

From one generation to the next: Perception of frequency of family memory transmission

David Baudet¹, Aline Cordonnier², Olivier Luminet^{2,3} & Christine Bastin^{1,3}

¹GIGA Research, CRC Human Imaging, University of Liège

²Research Institute for Psychological Science, University of Louvain

³Fund for Scientific Research (FRS-FNRS), Brussels, Belgium

Author Note

David Baudet  <https://orcid.org/0000-0002-2272-7759>

Aline Cordonnier  <https://orcid.org/0000-0003-4101-1948>

Olivier Luminet  <https://orcid.org/0000-0002-1519-2178>

Christine Bastin  <https://orcid.org/0000-0002-4556-9490>

We have no conflict of interest to disclose.

Correspondence concerning this article should be addressed to David Baudet, Allée du 6 Août, 8, 4000 Liège, Belgium. Email: david.baudet@uliege.be

Abstract

Family serves as a crucial context for intergenerational memory transmission. From an early age, younger generations hear stories from older family members, fostering a sense of belonging, identity, and a deeper understanding of the world. However, the frequency of this intergenerational exchange in daily life remains underexplored. In an exploratory online study, we asked parents and grandparents how often they perceive sharing memories with younger generations (top-down) and how often children and grandchildren perceive receiving these memories (bottom-up). We assessed the perception of the transmission frequency for public and personal events across various timeframes. Our findings indicate that intergenerational memory transmission is perceived as relatively frequent. Notably, grandparents perceived sharing more memories with their children than the children perceived receiving from them. Transmission was also more common between parents and children than between grandparents and grandchildren. Additionally, personal memories were shared more frequently than public events, particularly when both transmitter and receiver had lived through the events. Correlations between perceived transmission frequency and the feeling of closeness suggested that grandparent-grandchild relationships benefit more from memory transmission than other pairs. These results highlight the varied ways in which individuals within families perceive memory transmission, emphasizing the complex nature of intergenerational communication.

Keywords: autobiographical memory, family, generation, transmission, frequency

Introduction

How much do we know about our parents' early adulthood? How much did Grandma tell us about her teenage years? From a very young age, stories are part of our lives. We are told stories of the past through tales, books, songs, and history classes, but also through personal memories from family members. These descriptions of past events might take the form of testimonies recounting important public events, like the stories of mom describing how she felt when she was watching the Berliners proclaiming their freedom on November 9th, 1989, or of lighter funny anecdotes like stories of dad's mischiefs told by grandad. These stories are part of how we understand ourselves and the world. However, while these narratives are thought to contribute to the development of autobiographical memory (Reese, 2002), few studies have investigated the frequency of occurrence of their transmission within the family.

Autobiographical memory (AM), traditionally defined as a system storing "specific, personal, long-lasting, and of significance to the self" memories (Nelson, 1993), serves a large range of social functions. Autobiographical memories are shared for conversational purposes (to create or facilitate a discussion) but also for bonding (Harris et al., 2014). More adaptive social uses include increasing empathy for others (Bluck et al., 2013), fostering warmth in romantic relationships (Alea & Bluck, 2007), or making one's contribution to conversation more believable and persuasive (Pillemer, 1992).

Within family interactions, intergenerational transmission is a casual and common process that occurs in daily conversations (Fivush & Merrill, 2016). Discussing family history can also be ritualized, with privileged setups like dinnertime (Bohanek et al., 2009), and conversational roles for each member of the family (van der Haegen et al., 2022). Bohanek and colleagues (2009) recorded 37 American families during dinnertime and found that on average, one narrative of a past event comes out every five minutes. These narratives included reminiscing about the children's or the parent's day, parent-child interactions, family knowledge and stories, food, animals, injuries or illnesses, and vacations. The authors suggested that the more frequent the discussions, the more important these discussions were.

For children, their parents—especially the mother—and their family are primary sources of information about the world. The stories they hear are used as guidelines for their understanding of the world making those discussions central to children's AM development (e.g.,

Farrant & Reese, 2009; Reese, 2002; Salmon & Reese, 2016). Fivush and colleagues argue that it is through this shared history that children construct their own identities (Fivush, 2008; Fivush & Merrill, 2016; Reese et al., 2019). In their model of family narratives, Fivush and Merrill (2016) propose three ecological systems in the middle of which the individual's AM is embedded. These three niches describe different types of family narratives: the micro-system defines the shared stories (events in which the family members engaged together), the exo-system consists of narratives that family members share about events that were not experienced by all of them, and the macro-system are narratives about extended family history or cultural narratives. Thus, different types of stories are shared across generations and differ on whether all family members were present or not. Some hold more personal importance, such as the personal stories of "grandpa trying to impress grand-ma by singing under her window", while others can have a collective or historical significance, such as the story of "grand-ma fleeing her country because of the war". Traditionally, AM has been proposed to serve three main functions (Bluck et al., 2005; Bluck & Alea, 2002). AM helps create and maintain social bonds (social function), guides present and future behaviors (directive function), and creates a sense of identity and continuity (self function). Whereas AM and the self are interconnected (for a review see Conway, 2005), the construction of a coherent and reliable sense of self does not solely rely on the individual's memories of personal events. Pillemer and colleagues (2015) define vicarious memories as "recollections people have of salient life episodes that were told to them by another person, such as a friend or family member". These are memories told by relatives which can be incorporated into the life narrative if judged relevant. Moreover, studies on vicarious memories showed that both vicarious and personal memories share common characteristics, such as phenomenology functions, but at lower degrees (Pillemer et al., 2015; Pond & Peterson, 2020; Steiner, 2023).

Memories from others, and especially relatives, are also pieces of information to construct a sense of self and understand the world. Within families, adolescents and young adults use their parents' stories to form their identity, identify with their parents, learn values, and make intergenerational connections (Merrill et al., 2019). Identification and intergenerational connections are affected by gender, especially the gender of the parent (Fivush & Zaman, 2011). For instance, (Merrill et al., 2015) showed that during narrative conversations, mothers tend to talk more and in a more affiliative way than fathers. Previous works on gender differences demonstrated that women tend to be more detailed, more accurate, and globally more elaborative

than men (for a review see Gryzman & Hudson, 2013). More broadly, everyday communication-based memories, referred to as communicative memory, typically do not persist beyond three generations and tend to diminish with each successive generation (Assmann, 2011; Assmann & Czaplicka, 1995).

Over the past decades, a growing number of studies have investigated how stories of important historical events are passed throughout generations, including memories from World War II (Cordonnier et al., 2021; Pohn-Lauggas, 2021; Stone et al., 2014), war in ex-Yugoslavia (Svob et al., 2016), the Holocaust (Auerhahn & Laub, 1998; Wiseman et al., 2006), Rwanda Diaspora (Féron, 2023), or the Vajont disaster in Northern Italy (Raccanello et al., 2022). Abel and Berntsen (2020) compared memories of public events with memories of personal events and showed differences in both phenomenological features and functions. Personal events serve more self and directive functions than public events. Public events also serve directive functions but to a lesser extent. Overall, public events seem to be relevant for their social functions, as these events were discussed with peers.

In addition, older generations also gain to share their experience with younger generations. Carstensen's socioemotional selectivity regulation theory (SST; Carstensen, 2006) postulates that when the subjective sense of future time is perceived as shorter, people tend to shift their priorities. Individuals who perceive their remaining time as shorter emphasize emotional fulfillment and psychological well-being optimization by deepening existing relationships and developing expertise in areas of life that are already satisfying. In our context, this would lead to a natural tendency for older generations to share their life story with younger generations, to connect and deepen their relationships with close relatives.

If we know why people share, we know little about how often memory transmission occurs within families. Whereas some authors investigated the frequency of transmission in particular setups like dinnertime (Bohanek et al., 2019), and others examined conversations using audio samples recorded randomly during the day (Demiray et al., 2019), no previous study asked directly the participants to estimate how frequently transmission occurs in their daily lives. The goal of this paper is thus to measure the perceived frequency of intergenerational transmission of memory in the general population. Family is a broad term that people can interpret differently according to their experience, and every family has its dynamics regarding communication. In

this study, our primary goal is to assess how frequently memory transmission occurs within the family. We then want to compare how the perspective (being the receiver or the transmitter) influences the perception of the transmission. A different perception of the transmission could mean that transmission serves different functions according to the perspective.

We also investigate the variables that could affect the perceived frequency of intergenerational transmission in the family. Specifically, we examine the frequency of contact, event type (personal vs. public event), the event timeframe (before and after the birth of the receiver, and recent events), and the generation gap (two or one generation). We chose the three levels of timeframe to bring a temporal perspective on transmission: we differentiate events that both family members lived recently, events that occurred after the receiver's birth, which could be related to micro or exo-systems of Fivush and Merrill's (2016) model, or events from before the receiver's birth, which would rely on the macro-level. Other measures include the importance of knowing family members' personal past and the feeling of interpersonal closeness. We test whether transmission of memory within the family is perceived as important and whether this correlates with the perceived frequency of transmission. We also measure participant's feeling of closeness with their family member, and with their family in general to assess whether those measures correlate with the perceived frequency of transmission.

Because of the competing results in the literature, and the topic being relatively new, we did not state specific hypotheses. However, while still being highly exploratory, we could expect that transmission of memory would be reported as more frequent when only a one-generation gap rather than a two-generation gap (Cordonnier et al., 2021; Stone et al., 2014), for personal events than for public events (Abel & Berntsen, 2021), and for recent events than for older events (Bohanek et al., 2009).

Method

Participants

A total of 619 participants were recorded. All participants were over 18 years old and spoke French. After removing incomplete questionnaires, participants who did not provide their age, and those who did not match our age criterion (described in Procedure), a final sample of 351 participants was examined. Among them, 129 were grandparents (G1), with an average age of 71 years old ($SD = 6$), and 71 were women (55%). There were also 153 parents (G2) with an

average age of 56 years old ($SD = 10$), among whom 106 were women (69%) and two identified as non-binary. Other groups did not include non-binary participants. Finally, 69 participants were neither grandparents nor parents, so were placed in our last group (G3) with an average age of 24 years old ($SD = 3$), and 48 of them were women (70%). On average, participants from all three generations answered that they had completed 15 years of education. It is important to note that the design did not allow participants from the same families to be directly compared.

Demographic information is reported in [Table 1](#).

Participants were mainly French-speaking Belgians ($n = 333$), other participants were French ($n = 9$) or others French speakers ($n = 9$). They were solicited through the University of Liège's participants database, the Catholic University of Louvain's database, or personal channels (social media, emails, word of mouth). The link for the questionnaire was also published on the Belgian bi-monthly newspaper *Ligueur*'s website (<https://leligueur.be/>).

The protocol was approved by the ethical committee of the Faculty of Psychology, Logopedics and Educational Sciences of the University of Liège (case number: 10433).

Table 1.

Descriptive statistics of the participants.

