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Disentangling imagination inflation: The role of plausibility and event exposure upon increases in autobiographical belief and memory ratings for unlikely childhood events.

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DISENTANGLING IMAGINATION INFLATION: THE ROLE OF PLAUSIBILITY AND EVENT EXPOSURE UPON INCREASES IN AUTOBIOGRAPHICAL BELIEF AND MEMORY RATINGS FOR UNLIKELY CHILDHOOD EVENTS

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ABSTRACT

Studies using the Imagination Inflation procedure typically find that likelihood ratings for imagined events increase relative to ratings for unimagined events. However, the standard methodology does not distinguish what procedural elements cause these changes, nor what aspects of "remembering" are affected. The present study was designed to disentangle the effects of prevalence information and different levels of event exposure on a variety of ratings regarding past events (plausibility, autobiographical belief, memory). One hundred and thirty three undergraduate participants were assigned to one of three levels of exposure (control, description, visualization) to an unlikely childhood event, half of which also received false prevalence information about the event. Results failed to replicate previous studies. Neither likelihood judgments, belief, nor memory were impacted by the manipulations. Plausibility ratings were impacted by prevalence information, and exposure additionally influenced personal plausibility ratings. Imagination inflation procedures appear to be more intricate than previously acknowledged.

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INTRODUCTION

Overview

Context of the Problem

A great deal of research has been conducted to investigate the degree to which false memories can be suggested to adults. Prior research has demonstrated that memory is malleable and can be impacted by various forms of information, including post-event information, suggestions, and exposure to details (Loftus, 2002). This has far-reaching implications, as interactions in both legal and therapeutic contexts often involve procedures that may influence the information that individuals recall. Imagination is one factor that has been shown to influence memory creation for events that never occurred (e.g., Hyman, Husband & Billings, 1995; Hyman & Pentland, 1996; Loftus & Pickrell, 1995; Garry, Manning, Loftus, & Sherman, 1996; Mazzoni & Memon, 2002). A number of paradigms have been developed to explore the impact of imagination upon memory for childhood events. These studies have demonstrated that imagination facilitates the creation of entirely false childhood memories (e.g., Hyman & Pentland, 1996; Mazzoni & Memon, 2002, etc.), as well as misconstruals regarding recently performed actions (Goff & Roediger, 1998; Thomas & Loftus, 2002).

One prominent approach to studying the influence of imagination upon memory is the "Imagination Inflation" paradigm (Garry et al., 1996). Building upon research in counterfactual thinking (e.g., Kohler, 1991), such studies explore whether having participants imagine hypothetical events influences their ratings regarding the likelihood that the events occurred during childhood. Procedurally, participants in these studies are asked to rate the likelihood that events occurred to them in childhood. They are then asked to imagine a subset of these events and, subsequently, to complete the likelihood ratings a second time. Typically, likelihood ratings for imagined events in adults increase relative to ratings of events that have not been imagined (Garry et al., 1996; Goff & Roediger, 1998; Wade et al, 2002; Mazzoni & Memon, 2003; Paddock et al., 1998). This change in scores for imagined events as contrasted with non-imagined events is referred to as imagination inflation.

Methodological Deficits in Independent Variables

Ambiguity remains, however, as to what mechanisms specifically cause the observed changes in event ratings within this design. A range of variables are present within the imagination procedure that have yet to be systematically disentangled. Several of these variables will be addressed in the present work, including: 1) describing an event in the absence of encouraged visualization, 2) forming mental images of an event, and 3) altering the degree to which an event seems credible. Each of these factors may independently or additively impact the post manipulation likelihood ratings, as each has been shown to affect perceptions of the past in other areas of study (e.g., Bernstein et al., 2002; Sharman, Garry & Beuke, 2004; Sharman, Manning & Garry, 2005; Scoboria, Mazzoni, Kirsch & Jimenez, 2006). Yet, within the imagination inflation paradigm, researchers have predominantly argued that the change in ratings is achieved through "imagination" as a whole without looking at the specific procedural elements that might be contributing to the outcome (however, see Sharman, Garry, & Beuke, 2004 for an alternate explanation). Accordingly, one purpose of the current study is to disentangle several key aspects of the imagination inflation procedure (i.e., event exposure and plausibility) to discern what aspects of the methodology typically used in such studies are impacting changes in ratings.

Methodological Deficits in Dependent Variable

Furthermore, there is also debate as to what is actually being measured in these studies. Within the imagination inflation paradigm, event ratings are typically assessed using the Life Events Inventory (LEI; Mazzoni & Loftus, 1996). The LEI measures how confident participants are that they experienced a series of childhood events. Some researchers have assumed that the LEI measures the likelihood of occurrence of childhood events, whereas other researchers contend that the LEI measures memory for events (see Garry et al., 2001 for an alternate explanation). Nevertheless, it currently remains "unknown to what degree findings using the LEI reflect ratings based upon belief or memory" (Scoboria, 2006, p.343). The distinction between these constructs needs to be acknowledged, as many people hold autobiographical beliefs for events that they cannot remember. Some of these beliefs may be derived from memories, while other beliefs may come from other sources; for example, people believe that they were born without having a recollection of the event. Scoboria et al. (2006) demonstrated that only a small subset of the participants who erroneously maintained that they had a belief about a childhood event also reported false memories of the event. Consequently, there are limitations to the applicability of much of the current research, given that this uncertainty regarding whether individuals are reporting beliefs or memories limits the ability to understand the results (Smeets, 2005). To address these measurement concerns, Scoboria et al. (2004) have built upon related models (e.g., Mazzoni, Loftus, & Kirsch, 2001) and have conceptually distinguished *autobiographical memory*, having a recollection of an event; *autobiographical belief*, believing that an event occurred, whether or not it is remembered; and *plausibility*, judging that an event could have occurred. In addition, a further distinction has been made between *general* and *personal plausibility*. General plausibility refers to the judgment of whether an event could have occurred, regardless of to whom, whereas personal plausibility is a judgment that is made regarding whether the event could have occurred specifically to the individual.

