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Nostalgic Advertising Enhances Brand Name Recall by Reactivating Brand-Related Autobiographical Memories, Especially for Familiar and Personally Relevant Brands

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ABSTRACT

Consumers are more likely to choose brands they recall easily, yet achieving brand name recall is increasingly difficult amid saturated markets and aging populations. While nostalgic advertising is known to boost persuasiveness, its role in enhancing brand awareness remains underexplored. This study investigates whether nostalgic-autobiographical advertising improves brand name recall more effectively than factual-semantic advertising by reactivating brand-related autobiographical memories. Across three within-subjects experiments, adult participants were exposed to either factual ads emphasizing brand information or nostalgic ads evoking personal brand experiences, featuring 12–16 brands from their youth. Results from delayed free recall tasks showed that nostalgic ads enhanced brand name recall more than factual ads, particularly when strong prior brand memories existed. Manipulation checks confirmed that nostalgic ads more effectively reactivated autobiographical memories, using self-report measures (Studies 1 and 3) and pupillary and saccadic eye-movement data (Study 2). Importantly, Study 3 demonstrated that this effect held for both younger and older consumers with ads tailored to generation-specific brand experiences. These findings contribute to marketing theory by showing that nostalgic ads can strengthen brand awareness through memory-based mechanisms, and they offer actionable insights for marketers aiming to improve brand recall by aligning nostalgic content with consumers' brand experiences.

1 | Introduction

Consumers tend to purchase brands they remember (Lynch, Jr. and Srull 1982). However, memory often fails and declines when consumers age, prompting marketers to maintain brand awareness. Bergkvist and Taylor (2022, p. 297) define brand awareness as "the likelihood that a person retrieves a brand identifier and a product category or category need from memory across brand-relevant situations." This highlights the role of memory processes in enabling consumers to recognize a brand, that is, to identify it as familiar through perceptual cues such as its name or logo, and to recall it, that is, to retrieve its name from memory using category-based cues (Keller 1993; Rossiter and Percy 1987). Recall thus challenges memory more than recognition. In the consumer purchase funnel, brand awareness is a necessary foundation for shaping brand attitudes and purchase intentions (Percy and Rossiter 1992).

Brand names and factual brand knowledge are stored in semantic memory, while personal experiences with a brand reside in episodic, specifically autobiographical, memory. This distinction has led to the categorization of brand-related semantic memory (Ratnayake et al. 2010), for example, *Nike is an American sportswear brand founded in 1964 using the slogan "Just Do It"*, and brand-related autobiographical memory, for example, *"I remember the first time I got a pair of Nike running*

shoes. I bought them with my dad and was so excited." Advertising for established brands can reinforce brand awareness by reactivating memory (Braun-LaTour et al. 2004; Keller 1993; Yee Chan 2022). Memory reactivation is an early stage of memory retrieval, triggered by the re-exposure to information that was present during memory encoding (Gisquet-Verrier and Riccio 2012). It facilitates successful recall as a final retreival stage (Oudiette et al. 2013), while also rendering the original memory more malleable (Braun et al. 2002). For example, presenting salient brand-related cues (e.g., the taste, color, or enjoyment of a soft drink) reactivates corresponding memory traces, so that brand name recall is more likely (Yee Chan 2022).

Successful recall is associated with the reactivation of patterns of brain activity similar to those present during encoding (Oudiette et al. 2013). Beyond neural measures of reactivation and recall as an outcome, pupillary reactions (e.g., El Haj et al. 2019) and saccadic eye-moments (e.g., Armson et al. 2021) indirectly indicate memory reactivation processes.

Advertising can aim to specifically create and reactivate brand-related semantic or autobiographical memories. Factual advertising has an informational focus, including objective details about the product or service (Polyorat et al. 2007), that is, knowledge stored in semantic memory, while nostalgic advertising aims to evoke sentimental emotions resonating with real or imaginary brand-related autobiographical memories (Muehling and Pascal 2011). Meta-analyses (Cheng and Yan 2023; Santini et al. 2023) confirmed that nostalgic ads induce relatively more self-relevant thoughts and positive emotions, leading to a small but reliable persuasive advantage over non-nostalgic ads (see also Table 1). However, to our knowledge, no studies have investigated whether reactivating brand-related autobiographical memory through nostalgic advertising enhances brand name recall more than reactivating brand-related semantic memory and through factual advertising.

Given the increasing use and academic interest in nostalgic advertising (Santini et al. 2023), this study addresses this gap. Drawing on Tulving's (1972) multiple memory systems theory, we propose that nostalgic (vs. factual) ads enhance brand name recall more successfully because they reactivate brand-related autobiographical memories, thereby providing additional pathways for word-retrieval from semantic memory. We further examine the moderating roles of the strength of prior memories and consumer age. This is important because both reactivation and recall are contingent on the presence of existing brand-related semantic (Lourenço et al. 2023; Yee Chan 2022) and autobiographical memories (Langaro et al. 2020; Muehling et al.

TABLE 1 | Review of studies on the effects of nostalgic advertising.

References	Brands	Consumer age [years]	Effects of nostalgic ads and moderators
Cheng and Yan (2023)	n.a.	$M = 22.10$	Enhance persuasion (meta-analysis of 31 studies), more so for (a) brands associated with prior memories and (b) hedonic values. No age effects.
Gilal et al. (2020)	1	18–40	Motivate consumers to participate in resurrecting dead brands, more so if older.
Ju et al. (2016)	2	18–40	Elicit more self-relevant thoughts, leading to better brand attitudes and purchase intention.
Langaro et al. (2020)	2	18–26	Enhance attitudes towards the brand and purchase intention, more so for brands associated with (childhood) memories.
Muehling et al. (2004)	1	18–35	Elicit more self-related, affective thoughts and enhance attitudes towards the ad and brand.
Muehling et al. (2014)	1	18–35	Enhance attitudes towards the brand and purchase intention, more so for brands associated with memories.
Muehling (2013)	1	Students	Enhance brand attitudes, more so if they have a personally nostalgic, that is, autobiographical, instead of historically nostalgic nature.
Muehling and Pascal (2011)	1	Students	Enhance self-directed thoughts, positive emotions, and attitude toward the ad, but lead to weaker factual brand knowledge.
Santini et al. (2023)	n.a.	$M = 29.45$	Enhance self-relevant thoughts and positive feelings, attitudes towards the ad and brand, and behavioral intentions (meta-analysis of 22 studies). No age effects.
Zhou et al. (2019), Study 4	1	All ages	Increase actual buying behavior.
This study	12–16	18–35; 65–85	Enhance brand name recall by reactivating brand-related autobiographical memories, more so for brands associated with prior memories and across age groups.

2014; Thoma and Wechsler 2021). Moreover, as consumers reach retirement age, they show diminished neural reactivation (Koen and Rugg 2019), their brand name recall performance declines (Lambert-Pandraud et al. 2017; Mecredy et al. 2024) and depends more on brand-related autobiographical memories (Thoma and Wechsler 2021).