Generation	Count	Age (SD)	Education (SD)	Number of women (%)	Parents alive	At least one grand-parent alive
G1	129	71.1 (6.1)	15.5 (3.1)	71 (55%)		
G2	153	56.4 (10.8)	15.9 (2.9)	106 (69%)	87 (56.9%)	
G3	69	23.9 (3.0)	15.8 (2.5)	48 (70%)		55 (79.7%)

Note. Education corresponds to the number of successful years achieved by the participant, six for primary education, six for secondary, and any completed year of higher education. The last two columns show how many G2 and G3 had at least one G1 alive, they did not have to answer perceived frequency if they had none.

Procedure and Materials

The questionnaire was generated using Qualtrics software (Qualtrics©, 2022) and was available to anybody who received the link. Participants were invited to answer a questionnaire about the intergenerational transmission of memory within families. After reading and signing a

consent form, participants were instructed that given the heterogeneity behind the concept of “family”, they would have to answer about the people they call family. For instance, when asked about transmission from “a parent”, they could choose who was “a parent” to them.

Three branches formed the questionnaire (see [Figure 1](#) for an overview). The first questions were created to orient the participant into the appropriate branch. First, subjects were asked if they had children older than 6. If they did not, they were classified as G3 and responded to corresponding questions. If they reported having at least one child older than 6, they were then asked if they had a grandchild older than 6. If they did not, they were classified as G2 and continued to G2 questions. Lastly, if participants answered having at least one grandchild older than 6, they were classified as G1. Incidentally, since the classification was based on parenthood and as a comparability concern, we added age criteria to reduce within-group variability. To focus on a younger generation, we excluded G3 who were over 30 years old. G1 is required to have at least one grandchild over 6 years old, ensuring that they had the opportunity to engage in verbal interactions with them. This group showed small variability ($M = 71.1$, $SD = 6.1$). We noticed that the two oldest participants (93 years old each) were in the G2 group, so we decided to exclude them to reduce the overlap with G1. G2 participants included a wider range of ages ($M = 56.4$, $SD = 10.8$), but was significantly younger than G1 participants ($t(280) = -14.97$, $p < .001$).

Questions were solely about the transmission of public and personal events from an older generation to a younger generation (from G1 to G2, G1 to G3, and G2 to G3) perceived either from the transmitter’s or the receiver’s perspective. We also restrained measures to transmission between living members. Keeping in mind that the transmission is always from an older generation, we referred to it as “top-down” when reported by the transmitter (e.g., G1 rating its transmission to G2), and “bottom-up” when reported by the receiver (e.g., G3 rating the transmission from G2). Thus, whereas G1 were only transmitters (only top-down measures) and G3 only receivers (bottom-up measures), G2 had both bottom-up measures when rating transmission from G1, and top-down measures when rating their transmission to G3.

Regardless of their categorization, the same general procedure was applied to all participants. Participants first indicated whether they had a preferred person for transmission, providing information on the age and gender of that person, and their frequency of interactions

(“How frequently are you in contact with that person?”), before answering questions about the transmission itself. We framed the question about the frequency of interactions to encompass all forms of communication (virtual or in-person) as virtual communication is becoming increasingly common. If they did not report having a preferred person for transmission for that generation, they were forced to select one person and keep them in mind throughout the questionnaire.

Responses regarding perception of transmission frequencies were given using a slider on a visual analog scale (VAS) from 0 (“never”) to 100 (“Very often”). Participants were not shown the number they chose on the scale. There were three questions for each event type, in this order: the transmission frequency of memories about events occurring before the birth of the youngest generation, after the birth of the youngest generation, and about recent events (less than a year prior). These questions were asked for both public events and personal events. Public events were described as “events that occurred during the lifetime, that are relevant for a community whether it be local, regional, national, or international (for instance, a local flood, a memorable sporting event, a pandemic)”. An example of a top-down question would be: “How frequently do you talk to this child about personal events which occurred before their birth?”, whereas a bottom-up question would be phrased: “How frequently does this parent talk to you about public events that occurred after your birth?”.

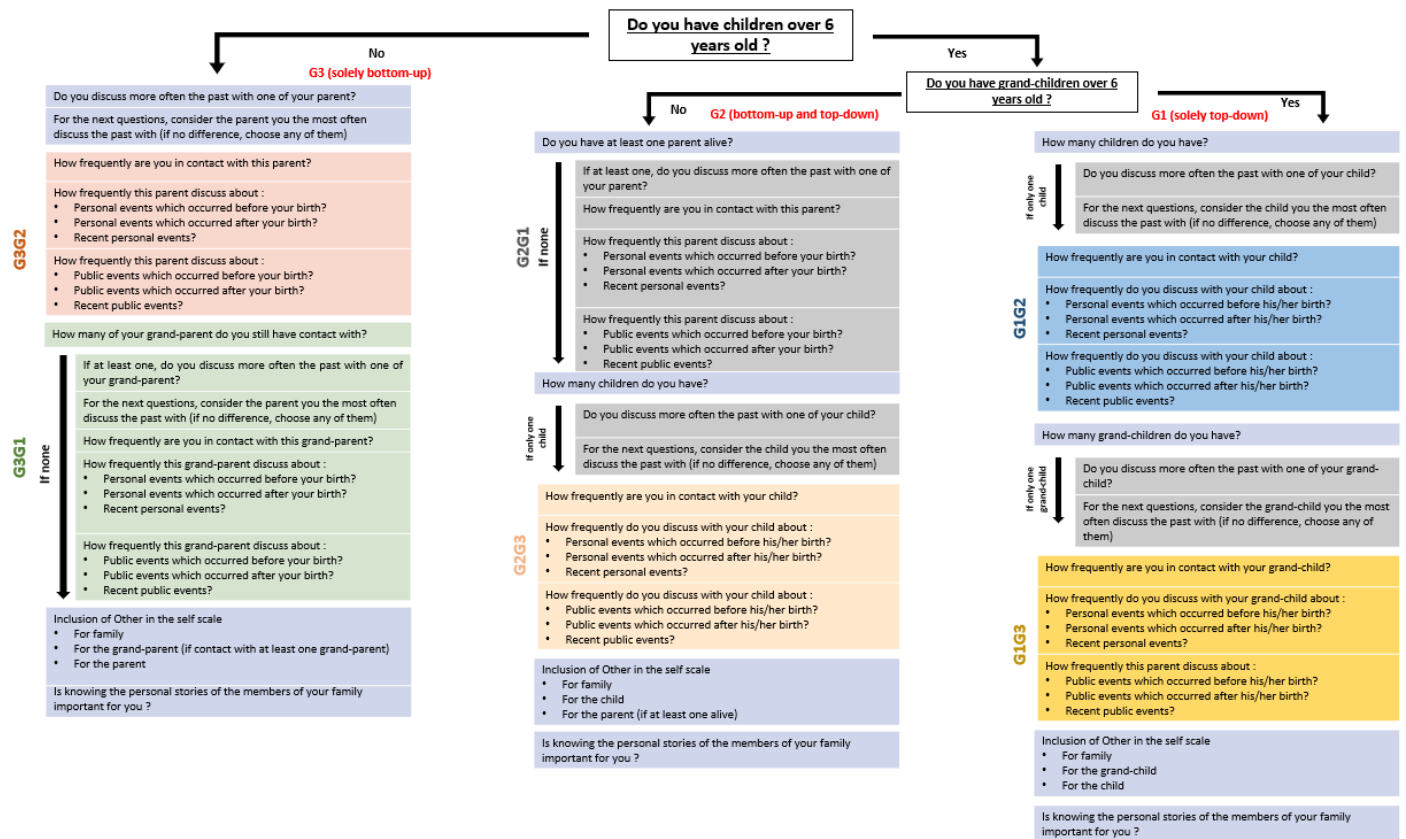
Then, to capture the nature of the relationship between the individuals and their families, participants responded to an adapted version of the inclusion of other in the self (IOS) scale (Aron et al., 1992). Participants saw two circles they could bring closer and superpose (with 11 different degrees of superposition) to represent the relationship between themselves and another person. The more intertwined the diagrams were, the closer the respondent felt to the other person. We also adapted a version to measure the closeness between the respondent and their family in general.

The last question probed the importance of memory transmission within the family. It took the form of: “Is knowing the personal stories of the members of your family important for you?” and participants answered on a VAS from 0 to 100.

The questionnaire ended with demographic questions about age, gender, place of living, and the number of successful years of education. An exemplar of the questionnaire (French) is available on OSF¹.

Figure 1

Overview of the survey.



¹ https://osf.io/7uxjr/?view_only=400dc660a84c468d828d9ed16886ceb9

Note. G1 participants first described the number of children they had, then if they had more than one, whether they felt there was a difference in the way they talked to each of them about the past. Then they had to answer the questions about age, gender, and frequency of contact with the selected children, even if they answered having no preference. Next followed the frequency of transmission of personal and public events that occurred before the birth of the selected children, after their birth, and recent events. Afterward, they answered similar questions about their transmission to their grandchildren. Finally, it ended with the IOS scales measuring feelings of closeness. Similar approaches were taken for G2 and G3 participants, with some specificities. For G2 participants, before asking them how frequently they felt that their “preferred parent” (G1) transmits memories, we first asked them if they had at least one parent alive. For G3s, they first answered if they still lived with their parents, before asking questions about preferences.

Analysis

Although reported in the Results section and given the highly exploratory character of the study and the multiplicity of analyses made, a cautious interpretation of p -values is recommended (e.g., Nosek & Lakens, 2014). Moreover, p -values are affected by sample size, the larger the sample size the more likely an effect will be detected, even a small one (e.g., Johansson, 2011; Lin et al., 2013). Therefore, given our large sample size ($N = 351$), results will be discussed regarding the effect sizes (Dunkler et al., 2020) and based on regression coefficients, which can be used as a non-standardized effect size (Baguley, 2009). It is noteworthy that our groups are not balanced (G1, $n = 129$; G2, $n = 153$; G3, $n = 69$) which can also affect the results of our analyses.

As participants rated the perceived frequency of transmissions on a 0 to 100 VAS, it was treated as a continuous variable. Hence, we mainly used linear mixed models (LMM) to investigate the effects of the different factors, as they are resistant to violation of normality or heteroscedasticity (Jacqmin-Gadda et al., 2007; Schielzeth et al., 2020). All LMM were fitted using the “lme4” (Bates et al., 2015) package in R (R Core Team, 2021). We used the `t_to_epsilon2` function from the package “effectsize” (Ben-Shachar et al., 2020) to calculate partial epsilon-squared² (ϵ^2_p ; which are equivalent to adjusted partial eta-squared; Iacobucci et al., 2023; Mordkoff, 2019). All codes are available on OSF.

² Epsilon-squared showed to be a less biased effect size estimate compared to variance explained estimates (Carroll & Nordholm, 1975; Okada, 2013). Partial epsilon-squared are effect size estimates based on variance explained by each variable of the model and can add up to a value greater than 1 (e.g., Richardson, 2011). It is recommended to interpret these effects relative to each other, not based on a small, medium, or large arbitrary consensus (Iacobucci et al., 2023).