A new measure, the Autobiographical Belief and Memory Questionnaire (ABMQ; Scoboria et al., 2004), was developed to capture these different aspects of the remembering process. The ABMQ asks respondents to rate general and personal plausibility, belief, and memory separately. Scoboria et al. (2004) maintain that these are nested constructs, such that memory implies belief and belief implies plausibility, although the reverse is not true under most circumstances. Although these constructs are all related in that they have to do with the perceived occurrence for an event, they have been shown to be empirically and conceptually distinct concepts (Scoboria et al., 2004). Accordingly, the current study will also measure individuals' ratings of events using the ABMQ and LEI; this will allow us to determine which of these distinct aspects of "remembering" are being impacted by the different processes involved in the imagination inflation paradigm.

Imagination Inflation Findings

Studies have continually demonstrated an increase in post-test ratings using the imagination inflation paradigm (Garry, Manning, Loftus, & Sherman, 1996; Paddock et al., 1998; Paddock et al., 1999; Mazzoni & Memon, 2003). Although the procedures used in this body of research have varied in terms of how individuals are asked to imagine events (i.e., through a booklet or guided imagery) and in terms of the cover story that they are presented with, the change in scores has been consistently replicated. These studies have predominantly argued that "when people vividly imagine or visualize personal childhood events, their subjective confidence increases in the probability that these visualized incidents actually occurred" (Paddock et al., 1998, p.63).

In the initial imagination inflation design (Garry, Manning, Loftus, & Sherman, 1996), participants were told that the experimenters were interested in how vividly people could imagine events. The LEI was administered to collect baseline data on how frequently the events actually occurred. Two weeks later, individuals were given a package with written descriptions of four critical items taken from the LEI. Participants were asked to read each description, visualize the event for a few moments, and then answer questions about the image they had created. Participants were then given additional information to imagine, after which they would again answer a few questions. Individuals were asked to picture the event as clearly as possible and were told to close their eyes if this helped them to do so. This basic procedure was repeated for all four target items and lasted about 2 minutes per item. Participants were then told that their original LEI scores had been lost and were asked to complete the forms again. For target items, imagination resulted in increased confidence that the event had occurred in childhood.

Mazzoni and Memon (2003) wanted to further ensure that the events that participants were imagining had not previously occurred in order to be certain that individuals were creating false memories and not engaging in a process of remembering events that had actually been experienced. To do this, participants were provided with an event that the researchers knew had not been experienced by individuals in the participant population: having a school nurse remove a skin sample. This event was provided along with an event that could have happened (having a milk tooth extracted). To ensure that the inflation was not being caused by mere exposure, each participant was asked to imagine a given event and to read a short passage and answer questions about the other event. It was presumed that if the change scores in the imagination condition were significantly greater than change scores for the mere exposure group, then the imagination process would be responsible for any increase in beliefs and memories above that of exposure. Results indicated that imagination alone led to "increases in the participants' convictions that an event had occurred in their childhood" for events that both could and could not have occurred (p.188). Further, imagination provided greater confidence in the events than mere exposure.

In explaining the effect of imagination upon likelihood/confidence ratings, some have argued that visualization likely results in a mental representation similar to that which would occur from experiencing the event, as a visualization often drives individuals to "produce a more concrete, specific, and perceptually and semantically detailed version of the incident" (Paddock, Terranova, Kwok, & Halpern, 2000, p.1). Accordingly, there is a great deal of similarity between the representation of a true past event, and that of an imagined event. The visualization process may thus be associated with false memory creation, as the source of the imagery may later become confused, and individuals may misattribute the imagined event to having been a real event. This error in attribution, referred to as a source monitoring error, may well lead individuals to "believe that an externally suggested event is an internally generated recollection" (Garry et al., 1996, p.102).

The source-monitoring framework asserts that "people do not typically directly retrieve an abstract tag or label that specifies a memory's source" (Johnson, Hashtroudi, & Lindsay, 1993, p.3). Rather, individuals attribute their memories to particular sources through a decision making process at the time of remembering. Individuals, however, often have trouble discriminating between the possible origins of a remembered event. "Many source-monitoring decisions are made rapidly and relatively nondeliberatively on the basis of qualitative characteristics of activated memories (e.g., amount of perceptual detail)" (p. 4). Memories for perceived events often include more perceptual and contextual details than memories for imagined events. Thus, memories and non-memories are often distinguished from one another via the relative amount of perceptual details included in the recollection. Confusion is thus increased by enhancing perceptual details for imagined events, leading to a greater similarity between perceived and imagined events (p.6). According to this argument, after visualizing an event during the imagination process, individuals may later have trouble discriminating the origin of their images and may, subsequently, misattribute the images to being a recollection of a past event.

Despite these findings, many people "daydream and imagine a variety of scenarios and outcomes yet don't routinely get confused between what really happened and what did not" (Garry, Manning, Loftus, & Sherman, 1996). Therefore, there may be other factors embedded within the imagination inflation procedure that promote the acceptance of fictitious childhood events. One likely candidate is the sense of familiarity for events.

