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BRIEF REPORT

Consequences of curiosity for recognition memory in younger and older adults

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Abstract
Older adults are more prone to false recognition than younger adults, particularly when new information is semantically related to old information. Curiosity, which guides information-seeking behavior and has beneficial effects on memory across the life span, may offer protection against false recognition, but this hypothesis has not been tested experimentally to date. The current study investigated the effect of curiosity on correct and false recognition in younger and older adults (total $N = 102$) using a trivia paradigm. On Day 1 of the study, participants encoded trivia questions and answers while rating their curiosity levels. On Day 2, participants completed a surprise old/new recognition test in which they saw the same trivia questions. Half of the questions were paired with old (correct) answers, and half were paired with new (incorrect) answers. New answers were either semantically related or unrelated to correct answers. For both age groups, curiosity at encoding was positively associated with correct recognition. For older adults, semantically related lures produced more false recognition than unrelated lures. However, this effect was mitigated by curiosity, such that older adults were less likely to endorse semantically related lures for high- versus low-curiosity questions. Overall, these results extend prior findings of curiosity-related memory benefits to the domain of recognition memory, and they provide novel evidence that curiosity may protect against false memory formation in older adults.

Keywords cognitive aging · memory

Introduction

According to conventional wisdom, epistemic curiosity—the intrinsic desire for new knowledge—is an important driver of learning outcomes in classrooms and the workplace. This notion has been corroborated by lab studies of curiosity and memory across the life span (Galli et al., 2018; Gruber et al., 2014; Kang et al., 2009; McGillivray et al., 2015), suggesting a lifelong role for curiosity beyond traditional learning environments and into older age. Evidence accumulates that curiosity helps us remember interesting information, but little is known about how it influences our ability to reject false information. Along with reinforcing true memories, can curiosity also protect against false memories?

In the first empirical study of curiosity and memory (Kang et al., 2009), younger adult participants viewed a series of curiosity-inducing trivia questions. After rating their curiosity for each question, participants were shown the correct answer. When cued with the trivia question up to 2 weeks later, participants had significantly better recall of answers they were more curious about compared with answers they were less curious about. Several more recent studies have also shown a connection between curiosity and subsequent memory. Findings indicate that youth (Fandakova & Gruber, 2021), younger adults (Gruber et al., 2014), and older adults (McGillivray et al., 2015) have better cued recall for trivia answers they were curious about during encoding compared with answers they were less curious about. Similar to reward-motivated memory enhancement (Adcock et al., 2006), studies suggest that the neural mechanism underlying this effect is curiosity-induced modulation of activity in dopaminergic regions (e.g., midbrain, ventral striatum), the hippocampus (Gruber et al., 2014; Kang et al.,

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2009), and the frontoparietal attention network (Duan et al., 2020; Gruber & Ranganath, 2019).

Despite evidence of age-related declines in dopaminergic function (Bäckman et al., 2006) and episodic memory capacity (Park & Reuter-Lorenz, 2009), curiosity's effect on memory does not appear to decline with age (e.g., McGillivray et al., 2015). A recent meta-analysis investigating age differences in the effect of motivation on cognition revealed that memory performance in older adults is more sensitive to socioemotional rewards (e.g., curiosity, social rewards) than in younger adults, who respond more strongly to financial rewards (e.g., money, points; Swirsky et al., 2023). Curiosity is traditionally viewed as important for younger populations (i.e., students in classrooms), but the meta-analytic evidence suggests that older adults may derive even greater cognitive benefits from intrinsic motivators such as curiosity. Beyond cognitive effects, states of curiosity have also been linked to deeper social relationships (Kashdan et al., 2011) and approach-oriented physical activity (Lydon-Staley et al., 2020). These benefits are especially relevant for older adults because maintaining a cognitively, socially, and physically active lifestyle promotes successful neurocognitive aging (Hertzog et al., 2008). As such, stimulating curiosity may represent an effective avenue for maintaining memory and other functional capacities related to adaptive aging (Sakaki et al., 2018).

