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High Prevalence Information From Different Sources Affects the Development of False Beliefs

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SUMMARY

To examine the effects of high and low false prevalence information from different sources on false beliefs, subjects took part in two sessions. In the first session, subjects rated the plausibility of different childhood events, how confident they were that they had experienced those events and their memories of those events. In the second session, 2 weeks later, subjects received high prevalence information about one target event and low prevalence information about another. Subjects received the information in a third-person description, a newspaper article, or cohort data about previous students' experiences, or they received no information. High prevalence newspaper and cohort information increased subjects' plausibility ratings compared to no information and third-person descriptions. High prevalence newspaper information also increased subjects' belief ratings. Our findings contribute to the growing literature demonstrating the role of false high prevalence information in the development of false beliefs. Copyright © 2009 John Wiley & Sons, Ltd.

People can come to believe that they experienced very implausible events—such as witnessing demonic possessions and being abducted by UFOs—if those events are made more plausible (Mazzoni, Loftus, & Kirsch, 2001; Otgaar, Candel, Merckelbach, & Wade, 2009; Pezdek, Blandon-Gitlin, & Gabbay, 2006; Scoboria, Lynn, Hessen, & Fisico, 2007). For example, Mazzoni et al.'s (2001) subjects rated the plausibility of having witnessed a demonic possession as children and their confidence that they had experienced such an event. In a second phase, subjects received mini-articles describing how commonly children witness demonic possessions, the steps that typically occur during demonic possessions and interviews with adults who had witnessed possessions. After reading the mini-articles, subjects not only rated the demonic possession event as more plausible, they also became more confident that they had actually experienced this event in childhood.

Recent research has examined the separate effects of the types of information Mazzoni et al. (2001) included in their mini-articles. For example, Hart and Schooler (2006) investigated whether giving subjects prevalence and procedural information affected the development of their false beliefs. First, subjects received fictitious prevalence information describing the commonness of the target event, experiencing a rectal enema in childhood. Second, subjects received procedural information, given in a third-person account, about

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the steps that typically occur during the administration of a rectal enema. Although subjects were fairly certain that they had not experienced this relatively uncommon event at pre-test, reading the prevalence information made them more confident that they had an enema in childhood. The procedural information did not affect their beliefs. Similarly, Scoboria, Mazzoni, Kirsch and Jimenez (2006) found that subjects who received prevalence information about a childhood bone density screening became more confident that they had experienced this event; those who only received procedural information did not change their confidence ratings. Scoboria et al. also found that prevalence information increased both the general and personal plausibility of the bone density event. General plausibility refers to the plausibility with which an event could happen to some people in general; personal plausibility refers to the plausibility with which an event could happen to a specific individual (Scoboria, Mazzoni, Kirsch, & Relyea, 2004). Procedural information, on the other hand, only increased the general plausibility of the event and only when combined with prevalence information.

These findings fit with Scoboria et al.'s (2004) nested model of false beliefs and false memories. The model suggests that for a person to falsely remember an event, he or she has to believe that it happened. To believe an event has happened, he or she must consider the event to be plausible, both personally and in general. In other words, memory is nested in belief, which is nested in personal plausibility, which is nested in general plausibility (see also Hyman & Kleinknecht, 1999; Mazzoni et al., 2001; Scoboria et al., 2006). The reverse is not necessarily true, however. If a person considers an event to be plausible, he or she does not necessarily have to believe that the event happened, nor does he or she necessarily have to remember it.

How might prevalence information increase people's plausibility and belief ratings? Prevalence information suggests that particular events occur commonly and could therefore have happened to a person, which makes the events more self-relevant. Procedural information, on the other hand, describes the steps of particular events but does not increase their self-relevance. We know from the false memory literature that the more self-relevant details false events contain, the more likely people are to generate false memories (Desjardins & Scoboria, 2007; Hyman, Husband, & Billings, 1995). Consequently, when people are given prevalence information about particular events, it should make those events more self-relevant and subsequently increase their beliefs that they experienced those events. Additionally, because personal and general plausibility are nested within belief, prevalence information should also increase people's personal and general plausibility ratings about those events.