Exposure to Event

Bernstein, Whittlesea, and Loftus (2002) argue that enhancement of perceptual detail is not essential to increase an individual's perception that an event occurred. They assert that it is an increase in familiarity for events, whether through imagination or some other cognitive task, which has the potential to cause inflation. In their study, Bernstein et al. provided participants with a list of event descriptions, some of which had an anagram embedded within the event (e.g., broke a *dwniwo* playing ball), which had to be unscrambled in order to understand the description and rate the event. For each event, the participants had to report whether the event had been personally experienced before the age of 10. The results indicated that participants were more confident that they had experienced the scrambled events when compared to the unscrambled events. This suggests that unscrambling the anagram created a greater sense of familiarity with the event, which was then misattributed to having likely experienced the event before (Bernstein et al., 2002).

Similarly, Sharman, Garry, and Beuke (2004) used the standard imagination inflation procedure; however, they had individuals either imagine or paraphrase the fictitious childhood event prior to rating their confidence a second time. In the paraphrase condition, participants were presented with a target event along with instructions to paraphrase (reword) it in as many ways as possible. They hypothesized that the more imagination "works to enhance qualitative, visual event characteristics, the more likely it is that only imagination will produce the inflation" if visualization is responsible for the effect (p.3). However, it could not be determined whether individuals engaged in imagination during the paraphrase task. Results, nevertheless, indicated that participants became more confident that the event happened in childhood, regardless of whether it was imagined or paraphrased. As with Bernstein et al.'s (2002) results, this study demonstrated that engaging with a given event "can be enough to inflate confidence that the experiences were real" (Sharman, Garry, & Beuke, 2004, p.7).

Sharman, Manning, and Garry (2005) further examined whether explaining a hypothetical childhood event, in the absence of visualization, could also affect an individual's confidence as to whether the event occurred. This would increase the familiarity of the event in the absence of perceptual detail. Using the imagination inflation procedure, Sharman et al. asked individuals to write an explanation about how an event could have happened to them, rather than asking them to imagine the event. Mean change scores showed that participants were more confident that the explained target event(s) really occurred in their childhood compared to those that were not explained. However, we note two concerns. As with the paraphrase condition in Sharman, Garry, and Beuke (2004), it is unknown to what degree individuals in this study engaged in visualization during the explanation task; thus, visualization may have played a role. Of further note, however, is that asking an individual how an event could have happened does not necessarily engage the individual in processing the details of the event itself. It may instead manipulate the plausibility of the event, that is, the sense that the event could have happened in the past, without impacting ratings that the event did in fact occur (Scoboria et al., 2006). This point will be returned to below.

The increases in individuals' confidence ratings as a result of interacting with anagrams, paraphrasing, or explaining events can potentially be accounted for by a fluency explanation. This model maintains that exposure to an event increases its familiarity and results in a greater confidence that the events did happen. Since engaging with events makes them more cognitively available, individuals may misinterpret their awareness of the events to be due to having actually experienced them. Engaging with an event in the absence of visualization, according to this argument, is enough to inflate confidence that the event had occurred (Sharman, Garry, & Beuke, 2004).

Visualization and engaging with an event in the absence of visualization likely involve different cognitive processes that could influence the degree to which individuals come to recall events. Since few studies systematically distinguish between these two processes, it is difficult to establish which types of information individuals are using to determine whether events could have occurred to them in the past and, subsequently, which processes are influencing their decisions. Accordingly, this study attempts to determine the effects of different levels of exposure to events (receiving script details without additional engagement, describing an event in the absence of encouraged visualization, and visualization through a guided imagery process) on event ratings using the imagination inflation paradigm. In addition, since these processes may affect belief and memory differently, the ABMQ will be used to distinguish how the manipulations impact each construct respectively.

Plausibility

As alluded to above, the plausibility of events is another factor likely to affect ratings in imagination inflation studies, as plausibility has been demonstrated to hold an important role in the acceptance of false autobiographical events. Pezdek et al. (1997) conducted the first study in which the plausibility of events was manipulated in the false memory literature. They asserted that it should be easier "to form a memory trace for an event that is plausible and about which one has a well-developed generic script than to form a memory for an event that is implausible and about which one does not have a generic script" (p.437). In two studies, they presented either a plausible or an implausible event to study participants, and demonstrated that false memories were endorsed for plausible, but not implausible, events. Accordingly, Pezdek et al (1997) maintained that "memories" for false events are acquired as a result of related information with which the individual is familiar. Therefore, it should be difficult to create a false memory for an event for which a script does not exist. Even once script information is provided for unfamiliar events, knowledge is still restricted to that which has been provided, and it would still be more difficult to increase plausibility and subsequent "remembering" for these events than for a familiar and plausible event.

Though having established the importance of event plausibility in the false memory arena, this work has been criticized for implying that the plausibility of events is fixed. To challenge this assumption, Mazzoni et al. (2001) proposed a three-stage model by which they maintained false memories emerge: 1) that individuals must first come to believe that an event is plausible; then, 2) that it was in fact personally experienced; and, finally, 3) they must experience the event as if it were a real memory. Coming to see an event as being plausible, according to this model, may be the determining factor as to whether an individual will entertain the notion of an event's occurrence. In a series of studies, Mazzoni et al. (2001) administered two manipulations, one hypothesized to enhance the plausibility of the event, and the other hypothesized to affect likelihood ratings that the event actually occurred. Participants in this study were individuals who initially claimed that they had not witnessed an unlikely event as a child (a demonic possession). Individuals receiving the plausibility manipulation were provided with a written article about demonic possession, which described possessions and suggested that the frequency of possession was higher than previously believed, specifically in the socioeconomic and cultural population to which the participants belonged. Individuals for whom likelihood ratings were also targeted received the plausibility enhancing information in addition to a fabricated suggestion. This suggestion was allegedly based on an interpretation of the participant's responses to a "fear survey". Here, participants were informed that their responses indicated that they likely witnessed another individual being possessed while a child. In a final session, individuals rated the plausibility of witnessing a possession, and they were asked to indicate whether this had happened to them. Participants would rate how certain they were that the events had happened to them before the age of 3 on an 8 point likert scale, ranging from 1 (certain that the event had not happened to them) to 8 (certain the event had happened to them).