Current studies may underestimate the potential for curiosity to impact memory, particularly in older adults. In normal aging, recall disproportionately declines relative to recognition (Danckert & Craik, 2013), and until now, studies investigating curiosity-related memory enhancement have relied on tests of cued recall (e.g., Kang et al., 2009). Whether curiosity can also boost one's ability to correctly recognize information and to reject false information has not been tested empirically to date. This question may be of particular relevance for older adults, as we argue next.

Compared with younger adults, older adults rely more strongly on schematic, gist-based memory, a phenomenon referred to as the semanticization of memory with age (Spreng & Turner, 2019). This increased reliance on general knowledge may make older adults more likely to falsely recognize new information that aligns with their prior knowledge (Greene & Naveh-Benjamin, 2022). The higher tendency for false-memory formation in older adults has been reported in studies using the Deese–Roediger–McDermott (DRM) false-memory procedure (Roediger & McDermott, 1995). In the DRM, participants encode lists of words that are semantically related, after which they complete a recall or recognition memory test. In the context of recognition, the memory test includes old words from encoding and new words that are either semantically related to encoded lists (related lures) or not (unrelated lures). During retrieval, older adults are more likely than younger adults to falsely recall or recognize related lures (for a review, see Gallo, 2010).

Given older adults' increased sensitivity to intrinsic rewards, their relatively spared recognition, and their increased false memory formation, available cued-recall studies may miss the complete pattern of age differences in curiosity-related memory. Using a DRM-style recognition test instead could assess age differences in both correct recognition (i.e., hits) and false recognition (i.e., false alarms) in the face of related lures. With this approach, the current study investigated how curiosity impacts recognition memory and false memory formation in younger and older adults. We adapted a typical trivia paradigm (e.g., Gruber et al., 2014) to include a DRM-style recognition test instead of a cued-recall memory test. The primary hypotheses were as follows. First, we expected curiosity to be associated with a greater likelihood of recognition hits in both age groups. Second, we expected older adults to endorse related lures more than unrelated lures due to the increased influence of prior knowledge on memory judgments in this age group. Third, we expected curiosity to protect against false memory for both age groups, such that curiosity would be associated with a lower likelihood of false alarms. We also sought to explore whether curiosity would differentially affect false recognition for related and unrelated lures, in either age group.

Method

The study methods, planned analyses, and hypotheses were preregistered using the AsPredicted template and uploaded to the Open Science Framework (OSF) repository (https://osf.io/h6ay7).

Participants

An a priori sample size of 96 was determined based on a power analysis using G*Power (Faul et al., 2007), requiring a power of at least 0.80 to detect a medium-sized interaction ($\eta_p^2 = 0.08$) of a two-level between-subjects factor (age group: younger vs. older) and a two-level within-subjects factor (curiosity: low vs. high), assuming an α error probability of .05. The planned analyses involved logistic mixed modeling rather than mixed analyses of variance (ANOVAs), which have more power due to the ability to handle missing data without listwise deletion (Quené & Van den Bergh, 2004). Therefore, this power analysis likely overestimated the sample size necessary to detect expected effects. To account for potential exclusions, we recruited 102 participants, half of whom were aged 19–34 (*M* = 27.09, *SD* = 3.52) and the other half were aged 60–81 (*M* = 67.27, *SD* = 4.39). Participants were recruited from MTurk via

Table 1 Sample characteristics and age differences

	Older adults		Younger adults		*t* value
	M	(*SD*)	*M*	(*SD*)	
N	51		51		——
N (Female)	25		26		——
Age range, years	60–81		19–34		——
Age, years	67.27	(4.39)	27.09	(3.52)	——
Education, years	16.41	(5.25)	14.35	(1.75)	1.68
Mill Hill	21.98	(5.23)	16.90	(5.80)	4.64***
PCS	31.02	(5.24)	30.20	(5.31)	0.79
ECS	28.22	(5.50)	29.90	(6.60)	−1.40
DASS-21					
Depression	3.53	(5.22)	7.25	(7.04)	−3.04**
Anxiety	2.55	(4.15)	6.37	(6.73)	−3.46***
Stress	4.04	(4.58)	7.10	(6.60)	−2.72**
PANAS					
Positive Affect	20.78	(5.10)	22.76	(8.37)	−1.44
Negative Affect	27.67	(4.31)	27.08	(6.96)	0.51

PCS = Perceptual Curiosity Scale; ECS = Epistemic Curiosity Scale; DASS-21 = Depression, Anxiety, and Stress Scale 21; PANAS = Positive Negative Affective Schedule; Mill Hill is a vocabulary scale used as a measure of verbal intelligence; $^{**}p < 0.01$; $^{***}p < 0.001$, $t(60)$, two-tailed test for age group differences, equal variances not assumed.