In the current experiment, we further investigated the effects of prevalence information on the formation of false beliefs and memories about childhood experiences. Specifically, we manipulated the self-relevance of the prevalence information through its alleged source. Subjects received prevalence information from one of four sources, which have been investigated separately in past research. First, 'description' subjects received third-person descriptions about the commonness of our target events, similar to the accounts used by Hart and Schooler (2006) and Scoboria et al. (2006). These accounts contained a subtle suggestion that the target events were either common or uncommon, but no percentages or graphs. Because these descriptions did not contain specific prevalence information, they should not increase the self-relevance of the false events. As a result, they should only influence the plausibility of events, not subjects' beliefs about the events. Second, 'newspaper' subjects received prevalence information in the form of newspaper articles containing information about the percentage of people who had experienced the target

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events. These articles were based on an article used by Otgaar et al. (2009). Because newspaper information contains prevalence information about people in the general population, it should increase the self-relevance of the false events. Thus, newspaper information should increase the perceived plausibility of those events as well as making subjects more confident that they actually experienced those events. Third, 'cohort' subjects received prevalence information indicating how many of the students who had previously participated in the experiment had experienced the target events, which was similar to Pezdek et al.'s (2006) manipulation. Because cohort information contains prevalence information about people in a very similar population to subjects themselves, it should further increase the self-relevance of false events. Thus, cohort information should increase the perceived plausibility of those events as well as making subjects more confident that they actually experienced those events. Finally, 'control' subjects received no prevalence information about the target events.

Research has shown that prevalence information can increase beliefs; we also investigated whether it could decrease beliefs. In other words, we asked whether subjects who received prevalence information suggesting that particular events rarely occurred could become less confident that they had experienced those events. It is important to establish whether low prevalence information can decrease beliefs because when people are told that certain events are uncommon, it might make them doubt the accuracy of their memories. As a result, they might become less confident that an event really happened. For instance, in order to cover up awkward situations, children are often told by their parents that particular events never happened. Over time, they may become more confident that these experiences were not real.

We predicted that the effects of high and low prevalence information would depend on their source; that is, we predicted an interaction between prevalence information and source. Specifically, we predicted that high prevalence information from the more self-relevant sources (cohort and newspaper information) would increase the perceived plausibility of the false target events more than no prevalence information or descriptions of the procedure. Furthermore, this increased plausibility should make subjects more confident that they experienced those events in childhood. We predicted that low prevalence information from the more self-relevant sources (cohort and newspaper information) would decrease the perceived plausibility of the false target events more than no prevalence information or descriptions of the procedure. Furthermore, this decreased plausibility should make subjects less confident that they experienced those events in childhood. We made no predictions about the effect of prevalence information and source on subjects' false memories. Past research has shown that prevalence information does not change memory ratings (Hart & Schooler, 2006; Scoboria et al., 2006, 2007); however, we still included these ratings as they are part of Scoboria et al.'s (2004) nested model.

METHOD

Subjects and design

Ninety-three undergraduate psychology students (67 females), aged between 17 and 42 years ($M = 19.83$, $SD = 3.76$) from the University of New South Wales participated in the experiment in return for course credit. A 4 (source: description, newspaper, cohort, control) $\times$ 2 (prevalence information: high, low) mixed design was used. Source was the

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between-subjects variable and prevalence information was the within-subjects variable. Twenty-five subjects received description information, 24 received newspaper information, 21 received cohort information and 23 received no prevalence information.

Materials and procedure

Subjects participated in two sessions held 2 weeks apart.

Session 1

Subjects were told that the experimenter was trying to establish the frequency of certain childhood events. Autobiographical Beliefs and Memory Questionnaire (ABMQ; Scoboria et al., 2004) and rated the general and personal plausibility of each of 10 events from 1 (*not at all plausible*) to 8 (*extremely plausible*), how confident they were that they had experienced each event from 1 (*definitely did not happen*) to 8 (*definitely did happen*) and how much they remembered about each event from 1 (*no memory of event at all*) to 8 (*clear and complete memory of the event*). The ABMQ included events such as getting lost in a shopping mall (very plausible) and being abducted by a UFO (very implausible). Subjects were asked to return for a second session in which they would receive some information about childhood events and complete some more ratings.