Mazzoni et al. (2001) found that individuals who received the plausibility manipulation reported the event to be more plausible, and, when combined with the suggestion that they had in fact witnessed the event in question, indicated greater confidence that they had likely witnessed a possession themselves. Although it was determined that changes in likelihood ratings were greater for an initially plausible event (having choked on an object), likelihood ratings also increased for the implausible event, as likelihood ratings post-manipulation were comparable. Notably, the magnitude of change in likelihood ratings was consistent with the magnitude of change noted in the imagination inflation studies previously discussed (e.g., Garry et al., 1996; Mazzoni & Loftus, 1998; Pezdek et al, 1997). Thus it may be that "perceived plausibility merely needs to be boosted beyond a relatively low threshold in order for a personalized manipulation (e.g., the fear profile feedback) to produce changes in likelihood ratings" (Mazzoni et al, 2001, p.54). However, the information used to boost plausibility must be personally relevant to the participant, as it was further demonstrated that this effect was largely eliminated when the information was about individuals perceived to be from a different cultural group (Mazzoni et al, 2001, Study 3).

Further work has since refined the impact of different types of plausibility-enhancing information. Hart and Schooler (2006) attempted to distinguish between knowledge of script information and plausibility in a series of studies by looking at their effects on confidence levels for a fabricated childhood event. In their first experiment, participants received either false information regarding the plausibility of an event, script information, a combination of these factors, or no manipulation. It was determined that when participants read information about the plausibility of having experienced the event as a child, their confidence levels increased. In contrast, schematic information "had no influence on their beliefs about whether they had experienced this procedure" (p. 664). In a second experiment, Hart and Schooler added a memory component, asking participants how well they remembered the event. Results from this study replicated the effect of the plausibility narrative on confidence ratings; however the passage did not affect their memory for the event. Accordingly, participants were not relying on a specific memory when determining whether they experienced the event but "rather on more general considerations regarding the likelihood that the event might have taken place" (p.667).

This procedure was later refined by Scoboria, Mazzoni, Kirsch, and Jimenez (2006) using the ABMQ. In this study, participants were given articles that provided either fabricated prevalence or script-relevant information. The prevalence information consisted of a rationale as to why the procedure was a common medical screening for children at the time in which the participants would have been children, and the script information provided individuals with information regarding how the event typically occurs. The presentation of prevalence information appeared to substantially impact general and personal plausibility ratings, and possibly belief ratings to a lesser degree. Conversely, the only effect of script-related information was an increase in general knowledge for both events, and a slight increase in general plausibility.

Thus providing external influences (e.g., prevalence information) to persuade individuals that an event likely occurred to them has been shown to affect likelihood ratings. Other studies suggest that people become more convinced that an event likely happened to them as a result of explanations that they generate themselves (Koehler, 1991; Garry et al., 1996). Past research has shown that explaining future outcomes affects likelihood judgments for those proceedings. Individuals have become more confident about a patient's diagnosis after explaining why it could be true (Ross, Lepper, Strack, & Steinmetz, 1977), while others have become more confident in asserting who would win an election after imagining the success of one of the candidates (Carroll, 1978). Thus, considering the possibility that something may be true appears sufficient to make a phenomena appear more factual. It has been hypothesized that explaining past events has the same effect (Garry et al., 1996; Sharman, Manning, & Garry, 2005). In generating a reason for both how an event might happen or how an event could have occurred, individuals must temporarily proceed as if their alternate reason were factual. Creating a hypothetical event forces individuals to fit a conceptualization of the event into their "more general knowledge about the world", which makes the hypothetical event seem more likely than it did before the task (Koehler, 1991, p.506). Koehler (1991) asserted that the details that participants produce in explaining a potential outcome, accordingly, are remembered better than other possibilities.

Therefore, it appears that either externally presented information or internally generated explanations about events either directly or indirectly influence likelihood ratings for past events. Thus, enhancing the plausibility of events appears to be a potential mechanism by which belief in the occurrence of events is enhanced. However, believing that an event occurred in the past is not the same as remembering the event and thus further processes are necessary to produce a false memory for an event.

Limitations

Of note are two criticisms that have been directed at research on imagination inflation. One criticism put forth by Pezdek and Eddy (2001) is that imagination inflation is a "spurious effect caused by regression to the mean" (Garry et al., 2001, p. 719). Although there is some validity to this argument, as this is likely shifting low scores upwards in both conditions, this does not imply that the findings in these studies are statistical artifacts. Regression to the mean would not account for additional inflation in imagined events as compared with control events. As well, imagination inflation studies have been criticized in that the effects are small, and thus insufficient to explain formation of entire false autobiographical memories. However, although the changes are small, they are consistent (Garry et al., 2001). Furthermore, Garry et al. (2001) demonstrated that when paired t-tests were run for events that were and were not imagined, the effect size was not small but, rather, impressive, $d = 1.26$.