CloudResearch. Eligible participants were healthy younger (aged between 18 and 35 years) and older (60 years or above) adults based in Canada or the USA. A total of nine participants were excluded and replaced according to the following exclusion criteria: failed attention checks ($n = 3$), did not complete the second session within 36 hours ($n = 5$), reported cheating on memory test ($n = 1$). An overview of sample characteristics, summary statistics and age differences in background measures are reported in Table 1. The age groups were matched on years of education, trait-level curiosity, and affective state during the study. Typical age group differences in crystallized intelligence and mood over the past week are reflected in our sample (Carstensen et al., 2000; Horn & Cattell, 1967; Park et al., 2002; Thomas et al., 2016). Older adults scored higher on verbal intelligence and younger adults scored higher on indicators of negative emotional states within the last week (i.e., depression, anxiety, and stress).

Materials

Materials included 40 trivia questions and answers from Kang et al. (2009). We created 80 lure answers, including 40 semantically unrelated lure answers and 40 semantically related lure answers. Unrelated lure answers were not semantically similar to the correct answer while related lures were semantically similar to the correct answer (e.g., correct answer: *frog*; related lure: *toad*; unrelated lure: *dog*). Semantic relatedness was quantified using an online semantic similarity calculator (https://ws4jdemo.appspot.com). All questions, along with their correct and lure answers, are presented in Table S1.

Procedure

The experiment consisted of two phases (see Fig. 1). In the first phase (Fig. 1A), participants viewed trivia questions in a randomized order on the screen. After viewing each question, participants provided a rating of their curiosity to know the correct answer as well as a rating of their confidence that they could answer the questions correctly on continuous slider scales ranging from *not at all* to *extremely*. After providing ratings, participants were asked to guess the answer and type it into a text window, or select "pass." The correct answer then appeared on the screen. Questions for which participants had guessed the correct answer were removed from any subsequent analyses. After the encoding task, participants completed questionnaires assessing trait curiosity (Perceptual Curiosity Scale: Litman et al., 2005; Epistemic Curiosity Scale: Litman & Spielberger, 2003), verbal intelligence (Mill Hill Vocabulary Scale [MHV]; Raven, 1958), and measures of current/recent mood states (Positive and Negative Affect Schedule [PANAS]: Watson et al., 1988; Depression, Anxiety, and Stress Scales [DASS-21]: Lovibond & Lovibond, 1995).

The second phase took place the following day. Participants received the Phase 2 link via automated email through CloudResearch 24 hours after they had completed the first phase, and they had up to 36 hours to complete the second phase (mean lag = 3.58 hours, *SD* = 2.07 hours). In Phase 2 (Fig. 1B), participants viewed the trivia questions from Phase 1 in a new random order, one at a time. Along with the trivia question, participants saw a potential answer, which was one of three answer types: correct (target), incorrect but semantically related to the correct answer (related lure), or incorrect and semantically unrelated to the correct answer (unrelated lure). Half of the questions were paired with correct answers, and the other half were paired with an even split of the two lure types (10 related, 10 unrelated). Correct answers and lures were individually selected to ensure that each participant had an equal distribution of high- and low-curiosity items within each answer type, based on their ratings at encoding (i.e., 10 high-curiosity/10 low-curiosity correct answers; 5 high-curiosity/5 low-curiosity related lures; 5 high-curiosity/5 low-curiosity unrelated lures). High and low curiosity designations were established within-subjects, using an individualized median split approach as in Kang et al. (2009). Participants first made a recognition response (whether the answer was old; they recognized it as the correct answer from Phase 1) as well as an associated