Differences in reported transmission were examined according to the perspective (transmitter vs. receiver), and regarding the frequency of contacts. Then, we modeled the perceived transmission regarding the gap between generations (two vs. one), the event type (public vs. personal), the event timeframe (before the receiver's birth, after the receiver's birth, and recent events), and the gap between generations (two vs. one). Other analyses included gender, frequency of reported interaction, and feeling of closeness. Correlations between measures were also estimated and used in further analyses to examine their moderation effect.

To simplify our description, we have coded the type of transmission by including first who is evaluating the transmission and then with whom the transmission occurs. For instance, "G1G2" and "G2G1" are both transmissions between G1 and G2, but the former is evaluated by G1 (top-down), and the latter by G2 (bottom-up).

Results

As our data is composed of numerous variables, we report here only a curated part of potential analyses. More detailed information can be found in the Supplementary Material related to this study, including the complete descriptive table, post hoc analysis tables for the interaction effects between event type and event timeframe, the post hoc analysis table for the interactions between event type and generation gap, the interaction between event timeframe and generation gap, gender preferences, age-related analyses, and the correlation table.

We start here by providing an overview of the data with descriptive statistics of perceived memory transmission frequency followed by descriptive data for control variables. Second, we proceed to evaluate the impact of the perspective (transmitter vs. receiver) on perceived memory transmission, first by analyzing its main effect, and then by adding potential mediators to the model. Afterward, we explore the role of the generation gap and social cohorts on the perceived frequency. Finally, we run a complementary analysis focusing on two variables: event timeframe and event type.

Descriptive Statistics of the Perceived Memory Transmission Frequency

Overall, and with relatively large interindividual differences, intergenerational transmission was reported as moderately frequent, whether perceived by the transmitter ($M_{top-down} = 52.3$, $SD_{top-down} = 29.9$) or by the receiver ($M_{bottom-up} = 48.8$, $SD_{bottom-up} = 30.9$).

Descriptive data regarding the perceived frequency of transmission are available in [Table 2](#).

Table 2

Perceived frequency of transmission for each combination.

Combination	Public events			Personal events		
	Before receiver's birth	After receiver's birth	Recent	Before receiver's birth	After receiver's birth	Recent
Topdown						
G1G2	31.37 (25.75)	46.58 (25.06)	67.64 (24.35)	48.59 (25.45)	59.60 (22.44)	68.15 (25.97)
G1G3	29.40 (27.60)	35.99 (28.71)	48.16 (30.94)	37.14 (29.13)	43.33 (28.04)	53.64 (29.67)
G2G3	30.66 (27.97)	32.43 (27.01)	55.91 (32.80)	44.40 (28.70)	48.60 (26.34)	60.78 (33.68)
Bottom-up						
G2G1	41.22 (27.65)	51.86 (27.89)	71.08 (26.05)	53.85 (26.33)	68.80 (20.19)	76.33 (25.92)
G3G1	37.02 (27.80)	26.60 (19.46)	52.89 (32.81)	55.36 (29.92)	40.58 (22.70)	59.76 (29.71)
G3G2	31.43 (25.63)	42.29 (28.84)	69.74 (27.36)	52.48 (25.53)	60.75 (21.60)	76.96 (28.54)

Note. Participants rated their perceived frequency of transmission from visual analogous scales ranging from 0 to 100. "Recent" refers to events that occurred less than a year prior. Standard deviations are given between parentheses.

Descriptive Statistics of Control Variables

Table 3 presents descriptive statistics for variables including the perceived importance of knowing the personal history of family members, the overall family feeling of closeness, personal feelings of closeness, and the frequency of interaction.

Importance of Knowing the Personal History of Family Members

We looked at the perceived importance of knowing the personal history of other family members. Overall, knowing family members' history seemed important for our respondents ($M=80.41$, $SD=20.71$). Interestingly, we found that it was less important for G1 than for the two other generations ($\beta_{G2}=9.93$, 95% CI [5.16, 14.69], $t(348)=4.09$, $\varepsilon^2_p=.04$, 95% CI [0.01, 0.09]; $\beta_{G3}=6.73$, 95% CI [0.78, 12.68], $t(348)=2.23$, $\varepsilon^2_p=.01$, 95% CI [0.00, 0.04]).

Family Feeling of Closeness

We found no differences between the answers of the different generations regarding the feeling of closeness with the family ($F(2, 348) = 0.73, p = .482$). The three generations answered feeling relatively close to their family ($M_{G1} = 6.96, SD_{G1} = 2.92$; $M_{G2} = 7.30, SD_{G2} = 2.49$; $M_{G3} = 6.99, SD_{G3} = 2.82$).

Personal Feeling of Closeness

Overall, participants felt close to their preferred person for memory transmission, with the lowest closeness ratings reported by grandchildren toward their grandparents ($M = 5.6, SD = 3.27$).

To investigate a potential difference in the way our duos perceived feeling close to the preferred person for transmission, we compared the feeling of closeness two by two for each combination (G1G2 vs. G2G1, G1G3 vs. G3G1, and G2G3 vs. G3G2). We found a significant difference between G1G2 and G2G1 ($\beta_{G2G1} = -1.38, 95\% \text{ CI } [-1.90, -0.85], t(391) = -5.14, p < .001$). This suggests that G1 participants felt a stronger sense of closeness to the child they identified as the primary recipient of their transmissions than G2 participants felt toward the parent they identified as their primary source of received transmissions. However, we found no differences between G1G3 and G3G1 ($\beta_{G3G1} = 0.45, 95\% \text{ CI } [-0.21, -1.10], t(377) = 1.35, p = .18$) or between G2G3 and G3G2 ($\beta_{G3G2} = -0.32, 95\% \text{ CI } [-0.95, 0.30], t(364) = -1.02, p = .31$).

Frequency of Contact

Similar to the top-down vs. bottom-up comparisons of transmission frequencies, we compared the frequency of contact two by two for each transmission (G1G2 vs. G2G1, G1G3 vs. G3G1, and G2G3 vs. G3G2).

Perceived frequencies of contact were significantly different only between G1G2 and G2G1 ($\beta_{G2G1} = -8.70, 95\% \text{ CI } [-15.17, -2.22], t(214) = -2.65, p = .009, \varepsilon^2_p = .01, 95\% \text{ CI } [0.00, 0.03]$), no difference was found between G1 and G3 ($\beta_{G3G1} = 0.61, 95\% \text{ CI } [-7.53, -8.74], p = .883$), or G2 and G3 ($\beta_{G3G2} = -3.66, 95\% \text{ CI } [-9.54, 2.21], p = .22$). Our older generation (G1) felt that they were in contact more often with their children (G2) than their children felt being in contact with their parents. This could be due to a difference in social network size, or a difference of importance in this transmission. Other generations did not differ in the way they perceived being in contact with each other.

Table 3

Combination	Feeling of closeness with other person	Frequency of interaction	Importance of transmission	Feeling of closeness with family
<u>G1G2</u>	7.16 (2.29)	72.80 (21.17)		
			74.76 (23.33)	74.76 (23.33)
<u>G1G3</u>	5.73 (2.84)	58.72 (26.65)		
			84.69 (17.90)	84.68 (17.90)
<u>G2G3</u>	8.35 (2.03)	85.55 (19.63)		
<u>G2G1</u>	5.94 (2.77)	64.10 (27.00)		
<u>G3G1</u>	5.57 (3.27)	59.33 (22.91)		
			81.49 (19.07)	81.49 (19.07)
<u>G3G2</u>	8.03 (2.32)	81.88 (22.44)		

Note. Standard deviations are given between parentheses. Feeling of closeness refers to the answers on the the *Inclusion of Other in the Self* scale (0 to 10) for both the preferred person for transmission, and family.

“Recent” refers to events that occurred less than a year prior.

Effect of Transmitter’s vs. Receiver’s Perspective on Perceived Transmission

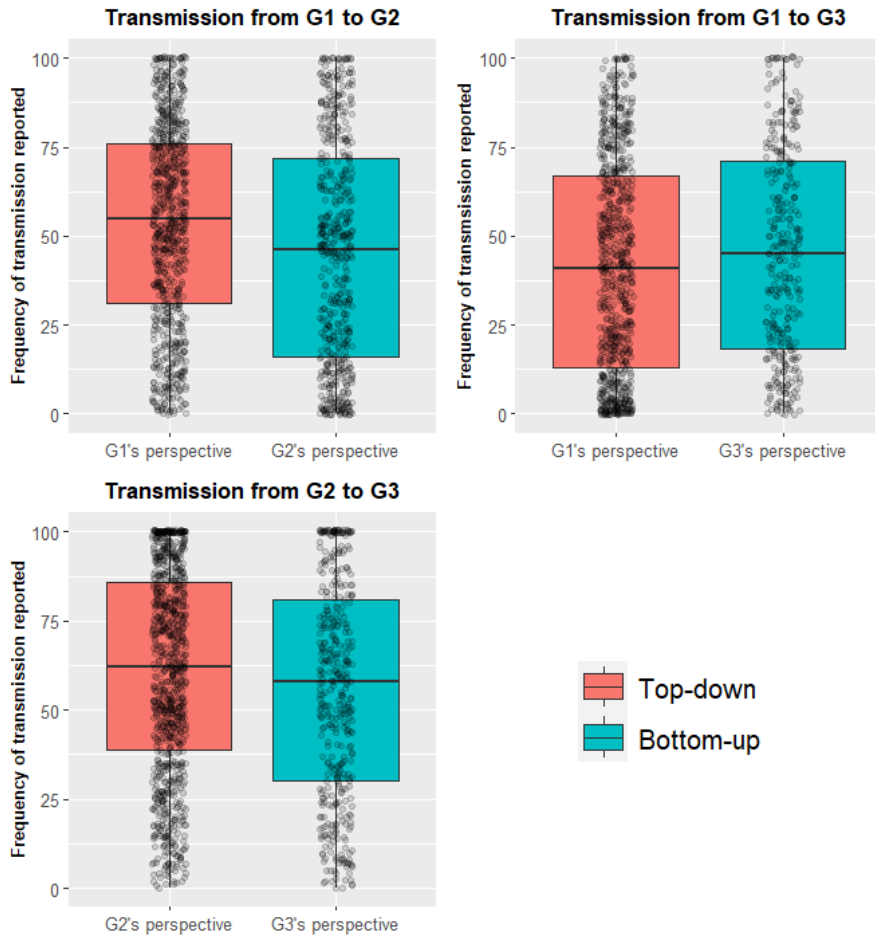
We proceed in three steps. First, we evaluate the main effect of perspective on perceived transmission. Second, we explore correlational patterns between our dependent variable and control variables to identify potential mediators. Finally, we run our model again these identified mediators.