Session 2

Two weeks later, subjects were divided randomly into Group A or Group B; they received prevalence information about four events, two of which were our target events (Group A: getting a skin sample taken, getting a baby tooth extracted; Group B: getting a bone density screening, seeing your parents naked together).[1] These events represented low to moderate plausibility events and were taken from Scoboria et al. (2004, 2006). The other two events were filler events; they were also selected from Scoboria et al. (2004). Subjects received high and low prevalence information about the target events. The high prevalence information suggested to subjects that approximately 90% of people had experienced the target events; the low prevalence information suggested that approximately 10% of people had experienced the target events.

Subjects received one of four sources of prevalence information: third-person descriptions, newspaper articles, cohort data, or no information. Description subjects received two articles based on passages used by Hart and Schooler (2006) and Scoboria et al. (2006); however, our passages contained no specific prevalence information. Each article described one target event from a third-person perspective and suggested that it was common or uncommon. All passages were between 141 and 153 words long (see Appendix). Cohort subjects received written information about students who had participated in last year's experiment. Based on Pezdek et al.'s (2006) information, subjects were told that 90 and 10% of last year's students had experienced the target events; this information was also presented in two graphs (one for each event). All cohort information was 37 words long. Newspaper subjects received two fake newspaper articles about the prevalence of the target events in the population; these articles contained the same statistics as the cohort information. They were based on a newspaper article used by Otgaar et al. (2009). All newspaper articles were between 146 and 151 words long. Control subjects received no prevalence information; indeed, they were not given anything to read about the

[1]There were no significant effects for group on any of the results that we report below (all Fs < 1.72, all ps $> .19$).

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target events because research has shown that exposure to false events often increases people's confidence that they experienced those events (Bernstein, Whittlesea, & Loftus, 2002; Sharman, Garry, & Beuke, 2004). After reading the prevalence information, subjects were asked to complete the ABMQ a second time.

RESULTS

Subjects either expressed surprise when they were told the true purpose of the experiment or said that they had not guessed the true purpose when asked. This suggests that they accepted our cover story about establishing the frequency of childhood events.

Pre-test ratings

Table 1 shows subjects' mean pre-test general plausibility, personal plausibility, belief and memory ratings. There were no statistically significant baseline differences as a function of prevalence information or source for any of the variables, all $ps > .37$. There was, however, one significant interaction between prevalence information and source for personal plausibility ratings, $F(3, 89) = 3.03$, $p < .05$, $\eta_p^2 = .09$. To further investigate the interaction, follow-up univariate ANOVAs were conducted for high and low prevalence information separately. For high prevalence information, there was a significant main effect for source, $F(3, 89) = 3.23$, $p < .05$, $\eta_p^2 = .10$. Bonferroni-corrected pairwise comparisons revealed that description subjects had higher pre-test personal plausibility ratings than control subjects, $p = .03$. For low prevalence information, there was no significant main

Table 1. Mean pre-test and post-test ratings for low and high prevalence information