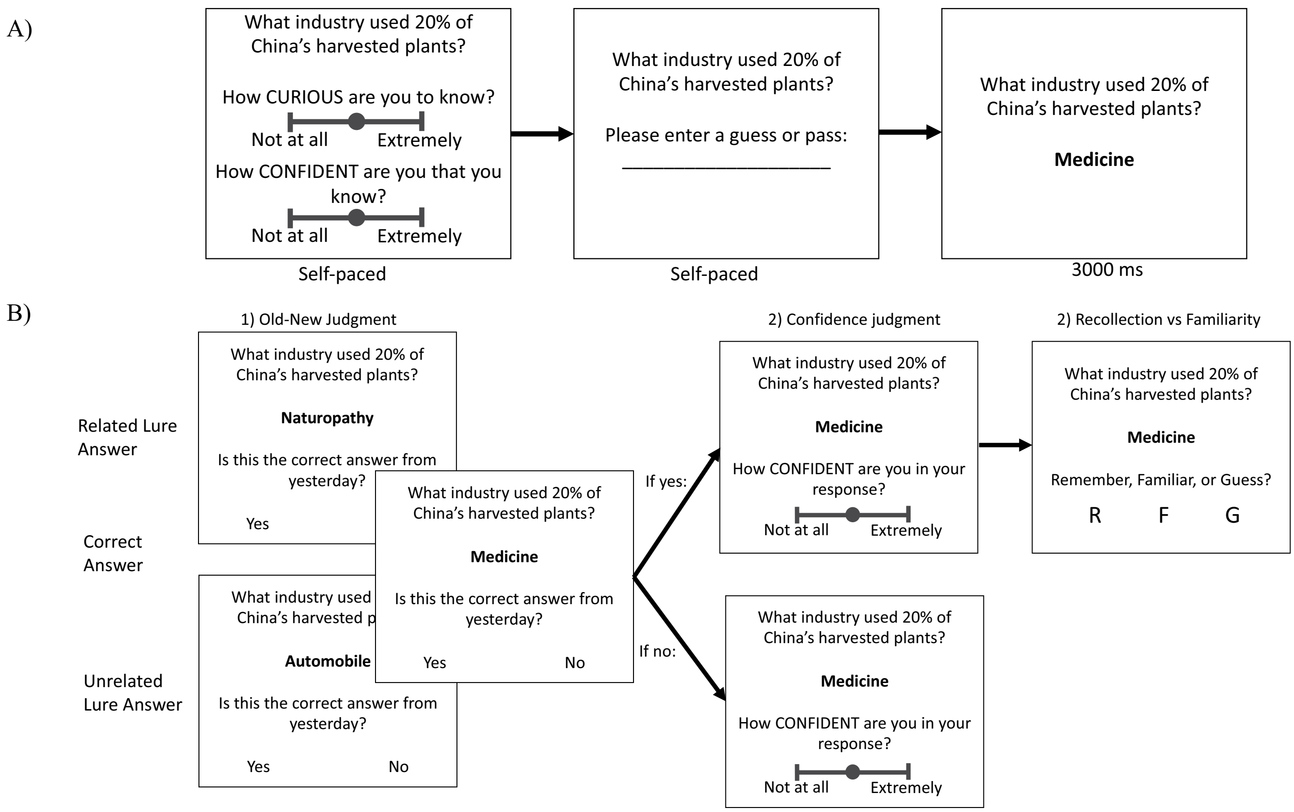


Fig. 1 Schematic of encoding and recognition tasks. *Note.* Both tasks included 40 trials. All recognition task responses were self-paced

confidence rating on a continuous slider scale ranging from *not at all* to *extremely*. For answers they deemed old, they also indicated whether they "Remembered," found it "Familiar," or if their response was only a "Guess." After the recognition task, participants completed a questionnaire to provide demographic and health-related information.

Results

Background measures with significant age differences were included as covariates in subsequent analyses (i.e., MHV, DASS-21 subscales) along with all higher-order interactions. However, none of the background measures reached significance or impacted the pattern of results, and therefore, results will be reported for the most parsimonious models without covariates. All statistical analyses were carried out in R (Version 2022.12.0+353; R Core Team, 2020).