The conceptual visualization of our research in Figure 1 illustrates its overall logic and how we addressed it in three experimental studies. All studies tested whether memory reactivation through factual-semantic versus nostalgic—autobiographical advertising affects recall performance and whether prior brand-related memories moderate the reactivation effect. Participants read or listened to 12–16 ads presenting brands within a factual or nostalgic narrative. Study 1 specifically validated whether consumers indeed perceive nostalgic ads as reactivating brand-related autobiographical memories, whereas factual ads primarily reactivate brand-related semantic memories. To cross-validate the self-report measures, Study 2 included an objective neurophysiological manipulation check for reactivation, using eye-tracking data. It evaluated emotionality and vividness as key features of autobiographical memories reactivated while listening to audio ads. To investigate the second moderator, Study 3 compared recall performance of younger (20–35 years) and older (65–85 years) consumers, otherwise replicating the design of Study 1.

2 | Theoretical Background, Hypotheses, and Analysis

2.1 | Direct Effects of Nostalgic Advertising

Nostalgic ads can reactivate brand-related autobiographical memories in that they trigger "nostalgic reflection" (Ju et al. 2016; Muehling 2013; Muehling et al. 2004; Muehling and Pascal 2011), characterized by thoughts about past events and self-relevant feelings. Accordingly, Ratnayake et al. (2010) showed with fMRI data that when consumers recall brand-related knowledge and experiences, this reactivates distinct brain regions, such that retrieving brand-related autobiographical memories elicits activation patterns associated with self-relevant lifetime experiences, in contrast to brand-related semantic memory. Individual studies and two recent meta-analyses (see Table 1) have established a persuasive advantage of nostalgic ads over non-nostalgic, factual ads. In studies involving one or two brands, nostalgic ads led to more favorable attitudes towards the ad and the brand, higher intentions to purchase or engage with the brand, and more purchases. Our work complements nostalgic advertising research by addressing brand name recall as an outcome variable in a multi-item design.

To conceptualize how nostalgic advertising could enhance brand recall, we build on Tulving's (1972) multiple memory systems theory in conjunction with the process of memory reactivation (e.g., Gisquet-Verrier and Riccio 2012). Tulving distinguishes declarative long-term memory into semantic memory ("knowing"), including factual, context-independent knowledge and episodic memory ("remembering"), storing contextual details of personal experiences. Episodic memories ("what happened") are predominantly autobiographical memories ("what happened to me") (Fivush 2011, p. 562), combining episodic memory's personal and emotional relevance with semantic memory's factual elements.

Although Tulving's (1972) theory treats episodic and semantic memory as distinct systems, research suggests that their interaction aids word recall, possibly due to richer contextual binding and multiple retrieval pathways (Renoult et al. 2019). Words are stored in semantic memory, and many studies have confirmed that factual semantic knowledge predicts recall probability, particularly through semantic features such as animacy, physical size, and usefulness in life (e.g., Aka et al. 2021). Importantly, meaning components retrieved from episodic memory boost word recall above and beyond semantic richness with their emotional or personal significance (e.g., Hertel and Parks 2002). For example, Westmacott and Moscovitch (2003) found that adults recalled more names of famous people from a 14-item list when those names were tied to autobiographical memories.

Consumer research on the influence of brand-related autobiographical memories on brand awareness remains scarce. One notable exception is a study by Thoma and Wechsler (2021),

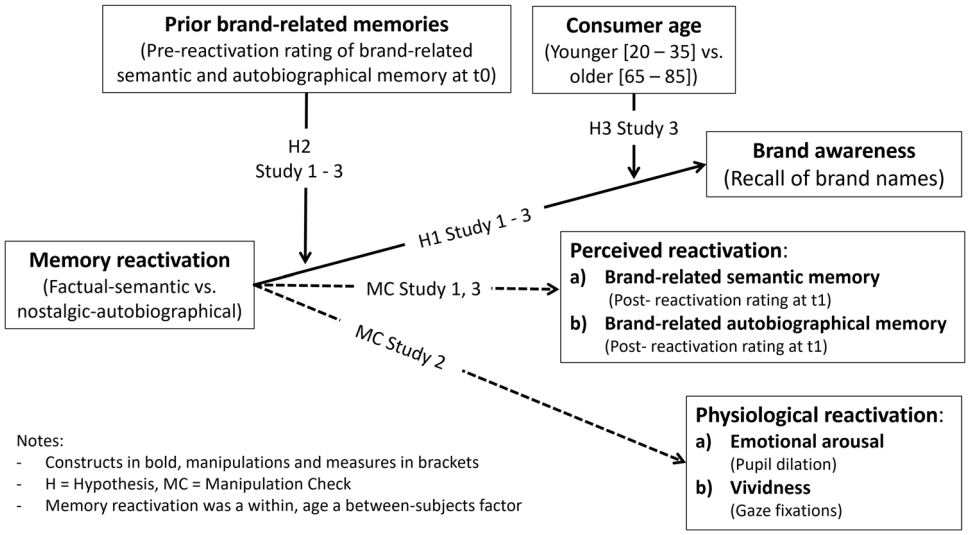

FIGURE 1 | Conceptual model, hypotheses, and overview of studies.

who used self-report measures to assess brand-related autobiographical memory phenomenology. It includes several dimensions such as vividness, coherence, and emotionality that go beyond semantic memory. Their findings revealed that successful product-category cued brand name recall increases with brand-related autobiographical memory phenomenology.

The synthesis of all the above leads to our conceptual framework visualized in Figure 1. In short, expanding on Tulving's (1972) memory theory, the interaction of semantic and episodic memory strengthens the recallability of a word by associating it with more and multiple memory traces compared to factual-semantic knowledge alone (Renoult et al. 2019). Empirically, richer autobiographical memories indeed facilitate word recall (including brand names) from semantic memory (Thoma and Wechsler 2021; Westmacott and Moscovitch 2003). Nostalgic ads can reactivate autobiographical brand-related memories (see Table 1), while advertising can generally increase brand name recall (Lourenço et al. 2023; Yee Chan 2022). Therefore, we first hypothesize:

H1. *Reactivating brand-related autobiographical memory through nostalgic-autobiographical advertising enhances brand name recall more than reactivating brand-related semantic memory through factual-semantic advertising.*

2.2 | Prior Memory and Age as Moderators

From research on the persuasive effects of nostalgic advertising (Table 1), we identified prior memory and age as potential moderators because they are also known to affect recall performance. First, the persuasive advantage of nostalgic over factual ads increases with the strength of prior brand-related memories (Cheng and Yan 2023; Langaro et al. 2020; Muehling et al. 2014), in particular, if they reactivate autobiographical experiences (Muehling 2013; Muehling and Pascal 2011). Memory reactivation in general (Beron et al. 2025) and the enhancement of brand name recall in particular (Hang 2014; Yee Chan 2022) increase with the strength of existing target memories, leading to the moderation hypothesis:

H2. *The effects of nostalgic advertising on brand name recall are stronger for brand names associated with stronger prior memories.*

Second, while adults over 55 typically enjoy nostalgic experiences more than younger individuals (Leunissen et al. 2021), it remains unclear whether age enhances the effectiveness of nostalgic advertising. Meta-analyses by Cheng and Yan (2023) and Santini et al. (2023), covering 32 and 22 studies respectively, found no significant correlation between sample age and the persuasive advantage of nostalgic over non-nostalgic ads, despite predictions to the contrary. However, most studies focused on students and young adults (see Table 1), with even Gilal et al. (2020), who reported stronger effects for "older consumers," using a sample with a median age of just 29.