Present Study

The present study was designed to systematically investigate the influence of both plausibility enhancing information and various levels of exposure to script information upon changes in likelihood ratings, plausiblity, autobiographical belief, and memory ratings for unlikely childhood events. Participants were assigned to varying levels of exposure to the event, including mere exposure to the event script, describing the event without encouraged visualization, or engaging in visualization through guided imagery. Participants were additionally assigned to either receive the plausibility manipulation (reading prevalence information, which indicated that they likely experienced the event) or they were not provided with this information.

Hypotheses

The following predictions were made (graphically depicted in Figure 1), based upon the previously reviewed theoretical perspectives and empirical findings:

Hypothesis 1: Life Events Inventory (confidence ratings). Scores on this measure were expected to replicate standard imagination inflation findings. That is, it was expected that change scores on likelihood ratings would be greater for events that have been imagined than those that have not been imagined. The purpose was to replicate previous findings prior to extending the results by distinguishing between plausibility, belief, and memory.

Hypothesis 2: General and personal plausiblity. This study was not designed to distinguish between these constructs, as prior work has shown prevalence information to impact both. Thus, it was expected that reading information about the prevalence of events would lead to a substantial change on both measures. Additionally, it was hypothesized that exposure to the target event through the description and visualization conditions was likely to impact plausibility ratings as a result of increased familiarity with the event, although to a lesser extent.

Hypothesis 3: Autobiographical belief. It was hypothesized that this is where the standard imagination inflation effects would most likely occur. It was predicted that the plausibility manipulation would likely affect individuals' levels of perceived personal plausibility. As a result of increased personal investment, it was thought that individuals would misinterpret this as belief, which would lead to a small degree of change in belief ratings. It was further expected that when individuals would engage more fully in the event after the plausibility manipulation, through either description or visualization, that the enhanced plausibility would interact with the information about the event, causing an increase in belief. This effect was predicted to be the greatest after visualizing the event.

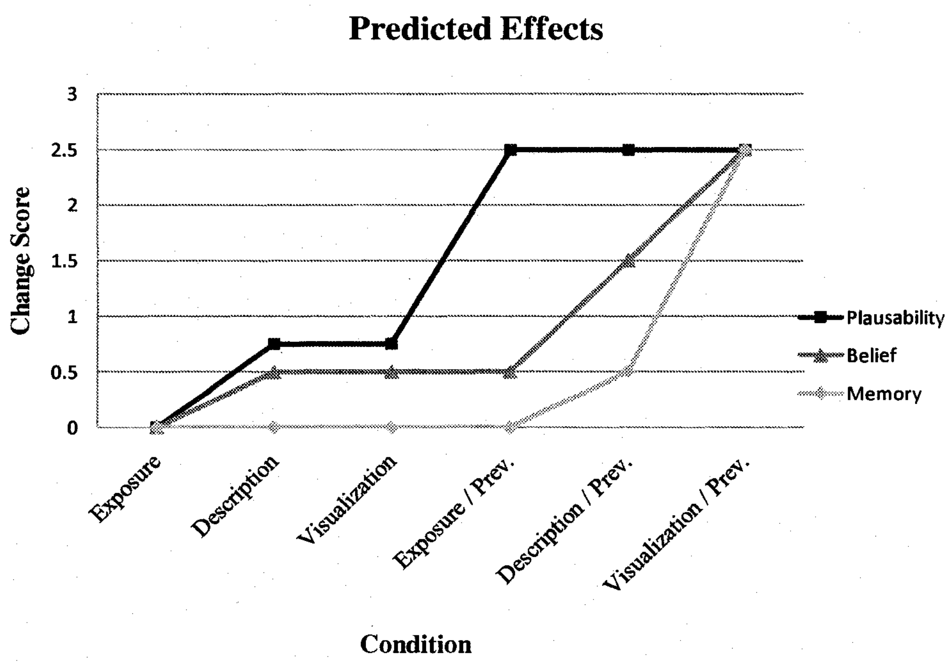
Hypothesis 4: Memory ratings. The strongest test of the role of these manipulations upon the theoretical distinction between autobiographical belief and memory for an event arises in predicting at what point increases in memory ratings are expected to emerge. It was predicted that only when the enhancement of autobiographical belief via the plausibility manipulation is followed by the generation of vivid imagery in the guided imagery group would memory ratings increase. Thus, an interaction between plausibility enhancement and exposure to event was predicted.

Hypothesis 5: The Nested Model. It was predicted that the ratings provided by individuals on the various constructs would provide further evidence for the nested model, which posits that ratings for general plausibility would be greater than or equal to those for personal plausibility, which would be greater than or equal to those of belief, which, in turn, would be greater than or equal to ratings for memory.

Crossing the two factors of interest (type of exposure to script: exposure, description, guided visualization; and plausibility enhancement: absent, present) results in six experimental groups, to which individuals were randomly assigned. The Life Events Inventory (LEI) and the Autobiographical Beliefs and Memory Questionnaire (ABMQ) were administered upon signing up for the study. Participants responded to these measures in regard to a series of 10 events commonly used in the false memory literature. These ratings constitute the Time 1 data.

Participants were then randomly assigned to one of two target events that have previously been used in the literature. These events were selected as they are extremely unlikely to have occurred during the childhood of the participant population. All individuals read two narratives, one being that of their assigned target event. After completing each narrative, individuals were asked to answer questions about how well the event was described. Individuals who completed just these measures constitute the control condition. Participants in a second and third condition were asked to additionally describe the event procedurally, using themselves in their description, or to engage in a guided imagery procedure in which they visualized the event procedurally using

Figure 1. Predicted Effects



Note: Magnitude of changes scores illustrates hypotheses; actual magnitude of change is not predicted.

themselves in their visualization. Although individuals in the description group may have also engaged in some visualization, the guided imagery procedure was expected to augment the amount of visualization experienced as it is actively produced in detail, thus distinguishing between incidental visualization and the amount of visualization that occurs when encouraged. These procedures are analogous to those used in various imagination inflation studies; however, here the elements were separated in an attempt to disambiguate mere exposure from discussing the event and the act of visualization.