Information about performance during the encoding and recognition phases, including age differences in knowledge confidence and curiosity ratings (see Figs. S1, S2, S4), as well as guessing behavior (see Fig. S3), is presented in the supplementary material. Reaction-time analyses and signal-detection theoretic metrics of overall sensitivity and criterion are also reported in the supplementary material text and in Tables S3–S4.

Mixed-model analyses

To accommodate the nested data structure of trials within participants and the dichotomous nature of the dependent variables (trial-level recognition outcomes), a series of logistic mixed-effects models were estimated to assess the effects of curiosity, lure type, and age on recognition performance. Models were estimated using the *glmer* function of the *lme4* package (Bates et al., 2014), *p* values for model coefficients were estimated using the *lmerTest* package (Kuznetsova et al., 2017), and fixed effects and interactions were tested using the ANOVA function from the *car* package (Fox & Weisberg, 2019) and were reported as Wald chi-squared tests. For ease of interpretation, fixed-effects coefficients were exponentiated to calculate odds ratios (Murayama et al., 2014).

Correct recognition and false recognition were assessed separately using hits (0, 1) and false alarms (0, 1), respectively. For hits, trials on which correct answers were shown were coded as 1 if participants correctly recognized the old trivia answer. For false alarms, trials on which lure answers were shown were coded as 1 if participants falsely recognized

Table 2 Parameter estimates from the final logistic mixed models predicting correct recognition and false recognition

	Log Odds estimate	*SE*	*z*	*p*	Odds Ratio
Correct Recognition					
Intercept	2.91	0.25	11.80	<0.001	6.99
Curiosity (group-mean centered)	0.79	0.22	3.69	<0.001	1.72
Age group (effect-coded; OA: −1; YA: 1)	−0.96	0.15	−6.52	<0.001	0.38
Confidence (group-mean centered)	0.22	0.22	1.01	0.31	1.15
Curiosity × Age Group	−0.25	0.13	−1.99	<0.05	0.78
Curiosity × Confidence	−0.10	0.05	−0.59	0.06	0.90
Age Group × Confidence	−0.08	0.13	−0.59	0.55	0.93
False Recognition					
Intercept	−2.25	0.32	−7.05	<0.001	0.11
Curiosity (group-mean centered)	−0.43	0.19	−2.33	<0.05	0.65
Age group (effect-coded; YA: −1, OA: 1)	0.49	0.43	1.14	0.26	1.63
Lure Type (effect-coded; Rel: −1, Unr: 1)	−0.84	0.25	−3.41	<0.001	0.43
Curiosity × Age Group	0.57	0.25	2.33	<0.05	1.76
Curiosity × Lure Type	0.33	0.27	1.26	0.21	1.40
Age Group × Lure Type	1.10	0.30	3.62	<0.001	3.00
Curiosity × Age Group × Lure Type	0.25	0.33	−2.78	<0.05	0.77

YA = younger adults; OA = older adults; Rel = related; Unr = unrelated; Correct Recognition: trial-level hit (0 = identifying an old answer as new, 1 = identifying an old answer as old); False Recognition: trial-level false alarm (0 = identifying a new answer as new, 1 = identifying a new answer as old). Confidence refers to ratings from encoding.

a new trivia answer lure. Independent variables included age group (younger, older), curiosity (continuous), and lure type (related, unrelated). Additionally, knowledge confidence (continuous) from encoding was included as a covariate to account for the well-documented relationship between curiosity and prior knowledge (Metcalfe et al., 2020; Wade & Kidd, 2019). Hit outcomes were regressed on group-mean centered curiosity rating, age group, and group-mean centered knowledge confidence, as well as all possible two-way interaction terms and the three-way interaction term. Participant ID was included as a random intercept to account for repeated observations. Similarly, false-alarm outcomes were regressed on group-mean centered curiosity rating, age group, and lure type, group-mean centered knowledge confidence, as well as all possible higher-order interactions. Participant ID was included as a random intercept to account for repeated observations. If knowledge confidence and any higher-order interactions were nonsignificant, the decision of whether to keep these terms in the model depended on model fit criteria (AIC and BIC) and model convergence in favor of model parsimony. Final models are reported in Table 2. See supplementary material for a description of how independent variables were coded and scaled.