Age is particularly relevant for brand awareness outcomes. Cognitive aging, marked by reduced neural reactivation (Koen and Rugg 2019) and diminished brand name recall (Lambert-Pandraud et al. 2017; Mecredy et al. 2024), typically emerges in the mid-60s. Among adults aged 60–90, the quality of autobiographical brand memories predicts brand name recall more strongly than in younger adults (Thoma and Wechsler 2021). Because older consumers start from a relatively weaker baseline of brand name recall, nostalgic ads that draw on autobiographical memories are especially well positioned to compensate for these deficits. Therefore, we propose:

H3. *The effects of nostalgic advertising on brand name recall are stronger for older* (> 65 *years*) *than younger consumers.*

2.3 | Overview of Experiments and Analyses

As Figure 1 outlines, we conducted three experiments to test the hypotheses, using parallel pre-posttest procedures summarized in Figure 2 and detailed with each study. The primary outcome was binary brand name recall, with ratings and eye-tracking data serving as manipulation checks.

The data were analyzed with mixed-effects regression modeling because this method is most appropriate for word recall and eye-tracking data in within-subjects designs with multiple items, simultaneously accounting for item-level and participant-level variability (Baayen et al. 2008). We run the analyses using functions from the *lme4* (Bates et al. 2024) and *ordinal* (Christensen 2023) packages in RStudio (RStudio Team 2025). Categorical fixed factors were deviation-coded, and continuous predictors were scaled to achieve comparable regression estimates. *P*-values were estimated with *lmerTest* (Kuznetsova et al. 2017) and *interactions* (Long 2024) was used for plots. All fitted models included the maximal random-effect structure that converged (Barr et al. 2013). If necessary, we excluded random correlations and iteratively removed the random effect with the least variance to achieve convergence.

The experimental procedures complied with the Declaration of Helsinki, and all participants provided informed consent. The materials, data, and analysis scripts are available at https://osf.io/euwzr.

3 | Study 1: Online Experiment

The online experiment used a within-subjects design, manipulating memory reactivation (factual-semantic | nostalgic-autobiographical) through advertising with prior brand-related memories as a moderator. Participants rated their semantic and autobiographical memory for each brand before and after the reactivation task (see Figure 2). The combined pre-ad rating score was the moderator variable, whereas the pre-post comparison served as manipulation check for memory reactivation.

3.1 | Participants

A total of 102 participants born and raised in Germany completed all tasks and received a €10 gift card. Their mean age was 26.80 (SD = 3.10, *range* = 21–35), and 61 were women. Data

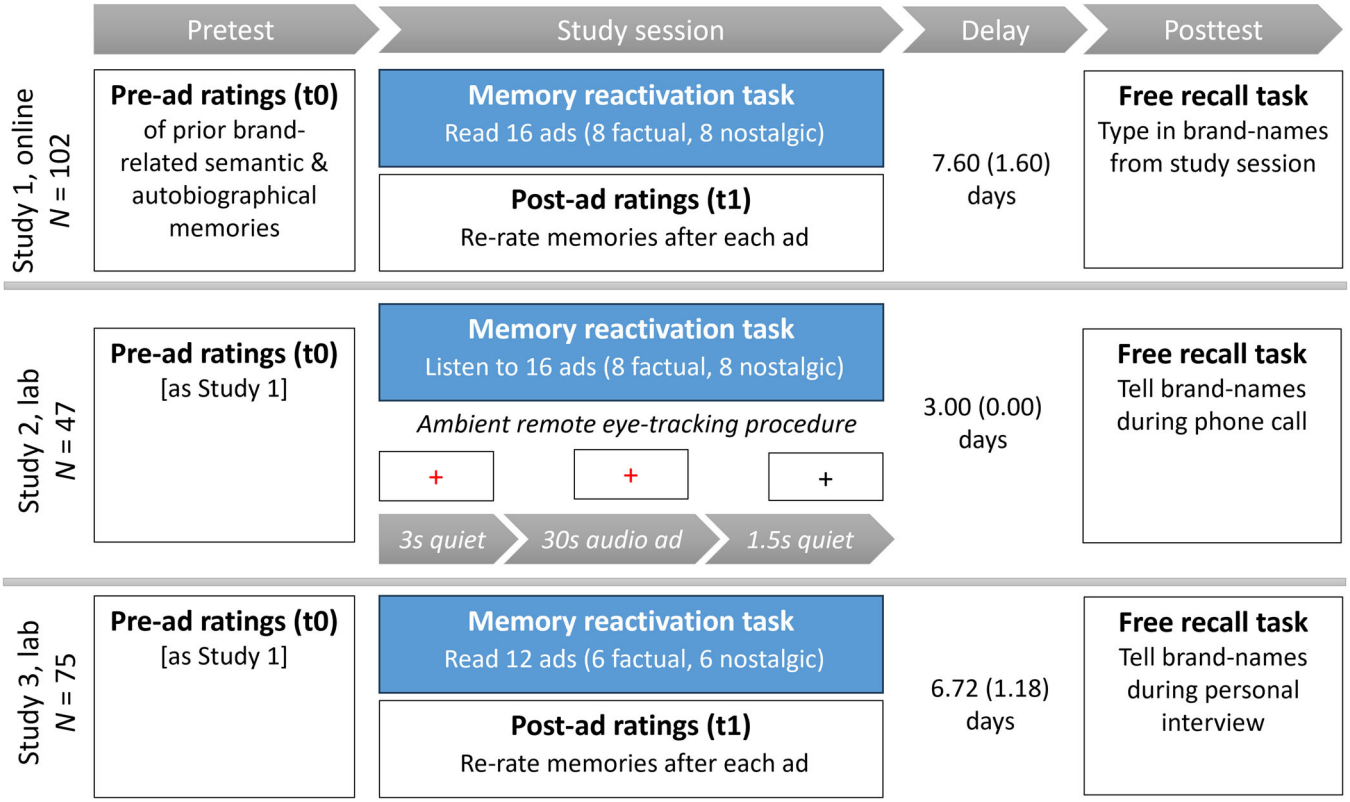

FIGURE 2 | Experimental procedure of Study 1, 2, and 3.

from another 37 participants who failed to respond to the delayed recall test were excluded.

