in early adolescent boys in particular, although this relation extinguishes by late adolescence (McLean et al., 2010). Yet another study reported that adolescent girls told more elaborate stories about negative personal memories than adolescent boys did and that this translated to greater anger reduction for girls than boys (Wainryb et al. 2018).

These mixed results may be a by-product of how adolescents are socialized to evaluate, organize, and express their experiences. Mothers tend to speak differently to girls and boys when sharing memories, which may contribute to gender differences in narrative construction and well-being (McLean & Mansfield, 2012). Girls may be encouraged to engage in more expression and self-disclosure about personal experiences than boys. Girls also tend to endorse more relational themes in their autobiographical memories than boys (McLean & Breen, 2009; McLean et al., 2010). Indeed, girls have been shown to be more interpersonally oriented than boys starting in childhood and increasing in adolescence (Zahn-Waxler, 2000). This may lead to more practice of

memory sharing with parents and friends among girls than boys, a process that facilitates adaptive narrative meaning-making. Without as many opportunities to practice self-disclosure through memory sharing activities, adolescent boys, particularly younger adolescent boys, may experience a transient decrease in well-being when asked to narrate personally salient memories.

## **Culture, Autobiographical Memory, and Well-Being**

Individuals learn how to construct and reflect on autobiographical memory not only from their caregivers, but also from broader cultural input (McLean et al., 2007; Wang, 2013, 2021a). Different cultures offer different menus of characters, themes, and plots that youth learn to draw from as they develop autobiographical memory skills and a narrative identity. The majority of studies previously discussed were conducted in the USA and, consequently, reported patterns of results may not hold in other cultures. In particular, given the executive role of the self in the construction of autobiographical memory (Conway & Pleydell-Pearce, 2000), cultural influences on autobiographical memory and life stories often take place through self-goals that focus on autonomy versus relatedness (Wang, 2013). Compared with children and adults in Western cultures that emphasize autonomous self-goals, those in cultures such as East Asia that value relational self-goals remember autobiographical events by focusing more on others and less on idiosyncratic details or subjective perspectives (For reviews, see Wang, 2013, 2021b).

Pertaining to the relation between meaning-making of autobiographical memory and well-being, culture appears to play a role. According to the work by Reese and colleagues in a sample of middle to late adolescents in New Zealand (2014, 2017), greater causal coherence in autobiographical narratives is associated with poorer well-being in younger adolescents but not in older adolescents from Māori, Chinese, and European cultures in New Zealand. These findings are consistent with those from American

adolescents (e.g., McLean et al., 2010). However, there are also cultural differences in the link between autobiographical memory and well-being (Wang, 2021b; Wang et al., 2018). For instance, well-being was positively linked to themes of personal growth in turning-point memories only for European adolescents, whereas thematic coherence was positively linked to well-being only for Māori adolescents (Reese et al., 2017). Furthermore, adolescents perceived the main function of sharing autobiographical memories differently across cultures. Chinese and Māori adolescents in New Zealand were more likely to perceive stories told by their mothers as mainly for teaching or sharing about the past, whereas European adolescents were more likely to indicate that these stories were for the purpose of social bonding (Reese et al., 2017). Cultural similarities and differences also emerged in intergenerational narratives (i.e., vicarious memories of family events) in relation to well-being among New Zealand adolescents from Chinese, Māori, and European cultural backgrounds (Chen et al., 2021). Across age and cultural groups, coherent and evaluative narratives were positively associated with adolescents' self-esteem. However, some narrative dimensions (e.g., identity connections) were negatively associated with well-being for Māori and European adolescents.

The presence of gender differences in autobiographical memory across cultures is less clear. Reese et al. (2017) found that adolescent girls across the Māori, Chinese, and European cultures in New Zealand told more coherent autobiographical narratives and had a greater focus on relationships in their narratives than did boys. In a meta-analysis of memory conversations in almost 2500 mother-child dyads wherein children were between 30 and 60 months old, Waters and colleagues (2019) found a weak effect such that non-Caucasian mothers tended to elaborate more with daughters than sons. For Caucasian mothers, there was no observed difference in maternal elaborative style according to gender of the child. Other research with young children and their parents in European American and Chinese cultures evidence few, if any, gender differences in memory conversations (e.g., Fivush & Wang, 2005). These results call into question when and

where gender differences may emerge in autobiographical memory construction. It is possible that gender egalitarian attitudes in the cultural community, early family socialization through memory sharing, and individuals' own gender identification all play a role in how adolescent boys and girls eventually come to make sense and remember their autobiographical experiences (Boehnke, 2011; Bohanek & Fivush, 2010; Grysman & Wang, 2021).