	Pre-test		Post-test		Change	
	Low	High	Low	High	Low	High
General plausibility						
Control	4.89 (1.75)	5.00 (1.85)	5.04 (1.81)	4.70 (1.84)	0.15 (1.24)	−0.30 (1.20)
Description	5.04 (2.01)	5.56 (1.78)	5.36 (2.17)	5.80 (1.65)	0.32 (1.80)	0.24 (1.60)
Newspaper	5.92 (1.63)	5.04 (1.93)	6.13 (1.57)	6.08 (1.34)	0.21 (1.21)	1.04 (1.52)
Cohort	4.79 (1.34)	4.98 (1.58)	5.05 (1.76)	5.90 (1.37)	0.26 (1.88)	0.93 (1.39)
Personal plausibility						
Control	3.57 (2.15)	2.93 (1.67)	3.02 (1.64)	2.70 (1.84)	−0.54 (1.67)	−0.24 (0.73)
Description	3.52 (2.52)	4.60 (2.32)	4.14 (2.61)	4.74 (2.31)	0.62 (1.38)	0.14 (1.27)
Newspaper	4.27 (1.89)	3.23 (2.04)	4.50 (1.98)	4.15 (2.18)	0.23 (1.16)	0.92 (1.44)
Cohort	3.52 (2.07)	3.88 (1.98)	2.90 (1.26)	4.69 (1.79)	−0.62 (1.90)	0.81 (1.18)
Belief						
Control	2.52 (1.86)	2.26 (1.58)	2.41 (1.54)	2.11 (1.45)	−0.11 (1.08)	−0.15 (0.55)
Description	2.48 (1.85)	3.16 (1.98)	2.60 (1.87)	3.10 (1.87)	0.12 (0.70)	−0.06 (0.71)
Newspaper	3.04 (1.55)	2.23 (1.64)	3.38 (1.78)	2.98 (1.83)	0.33 (0.97)	0.75 (1.16)
Cohort	2.83 (2.01)	3.12 (1.87)	2.31 (1.26)	3.62 (1.80)	−0.52 (1.34)	0.50 (0.82)
Memory						
Control	1.83 (1.44)	1.54 (0.99)	1.87 (1.46)	1.74 (1.14)	0.04 (1.30)	0.20 (0.54)
Description	1.72 (1.23)	2.10 (1.65)	1.64 (1.19)	1.92 (1.45)	−0.08 (0.34)	−0.18 (0.48)
Newspaper	2.15 (1.39)	1.73 (1.64)	1.88 (1.22)	1.77 (1.64)	−0.27 (0.68)	0.04 (0.36)
Cohort	1.52 (1.07)	2.07 (1.64)	1.67 (1.22)	2.40 (1.93)	0.14 (0.42)	0.33 (0.68)

Note: Standard deviations are in parentheses.

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effect for source, $F(3, 89) = 0.68$, $p = .57$. No other interactions between prevalence information and source were significant, $ps > .09$. This pre-test difference is unlikely to have affected our results because it is not a consistent difference also found across general plausibility, belief and memory ratings.

Changes in plausibility

General plausibility

To examine the effects of high and low prevalence information on perceived plausibility, we calculated the change in subjects' general plausibility ratings from pre-test to post-test for each of the four sources (see Table 1). A 4 (source) $\times$ 2 (prevalence information) repeated measures ANOVA conducted on the change in subjects' general plausibility ratings revealed a significant interaction, $F(3, 89) = 3.10$, $p < .05$, $\eta_p^2 = .10$. There was no main effect for source, $F(3, 89) = 1.58$, $p = .19$, or prevalence information, $F(1, 89) = 1.92$, $p = .17$.

To further investigate the interaction, follow-up univariate ANOVAs were conducted for high and low prevalence information separately. When subjects were given high prevalence information there was a significant main effect for source, $F(3, 89) = 4.38$, $p < .01$, $\eta_p^2 = .13$. Bonferroni-corrected pairwise comparisons revealed that newspaper subjects and cohort subjects increased their general plausibility ratings more than control subjects ($p = .01$ and $p = .04$, respectively). When subjects were given low prevalence information there was no significant main effect for source, $F(3, 89) = 0.51$, $p = .96$. Overall, subjects given high prevalence information in false newspaper articles or false cohort information found the events more generally plausible than subjects given no prevalence information. Subjects given low prevalence information did not find the events less generally plausible.

Personal plausibility

Similar to subjects' general plausibility ratings, subjects' personal plausibility ratings showed an interaction between source and prevalence information, $F(3, 89) = 5.31$, $p < .01$, $\eta_p^2 = .15$. When subjects were given high prevalence information there was a significant main effect for source $F(3, 89) = 4.96$, $p < .01$, $\eta_p^2 = .14$. Bonferroni-corrected pairwise comparisons revealed that newspaper and cohort subjects increased their personal plausibility ratings more than control subjects ($p = .01$ and $p = .03$ respectively). When subjects were provided with the low prevalence information there was also a significant main effect for source, $F(3, 89) = 3.60$, $p < .05$, $\eta_p^2 = .11$. Bonferroni-corrected pairwise comparisons revealed that cohort subjects decreased their personal plausibility ratings more than description subjects, whose ratings actually increased ($p < .05$). Note that there was no difference between cohort subjects and control subjects; both groups decreased their personal plausibility ratings.