3.2 | Materials

Materials were created in two steps. First, we compiled a list of 32 well-known brand names from six product categories (food, drinks, candy, toys, electronics, and school supplies) popular with a target population who had been children and teenagers in Germany in the early 2000s. Based on interviews with four target participants, we selected 16 brands most likely to reactivate memories. These included, for example, soft drinks commonly remembered from childhood birthday parties, the name of the favorite fast food chain teenagers often begged their parents to visit, and the iconic "must-have" pen for starting school. These selections were intended to ensure both factual brand knowledge and personally relevant associations. The latter is a prerequisite for reactivating brand-related autobiographical memories (e.g., Langaro et al. 2020; Muehling et al. 2014). Second, we created a factual-semantic and a nostalgic-autobiographical ad pair, each containing a brand name, eye-catching image, and body copy. The layout, brand name, and image were identical across pairs. Each brand name was displayed top-left using its usual upper/lower-case spelling in 44-point Calibri font, bold type, with dark blue letters on a white background. We standardized the visual presentation of brand names to minimize the effects of perceptual salience on memory (Ratnayake et al. 2010). The eye-catcher was on the left side, showing a brand logo or image of one or multiple branded products in color. Below the brand name, there was the body copy in 16-point Calibri font in black on a gray background.

Following Madore and Schacter's (2014) methodology, the ads reactivated memories by inducing specific details about the product or a prototypical consumer-product experience. We anchored the same core information, including product attributes referring to its taste, shape, use, and functionality, in both ad versions. All body-copies were coherent narratives (Adler et al. 2018) of comparable length. The factual-semantic version told a story about the history of the brand, product, and/or company, including facts such as the year and place of establishment, product portfolios, industry, turnover, and number of employees to reactivate brand-related semantic memory. In contrast, the nostalgic-autobiographical version recounted childhood experiences with the brand, likely to be generationally shared among the target population. Following Braun et al. (2002, p. 6), each narrative started with "Go back to your childhood and remember (...)" and then told a story including events and emotions to reactivate brand-related autobiographical memory. Both ad texts contained the same number of pieces of information, that is, 13–15 facts or episodic events.

3.3 | Procedure

Participants in the targeted age band were invited to a study about advertising effectiveness via social media. The experiment was conducted online via SoSci Survey (Leiner 2019). Figure 2 visualizes the procedure. Participants attended a pre-test rating of brand-related memories, a study session (memory reactivation through advertising) and a posttest separated by a delay of about a week. We initially instructed participants that they were about to evaluate ads, but we did not reveal the delayed memory test. After answering demographic questions,

they rated (t0) their prior memories associated with the 16 brands in random order on two scales. Pre-ad semantic memory was evaluated by rating the question "How informed do you feel about the brand?" (1 = "uninformed," 7 = "very informed"), operationalizing perceived factual brand knowledge (Ratnayake et al. 2010). Pre-ad autobiographical memory was rated using the question "How intense are your personal memories related to this brand?" (1 = "not intense," 7 = "very intense") because personal relevance is its defining perceptual feature (Fivush 2011; Westmacott and Moscovitch 2003). In the subsequent memory reactivation task, they were presented with 16 trials showing eight factual and eight nostalgic ads. Participants were randomly assigned to one of two counterbalanced surveys, so that each brand occurred equally often in both memory conditions. To cancel primacy and recency effects on recall, the sequence of experimental stimuli was randomized across participants. Directly after reading each ad at their own pace, participants re-rated (t1) their memories for the brand featured in the ad on the same two scales as in the pre-ad ratings. Five days later, we sent participants a personalized invitation link to the delayed free recall task to be completed within 2 days. Here, participants should type in all brand names they remember from the study session without retrieval cues. We manually coded the responses as correct brand recall, tolerating spelling mistakes and intrusions.

3.4 | Results

3.4.1 | Manipulation Checks

The first manipulation check validated whether the factual ads reactivated participants' brand-related semantic memory more than the nostalgic ads. We fitted a cumulative link mixed model to the ordinal rating data using pre-ad brand-related semantic memory, reactivation, and their interaction as fixed factors. The strongest predictor was pre-ad rating ($b = 0.73$, $SE = 0.04$, $z = 17.79$, $p < 0.001$). A main effect of reactivation ($b = -2.51$, $SE = 0.41$, $z = -6.14$, $p < 0.001$) confirmed that participants felt significantly more informed after reading factual ($M = 4.97$, SD = 1.44) than nostalgic ads ($M = 4.14$, SD = 1.82). A significant interaction ($b = 0.21$, $SE = 0.07$, $z = 3.19$, $p = 0.001$), visualized in Figure 3A, suggested that this brand-related semantic memory reactivation through factual ads was particularly strong for brands with weak brand-related semantic memories before reading the ads.

The second manipulation check tested whether the nostalgic ads reactivated brand-related autobiographical memories more than the factual ads. We fitted an ordinal mixed model predicting post-ad brand-related autobiographical memory ratings at t1 from those at t0, memory reactivation, and their interaction. The model found the expected strong main effect of pre-ad autobiographical memory at t0 ($b = 1.08$, $SE = 0.04$, $z = 27.03$, $p < 0.001$). The manipulation check confirmed a reactivation effect ($b = 0.45$, $SE = 0.11$, $z = 4.04$, $p < 0.001$), in that the ratings of personal relevance of brands increased to a higher level after nostalgic ($M = 5.16$, SD = 1.85) than factual ads ($M = 4.88$, SD = 1.84). The interaction between the two factors did not improve model fit ($\chi 2(1) = 0.03$, $p = 0.867$, see Figure 3B). Together, the manipulation checks confirmed that factual ads primarily induced brand-related semantic memories, while nostalgic ads predominantly reactivated brand-related autobiographical memories.

For the upcoming analysis of brand name recall, we used the mean of pre-test ratings per brand and participant as a