The three conditions comprising the exposure factor were crossed with a plausibility factor (presenting or not presenting prevalence information). This was expected to facilitate the effects that both description and visualization have upon memory. The additional prevalence information was included at the end of the narratives for individuals assigned to receive the plausibility enhancing information.

After completing the manipulations, individuals were told that the lab was collecting test-retest data on the measures that they initially completed, and they were asked to complete the LEI and the ABMQ again; these responses constitute the Time 2 data. Changes in scores between Time 1 and Time 2 on the LEI and ABMQ would comprise the main analyses.

This study was designed to lead to a greater understanding of the effects found in the imagination inflation paradigm. This is crucial as procedures similar to those under study are frequently implemented in both legal and mental health settings. For example, suspects may be asked to repeatedly visualize or describe an event they do not remember, and mental health professionals may encourage clients to imagine unremembered past abusive events (Garry et al., 1996). If the procedures under study do impact individuals' perceptions of the past, it is important to know what factors specifically result in these distortions, as well as what aspects of "memory" these practices actually impact (e.g., the extent to which they believe or remember events occurring).

Chapter II

METHOD

Participants

Participant Numbers and Characteristics

The sample consisted of 133 undergraduate Psychology students recruited from the Participant Pool at the University of Windsor; participants received course credit through the Department of Psychology if taking a course for which such credit was offered. All participants were between the ages of 17 and 21 years (M = 19.25, SD = .98) at the time of testing and they all maintained that they lived in Ontario between the ages of 3 and 5 years, which ensured that the false prevalence information was relevant to them. Twenty-seven participants (20%) were male (*Mean age* = 19.33, SD = 1.44), while 103 participants were female (*Mean age* = 19.23, SD = .95). All sessions were recorded and reviewed to ensure accuracy in the administration of the procedure. Participants were treated in accordance with both the Tri-Council Policy Statement and the "Ethical Principles of Psychologists and Code of Conduct" (American Psychological Association, 1992), and approval for the study was provided by the University of Windsor Research Ethics Board.

Although a sample of 180 participants was desired, there were several difficulties in attaining this group. This was partially due to the limitations of who could participate and the number of participants in the participant pool who met these restrictions. Further, due to the nature of the study, individuals who had completed comparable studies at the university did not qualify to participate in the present study. Of the 182 who registered to for the study, 28 participants did not come to the testing session. Out of the remaining

154 participants who completed the procedure, 12 were removed from the sample as they did not fall into the required age range, 5 participants did not have a long enough time interval between their baseline measures and those completed post manipulation (a minimum of 10 days), and an additional 4 were removed from the sample as there was an error in the administration of the procedure during testing. Additionally, certain data points were removed (see below) within the remaining participants due to responses that were greater than 3 standard deviations from the mean. The remaining number of participants per cell by target event is listed in Appendix A.

Measures and Apparatus

Life Events Inventory (LEI; Garry et al., 1996)

This measure asks participants to rate how certain they are that a list of events happened to them or did not happen to them before the age of 6. Individuals responded regarding 10 events that have been used in previous research (e.g., Garry et al., 1996; Mazzoni & Memon, 2003; Sharman et al., 2005): (1) losing a toy as a child, (2) seeing or hearing a real ghost, (3) having a tooth extracted by a dentist, (4) having a skin sample taken by a school nurse, (5) choking on a small object, (6) receiving a bone density screening, (7) receiving a rectal enema, (8) breaking a window with their hand, (9) getting lost in a shopping mall, and (10) calling 911.

Participants responded to each item by circling the appropriate response on an 8-point Likert scale, ranging from (1) definitely did not happen, to (8) definitely did happen (Appendix B). It should be noted that the Autobiographical Beliefs and Memory Questionnaire (described below) is an elaboration of this measure, and the LEI and ABMQ Belief item are thought to conceptually assess the same construct (likelihood of occurrence, independent of memory; Scoboria et al, 2004). The LEI was included, however, to replicate past research and allow for comparisons to be made with previous findings.

Autobiographical Beliefs and Memory Questionnaire (ABMQ; Scoboria et al., 2004)

This measure was developed to capture a number of theoretically distinct aspects of the remembering process. This measure assesses general plausibility, personal plausibility, autobiographical belief, and autobiographical memory (Appendix C). *General plausibility* questions how plausible it is that at least some people experience the event in question (e.g., how plausible is it that at least some people, before the age of 6, lose a toy?). *Personal plausibility* inquires as to how plausible it is that the participant, personally, experienced the event (e.g., how plausible is it that you personally, before the age of 6, could have lost a toy?). *Autobiographical belief* asks how likely it is that they did in fact experience the event (e.g., how likely is it that you personally, before the age of 6, did in fact lose a toy?). Finally, *autobiographical memory* inquires as to whether individuals actually remember experiencing the event (e.g., do you actually remember losing a toy before you were the age of 6?). All of the questions in the ABMQ ask individuals to judge each construct as related to others (general plausibility) or themselves (personal plausibility, belief, and memory) prior to the age of 6 years. Each of these items were rated on a 1- to 8-point Likert scale, anchored 'Not at all plausible' and 'Extremely plausible' for General Plausibility and Personal Plausibility; 'Definitely did not happen' and 'Definitely happened' for Belief; and 'No memory for event at all' and 'Clear and complete memory for event' for Memory. The same events that were included in the LEI were used in this measure.