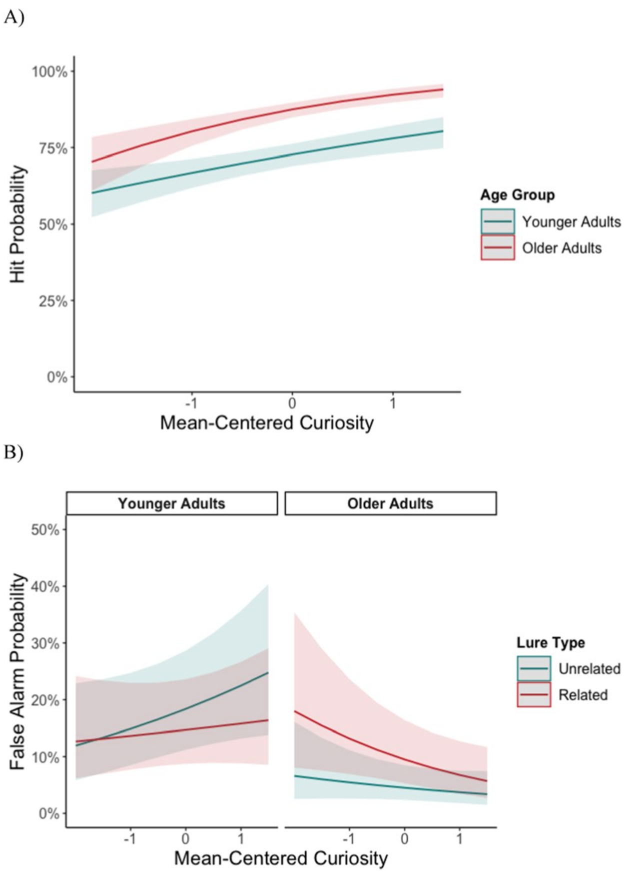
Correct recognition

The final model regressed trial-level hit outcomes on age group, group-mean centered curiosity, group-mean centered knowledge confidence, and all two-way interaction terms (Table 2). The nonsignificant three-way interaction term was dropped to improve model fit indices. There was a significant main effect of age group, Wald $\chi^2(1) = 39.23$, $p < 0.001$, such that older adults were more likely to correctly identify an answer as old than younger adults, odds ratio = 2.62. There was also a significant main effect of trial-level curiosity, Wald $\chi^2(1) = 41.79$, $p < 0.001$, such that as curiosity rating for a given trivia item increased, both younger and older adults were more likely to correctly identify an answer as old, odds ratio = 2.21. These main effects were qualified by an Age × Curiosity interaction, Wald $\chi^2(1) = 3.96$ $p < 0.05$, indicating that the likelihood of a hit was more strongly related to curiosity for older adults (odds ratio = 1.72) than for younger adults (odds ratio = 1.33); see Fig. 2A and Fig. S10A.[1] An analysis of the effects of curiosity and age on hit type (recollection versus familiarity) is also reported in the supplementary material text, Table S7, and Figs. S5–S6.

False recognition

The final model regressed trial-level false alarm outcomes on age group, lure type, group-mean centered curiosity,

[1] For simplicity and ease of visualization, bar graphs with curiosity dichotomized into high and low levels are available in the supplementary material.