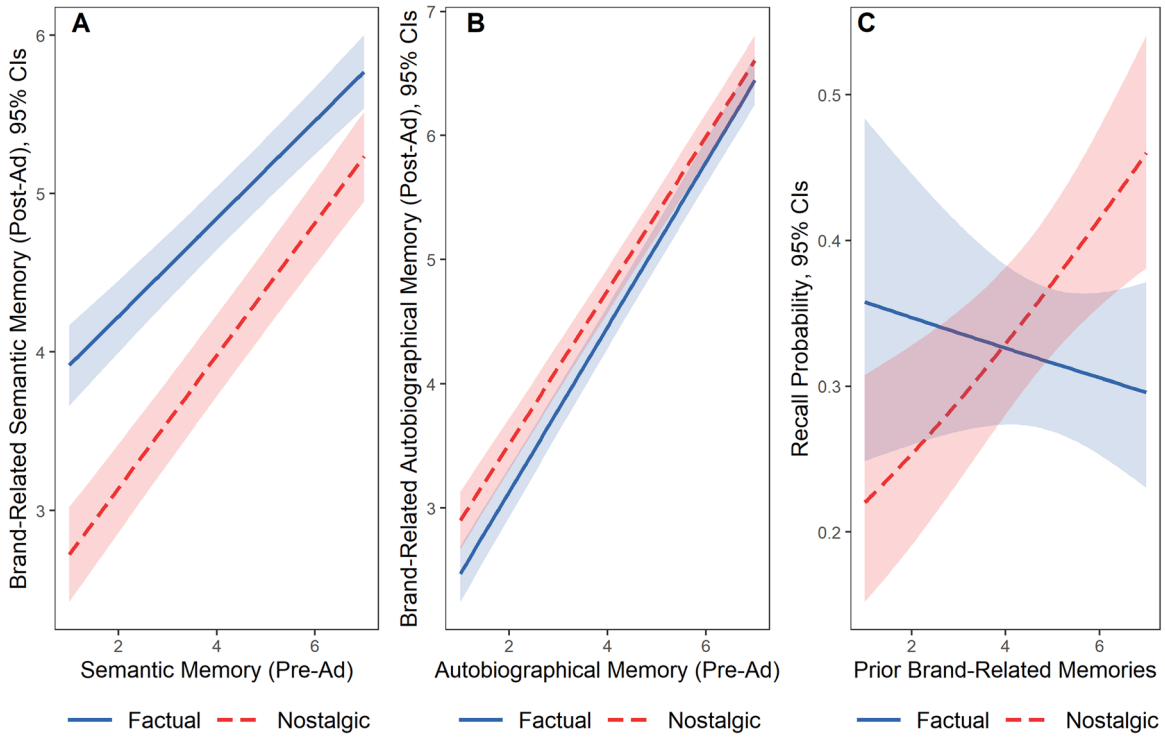

FIGURE 3 | Study 1: Covariate-adjusted interaction plots for the manipulation checks (A, B) and ad-based memory reactivation effects on brand recall moderated by prior brand-related memories (C).

moderator variable indexing prior brand-related memories. This approach was theoretically justified because prior semantic (e.g., Yee Chan 2022) and autobiographical (Thoma and Wechsler 2021; Westmacott and Moscovitch 2003) memories improve brand name recall. It was also empirically supported by the scale's high reliability (Cronbach's $\alpha = 0.80$; $M = 4.79$ (SD = 1.50)).

3.4.2 | Brand Name Recall

Participants correctly recalled 36% of the brand names (coded "1"). As only 2% were erroneously recalled intrusions, we treated them like memory fails (coded "0"). To test the hypotheses about brand name recall, we fitted a binomial logistic mixed-effects regression model. Fixed effects were reactivation, prior memories at t0, and the reactivation-prior memory interaction. The log-transformed time delay was added as a covariate since it varied between participants ($M = 7.60$ days, SD = 1.60). The outcome model yielded a trend for reactivation ($b = 0.19$, $SE = 0.11$, $z = 1.69$, $p = 0.091$) because the recall rate was slightly higher after nostalgic-autobiographical ($M = 0.37$, SD = 0.48) than factual-semantic ads ($M = 0.34$, SD = 0.47). This result does not support a general advantage of autobiographical over semantic memory reactivation through advertising (H1).

Prior brand-related memories also had no significant direct effect on recall ($b = 0.10$, $SE = 0.06$, $z = 1.60$, $p = 0.111$). Expectedly, recall decreased with the time delay between the study session and the recall task ($b = -0.26$, $SE = 0.10$, $z = -2.66$, $p = 0.008$). Importantly, a significant interaction with prior memories qualified the reactivation effect ($b = 0.35$, $SE = 0.12$, $z = 2.95$, $p = 0.003$). Figure 3C shows that nostalgic ads were increasingly successful in enhancing recall, the stronger the participants' brand-related memories were before reading the ad. To examine this interaction, we split the dataset at the median prior-memory score and fitted separate models. For brands with a below-median prior-memory score (≤ 5.00), reactivation had no significant effect on brand name recall ($b = -0.14$, $SE = 0.17$, $z = -0.85$, $p = 0.403$), whereas nostalgic-autobiographical ads significantly outperformed factual-semantic ads ($b = 0.47$, $SE = 0.15$, $z = 3.12$, $p = 0.002$) if prior memories scored above the median. This moderation effect supports H2.

4 | Study 2: Eye-Tracking

The experiment manipulated memory reactivation through advertising (factual-semantic | nostalgic-autobiographical) as a within-subjects factor. It included prior brand-related memories as a moderator. In addition to replicating the recall effects from Study 1 in a laboratory setting and with auditory stimuli, Study 2 included two objective eye-tracking measures instead of self-reported perceptions as manipulation checks of memory reactivation. We decided to use eye-tracking because it allows for a naturalistic perception of audio ads (e.g., Thoma and Baum 2019) that is less intrusive than neurological technologies (e.g., Ratnayake et al. 2010), increasing ecological validity. Eye-tracking can reveal different dimensions of memory reactivation when participants listen or think while looking at a blank screen. Here, we used pupillometry because the human pupil dilates in response to emotional arousal more strongly when participants retrieve autobiographical memories compared to performing a semantic retrieval task, such as counting (El Haj et al. 2019). Second, the number of participants' gaze fixations during memory activity is associated with its vividness (Armson et al. 2021), which is another key dimension of autobiographical memories (Thoma and Wechsler 2021; Westmacott and Moscovitch 2003).

4.1 | Participants

Forty-seven adults (40 female and seven male) between the ages of 18 and 30 years old ($M = 22.72$, SD = 2.18) participated in the study for €10. All had grown up in a German-speaking country.

4.2 | Materials

The 16 brand names and ad texts were adopted from Study 1, except for one that was replaced to match the slightly later-born population and ensure that participants had baseline autobiographical memories related to the brand (e.g., Muehling et al. 2014). Additionally, the ad texts were audio-recorded by a female speaker and edited into 30-s tracks tailored to the eye-tracking design.

4.3 | Procedure

We invited participants to an eye-tracking study on advertising via an email newsletter. As Figure 2 visualizes, the tasks and procedure followed Study 1 but eye-tracked participants during the reactivation-through-advertising task and skipped the post-ad ratings. After the pre-ad ratings, participants were seated approximately 70 centimeters in front of a 24"-computer screen combined with a remote SMI RED 500 Hertz binocular eye-tracker and a keyboard. Before listening to the first ad, a 9-point calibration and validation procedure aimed for a position accuracy ≤ 0.5 degrees of visual angle. Figure 2 illustrates that each trial showed a white fixation screen with a centered red fixation cross. After 3 s of silence, participants heard the audio ad. A black-on-white 1.5-s fixation cross separated the trials. A practice trial familiarized participants with the procedure. We assigned participants randomly to two lists, interchanging the order of trials with factual-semantic or nostalgic-autobiographical ads on an odd-even basis. The study session lasted about 25 min before participants were paid. At this point, they were only aware that they would receive a phone call from the experimenter in 3 days for a follow-up question. During this phone call, the experimenter asked them to freely recall the brand names from the study session.

4.4 | Results

4.4.1 | Manipulation Check 1: Emotional Arousal Observed in Pupil Change

A Python script cleaned and aggregated the pupillometry data in four steps (Thoma and Baum 2019). First, we deleted

recordings during blinks and computed a mean diameter from the left and right pupil size for each measurement. Second, a baseline correction subtracted each participant's mean pupil size during the 500 ms before an audio onset from each pupil diameter value recorded during the subsequent auditory ad adjusting for biological differences. Third, recordings were down-sampled from 500 Hz to 1-s time bins to make the data manageable. Finally, we excluded physiologically unrealistic pupil change outliers (< −1 mm (0.8%) and > 1 mm (0.2%)). The score for prior brand-related memories was computed as in Study 1.