Main Analysis

To compare the effect of the perspective (transmitter vs. receiver) on the perceived frequency of transmission, we ran LMM, using this formula: $\text{Transmission} \sim \text{Perspective} + (1|\text{Participant})$. We conducted three separate analyses. First, we analyzed the reported frequency of transmission from G1 to G2 by comparing G1’s perspective (G1G2) to G2’s perspective (G2G1). Then, we analyzed reported transmission from G1 to G3 by comparing G1’s (G1G3) to G3’s (G3G1) perspective, and finally, transmissions from G2 to G3 by comparing G2’s (G2G3) to G3’s (G3G2) perspectives (see [Figure 2](#)).

Figure 2.

Perceived frequency of transmission according to the top-down perspective and the bottom-down perspective.



Results showed that G1 reported transmitting slightly more frequently to G2 ($M_{G1G2}=53.66$, 95% CI [50.33, 56.99]) than G2 reported receiving from G1, $\beta_{G2G1}=-8.19$, 95% CI [-13.44, -2.95], $t(214)=-3.06$, $p=.002$, $\varepsilon^2_p=.04$, 95% CI [0.00, 0.10]. However, differences of reported frequency of transmission did not reach significance between G2 and G3 ($M_{G2G3}=60.52$, 95% CI [57.52, 63.53], $\beta_{G3G2}=-4.91$, 95% CI [-10.30, 0.48], $p=.075$), and G1 and G3 ($M_{G1G3}=41.28$, 95% CI [37.36, 45.19]; $\beta_{G3G1}=4.09$, 95% CI [-3.07, 11.26], $p=.264$). Given the differences between the two perspectives on the frequency of transmission for at least one condition, we decided to split all further analyses according to the bottom-up and the top-down point of view.

Correlations with Control Variables

We ran correlation analyses between four variables: frequency of transmission, subjective importance of transmission, frequency of contact, and feeling of closeness. The rationale for these analyses was to investigate how those measures interacted together, if these interactions were different depending on the different combinations, and if a measure could mediate the previously described effects on transmission. Interpretation of the Pearson correlation (r) was based on Schober et al. (2018). All the results are reported in Table 4.

Table 4

Correlations between variables.

Variable 1	Variable 2	Correlation (Pearson)	Correlation (Pearson)
Feeling of closeness	Frequency de contact	0.33 [0.132, 0.508]	0.44 [0.292, 0.572]
Feeling of closeness	Importance of transmission	0.29 [0.088, 0.474]	0.23 [0.056, 0.384]
Importance of transmission	Frequency de contact	0.08 [-0.135, 0.284]	0.16 [-0.008, 0.328]
Frequency of transmission	Frequency de contact	0.53 [0.364, 0.669]	0.42 [0.270, 0.556]
Frequency of transmission	Importance of transmission	0.20 [-0.12, 0.393]	0.23 [0.063, 0.390]
Frequency of transmission	IOS	0.27 [0.060, 0.452]	0.43 [0.273, 0.558]
Feeling of closeness	Frequency de contact	0.72 [0.566, 0.829]	0.63 [0.510, 0.722]
Feeling of closeness	Importance of transmission	0.36 [0.136, 0.550]	0.17 [-0.001, 0.335]
Importance of transmission	Frequency de contact	0.42 [0.170, 0.614]	0.08 [-0.095, 0.248]
Frequency of transmission	Frequency de contact	0.58 [0.372, 0.732]	0.58 [0.450, 0.683]
Frequency of transmission	Importance of transmission	0.27 [0.010, 0.503]	0.33 [0.166, 0.476]
Frequency of transmission	IOS	0.56 [0.348, 0.720]	0.67 [0.563, 0.756]
Feeling of closeness	Frequency de contact	0.63 [0.463, 0.755]	0.52 [0.392, 0.626]
Feeling of closeness	Importance of transmission	0.28 [0.050, 0.487]	0.12 [-0.038, 0.275]
Importance of transmission	Frequency de contact	0.20 [-0.041, 0.415]	0.16 [-0.001, 0.308]
Frequency of transmission	Frequency de contact	0.55 [0.360, 0.696]	0.35 [0.200, 0.480]
Frequency of transmission	Importance of transmission	0.26 [0.029, 0.471]	0.23 [0.077, 0.377]
Frequency of transmission	IOS	0.31 [0.081, 0.511]	0.33 [0.179, 0.463]

Note. Pearson correlations between variables with 95% confidence intervals. Feeling of closeness refers to the score of the IOS scale with the other person of the duo. Correlations in bold are significant at $p < .05$.

Globally, reported transmission and frequency of contact were positively moderately correlated for each combination ($0.42 < r < 0.55$), except for G2G3³ ($r = 0.35$, 95% CI [0.20, 0.48]). Both G3G1 and G1G3 showed moderate positive correlations between reported transmission and feeling of closeness ($r = 0.56$, 95% CI [0.35, 0.72] and $r = 0.67$, 95% CI [0.56, 0.76], respectively). Finally, and not surprisingly, feeling of closeness and frequency of contact were moderate to strongly correlated ($0.52 < r < 0.72$) for each combination, except for G2G1 ($r = 0.33$) and G1G2 ($r = 0.44$).

Mediation effect of the Frequency of Contact

Given the strong correlation between transmission and the frequency of contact, we re-ran LMM analyses including the frequency of transmission as a predictor, to detect a possible mediation effect. First, we ran LMMs comparing bottom-up and top-down perspectives (G1G2 vs. G2G1; G2G3 vs. G3G2; G1G3 vs. G3G1), models' formula was: Transmission ~ Perspective * Frequency of contact + (1|ID). Once the frequency of contact was included in the models, there were no differences anymore between the receiver's and transmitter's perception of transmissions ($\beta_{G2G1} = -8.13$, 95% CI [-22.17, 5.90], $t(212) = -1.14$, $p = .257$; $\beta_{G3G2} = -11.58$, 95% CI [-31.45, 8.29], $t(218) = -1.14$, $p = .255$; $\beta_{G3G1} = 6.65$, 95% CI [-9.17, 22.4s8], $t(180) = 0.82$, $p = .411$). In summary, the oldest generation (G1) perceived that they transmitted more about their lives to their children than the middle generation (G2) perceived receiving from their parents. Additionally, the middle generation (G2) and the youngest generation (G3) reported engaging in memory transmission at comparable frequencies. Similarly, G1 reported transmitting to their grandchildren as frequently as G3 reported receiving from their grandparents. Furthermore, the findings revealed that greater perceived contact with another generation was associated with more frequent memory transmission between them. This relationship suggests that participants' judgments of transmission frequency may be supported by how often they perceive communicating with the other person (mediation effect).

Generation Gap and Social Cohort

Main Analysis for Generation Gap

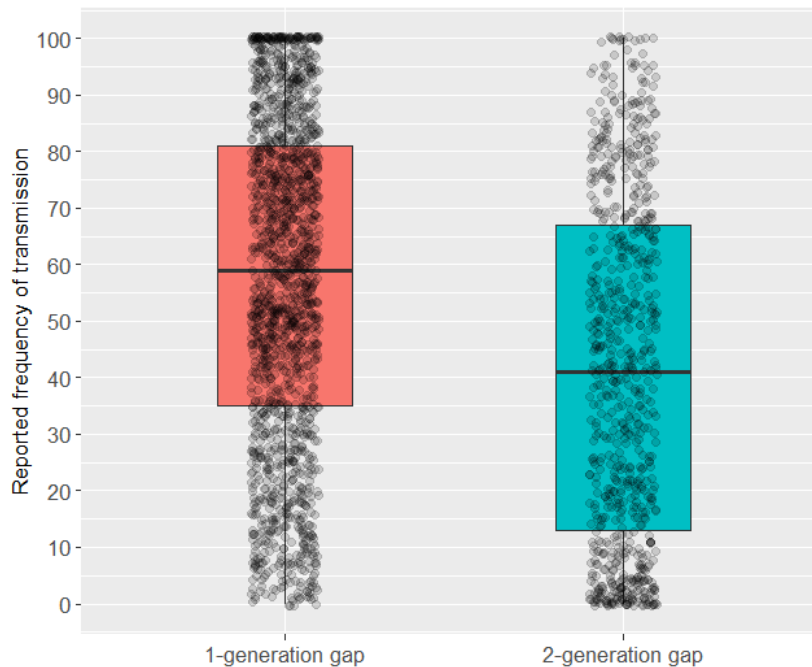
³ It is important to keep in mind than the sample size for G3 was smaller than in the other groups ($n = 69$, see Table 1)

Another important aim of our study is to compare the perceived transmission between parents and their children, and grandparents and their grandchildren. To achieve this, we conducted LMM comparing the effect of the generation gap on transmission, independently of the event type and the event timeframe. For the top-down perspective, we compared the transmission of a one-generation gap versus a two-generation gap (G1G2 and G2G3 versus G1G3). Results are shown in Figure 5 for the top-down perspective and Figure 6 for the bottom-up perspective.

Transmission was perceived as more frequent when there was a one-generation gap compared to a two-generation gap ($\beta_{1Gen-2Gen} = 15.81$, 95% CI [12.99, 18.64], $t(679) = 10.98$, $p < .001$, $\varepsilon^2_p = .15$, 95% CI [0.10, 0.20]). Parents reported transmitting more frequently to their children than grandparents reported transmitting to their grandchildren.

Figure 3.

Top-down perception of transmission according to the generation gap: one-generation gap (G1G2&G2G3) vs. two-generation gap (G1G3).



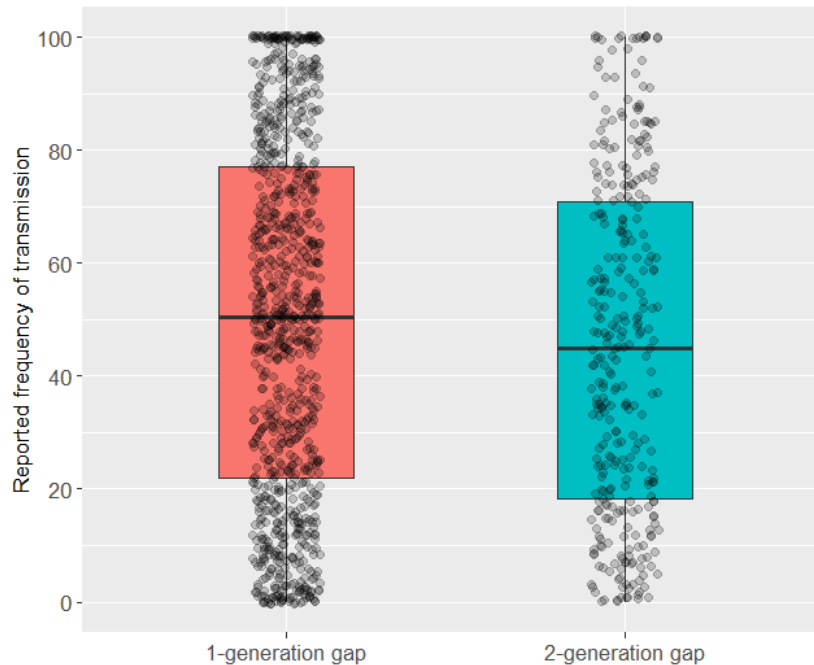
On the other hand, from the bottom-up perspective, one-generation gap transmission frequency (G2G1 and G3G2) was barely greater than two-generation gap transmission (G3G1),

$\beta_{1Gen-2Gen} = 4.34$, 95% CI [0.02, 8.66], $t(543) = 1.98$, $p = .049$, $\varepsilon^2_p < .01$, 95% CI [0.00, 0.02].