There was an overall main effect for source: newspaper subjects' plausibility ratings increased more than control subjects' plausibility ratings, $F(3, 89) = 3.43$ $p < .05$, $\eta_p^2 = .10$. There was an overall main effect for prevalence information: subjects who received high prevalence information increased their plausibility ratings more than those who received low prevalence information, $F(1, 89) = 7.96$, $p < .01$, $\eta_p^2 = .08$.

Taken together, these plausibility ratings suggest that high prevalence information given in a newspaper article or as cohort data made subjects think that the target events were more generally and personally plausible, compared to control subjects. Low prevalence

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information given as cohort data made subjects think that the target events were less personally plausible, compared to description subjects.

Changes in belief

Did high and low prevalence information from different sources affect the development of subjects' false beliefs? A 4 (source) × 2 (prevalence information) repeated measures ANOVA revealed a significant interaction, $F(3, 89) = 4.75$, $p < .01$, $\eta_p^2 = .14$. A follow-up univariate ANOVA conducted using high prevalence information showed a main effect for source, $F(3, 89) = 6.29$, $p < .01$, $\eta_p^2 = .18$. Bonferroni-corrected pairwise comparisons revealed that newspaper subjects were more confident that they had experienced the target events than control subjects and description subjects (both ps $< .01$). A follow-up univariate ANOVA conducted using low prevalence information showed a main effect for source, $F(3, 89) = 2.82$, $p < .05$, $\eta_p^2 = .09$. Bonferroni-corrected pairwise comparisons showed a significant difference between newspaper and cohort subjects ($p = .04$): cohort subjects' belief ratings decreased whereas newspaper subjects' belief ratings increased. Note that there was no difference between cohort subjects and control subjects; both groups decreased their belief ratings.

There was an overall main effect for source: newspaper subjects' confidence ratings increased more than control subjects' confidence ratings, $F(3, 89) = 3.86$, $p < .05$, $\eta_p^2 = .12$. There was an overall main effect for prevalence information: subjects who received high prevalence information increased their confidence ratings more than those who received low prevalence information, $F(1, 89) = 6.18$, $p < .05$, $\eta_p^2 = .07$.

Taken together, these confidence ratings suggest that high prevalence information given in a newspaper article made subjects more confident that they had actually experienced the target events, compared to control and description subjects. Low prevalence information given as cohort data made subjects less confident that they had experienced the target events, compared to newspaper subjects.

Change in memory

To examine any effects of prevalence information on subjects' memories, a 4 (source) × 2 (prevalence information) repeated measures ANOVA was conducted using changes in memory ratings. There was a significant main effect for source, $F(3, 89) = 2.79$, $p < .05$, $\eta_p^2 = .09$. Bonferroni-corrected pairwise comparisons revealed only a marginally significant difference between cohort and description subjects ($p = .11$). Regardless of whether they received high or low prevalence information, cohort subjects' memories became more clear and complete whereas description subjects' memories became less clear and complete. Note that there was no difference between cohort or description subjects and control subjects. The main effect for prevalence information was not significant, $F(1, 89) = 2.34$, $p = .13$, nor was the interaction, $F(3, 89) = 0.97$, $p = .41$.

DISCUSSION

High prevalence information from different sources affected the development of false beliefs. Specifically, subjects given high prevalence information in false newspaper articles became more confident that they had actually experienced the target events than subjects

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given third-person descriptions or no information. High prevalence information from different sources did not affect false memories: our finding suggesting a difference between cohort and description subjects' memories was only marginally significant and there was no difference with control subjects' memories. This lack of difference is consistent with previous research showing that prevalence information does not affect memory (Hart & Schooler, 2006; Scoboria et al., 2006, 2007).

Our first prediction, that high prevalence information from the more self-relevant sources would increase both perceived plausibility and subjects' confidence was mainly supported. We found that newspaper information increased subjects' general and personal plausibility ratings as well as their belief ratings. Cohort information also increased subjects' general and personal plausibility ratings, but not their belief ratings. These results are consistent with other experiments showing that high prevalence information increases people's beliefs that they experienced childhood events (Hart & Schooler, 2006; Pezdek et al., 2006; Scoboria et al., 2006). Our results suggest that the source of the prevalence information is important. Although we expected that cohort information would have a greater influence on false beliefs than newspaper information because it was more self-relevant, our results suggest that some other difference must underlie our finding for high prevalence information.