A linear mixed model tested the effects of memory reactivation, prior memories, and their interaction on pupil diameter change. It revealed no significant main effect of reactivation ($b = 0.02$, $SE = 0.02$, $t = 0.88$, $p = 0.384$), with similar pupil dilation observed during factual ($M = 0.08$, SD = 0.23) and nostalgic ($M = 0.10$, SD = 0.22) ads. However, prior brand-related memories (Cronbach's $\alpha = 0.81$, $M = 3.88$, SD = 1.52) were associated with significantly stronger pupil dilation ($b = 0.02$, $SE = 0.003$, $t = 6.08$, $p < 0.001$). Notably, reactivation and prior memories interacted significantly ($b = 0.03$, $SE = 0.005$, $t = 6.33$, $p < 0.001$) as visualized in Figure 4A.

In sum, this first manipulation check validated that listening to nostalgic ads reactivated stronger neurophysiological responses linked to autobiographical memory than factual ads, at least for brands participants associated with strong prior memories. For such brands, pupil dilation—indexing emotional arousal—was greater during hearing nostalgic ads.

4.4.2 | Manipulation Check 2: Vividness Observed in Gaze Fixations

As each audio ad lasted 30 s, we analyzed the raw fixation count data instead of a rate per second (Armson et al. 2021). We removed absolute outliers > 160 fixations (3%). A generalized mixed model from the Poisson family found no direct effect of reactivation ($b = -0.02$, $SE = 0.04$, $z = -0.52$, $p = 0.605$), with almost identical mean fixation counts for the factual ($M = 69.37$, SD = 33.09) and nostalgic ads ($M = 68.22$, SD = 35.44). Fixations increased with prior brand-related memories ($b = -0.05$, $SE = 0.01$, $z = -3.56$, $p < 0.001$). A significant interaction indicated that prior memories fully moderated the effect of reactivation ($b = 0.09$, $SE = 0.02$, $z = 5.47$, $p < 0.001$). As plotted in Figure 4B, fixations increased with prior memory scores during nostalgic ads, yet they decreased accordingly during factual ads.

These results support the second manipulation check, showing that nostalgic (vs. factual) ads for brands linked to strong prior memories reactivated more vivid autobiographical recollections.

4.4.3 | Brand Name Recall

Of the 752 responses, 268 (36%) were correctly recalled and coded as "1," while 484 were not remembered and coded as "0." Among the non-recalled responses, 12 were erroneously recalled intrusions. A binomial logistic mixed-effects regression model revealed no significant main effect of reactivation, despite a descriptively higher recall rate following nostalgic-autobiographical ads ($M = 0.38$, SD = 0.49) compared to factual-semantic ads ($M = 0.33$,

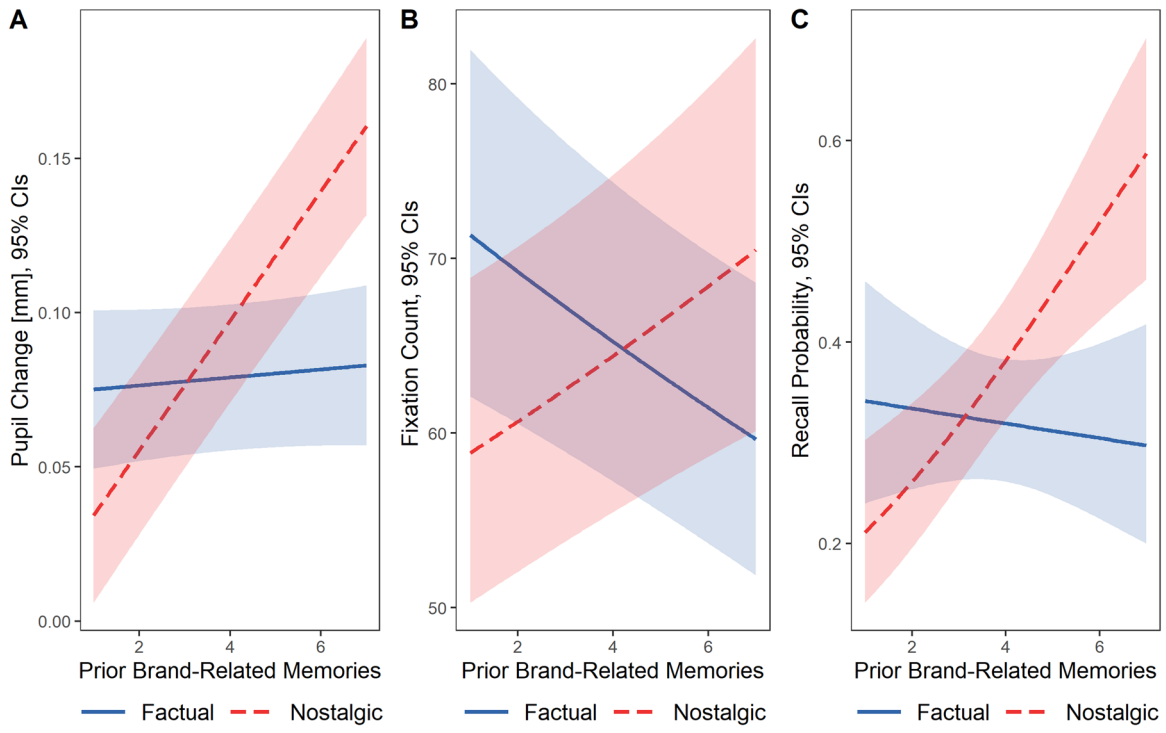

FIGURE 4 | Study 2: Covariate-adjusted interactions plots showing that—if brand names were associated with strong prior memories—nostalgic-autobiographical ads induced higher levels of emotional arousal reflected in pupil change (A) and reactivated more vivid memories indexed by more fixations (B). Brand name recall followed this pattern (C).

SD = 0.47; $b = 0.24$, $SE = 0.18$, $z = 1.32$, $p = 0.185$). This result does not directly support H1.

Recall tended to improve with stronger prior brand-related memories ($b = 0.19$, $SE = 0.10$, $z = 1.80$, $p = 0.072$). Notably, a significant interaction effect ($b = 0.47$, $SE = 0.22$, $z = 2.19$, $p = 0.028$) indicated that nostalgic-autobiographical ads created a clear recall advantage for brands associated with strong memories (see Figure 4C). Separate analyses showed that for brand names rated below the median of the prior memory score (≤ 3.50), factual-semantic ads tended to elicit higher recall ($b = -0.49$, $SE = 0.28$, $z = -1.75$, $p = 0.081$). In contrast, for brand names rated above the median, nostalgic-autobiographical ads led to a significant recall advantage ($b = 0.58$, $SE = 0.28$, $z = 2.12$, $p = 0.034$). These results support H2.