Children reported receiving slightly more from their parents than grandchildren reported receiving from their grandparents.

Figure 4

Bottom-up perception of transmission according to the generation gap: one-generation gap (G1G1&G3G2) vs. two-generation gap (G3G1).



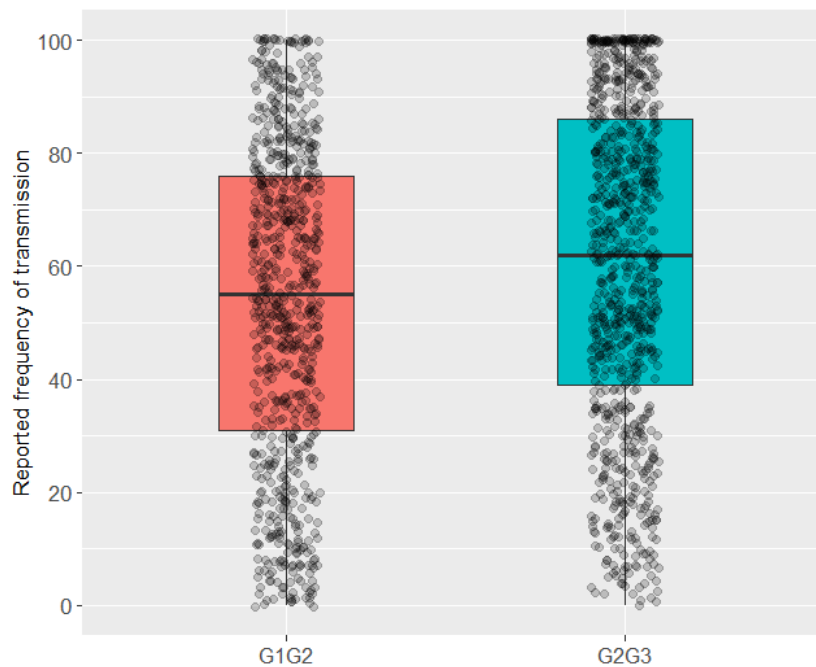
Cohort Effect

To detect a possible cohort effect (socially shared values from people of the same generation), we explored the transmission frequency between parents and children of different generations. For both perspectives, we compared the reported frequency of transmission from duos of a one-generation gap: G1G2 vs. G2G3 for the top-down perspective (Figure 7), and G2G3 vs. G2G1 for the bottom-up perspective (Figure 8).

Although with a small effect size, outputs from the LMM revealed that G1 reported transmitting less to G2 than G2 reported transmitting to G3, $\beta_{G2G3-G1G2} = 6.87$, 95% CI [11.49, 2.24], $t(315) = 2.92$, $p = .004$, $\varepsilon^2_p = .02$, 95% CI [0.00, 0.07]. This means that within our sample, the older generation (G1) reported transmitting less to their children than the middle generation reported transmitting to theirs.

Figure 5

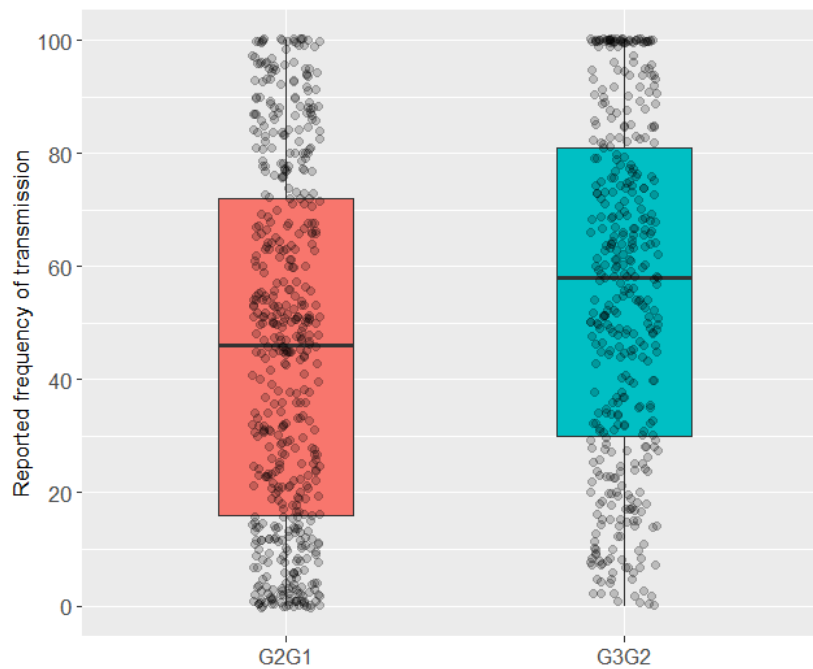
Top-down perception of transmission frequency with one generation gap.



Similarly, in the bottom-up perspective, results showed that G2 reported receiving less frequently from G1 than G3 reported receiving from G2, $\beta_{G3G2-G2G1} = -10.15$, 95% CI [-16.31, -3.99], $t(175) = -3.25$, $p = .001$, $\varepsilon^2_p = .05$, 95% CI [0.01, 0.13]. This result might be indicative that the difference is potentially due to a cohort effect, where people who grew up earlier in the century transmit generally less to their children than people who grew up in the second half of the century.

Figure 6

Bottom-up perception of transmission frequency with one generation gap.



Mediation effect of the Frequency of Contact

As for the perspective, similar mediation effects were observed regarding the generation gap. Looking at the bottom-up perspective (G2G1 vs. G3G2 and G3G1 vs. G2G3&G1G3), once the frequency of contact was introduced in the models, there was no difference in transmission anymore ($\beta_{G3G2-G2G1} = -2.91$, 95% CI [-8.54, 2.71], $t(207) = -1.02$, $p = .308$; $\beta_{1Gen-2Gen} = -1.57$, 95% CI [-6.04, 2.90], $t(596) = -0.69$, $p = .491$). Regarding the top-down perspective, the difference between G1G2 and G2G3 was not significant anymore ($\beta_{G2G3-G1G2} = -2.47$, 95% CI [-7.02, 2.07], $t(321) = -1.07$, $p = .285$). However, a very small difference persisted between G1G3 and G2G3&G1G2. Transmission was still perceived as significantly more frequent between parents and children (one-generation gap) than between grandparents and grandchildren ($\beta_{1Gen-2Gen} = 6.53$, 95% CI [3.49, 9.57], $t(815) = 4.22$, $p < .001$, $\epsilon^2_p = 0.02$, 95% CI [0.01, 0.04]).

To summarize, parents reported transmitting stories more frequently to their children than grandparents did to their grandchildren. Similarly, across generations, children reported hearing stories from their parents more often than grandchildren reported hearing stories from their grandparents. When comparing parent-child relationships across generations (G1G2 and G2G3), older parents (G1) perceived themselves as transmitting slightly less to their children than older

parents (G2) reported transmitting to theirs. Conversely, younger children (G3) perceived receiving more stories from their parents than older children (G2) did from theirs.

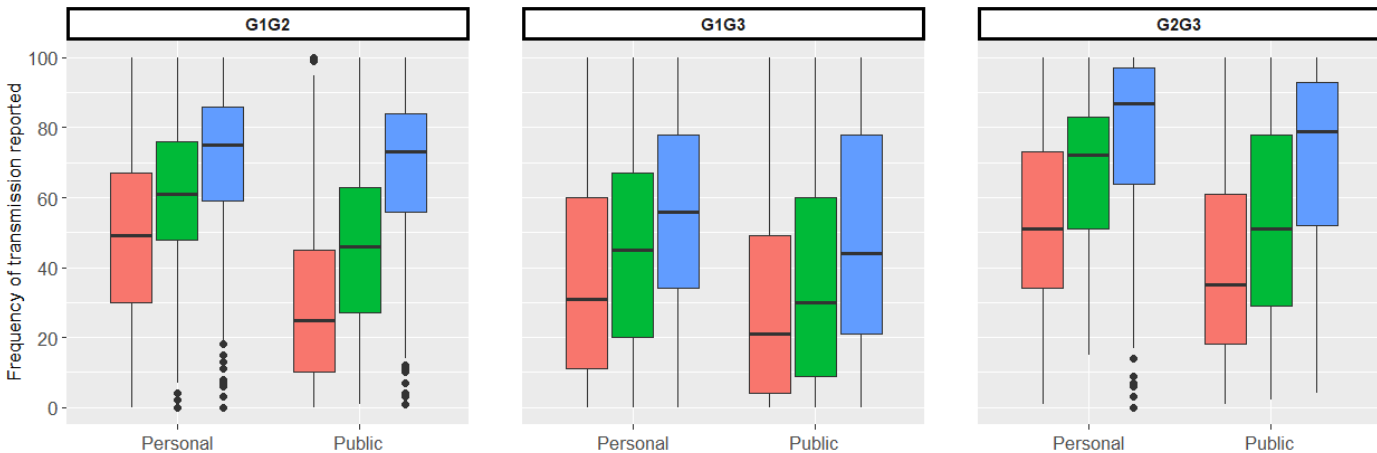
Complementary analysis

Event Timeframe and Event Type

We investigated the differences in reported transmission frequency according to the event type (public vs. personal), and the event timeframe (before the receiver's birth, after the receiver's birth, and recent events) for top-down (Figure 3) and bottom-up (Figure 4) perspectives separately. We first looked for overall effects and then analyzed each combination. LMM's formulas were as follows: $\text{Transmission} \sim \text{Timeframe} * \text{Event type} + (1 | \text{Participant})$. Further details can be found in the supplementary material.

Figure 7

Top-down perception of frequency of transmission according to the event type and the event timeframe.