Target Events

The items "having a skin sample taken by a school nurse" and "receiving a bone density screening" were used as the target events in the present study. Participants were randomly assigned to receive additional information about one of these two events. The experimental manipulations involved these events, and responses for these items were used to assess changes in ratings that occurred between testing sessions. These events have been used in previous research, and they were selected because they are extremely unlikely to have occurred during the childhood of the participant population. These events were placed as the 4th and 6th events of the 10 events on both the LEI and ABMQ and were counterbalanced between these two positions to control for order of presentation. An additional narrative on diabetes was included to reaffirm the cover story as presented to the participants. However, the target event was always presented as the first event.

Script Information

Basic script information was provided to participants for their assigned target event (Appendix D). The purpose of these narratives was to provide a brief description of the target event to ensure that the participants had a basic familiarity with the event, as individuals appear to require some script knowledge to appropriately evaluate events (Pezdek, Blandon-Gitlin, Lam, Hart & Schooler, in press). Previous research has shown that script information impacts general plausibility but not personal plausibility ratings; thus, these passages were not expected to impact the predictions asserted in the current study (Scoboria et al., 2004). Script information for both events was comparable in content and length. The script for "receiving a bone density screening" was comprised of information regarding the Dual Energy X-Ray Absorpitometry (DEXA) Screening. This script was adapted from previous published (Scoboria et al, 2006) and unpublished work conducted at the University of Windsor under the supervision of Dr. Alan Scoboria. Script information for "having a skin sample taken by a school nurse" included information regarding the Papilloma Virus Screening and was adapted for this study by the experimenter. Both narratives provided basic information regarding the screenings, including procedural information. The length of the script information for the DEXA and Papilloma Virus Screenings were 217 and 211 words respectively, and the details provided in the scripts were comparable with one another (e.g., dates, medical facts, details of procedure). An additional Diabetes medical narrative (adopted from Hart & Schooler, 2006) was also administered to every individual to reinforce the cover story that the study was evaluating medical narratives (Appendix E). This narrative is a personal account of a family who learned that their daughter had diabetes.

Prevalence Information

This is an addition to the medical narratives and was placed following the script information for those assigned to receive the plausibility manipulation. These passages were 391 and 363 words in length for the DEXA Screenings and Papilloma Screenings respectively (Appendix D), and they indicated that the target event was common in the participant's geographical area when the participant was approximately 3-5 years of age. For each target event, information was provided explaining why the event was a common procedure at this time and includes fabricated statistics supporting the occurrence of the event, as "documented" by medical associations.

Filler Task

In order to control for time, individuals were told that they would be asked to perform various tasks that required attentional control. This consisted of a perceptual task whereby individuals had to locate the Waldo character from the "Where's Waldo" published series as many times as they could in a set time frame (Handford, 2006). This was meant to engage the individual and prevent them from further processing the previously addressed material.

Procedure

All procedures were approved by the University of Windsor Research Ethics Board.

The study was administered in two phases. Individuals first completed various measures and demographic information online. Participants then came into the lab between 10 and 16 days later for the experimental manipulation.

Phase 1

Participants first accessed the study website and, after providing their consent (Appendix F), completed demographic information including their name, age, gender, ethnic background, country of birth, and whether they lived in Ontario between the ages of 3 and 5 years. Participants then completed the Life Events Inventory (LEI) and the Autobiographical Belief and Memory Questionnaire. At this point, participants selected a day and time to come into the lab for the next component of the study.

Phase 2

Participants came to the lab, at which point it was explained that the researchers were interested in the relationship between perceptions of medical narratives and performance on various attention exercises.

Conditions

Participants were randomly assigned to one of six conditions: control, description, visualization, prevalence, prevalence with description, or prevalence with visualization. These conditions are defined below.

Control

Individuals in this condition first read the narrative regarding their target event. This narrative was comprised solely of basic script information. After completing the narrative, individuals were asked to answer questions about how well the event was written. After completing the ratings, participants were exposed to the filler task. Participants then received the Diabetes narrative after which they subsequently completed questions regarding how well the event was written. At this time participants, again, were exposed to the filler task.

Description

In addition to the measures administered to the control group, participants in this condition were asked to describe the procedure of the target event after completing the first set of ratings, prior to the filler task. They were asked to focus on how the event would typically occur, where it would typically occur, and who would be present. They were further asked to use themselves in their description of the event as if they were the individual undergoing the procedure when they were a child. After this, participants read the second medical narrative and answered the subsequent questions about how well the event was written.

Visualization

This condition consisted of the same procedure as the Description condition, however, rather than asking individuals to describe the event, this condition asked participants to visualize the target event through a guided imagery procedure. The individual was asked to close their eyes (to help them to create a visual representation) and imagine how the target event occurs procedurally, using themselves when they were a child as the individual undergoing the procedure. Individuals were guided to visualize the location, the individuals present, what was happening, and how it felt to be there. Participants were asked to relay this information verbally.

Prevalence

Individuals in this condition first read the narrative regarding their target event. In addition to basic script information for their target event, false prevalence information was included in the narrative indicating that the event was common in the participant's geographical area when the participant was younger. Individuals were then asked to answer questions about how well the event was written. After, participants were exposed to the filler task. Participants then received the Diabetes narrative to which they, subsequently, completed questions regarding how well the event was written. At this time participants, again, were exposed to the filler task.