5 | Study 3. Younger and Older Consumers

The experiment had a 2 (memory reactivation: factual-semantic | nostalgic-autobiographical) by 2 (age: younger | older) factorial design with reactivation as within and age as between-subjects factors. Study 3 replicated Study 1—including prior brand-related memories as a moderator—in a laboratory setting, while adding consumer age as a second moderator.

5.1 | Participants

Seventy-five younger and older adults who had grown up in Germany participated in reward for €10. The younger adults ($n = 37$) were aged between 20 and 35 years ($M = 24.46$, SD = 3.69). The older adults' ($n = 38$) age ranged from 65 to 85 years old ($M = 71.63$, SD = 4.78). With 27 and 21 women, the gender distribution did not differ significantly across age groups ($\chi 2$ (1) = 2.55, $p = 0.110$). All participants reported to be in good mental health.

5.2 | Materials and Procedure

We adopted the materials and procedure from Study 1 with the following age-appropriate adaptations (see Figure 1). First, we reduced the number of brands from 16 to 12 for all participants to minimize potential frustrations. Second, while the younger group saw 12 brands from Study 1, we kept 2 anchor brands ("Brandt" and "Langnese") and exchanged 10 different brands for the older group. Like the two anchors, these brands were already popular when the older adults were children and teenagers to enable autobiographical memory reactivation (Muehling et al. 2014). Those 10 brands belonged to the same product categories used with the younger group, for example, in the case of a popular school pen, "Lamy" (younger) was replaced by "Pelikan" (older). We selected the brands from a larger pool after discussing their appropriateness with a man and a woman in their mid-seventies. Third, we used the survey software from Study 1. However, while participants could read the stimuli and questions on a 17"-screen, they provided their answers verbally and an experimenter recorded them. Based on a practice trial, the text size was adjusted to individual reading preferences. While the younger participants were tested in a university laboratory, an experimenter met the older participants in a small room in a rehabilitation clinic, where they had been recovering from knee or hip surgery. We recruited them through flyers at the respective locations. We set the minimum age for the older group to 65 years to potentially obtain aging effects on brand name recall (Mecredy et al. 2024). For the delayed recall test 1 week after the study session, the same experimenters interviewed the participants again in person.

5.3 | Results and Discussion

5.3.1 | Manipulation Checks

A first cumulative link mixed model analysis run on the post-ad ratings confirmed that factual ads reactivated brand-related semantic memory more effectively ($M = 4.96$, SD = 1.49) than nostalgic ads ($M = 4.46$, SD = 1.73; $b = -0.87$, $SE = 0.27$, $z = -3.23$, $p = 0.001$). This model was controlled for pre-ad semantic memory ratings ($b = 0.75$, $SE = 0.06$, $z = 13.37$), and similar ratings across age groups ($b = 0.36$, $SE = 0.40$, $z = 0.90$, $p = 0.371$). A parallel second model showed that nostalgic ads indeed reactivated autobiographical memories ($M = 5.54$, SD = 1.58) more than factual ads ($M = 4.94$, SD = 1.69; $b = 0.96$, $SE = 0.25$, $z = 3.92$, $p < 0.001$). This model was controlled for pre-ad autobiographical memory ratings ($b = 0.67$, $SE = 0.05$, $z = 13.87$, $p < 0.001$) and found no age differences ($b = 0.08$, $SE = 0.31$, $z = 0.25$, $p = 0.801$).

In sum, the manipulation checks of pre- and post-ad ratings confirmed that factual ads primarily reactivated brand-related semantic memory. In contrast, nostalgic ads effectively reactivated brand-related autobiographical memory.

5.3.2 | Brand Name Recall

Of the 900 responses, 432 (48%) were correctly recalled and coded as "1," while the remaining non-recalled responses were coded as "0." A binomial logistic mixed-effects regression revealed a significant reactivation effect, with a higher recall rate following nostalgic ads ($M = 0.56$, SD = 0.50) compared to factual ads ($M = 0.40$, SD = 0.49; $b = 0.67$, $SE = 0.14$, $z = 4.08$, $p < 0.001$). This result supports H1.

Furthermore, higher pre-ad memory ratings ($M = 4.52$, SD = 1.72, Cronbach's $\alpha = 0.83$) led to better recall ($b = 0.17$, $SE = 0.08$, $z = 2.11$, $p = 0.035$). The delay between exposure and recall ($M = 6.72$ days, SD = 1.18) did not influence recall ($b = -0.04$, $SE = 0.10$, $z = -0.39$, $p = 0.700$). Importantly, a significant interaction indicated that the recall advantage of nostalgic-autobiographical ads became increasingly stronger the stronger the prior brand-related memories ($b = 0.35$, $SE = 0.15$, $z = 2.40$, $p = 0.016$). Post-hoc analyses using a median split (≤ 4.50) showed that nostalgic ads significantly enhanced recall for brands with an above-average pre-ad memory score ($b = 0.83$, $SE = 0.26$, $z = 3.12$, $p = 0.002$), whereas no significant effect was found for below-average scores ($b = 0.40$, $SE = 0.30$, $z = 1.34$, $p = 0.180$) compared to factual-semantic ads. This interaction supports H2.

Regarding age effects, brand name recall was only descriptively higher for younger ($M = 0.51$, SD = 0.50) than older participants ($M = 0.45$, SD = 0.50; $b = 0.33$, $SE = 0.24$, $z = 1.42$, $p = 0.157$). Notably, including age interactions to test for a moderation effect did not improve model fit ($\chi^2(1) = 0.15$, $p = 0.701$). Instead, nostalgic-autobiographical ads were similarly effective in enhancing brand name recall in younger (+37%) and older participants (+41%), yielding no support for H3.

6 | Discussion

6.1 | Research Implications

This paper offers a novel theoretical contribution to the literature on advertising and memory by demonstrating that nostalgic advertising can enhance brand name recall more effectively than factual advertising, and by identifying autobiographical memory reactivation as a likely psycholinguistic mechanism behind this effect. Drawing on Tulving's (1972) multiple memory systems theory, our framework integrates evidence that semantic and episodic (specifically autobiographical) memory systems interact to facilitate word recall (Renoult et al. 2019), including brand name recall (Thoma and Wechsler 2021), with findings that nostalgic cues preferentially reactivate autobiographical memories related to brands (Muehling et al. 2004; Ratnayake et al. 2010).

Our findings extend previous work in several ways. While prior research has established the persuasive benefits of nostalgic advertising (see Table 1), we provide the first empirical evidence that nostalgic ads can enhance brand name recall more than factual ads. This addresses a relative gap in advertising research, where brand name recall—despite being a theoretical (Percy and Rossiter 1992) and empirical (Lourenço et al. 2023) prerequisite for shaping attitudes and behavioral intentions—remains an under-researched key indicator of brand awareness (Bergkvist and Taylor 2022).

As for the specific effects on brand name recall, in Study 1 and Study 2, participants were descriptively 1.22–1.27 times more likely to recall the featured brand name after nostalgic compared to factual ads (Study 1: $OR = 1.22$, 95% CI [0.45, 0.66]; Study 2: $OR = 1.27$, 95% CI [0.97, 1.52]). While the main effects were not statistically significant due to full moderation by prior brand-related memory strength, this interaction supports claims that autobiographical memory is more susceptible to cue-driven reactivation than semantic memory and that such reactivation enhances recall.