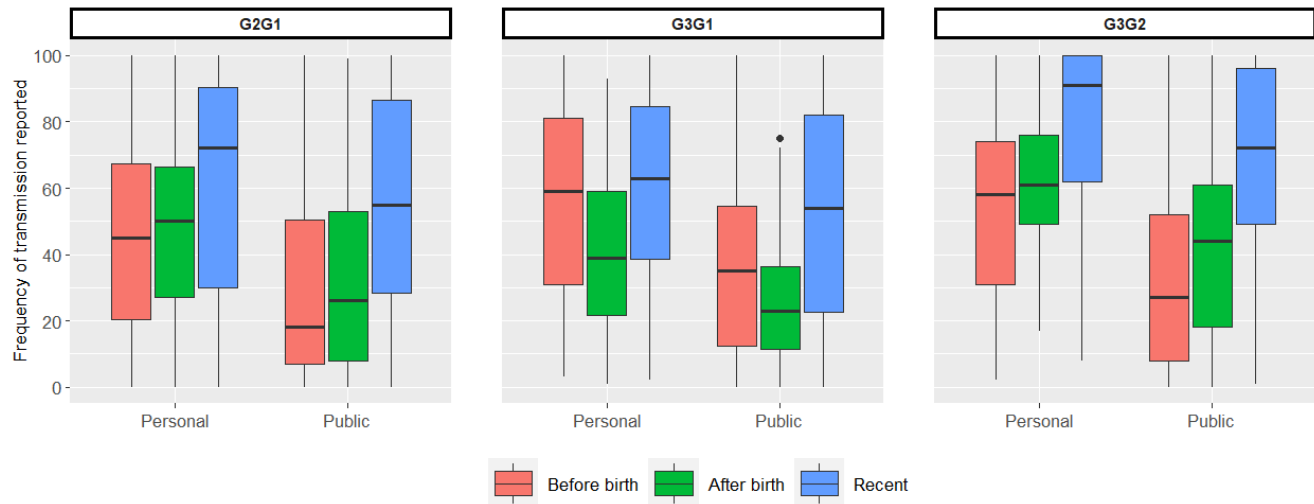


Note. "Recent" event refers to events that occurred less than a year prior.

For the top-down perspective, there was a small main effect of event type, with public events perceived as transmitted less frequently than personal events ($\beta_{\text{public}} = -12.54$, 95% CI [-15.34, -9.73], $t(2179.98) = -8.75$, $p < .001$, $\varepsilon^2_p = .03$, 95% CI [0.02, 0.05]); a large main effect of event timeframe, with transmission frequency increasing for more recent events ($\beta_{\text{time2-1}} = 10.96$, 95% CI [8.16, 13.77], $t(2179.98) = 7.65$, $p < .001$, $\varepsilon^2_p = .03$, 95% CI [0.01, 0.04]; $\beta_{\text{time3-1}} = 19.68$, 95% CI [16.88, 22.49], $t(2179.98) = 13.74$, $p < .001$, $\varepsilon^2_p = .08$, 95% CI [0.06, 0.10]); and a small

Figure 8

Bottom-up perception of frequency of transmission according to the event type and the event timeframe.



Note. "Recent" event refers to events that occurred less than a year prior.

interaction effect between the two ($p < .001$). Analyses of contrasts revealed that whereas nearly all simple effects were significant ($p < .0001$), most of the effects were relatively small.

With only minor differences, analyses revealed a similar pattern for the bottom-up perspective (Figure 4). The model showed that reported received transmission is higher for personal events than for public events ($\beta_{public} = -17.33$, 95% CI [-21.75, -12.92], $t(1101.19) = -7.70$, $p < .001$, $\varepsilon_p^2 = .05$, 95% CI [0.03, 0.08]), that there is no difference in the transmission of events from before and after the receiver's birth ($\beta_{time2-I} = 0.58$, 95% CI [-3.83, 5.00]), and that transmission of events from before the receiver's birth is lower than transmission of recent events ($\beta_{time3-I} = 15.91$, 95% CI [11.49, 20.32], $t(1101.19) = 7.06$, $p < .001$, $\varepsilon_p^2 = .04$, 95% CI [0.02, 0.07]). A closer look at the data (Figure 4) Error! Not a valid bookmark self-reference shows that frequency of transmission is perceived as higher for events occurring after compared to before the receiver's birth, but only when described transmission from a parent (i.e., G2G1 and G3G2) but not when describing transmission from a grandparent (i.e., G3G1). This could explain the absence of significant differences when taking all three bottom-up combinations.

Finally, although significant, the interaction between event type and event timeframe was very small, $F(2, 1101.19) = 7.54$, $p < .001$, $\varepsilon_p^2 = .01$, 95% CI [0.00, 0.02=3]). We found that participants felt they were transmitting slightly more frequently personal than public memories,

and this gap between public and personal events was larger for receivers. Personal memories were reported considerably more regularly than public events. However, the difference between public and personal recent events was very minor. Receivers reported hearing about recent public events almost as frequently as personal events.

Discussion

The objective of this survey was to investigate the perceived frequency of intergenerational transmission from an older to a younger generation of a family. Transmission of memory is a process that occurs spontaneously, and that is a part of forming the identity of the family (Fivush, 2019). However, we cannot access directly this frequency of transmission. Therefore, we asked participants to rate how frequently they perceived talking or hearing about these stories. We accounted for differences in the perceived frequency of transmission between the transmitters and the receivers of the memories to confront possible discrepancies between the perspective of the one who lived and told the story and the one apprehending the stories. From an exploratory perspective, we also investigated how the frequency of contact, the event type, the event timeframe, and the generation gap could influence the perception of frequency. Main outputs will be discussed here, and we want to remind readers that our results are exploratory and based on relatively small effect sizes.

First, results show that intergenerational transmission of memory is perceived as relatively frequent. In line with previous studies (e.g., Demiray et al., 2019), data showed great interindividual differences, but on average, it seems that people feel that they frequently transmit and hear stories about the past of their older family members. This supports previous findings about the spontaneous character of transmission (Bohanek et al., 2009; Fivush, 2009). This frequent occurrence hides many layers of complexity. From the point of view of the protagonist engaged in the transmission (the teller and the listener) to the type or the timeframe of the event, many factors seem to influence the way people perceive discussing the personal past of their family member.

Memory transmission requires at least two people: one person transmitting, and another listening and remembering what was transmitted. Our results showed that between most generations, there is a general agreement on how frequently older generations transmit to younger generations, but not in all cases. Participants who are now grandparents (G1) felt they were

transmitting more to their children than what middle-aged participants (G2) perceived receiving from their parents. However, no differences in perspective were noted between grandparents (G1) and grandchildren (G3) or between parents (G2) and their children (G3). Based on Carstensen's socioemotional selectivity theory (Carstensen, 2006), this difference could arise from a shift in motivation. With age, as their perceived remaining time shrinks, individuals seem to reduce their social networks and prioritize their existing relationships. This reduction in social networks has been found repetitively in the literature (Bruine De Bruin et al., 2019; for a meta-analysis see Wrzus et al., 2013). While grandparents' social networks become smaller, transmission to their children might appear more frequent and more important as they would probably prioritize relationships with their close relatives. This aligns with Wetzel and Hank (2020)'s study showing that during the transition to adulthood (16 to 30 years old) grandparent-grandchild frequency of contact decreases. These changes could be due to both the middle generation (here our G2) providing fewer opportunities for intergenerational contact between grandparents and grandchildren, and the latter's new roles and responsibilities when leaving the parental home. On the other hand, parents who were not grandparents (G2) are middle-aged adults with larger social networks and for whom remaining subjective time would be perceived as longer, transmission from their parents might be less accessible and carry fewer personal functions.

When looking at parent-child relationships in the youngest generations, younger parents (G2) and their children (G3) did not perceive differently their frequency of transmission. It is possible that middle-aged parents were not old enough for the subjective time to reduce sufficiently to observe an effect. Moreover, G2 and G3 reported a high frequency of transmission which could hide some smaller effects as well (ceiling effect). Differences between grandparents and grandchildren may also be hidden behind an overall lower reported frequency of transmission. Even if not found for each combination, this suggests different perceptions of the transmission for the teller and the listener. Another explanation could come from the grandparents' feeling of being more frequently in contact with their children. Grandparents reported being in contact with their children more frequently than the children reported being in contact with them. This difference in perception could be explained by the frequency of contact between them.

Not so surprisingly, we found an overall perception that memory was less often shared between grandparents and grandchildren than between parents and children. Previous works on communicative memory describes a loss of information throughout family generations (Cordonnier et al., 2021; Stone et al., 2014). As suggested by our mediation analyses, this difference might be partially explained by the frequency of contact, but not completely. In other words, more frequent contact with parents than grandparents does not fully explain why memory transmission is stronger from a parent than a grandparent.

The more you discuss with someone, the more you are likely to share about past events. Participants could also base their *judgments* of transmission frequency on the frequency of contact. The more you perceive being in contact with someone, the more you perceive transmitting/receiving with that person. However, the latter hypothesis does not seem likely when looking at the correlations between frequency of contact, transmission, and the feeling of closeness (IOS). For instance, correlations between frequency of transmission and frequency of contact are a bit lower for parent-to-child duos than for other pairs. This suggests that while parents report being in contact frequently with their children, it does not predict well the frequency of transmission. Moreover, in parent/child dyads, the closeness of their relationship only correlates weakly with how frequently they share their past, but when looking at grandparents/grandchildren relationships, their closeness correlates more strongly with transmission. It appears that memory transmission plays a different role between these two generations. These results support Wetzel and Hank's (2020) findings. While the frequency of contact between grandparent and grandchild decreases during the transition to adulthood, they observe no reduction in emotional closeness.

On the other hand, when looking at children and parents, we found that the frequency of transmission varies between different cohorts. We observed a lower reported frequency of transmission from older parents (G1) to their children (G2) than from younger parents (G2) to their children (G3). This difference could be attributed to differences in socially shared characteristics of people being born around the same time (social cohort effect), or an effect of age. Cultural norms evolve, and there may be shared cultural differences among individuals born in the same era. These differences could be observed at any age among these individuals. On the other hand, individuals of the same age (regardless of when they were born) may share common

characteristics that influence their way of transmitting to younger generations. Our data do not allow us to differentiate between these two possibilities. Likewise from the bottom-up perspective, the youngest generation (G3) reported receiving more from their parents (G2) than their parents reported receiving from theirs (G1). However, once again, when introducing the frequency of contact in the models, the difference did not appear significant anymore.

We also identified additional variables with smaller effect sizes that may shed light on how individuals perceive memory transmission within their families. Although not the primary focus of this study, these variables provide a nuanced and more detailed perspective on the generational differences observed.

First, regarding the event timeframe, our participants tended to transmit and receive memories that occurred when both people were alive. This corresponds to the micro- and exo-systems from Fivush and Merrill's model (2016). Again, this also aligns with and extends the work of Bohanek et al. (2009). After recent daily events, the second most frequent theme they recorded was "parent-child social interaction". These are moments where at least one child and one parent were present. In our study, we expand these results to adults. Close family members discuss frequently recent events, both public and personal. This goes with the idea that family is a place to discuss and make sense of the world, for instance by discussing public events happening around family members. Family conversations include reviews of recent private events as well. In line with Cordonnier et al. (2022), this can occur to make sense, reinterpret, validate, or challenge what one is leaving. It also carries social functions to bond and facilitate discussion. However, the youngest generation reported receiving from their grandparents more stories from before they were born than after they were born, which was not what the grandparents reported transmitting to them. Grandparents answered discussing mainly recent events, and events which occurred after the birth of their grandchild. This difference in perception could mean that while grandparents remember memories of events they lived with their grandchildren, grandchildren seem to remember more about older stories from their grandparents' lives. Grandparents seem to emphasize what they share with the younger generation, perhaps to deepen their bonds (social function), and the younger generation focuses more on stories making sense of their past (directive and self functions).