It is possible that subjects perceived the newspaper information to be a more objective report containing facts about the population in general, whereas they perceived the cohort information to be a more subjective report about their peers. Thus, they became more confident that they had experienced the target events suggested by the more authoritative source. This explanation is consistent with research showing that people are more likely to accept misleading information when it is delivered by a trustworthy source (Dodd & Bradshaw, 1980; Echterhoff, Hirst, & Hussy, 2005; Lampinen & Smith, 1995). For example, Dodd and Bradshaw found that subjects were more likely to report information about a car accident that they had not witnessed when they had received this information from an innocent bystander than from the driver who caused the accident. Therefore, it is possible that our subjects who received high prevalence information from a false newspaper article trusted this source of information and became more confident that they had experienced the false events.

It is also possible that differences in the level of detail and the visual presentation of the information affected our results, regardless of whether this information affected the self-relevance of the false events. Although we selected the level of detail and the visual presentation of our information to be similar to past research and—more importantly—to be authentic replications of real-world sources, the differences between sources may have confounded our results. For example, our description information was very subtle and contained no percentages or graphs; if it had, it is possible that description subjects would have shown similar increases in plausibility and belief ratings to newspaper subjects. It is also possible that the percentages and graphs contained in the newspaper and cohort information increased subjects' plausibility and belief ratings without increasing the self-relevance of the described events. Recent research has shown that adding irrelevant details, such as neuroscience information and brain scans, increased subjects' ratings of the scientific reasoning and their satisfaction with the explanations provided (McCabe & Castel, 2008; Weisberg, Keil, Goodstein, Rawson, & Gray, 2008). Similarly, our subjects who received percentages or graphs may have found this information more credible, regardless of self-relevance. Consequently, because of its credibility, newspaper and cohort subjects may have found the events more plausible and more believable.

One further point to note is that newspaper subjects received both specific percentages and some procedural information in the articles they were given, whereas cohort subjects only received specific percentages and a graph. Although procedural information alone has not been found to increase plausibility or belief ratings (Hart & Schooler, 2006; Scoboria et al., 2006),[2] it is possible that this procedural information further added to the credibility of the newspaper articles. Furthermore, people given false information in a narrative generate more false memories than those given this information in a false photo (Garry & Wade, 2005). These two potential influences could also account for our finding that newspaper subjects' beliefs increased and cohort subjects' beliefs did not. Future research might remove these potential confounds to determine whether it was the level of detail and the visual presentation of information that affected subjects' false beliefs or the enhanced self-relevance of the information from the different sources.

Our finding that high prevalence newspaper information increased subjects' confidence is consistent with other research showing that fake media reports can create false memories (Ost, Granhag, Udell, & Roos af Hjelmsäter, 2008; Ost, Vrij, Costall, & Bull, 2002; Otgaar et al., 2009; Porter, Taylor, & ten Brinke, 2008). For example, in one experiment, subjects were asked about their memories of media reports of negative public events (such as the London bombings in 2005); half of the events were false. Ninety-five percent of subjects recalled at least one false event, which suggests that when people are told that information has been provided in the media, they can easily generate false beliefs and false memories about that information (Porter et al., 2008). It is important to note that in our experiment, subjects received two pieces of information in the same format (e.g. two newspaper articles) that differed in the prevalence information that they contained. Receiving two pieces of information from the same source might have influenced our results in at least two ways. First, subjects were able to compare the two pieces of information, which could have lead them to discount one piece or the other. However, we consider this possibility to be unlikely because the two pieces of information were about different events. Second, subjects may have confused the prevalence information from one piece of information with the prevalence information in the other. Thus, subjects who received low prevalence information about one event might have increased their plausibility and belief ratings because they misattributed the high prevalence information about the other event to this event. Indeed, research has shown that people can easily confuse two sources of information presented in succession, such as information provided in a misleading postevent account with information from the original event (see Loftus, 2005, for a review). Future research might test this possible limitation to the current experiment by manipulating high and low prevalence information between groups.