In Study 3, we observed a higher overall recall rate (48% vs. 36% in Studies 1 and 2). Here, the brand recall advantage of nostalgic ads was significant and larger, with participants being 1.95 times more likely to recall the brand ($OR = 1.95$, 95% CI [0.97, 1.92]) after nostalgic compared to factual ads. This effect was again moderated by prior brand-related memories, consistent with research suggesting that both persuasion (Muehling 2013; Langaro et al. 2020) and memory reactivation (Beron et al. 2025) benefit from stronger existing memory traces.

Interestingly, we found that both younger and older consumers recalled brand names more effectively after nostalgic than factual ads, contrary to our initial hypothesis that older adults would benefit more. Previous studies (Thoma and Wechsler 2021) have suggested that autobiographical memories contribute more strongly to brand recall in older than younger consumers. However, our design may have attenuated age-related differences in reactivation strength. We intentionally selected brands with the potential to evoke memories from adolescence or early adulthood across both groups (Muehling et al. 2014), possibly leveling the baseline memory strength. Furthermore, while cognitive aging may reduce the efficacy of memory reactivation (Koen and Rugg 2019), anecdotal reports from experimenters noted greater enjoyment of nostalgic ads among older participants (consistent with Leunissen et al. 2021). This combination of lower reactivation capacity but higher task engagement may have produced similar recall outcomes across age groups. It is also possible that our self-report measures were not sensitive enough to detect subtle age-related differences in reactivation strength.

Together, our results provide the first causal evidence that nostalgic advertising enhances brand name recall more than factual advertising by selectively reactivating autobiographical memories. This supports and extends memory systems theory within a marketing context and offers a robust psychological explanation for why nostalgic content can improve brand awareness, particularly when consumers already hold meaningful memories of the brand.

6.2 | Practical Implications

Our findings offer several actionable insights for marketing professionals seeking to improve brand recall and awareness through advertising. First, nostalgic advertising can be strategically used to enhance brand name recall, especially for brands that are familiar and relevant to them. This recall advantage likely stems from the ability of nostalgic ads to reactivate brand-related memory traces that encompass emotional and episodic dimensions, rather than merely reinforcing factual brand knowledge. Marketers should thus design their nostalgic ads including strong perceptual cues (e.g., music, visuals, narratives) that easily reactivate consumers' prior brand experiences.

Second, because the effectiveness of nostalgic advertising is moderated by prior memory strength, marketers should use nostalgic appeals selectively, targeting high-familiarity segments via customer-relationship management or media buys in markets with historically strong brand presence. For newer consumers or unfamiliar brands, factual advertising may still be more effective.

Third, the comparable effectiveness of nostalgic ads for both older and younger consumers suggests broad demographic appeal, but only if the nostalgic cues are appropriately targeted. Advertisers should align nostalgic content with the formative periods of each age group's life (e.g., teen years or early adulthood) to maximize autobiographical memory reactivation. This implies the need for careful segmentation and tailored creative development.

Fourth, for legacy brands or those undergoing repositioning, nostalgic advertising can serve as a powerful tool to reconnect with lapsed customers by reviving dormant brand memories.

Marketers might audit brand histories to identify culturally salient moments or campaigns worth reactivating in nostalgic formats.

Finally, our study demonstrates the utility of combining self-report and eye-tracking measures to assess autobiographical memory reactivation. While such tools may currently be limited to research settings, marketers should consider investing in pre-testing ad content to gauge emotional and mnemonic engagement before full-scale deployment.

In sum, nostalgic advertising is not merely an emotional or aesthetic device—it is a cognitively grounded strategy for strengthening brand memory. When carefully aligned with consumers' past experiences and brand familiarity, it can significantly improve brand awareness and, by extension, downstream consumer decision-making.

6.3 | Limitations and Future Research

While this study provides novel insights into how advertising can reactivate brand-related memories to strengthen brand name recall, it has certain limitations that open avenues for future exploration. First, our design intended and prioritized the reactivation of brand-related memories and the measurement of unaided brand name recall, a demanding task for participants. To ensure sufficient statistical power, we exposed participants to 12–16 ads, which is far more than the 1–2 typically used in nostalgic advertising studies (see Table 1). This tradeoff limited the time available for collecting additional outcome measures and for repeatedly administering validated multi-item scales to assess pre- and post-ad exposure memory strength. Although our manipulation checks confirm successful memory reactivation, future research could incorporate more granular, item-level memory assessments. Yet, to test reactivation effects on recognition as the second major indicator of brand awareness (Bergkvist and Taylor 2022; Keller 1993), even more brands and a task detached from the recall test would be necessary.

Second, to preserve the natural flow of ad exposure and avoid participant fatigue, particularly among older participants, we did not include measures of brand attitudes or behavioral intentions. While the persuasive effects of nostalgic advertising have been widely studied (see Table 1), future work could explore how memory reactivation and brand name recall interact with attitudinal and behavioral outcomes. However, such studies should consider how repeated evaluative tasks might disrupt the immersive processing of ad content.

Third, both types of ads may have prompted new learning rather than memory reactivation. In such cases, factual ads may have introduced novel brand-related information (e.g., company statistics), while nostalgic ads may have generated autobiographical memories of events that never actually occurred (Braun et al. 2002). However, even when learning instead of reactivation is the driving mechanism, nostalgic ads should enhance brand name recall more effectively by engaging multiple memory systems. Further, eye-tracking provides a low-intrusive but indirect measure of memory reactivation compared to EEG or fMRI. Although correlations exist—for example, pupil dilations in response to memory cues predict hippocampal activity and subsequent recall (Kucewicz et al. 2018)—future research could employ neural measures to more directly capture reactivation.

Fourth, although we identified moderating effects of prior brand-related memories, these were based on self-assessed constructs. Future research could extend this study by experimentally manipulating prior brand-related memories, such as by comparing long-established brands with newer ones, to causally test how prior memory strength influences nostalgic advertising effectiveness. Pretests could use recognition tasks to control prior brand exposure across and within age groups.

Fifth, the younger consumers in our studies were predominantly graduate (Study 1) or undergraduate (Studies 2 and 3) students. While this may limit generalizability, it also reflects the typical population in nostalgic advertising research (see Table 1). Importantly, consumers in their early 20s have been exposed to numerous brands during childhood and adolescence, many of which are now prone to forgetting due to heightened brand proliferation, making reactivation through advertising especially promising. Nonetheless, it would be valuable to examine middle-aged consumers' responsiveness to nostalgic advertising.

Finally, to isolate and test the reactivation-recall mechanism, we presented ads in controlled environments free of distraction. However, real-world advertising rarely occurs in distraction-free settings. Future studies should investigate how nostalgic ads perform in more ecologically valid contexts, where attention is fragmented, and how they can best capture initial attention to enable deeper autobiographical memory processing.

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Data Availability Statement

The data that support the findings of this study are openly available in OSF at https://osf.io/euwzr.

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