Globally, whereas transmission seems to be perceived by protagonists as frequent, most of the memories are from recent events. Similarly, Bohanek and colleagues (2009) found that, at dinnertime, conversations were most frequently dealing with children's or parents' activities of that day. As stressed by Fivush (Fivush et al., 2011), from a very young age, parents encourage children to discuss and tell stories about their experiences. Discussing daily life is one way for the family to validate each other's feelings and make sense of the world (Cordonnier et al., 2022; Fivush et al., 2011; Fivush & Merrill, 2016).

As previously established, family discussions concern family, personal, and public matters. Here, personal memories were reported to be transmitted more frequently than public events, replicating findings from Abel and Berntsen (2021). Memories about public events are shared but to a lesser extent than personal events. Furthermore, the authors noticed that participants struggled more to find and tell memories of public events. Family identity is built on shared memories (Cordonnier et al., 2022; Fivush & Merrill, 2016), so public events might not always be the most relevant to creating or maintaining bonds within the family.

Limits

A few methodological limits can be stated for this study. The goal of the survey was to get a first understanding of the variables that might influence the way people perceive how much they transmit or receive intergenerational transmission of memory within their family. Therefore, we created this exploratory survey and did not postulate clear hypotheses beforehand. The interpretation of our many analyses must be cautious, mainly about the *p*-values (Nosek & Lakens, 2014).

On a more theoretical basis, comparisons in the analyses included « duos » from different families. When we compared transmission from G1 to G2 from both perspectives, those G1 and G2 were not from the same families. We postulated that the respondents would be representative of the general population, but one cannot exclude individual variability. A more realistic assumption would be that respondents to our survey were people already interested in the topic, had time to answer, and had access to an online survey. Keeping in mind the goal of getting a better understanding of the intergenerational transmission of memory within the family in general, a future study could try to reach participants with lower education, and different social backgrounds.

Another limit that could be addressed is the age distribution of our “generations”. We tried to account for this by analyzing the data regarding the age of the participants instead of their role within the family, but our groups suffer from a very wide range, which could hide some interesting specificities in the perception of transmission. The relationship between child and parent is likely different when the child is 18 and when the child is 30. Further studies could try to better look at age variabilities within generations.

Furthermore, we observed differences between the perception of the transmission between G1 to their child and G2 to their child, but with the presented data, we cannot state if this difference is due to an effect of the cohort (people being born at the same time sharing some features), or an effect of the age. Using a longitudinal paradigm, testing, and retesting the same people later in their lives would contribute to our understanding of these possible differences of transmission throughout lifetime.

This survey asked participants about their perception of the frequency of transmission of different types of memory. However, other than the frequency of contact, we do not have the “real” frequency of transmission of these events. The data does not allow us to determine if differences are due to differences in the frequency itself, differences in *perception* of those transmissions, or both. More qualitative studies examining more systematically how much has indeed been transmitted could bring another piece to the puzzle, yet they could never measure completely the amount of transmission. Instead, they can focus on aspects that have been passed down and some that have been forgotten.

Assessing the *perceived* frequency of memory transmission rather than the actual frequency introduces the potential influence of cognitive biases in estimating frequency, especially when considering that participants in the different groups of the main analysis (top-down versus bottom-up) had different ages. Few studies have investigated how different age groups estimate the frequency of reminiscence, and no differences have been observed (e.g., Merriam, 1994; Merriam & Cross, 1982; Webster, 1994). However, it is unclear which cognitive processes are involved in these estimations and how they relate to other estimations, such as time processing (Hinault et al., 2023).

Investigation of the content was out of the scope of this article but remains a critical aspect of intergenerational transmission of memory. Studies examining the stories that are

transmitted are plentiful (e.g., Chen et al., 2021; Merrill et al., 2019; Merrill et al., 2017; Sahin-Acar et al., 2017) and bring central outputs for better understanding of memory in the family.

Finally, future research should compare perceptions of transmission within families of different cultures. Recent studies showed that transmission within families is widely different regarding the cultural backgrounds of the respondents (e.g., Bohn & Bundgaard-Nielsen, 2021; Chen et al., 2021; Reese et al., 2017). For instance, different cultural backgrounds in adolescents from New Zealand were linked to distinct ways of connecting their narratives to the ones of their past generations, with New Zealand Chinese and Maori adolescents drawing more connections than New Zealand European adolescents (Reese et al., 2017).

Conclusion

Intergenerational transmission of memories appears to be a frequent phenomenon within families. Knowing the personal history of family members is perceived as important across all generations. Of course, frequent interactions between family members lead to more transmission, especially when it comes to the memories coming from grandparents with which they feel close and vice versa. However, closeness with a parent did not specifically predict more transmission. Although part of our daily life, memory studies in psychology only recently showed interest in the social components of memory, especially within the family. While more and more authors start investigating these processes, the perception, functions, quality, and quantity components of the discussions shared by families still carry promises of many stimulating research questions.

Disclosure statement

The authors reported no conflict of interest.

Funding

This work was supported by the National Fund for Scientific Research (F.R.S.-FNRS, grant T0009.21). Christine Bastin is a senior research associate and Olivier Luminet is a research director at F.R.S.-FNRS.

Data availability statement

The data that support the findings and the codes used for analysis are openly available in Open Science Framework at https://osf.io/7uxjr/?view_only=400dc660a84c468d828d9ed16886ceb9.

References

- Abel, M., & Berntsen, D. (2021). How do we remember public events? Pioneering a new area of everyday memory research. *Cognition*, 214. <https://doi.org/10.1016/j.cognition.2021.104745>
- Alea, N., & Bluck, S. (2007). I'll keep you in mind: The intimacy function of autobiographical memory. *Applied Cognitive Psychology*, 21(8), 1091–1111. <https://doi.org/10.1002/ACP.1316>
- Assmann, J. (2011). Communicative and cultural memory. In P. Meusburger, M. Heffernan, & E. Wunder (Eds.), *Cultural Memories: The geographical Point of View* (Vol. 4, pp. 15–27). Springer Nature. https://doi.org/10.1007/978-90-481-8945-8_2
- Assmann, J., & Czaplicka, J. (1995). Collective memory and cultural identity. *New German Critique*, 65, 125–133. <https://doi.org/10.2307/488538>
- Auerhahn, N. C., & Laub, D. (1998). Intergenerational memory of the Holocaust. In Y. Danieli (Ed.), *International handbook of multigenerational legacies of trauma* (pp. 21–41). Plenum Press. https://doi.org/10.1007/978-1-4757-5567-1_2
- Baguley, T. (2009). Standardized or simple effect size: What should be reported? *British Journal of Psychology*, 100(3), 603–617. <https://doi.org/10.1348/000712608X377117>
- Bates, D., Mächler, M., Bolker, B. M., & Walker, S. C. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, 67(1), 1–48. <https://doi.org/10.18637/JSS.V067.I01>
- Ben-Shachar, M., Lüdtke, D., & Makowski, D. (2020). effectsize: Estimation of effect size indices and standardized parameters. *Journal of Open Source Software*, 5(56), 2815. <https://doi.org/10.21105/joss.02815>
- Bluck, S., & Alea, N. (2002). Exploring the functions of autobiographical memory: Why do I remember the autumn? In J. D. Webster & B. K. Haight (Eds.), *Critical advances in reminiscence work: From theory to application* (pp. 61–75). Springer Publishing Company.
- Bluck, S., Alea, N., Habermas, T., & Rubin, D. C. (2005). A tale of three functions: The self-reported uses of autobiographical memory. *Social Cognition*, 23(1), 91–117. <https://doi.org/10.1521/SOCO.23.1.91.59198>
- Bluck, S., Baron, J. M., Ainsworth, S. A., Gesselman, A. N., & Gold, K. L. (2013). Eliciting empathy for adults in chronic pain through autobiographical memory sharing. *Applied Cognitive Psychology*, 27(1), 81–90. <https://doi.org/10.1002/acp.2875>
- Bohanek, J. G., Fivush, R., Zaman, W., Lepore, C. E., Merchant, S., & Duke, M. P. (2009). Narrative interaction in family dinnertime conversations. *Merrill-Palmer Quarterly (Wayne State University. Press)*, 55(4), 488. <https://doi.org/10.1353/MPQ.0.0031>

- Bohn, A., & Bundgaard-Nielsen, R. L. (2021). Not “weird” but truly different: Cultural life scripts and autobiographical memory in indigenous Australia. *Journal of Applied Research in Memory and Cognition, 10*(1), 85-94. <https://doi.org/10.1016/j.jarmac.2020.09.006>
- Bruine de Bruin, W., Parker, A. M., & Strough, J. (2020). Age differences in reported social networks and well-being. *Psychology and Aging, 35*(2), 159–168. <https://doi.org/10.1037/pag0000415>
- Chen, Y., Cullen, E., Fivush, R., Wang, Q., & Reese, E. (2021). Mother, father, and I: A cross-cultural investigation of adolescents’ intergenerational narratives and well-being. *Journal of Applied Research in Memory and Cognition, 10*(1), 55–64. <https://doi.org/10.1016/J.JARMAC.2020.08.011>
- Cordonnier, A., Bouchat, P., Hirst, W., & Luminet, O. (2021). Intergenerational transmission of World War II family historical memories of the Resistance. *Asian Journal of Social Psychology, 24*(3), 302–314. <https://doi.org/10.1111/ajsp.12436>
- Cordonnier, A., Rosoux, V., Gijs, A.-S., & Luminet, O. (2022). Collective memory: An hourglass between the collective and the individual. *Memory, Mind & Media, 1*. <https://doi.org/10.1017/mem.2022.1>
- Demiray, B., Mischler, M., & Martin, M. (2019). Reminiscence in everyday conversations: A naturalistic observation study of older adults. *The Journals of Gerontology: Series B, 74*(5), 244–255. <https://doi.org/10.1093/geronb/gbx141>
- Dunkler, D., Haller, M., Oberbauer, R., & Heinze, G. (2020). To test or to estimate? P-values versus effect sizes. *Transplant International, 33*(1), 50–55. <https://doi.org/10.1111/TRI.13535>
- Farrant, K., & Reese, E. (2009). Maternal style and children’s participation in reminiscing: Stepping stones in children’s autobiographical memory development. *Journal of Cognition and Development, 1*(2), 193–225. <https://doi.org/10.1207/S15327647JCD010203>
- Féron, É. (2023). Memories of violence in the Rwandan diaspora: intergenerational transmission and conflict transportation. *Ethnic and Racial Studies, 47*(2), 274–296. <https://doi.org/10.1080/01419870.2023.2261285>
- Fivush, R. (2008). Remembering and reminiscing: How individual lives are constructed in family narratives. *Memory Studies, 1*(1), 49-58. <https://doi.org/10.1177/1750698007083888>
- Fivush, R. (2009). Speaking silence: The social construction of silence in autobiographical and cultural narratives. *Memory, 18*(2), 88–98. <https://doi.org/10.1080/09658210903029404>
- Fivush, R., Habermas, T., Waters, T. E. A., & Zaman, W. (2011). The making of autobiographical memory: Intersections of culture, narratives and identity. *Wiley-Blackwell, 46*(5), 321–345. <https://doi.org/10.1080/00207594.2011.596541>
- Fivush, R., & Merrill, N. (2016). An ecological systems approach to family narratives. *Memory Studies, 9*(3), 305–314. <https://doi.org/10.1177/1750698016645264>