Note. A) Correct recognition as indicated by likelihood of trial-level hits; B) false recognition as indicated by likelihood of trial-level false alarms

Fig. 2 Predicted probability of trial-level correct and false recognition in younger and older adults as a function of curiosity and lure type

and all higher-order interaction terms (Table 2). Knowledge confidence and any interactions involving knowledge confidence were dropped to improve model fit indices and achieve model convergence. There was a significant main effect of age group, Wald $\chi^2(1) = 5.33$, $p < 0.05$, such that older adults were less likely to commit a false alarm than younger adults, odds ratio = 0.21. There was also an Age × Lure Type interaction, Wald $\chi^2(1) = 12.73$, $p < 0.001$, such that older adults were more likely to commit a false alarm in response to a related lure compared to an unrelated lure (odds ratio = 2.11; see Fig. S9). By contrast, there was no significant difference in the likelihood of a false alarm between the lure types for younger adults (odds ratio = 1.03). Additionally, there was an Age × Curiosity interaction, Wald $\chi^2(1) = 5.37$, $p < 0.05$, such that, as trial-level curiosity increased, older adults, but not younger adults, were less likely to commit a false alarm (odds $\text{ratio}_{\text{older}}$= 0.69; odds $\text{ratio}_{\text{younger}}$= 1.09). This two-way interaction was qualified by an Age × Curiosity × Lure Type interaction, Wald $\chi^2(1) = 5.31$, $p < 0.05$, which revealed that the effect of curiosity on false alarms in older adults was driven by related lures. Specifically, higher curiosity was associated with a lower likelihood of a false alarm in response to related lures (odds ratio = 0.45) but not to unrelated lures (odds ratio = 1.25; see Fig. 2B and Fig. S10B). An analysis of the effects of curiosity, lure type, and age on false-alarm type (recollection versus familiarity) is also reported in the supplementary material text, Table S8, and Figs. S7–S8.

Discussion

The current study was the first to examine the effect of epistemic curiosity on recognition of target information in healthy younger and older adults. Curiosity predicted correct recognition (i.e., successful recognition of previously encountered information), for both age groups, but the effect was more pronounced in older adults who demonstrated better overall performance. Furthermore, curiosity was associated with reduced false recognition of related lures in older adults, indicating that curiosity may offer protection against false memories in this population.

As in prior studies of curiosity effects on recall memory (Galli et al., 2018; McGillivray et al., 2015; Swirsky et al., 2021), curiosity was linked to correct recognition in both age groups. In contrast to prior studies on recall, older adults showed this effect more strongly than younger adults. These findings align with a recent meta-analysis, which indicated that memory is more sensitive to socioemotional reward in older than in younger adults (Swirsky et al., 2023). Of note, individual prior studies of curiosity and memory did not report significant Age × Curiosity effects on memory (Galli et al., 2018; McGillivray et al., 2015; Swirsky et al., 2021). Consistent with our findings, McGillivray et al. (2015) identified a stronger relationship between post-answer interest—a construct closely related to curiosity—and recall memory in older adults. It is unclear whether nonsignificant Age x Curiosity effects were due to the use of recall paradigms, which may be less sensitive to age differences in curiosity effects than recognition tasks, or whether they were due to small sample sizes of prior studies (mean N per group = 31). Future studies should examine the role of task format (recall vs. recognition) in curiosity-enhanced memory.

For younger adults, curiosity did not reduce false recognition. This finding mirrors similar null effects of reward on false recognition in studies with financial incentives (Bowen et al., 2020; Cheng et al., 2020; Wittmann et al., 2011). Studies indicate that, in both automatic and strategic reward processing scenarios, recognition of old information appears to benefit while rejection of new information does not in younger adults. In the current study, older adults did exhibit lower false alarm rates for high curiosity related lures.

How can this be reconciled with prior work on reward and recognition memory? A critical distinction is that the current study used a cued recognition test in which old/new trivia answers were tested alongside old trivia questions. This structure set up an associative memory demand, which may have differed in intensity according to lure type. For unrelated lures, the associative memory demand was low because incorrect answers were more salient and unambiguously wrong regardless of curiosity. For related lures, associative memory demand was high, as answers were more plausible requiring finer discrimination from the correct answer. In these more difficult discrimination cases, curiosity may offer additional support by strengthening the memory representation of the correct answer as a comparator to facilitate rejection of related lures. Considering that older adults endorsed related lures more than unrelated lures overall, while younger adults did not differ between lure type, it is likely that these discrimination decisions were relatively more difficult for older adults. Therefore, curiosity may be most beneficial for rejecting false information when the discrimination decision is more difficult and ambiguous, as was the case for older adults with related lure answers.