Our second prediction, that low prevalence information from the more self-relevant sources would decrease perceived plausibility and decrease subjects' confidence that they had experienced the target events, was not supported. Although we found that cohort information decreased subjects' personal plausibility ratings and made them less confident that they had experienced the false events, this effect was only significant when compared to the description and newspaper groups respectively, not the control group. Indeed, none of the three groups' plausibility or belief ratings differed from the control group, which suggests that low prevalence information did not decrease the plausibility of the false events nor did it decrease subjects' confidence that they had experienced the false events. It

[2]Note that Scoboria et al. (2006) found that procedural information interacted with prevalence information to influence subjects' general plausibility ratings.

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is possible that we did not find the expected decreases in plausibility and belief because decreasing subjects' ratings is more difficult than increasing them. As a result, our manipulation may not have been strong enough to decrease subjects' ratings. In fact, to our knowledge, only one study has found decreases in people's belief ratings (Polage, 2004). Subjects were asked to lie to the experimenter about an event that they were fairly confident had not happened to them in childhood. Results showed that 57% of subjects became less confident that the lied-about event had happened compared to 28% of subjects for control events. Perhaps in our experiment we needed to enhance the manipulation—possibly by giving subjects consistent low prevalence from two different sources (e.g. newspaper plus cohort information). This enhanced manipulation might have made the low prevalence information more salient and/or more self-relevant and lowered subjects' plausibility and belief ratings. It is also possible that we did not find the expected decreases in plausibility and belief because subjects' ratings were already low at pre-test. Possible floor effects might have prevented their ratings from decreasing further.

Our results have theoretical and practical implications. Overall, our high prevalence information findings provide limited support of Scoboria et al.'s (2004) nested model of autobiographical beliefs and memories. For subjects given high prevalence information in newspaper articles, increases in belief were reflected in increases in personal plausibility, which in turn were reflected in increases in general plausibility. For subjects given high prevalence information in cohort data, increases in personal plausibility were reflected in increases in general plausibility. However, cohort subjects' beliefs did not change, which may suggest a boundary condition of the model: the source of the self-relevant information affects the development of false beliefs. Future research needs to further investigate this potential boundary condition and rule out competing explanations. Practically, our results suggest that reading a newspaper article containing high prevalence information can make people more confident that they experienced false events. Considering that between 40% (USA; The Pew Research Center for the People and the Press, 2006) and 70% (The Netherlands; Zeven op de tien, 2007) of the population read the newspaper daily, either in print or online, articles containing high prevalence information about unexperienced childhood events have the undesirable ability to change many people's autobiographical beliefs.

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APPENDIX

High prevalence description information

When I was 4 years old, I had to go to the school nurse for a *standard check-up*. Besides testing my sight and hearing she also took a skin sample from my fingertip. Skin samples are *an easy and quick way* to check physical health levels of young children, because it is a non-invasive procedure. Because I was very young, I was a little bit scared, but the nurse explained exactly to me what she was going to do. She showed me this little device that was specially developed for scrapping some skin. When she obtained the skin, it did not hurt at all, it just tickled slightly. The nurse complimented me for being so brave and I got a lollipop as a reward. After 2 weeks my parents got the official results from the check-up. I was in excellent health!

Low prevalence newspaper information

Having a tooth extracted by a dentist is never a very nice experience; having it done at a really young age can even be traumatising. According to the Australian Dental Association, *approximately 9% of all children born in Australia* between 1980 and 1995 have had this procedure performed on them. *Even though it is a low figure*, it led dentists to search for a child-friendly tooth extraction procedure. As a result, some dental practices in and around NSW are specialised in treating very young children. The dental rooms are painted in cheerful colours and the staff are trained to work with young children. Every procedure gets fully explained to the child and the child is entirely involved in everything that is happening to him or her. With these special treatments, the ADA hopes to prevent children being afraid of dentists and to encourage a healthy set of teeth for life.

High prevalence cohort information

Last year, almost 1000 first year psychology students at UNSW took part in a similar study. Of these students, 90% said that they had gotten lost in a shopping mall before the age of ten.