Research examining cultural influences within a single society has further shown that youth who come from immigrant families or who are bilingual may experience influences of multiple cultures on their autobiographical memories. For instance, Wang and colleagues (2015) found that, during conversations with their preschool-aged children, Chinese American parents included both an emphasis on individuality corresponding with mainstream American values and an emphasis on directive behavioral expectations corresponding with traditional Chinese values. Promoting both cultural values in memory conversations may help children from immigrant families develop an autobiographical self that aligns with both the culture of origin and the host culture. Further, bilingual youth may experience different modes of autobiographical self and identity depending on the language they are using. Youth between the ages of 9 and 14 years who were fluent in both English and Chinese provided lengthier memory narratives and more details about their own roles, attributes, and perspectives when interviewed in English (Wang et al., 2010). In contrast, youth provided less detailed, more socially oriented memory narratives when interviewed in Chinese. Additionally, youth reported agreeing more strongly with independent values if interviewed in English and more strongly with interdependent values when interviewed in Chinese. These results suggest that being fluent in more than one language offers youth access to multiple menus from which to construct their memories.

### **Socioeconomic Status, Autobiographical Memory, and Well-Being**

A major limitation of present literature is that participants from middle- to upper-class



socioeconomic statuses (SES) tend to be disproportionately included, which may limit the generalizability of the findings to adolescents from lower SES backgrounds. Although extant research on the influence of SES on autobiographical memory is limited, findings suggest that there are crucial characteristics specific to the developmental trajectory of autobiographical memory and well-being for youth from lower SES backgrounds.

Myriad literature suggests that using autobiographical memory to construct meaning out of past life events can facilitate growth and resilience (reviewed in Pals & McAdams, 2004). In particular, redemptive narratives may help individuals make sense of negative life events in a way that allows for identification of personal strength and narrative identity construction. Chen and colleagues (2012) found that the ability to weave together redemptive narratives from negative life events was linked to well-being in older adolescents. Participants in this study came from households where, on average, mothers had completed at least some education above secondary school. In contrast, a study by McLean and colleagues (2013) with adolescents from low-income, predominantly single-mother households found that trying to make more meaning from negative autobiographical events was linked to greater incidents of delinquent behavior. Qualitative insights from this study revealed descriptions of the lived realities of poverty, limited prospects for social and economic ability, and the prevalence of neglect and abuse. Taken together, these findings suggest that redemptive narratives may be of limited utility for adolescents from lower SES households if youth perceive limited opportunity for redemption. In addition, because participants must reflect specifically on negative life events to generate redemptive narratives, these negative events may define the individual in rigid ways that may compromise resilience for adolescents from lower SES households (McLean et al., 2013).

Furthermore, repeated exposure to negative or traumatic life events, which is more common among lower SES adolescents, may preclude positive meaning-making from those negative events. For example, a qualitative study found that adolescents from lower SES households who were behaviorally troubled reported more negative life

events and that their negative life events were also qualitatively more traumatic when compared to a nonbehaviorally troubled group (Sanderson & McKeough, 2005). Further qualitative work comparing youth from troubled and nontroubled groups found that troubled youth tended to draw memory content from their surrounding culture, which included perceiving authority figures as antagonists and the self as the sole responsible party for positive change (Sanderson et al., 2016). If youth integrate memory content like this from their environments that emphasizes limited social support and construct a narrative identity accordingly, it may contribute to perceptions of hopelessness rather than resilience in the face of negative events. In concert with findings from McLean and colleagues (2013), these observations suggest that some adverse life events may not be easily reframed in ways conducive to well-being and that this may be due in part to the different menus of narrative construction available to youth across different spectrums of SES.

In addition, individual differences in SES might affect the developmental patterns of autobiographical narrative. Qualitative findings with a Canadian sample suggest that troubled youth constructed autobiographical narratives that were less developmentally advanced than a nontroubled comparison group (Sanderson et al., 2016). In an Icelandic sample, early adolescents in higher social classes were found to provide more psychological descriptors in their self-descriptions than early adolescents in lower social classes (Hart & Edelstein, 1992). These findings highlight that increasing complexity in autobiographical memory construction is a matter of social resources. Given that qualitative studies have shown that narrative content can differ based on SES background, future research on autobiographical memory and SES may benefit from finding alternative methods to assess narrative complexity in diverse groups, which will extend normative conclusions drawn from existing work with limited SES variance.

## Conclusion

Given that the development of autobiographical memory encompasses a host of biological,

cognitive, linguistics, and sociocultural factors, it is important to understand *how*, in addition to *when*, youth develop complex autobiographical memory capabilities across adolescence that facilitate the construction of an integrated narrative identity (Fivush, 2011). The ways in which autobiographical memories are organized, evaluated, and narrated in constructing a narrative identity in turn affect well-being during adolescence. Chronological age, gender, culture, and SES further play important roles in shaping adolescent autobiographical remembering and the relation between narrative meaning-making of autobiographical experiences and well-being.

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