- Fivush, R., & Zaman, W. (2011). Intergenerational narratives: How collective family stories relate to adolescents' emotional well-being. *Aurora*, 10, 51–63.
- Grysmann, A., & Hudson, J. A. (2013). Gender differences in autobiographical memory: Developmental and methodological considerations. *Developmental Review*, 33(3), 239–272. <https://doi.org/10.1016/J.DR.2013.07.004>
- Harris, C. B., Rasmussen, A. S., & Berntsen, D. (2014). The functions of autobiographical memory: An integrative approach. *Memory*, 22(5), 559–581. <https://doi.org/10.1080/09658211.2013.806555>
- Herndon, J. G. (2010). The grandmother effect: implications for studies on aging and cognition. *Gerontology*, 56(1), 73–79. <https://doi.org/10.1159/000236045>
- Hinault, T., D'argembeau, A., Bowler, D. M., La Corte, V., Desauvay, P., Provasi, J., ... & Droit-Volet, S. (2023). Time processing in neurological and psychiatric conditions. *Neuroscience & Biobehavioral Review* 154(1). <https://doi.org/10.1016/j.neubiorev.2023.105430>.
- Iacobucci, D., Popovich, D. L., Moon, S., & Román, S. (2023). How to calculate, use, and report variance explained effect size indices and not die trying. *Journal of Consumer Psychology*, 33(1), 45–61. <https://doi.org/10.1002/jcpy.1292>
- Jacqmin-Gadda, H., Sibillot, S., Proust, C., Molina, J. M., & Thiébaud, R. (2007). Robustness of the linear mixed model to misspecified error distribution. *Computational Statistics & Data Analysis*, 51(10), 5142–5154. <https://doi.org/10.1016/J.CSDA.2006.05.021>
- Johansson, T. (2011). Hail the impossible: p-values, evidence, and likelihood. *Scandinavian Journal of Psychology*, 52(2), 113–125. <https://doi.org/10.1111/j.1467-9450.2010.00852.x>
- Krasheninnikova, A. (2019). Grandmother Hypothesis. In: Vonk, J., Shackelford, T. (eds) *Encyclopedia of Animal Cognition and Behavior* (pp. 3000–3003). Springer, Cham. https://doi.org/10.1007/978-3-319-47829-6_338-1
- Lin, M., Lucas, H. C., & Shmueli, G. (2013). Too big to fail: Large samples and the p-value problem. *Information Systems Research*, 24(4), 906–917. <https://doi.org/10.1287/ISRE.2013.0480>
- MaloneBeach, E. E., Hakoyama, M., & Arnold, S. (2018). The good grandparent: Perspectives of young adults. *Marriage and Family Review*, 54(6), 582–597. <https://doi.org/10.1080/01494929.2017.1414724>
- Marshall, S., & Reese, E. (2022). Growing Memories: Benefits of an early childhood maternal reminiscing intervention for emerging adults' turning point narratives and well-being. *Journal of Research in Personality*, 99. <https://doi.org/10.1016/J.JRP.2022.104262>
- <https://doi.org/10.1016/J.AGING.1994.01.001>
Merriam, S. B. (1994). Race, Sex, and Age-Group Differences in Occurrence and Uses of Reminiscence. *Activities, Adaptation & Aging*, 18(1), 1-18.

- [Merriam, S. B., & Cross, L. H. \(1982\). Adulthood and reminiscence: A descriptive study. *Educational Gerontology: An International Quarterly*, 8\(3\), 275-290.](#)
- Merrill, N., Booker, J. A., & Fivush, R. (2019). Functions of parental intergenerational narratives told by young people. *Topics in Cognitive Science*, 11(4), 752–773. <https://doi.org/10.1111/tops.12356>
- Merrill, N., Gallo, E., & Fivush, R. (2015). Gender differences in family dinnertime conversations. *Discourse Processes*, 52(7), 533–558. <https://doi.org/10.1080/0163853X.2014.958425>
- Merrill, N., Srinivas, E., & Fivush, R. (2017). Personal and intergenerational narratives of transgression and pride in emerging adulthood: Links to gender and well-being. *Applied Cognitive Psychology*, 31(2), 119-127. <https://doi.org/10.1002/acp.3308>
- Mordkoff, J. T. (2019). A simple method for removing bias from a popular measure of standardized effect size: Adjusted partial eta squared. *Advances in Methods and Practices in Psychological Science*, 2(3), 228–232. <https://doi.org/10.1177/2515245919855053>
- Muti, Ö., & Gürpınar, Ö. (2023). “I think it is [the] mother who keeps things going”: The gendered division of labor in the transmission of memory of the Armenian Genocide. *Memory Studies*, 16(5), 1173–1188. <https://doi.org/10.1177/1750698020988755>
- Nelson, K. (1993). The psychological and social origins of autobiographical memory. *Psychological Science*, 4(1), 7–14. <https://doi.org/10.1111/J.1467-9280.1993.TB00548.X>
- Nosek, B. A., & Lakens, D. (2014). Registered reports. *Social Psychology*, 45(3), 137–141. <https://doi.org/10.1027/1864-9335/A000192>
- Pillemer, D. B. (1992). Remembering personal circumstances: A functional analysis. In E. Winograd & U. Neisser (Eds.), *Affect and Accuracy in Recall: Studies of “Flashbulb” Memories* (pp. 236–264). Cambridge: Cambridge University Press. <https://doi.org/10.1017/CBO9780511664069.013>
- Pillemer, D. B., Steiner, K. L., Kuwabara, K. J., Thomsen, D. K., & Svob, C. (2015). Vicarious memories. *Consciousness and Cognition*, 36, 233–245. <https://doi.org/10.1016/j.concog.2015.06.010>
- Pohn-Lauggas, M. (2021). Memory in the shadow of a family history of resistance: A case study of the significance of collective memories for intergenerational memory in Austrian families. *Memory Studies*, 14(2), 180–196. <https://doi.org/10.1177/1750698019849698>
- Pond, E., & Peterson, C. (2020). Highly emotional vicarious memories. *Memory*, 28(8), 1051–1066. <https://doi.org/10.1080/09658211.2020.1812663>
- Quéniart, A., & Charpentier, M. (2013). Initiate, bequeath, and remember: Older women’s transmission role within the family. *Journal of Women and Aging*, 25(1), 45–65. <https://doi.org/10.1080/08952841.2012.720181>

- R Core Team. (2021). R: A language and environment for statistical computing (4.2.2). R Foundation for Statistical Computing. <https://www.R-project.org>
- Raccanello, D., Gobbo, C., Corona, L., De Bona, G., Hall, R., & Burro, R. (2022). Long-term intergenerational transmission of memories of the Vajont disaster. *Psychological Trauma: Theory, Research, Practice, and Policy*, 14(7), 1107–1116. <https://doi.org/10.1037/TRA0000528>
- Reese, E. (2002). Social factors in the development of autobiographical memory: The state of the art. *Social Development*, 11(1), 124–142. <https://doi.org/10.1111/1467-9507.00190>
- Reese, E., Meins, E., Fernyhough, C., & Centifanti, L. (2019). Origins of mother–child reminiscing style. *Development and Psychopathology*, 31(2), 631–642. <https://doi.org/10.1017/S0954579418000172>
- Sahin-Acar, B., Bakir, T., & Kus, E. G. (2017). Intrafamilial similarities and cross-generational differences in the earliest childhood memories of daughters, mothers, and grandmothers. *Memory*, 25(8), 978–985. <https://doi.org/10.1080/09658211.2016.1239741>
- Salmon, K., & Reese, E. (2016). The Benefits of Reminiscing With Young Children. *Current Directions in Psychological Science*, 25(4), 233–238. <https://doi.org/10.1177/09637214166655100>
- Schielzeth, H., Dingemanse, N. J., Nakagawa, S., Westneat, D. F., Allogue, H., Teplitsky, C., Réale, D., Dochtermann, N. A., Garamszegi, L. Z., & Araya-Ajoy, Y. G. (2020). Robustness of linear mixed-effects models to violations of distributional assumptions. *Methods in Ecology and Evolution*, 11(9), 1141–1152. <https://doi.org/10.1111/2041-210X.13434>
- Shorey, S., & Ng, E. D. (2022). A social–ecological model of grandparenting experiences: A systematic review. *The Gerontologist*, 62(3), 193–205. <https://doi.org/10.1093/geront/gnaa172>
- Steiner, K. L. (2023). Positive and negative vicarious memories in college students and adults. *Journal of Applied Research in Memory and Cognition*. <https://doi.org/10.1037/MAC0000135>
- Stone, C. B., van der Haegen, A., Luminet, O., & Hirst, W. (2014). Personally relevant vs. nationally relevant memories: An intergenerational examination of World War II memories across and within Belgian French-speaking families. *Journal of Applied Research in Memory and Cognition*, 3(4), 280–286. <https://doi.org/10.1016/j.jarmac.2014.08.002>
- Svob, C., Brown, N. R., Takšić, V., Katulić, K., & Žauhar, V. (2016). Intergenerational transmission of historical memories and social-distance attitudes in post-war second-generation Croatians. *Memory and Cognition*, 44(6), 846–855. <https://doi.org/10.3758/s13421-016-0607-x>
- van der Haegen, A., Stone, C. B., Luminet, O., & Hirst, W. (2022). Conversational Roles, Generational Differences and the Emergence of Historical and Personal Memories Surrounding WWII during Familial Discussions. *Discourse Processes*, 59(7), 500–519. <https://doi.org/10.1080/0163853X.2022.2037053>

- Webster, J. D. (1994). Predictors of reminiscence: A lifespan perspective. *Canadian Journal on Aging/La Revue canadienne du vieillissement*, 13(1), 66-78.
- Wetzel, M., & Hank, K. (2020). Grandparents' Relationship to Grandchildren in the Transition to Adulthood. *Journal of Family Issues*, 41(10), 1885-1904.
<https://doi.org/10.1177/0192513X19894355>
- Wiseman, H., Metzl, E., & Barber, J. (2006). Anger, guilt, and intergenerational communication of trauma in the interpersonal narratives of second generation Holocaust survivors. *American Journal of Orthopsychiatry*, 76(2), 176–184. <https://doi.org/10.1037/0002-9432.76.2.176>
- Wrzus, C., Hänel, M., Wagner, J., & Neyer, F. J. (2013). Social network changes and life events across the life span: A meta-analysis. *Psychological Bulletin*, 139(1), 53–80.
<https://doi.org/10.1037/A0028601>