The finding that older adults outperformed younger adults on the recognition test (see signal-detection analyses in the supplementary material) is somewhat unexpected, given the extensive literature on age-related decline in episodic memory (for a review, see Tromp et al., 2015). While age differences in recognition are smaller than in free recall (for a meta-analysis, see Rhodes et al., 2019), it is notable that the age effect in the current study was reversed rather than simply not present. However, these patterns are becoming more common with the rise of online study administration in cognitive aging research (e.g., Schwartz et al., 2023; for reviews, see Greene & Naveh-Benjamin, 2022; Ryan & Campbell, 2021). Several factors may help explain these findings. First, younger and older adults participating in online studies may differ with respect to engagement and task focus. Second, compared to lab environments, online experiments may be less likely to produce stereotype threat effects that can undermine memory performance in older adults (Ryan & Campbell, 2021). Third, older adults participating in online research may also represent a subset of the population that is particularly tech savvy, and computer literacy has been linked to improved episodic memory performance in older adults (Chen et al., 2015). While these considerations may limit the generalizability of the current findings, it is noteworthy that older adults who are active online are exposed to misinformation and fake news (Brashier & Schacter, 2020; Moore & Hancock, 2022; Pennycook & Rand, 2021). The current data indicate that curiosity supports correct recollection (see Figs. S5, S6). Recollection-based rejection is an effective strategy to protect against misinformation and prevent false memory formation (Moore & Lampimen, 2016). Future work should explore whether curiosity indirectly shields older adults against adverse effects of misinformation and fake news via recollection-based rejection.

The study had several limitations. Due to the online administration, the study environment was not fully controlled, and participant samples may not be representative of the wider population. Moreover, the sample lacked ethnic diversity, with the majority of participants reporting White/European origins. Future studies should replicate the effect of curiosity on recognition in controlled laboratory settings or with other online recruitment platforms (e.g., Prolific), with an effort to diversify the participant pool for greater generalizability (Dupree & Kraus, 2022). Another limitation of this study and the broader research program on curiosity and memory is the ecological validity of trivia for curiosity induction. Trivia is tied to prior knowledge which is higher in older adults than younger adults (Badham et al., 2016). Additionally, epistemic curiosity in the real world is often elicited by more dynamic material, such as social media content and television shows. Future studies should include more complex naturalistic stimuli (e.g., see Meliss et al., 2023) to strengthen generalizability claims about curiosity and learning in real-world contexts. We also acknowledge two study design limitations. First, curiosity ratings were made prior to guessing during encoding. As in other trivia studies (Kang et al., 2009; Murayama & Kuhbandner, 2011), participants had the opportunity to guess the trivia answer after rating their curiosity and before the answer was revealed. Generating predictions can increase curiosity (Brod & Breitwieser, 2019) and, despite very low overall levels of guessing, older adults did offer more guesses than younger adults (see supplemental material). Future work should account for the contribution of guessing to the effect of curiosity and postanswer interest on memory. Finally, the lures used in the recognition task were not normed for perceived similarity to the correct answers. It is possible that age differences in subjective experience of semantic relatedness of lures contributed to the pattern of findings reported here. However, related lures elicited more "Remember" false alarms and unrelated lures more "Familiar" false alarms in both age groups. This finding offers an indirect validation of lure relatedness and suggests that lure similarity was perceived similarly by younger and older adults (see Figs. S7, S8).

In summary, the current study extends curiosity-related memory benefits to a recognition context, for both younger and older adults. This extension is promising, considering that recognition is more commonly tested than recall in daily life when interacting with information. Older adults additionally benefit from curiosity when faced with plausible, yet incorrect, information. Given older adults' vulnerability to false memories, curiosity may represent an accessible, cost-effective intervention strategy for supporting memory in this age group. Future work should explore this effect using more naturalistic, dynamic stimuli as a step toward translating this finding into practice.

Supplementary information The online version contains supplementary material available at https://doi.org/10.3758/s13423-023-02414-y.

Open practice & data availability statement Preregistration, synthesized data, and code used in the manuscript can be viewed at and downloaded from: https://osf.io/29s5a/

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