Prevalence and Description

This procedure includes the same manipulation as that in the Prevalence condition. However, prior to engaging in the filler task participants engaged in the Description task (found above).

Prevalence and Visualization

This procedure includes the same manipulation as that in the Prevalence condition. However, prior to engaging in the filler task, participants engaged in the Visualization task.

In all conditions, after completing the procedures included in their assigned condition, individuals were told that the lab was collecting test-retest data on the measures that they previously completed, and they were asked to complete these measures again. These responses constitute Time 2 data post manipulation.

Participants then underwent a debriefing process. They were queried as to their perception of the intent of the study, after which they were debriefed. In the debriefing, it was emphasized that the study was in fact about childhood memory and that the prevalence paragraph was comprised of false information. At this point the nature of memory and memory falsification was also explained and normalized.

Chapter III

RESULTS

Preliminary Analysis

Descriptive statistics for the LEI and the four ABMQ variables (general plausibility, GP; personal plausibility, PP; autobiographical belief, BE; autobiographical memory, ME) were assessed at baseline for the target events. Mean scores and standard deviations for these initial measures are reported in Table 1. Individuals who reported a memory of either target event (defined as a baseline rating greater than four) were excluded prior to analysis. This was done to ensure that individuals did not initially endorse the event, as this could evoke a different set of processes during the post-manipulation ratings; the focus of the current study was to determine the influence of the various factors in the absence of memory. Additionally, outliers exceeding 3 standard deviations from the mean were identified. Of 1330 total responses, 15 (1.13 percent) were identified as being greater than three standard deviations above the mean and were removed from the data.

Target events at baseline were compared using paired samples t-tests. The events differed significantly for general plausibility, $t\ (131) = -2.949$, $p < .05$, with bone density receiving significantly higher scores than skin sample. The events did not differ significantly for personal plausibility, autobiographical belief, memory, or on the ratings of the Life Events Inventory (all $p > .05$). Further, a series of 2x3 between subjects ANOVAs (prevalence by exposure) were conducted to evaluate whether groups were equivalent at baseline. These revealed that the randomization was successful, as there were no significant differences between the different groups prior to manipulation

Table 1

Mean Scores and Standard Deviations of all Individuals Tested at Baseline

	No Prevalence				Prevalence			
	Skin Sample		Bone Density		Skin Sample		Bone Density	
Exposure	Mean	SD	Mean	SD	Mean	SD	Mean	SD
			General Plausibility (ABMQ)					
Control	4.56	2.19	5.08	2.43	5.18	2.18	5.60	2.12
Description	4.92	2.88	5.82	1.83	5.00	1.68	4.80	2.04
Visualization	5.54	1.81	5.70	1.89	5.36	2.06	5.78	1.99
			Personal Plausibility (ABMQ)					
Control	3.11	2.61	3.00	2.35	3.36	2.29	2.90	1.85
Description	2.67	2.10	3.55	2.54	2.92	1.75	3.70	2.36
Visualization	4.23	1.91	3.00	2.58	2.45	1.69	3.30	1.70
			Belief (ABMQ)					
Control	1.89	1.69	2.08	1.85	3.09	2.39	1.20	0.42
Description	1.50	0.91	1.55	0.69	2.08	1.04	2.00	0.94
Visualization	2.15	1.21	1.90	1.45	1.55	1.21	2.30	1.57
			Memory (ABMQ)					
Control	1.33	1.00	1.00	0.00	1.09	0.30	1.00	0.00
Description	1.00	0.00	1.00	0.00	1.15	0.56	1.00	0.00
Visualization	1.08	0.28	1.20	0.42	1.00	0.00	1.20	0.42
			Life Events Inventory (LEI)					
Control	1.89	1.61	2.08	1.75	1.82	1.40	1.30	0.68
Description	2.00	1.28	1.27	0.47	1.85	1.21	1.60	0.69
Visualization	1.38	0.65	1.50	0.71	2.00	2.09	1.40	0.69

(all $p > .10$). A series of ANCOVAs were run to determine whether age or gender impacted responding; no significant results were found for any of the variables ($p > .10$).

Prior to conducting the analysis, data was screened to ensure that no assumptions would be violated in order to ensure the validity of the results. Univariate normality was assessed to determine whether the analysis was skewed. Of 650 total change scores on the target events, 15 (2.31 percent) were identified as being greater than 3 standard deviations above the mean. To determine whether these variables were influential, scatterplots were run on combinations of the independent variables. Since the scatterplots were not all elliptical, the assumption was not robust to this violation, and the outliers were removed from the dataset.

The assumption of Homogeneity of Variance was assessed using Levene's statistic. Significant results were found for general plausibility, belief, and memory, ($p < .05$), indicating that the groups did not have equal variances. The ANOVA statistic, nevertheless, is relatively robust to the failure of this assumption, particularly when groups are of equal sample size. Accordingly, since the difference between the largest sample size and the smallest sample size did not exceed 1.5, it was assumed that the failure to meet this assumption would not significantly affect the results.

Mean baseline scores and standard deviations for the adjusted sample are located in Table 2.

Analysis of Change Scores

To test the primary hypotheses, mean change scores for each variable were analyzed using 2x3 between subjects ANOVAs (prevalence by exposure) and 2x3 between subjects ANCOVAs (controlling for baseline scores). This was done to examine

Table 2

Mean Scores and Standard Deviations for Adjusted Sample at Baseline

	No Prevalence				Prevalence			
	Skin Sample		Bone Density		Skin Sample		Bone Density	
Exposure	Mean	SD	Mean	SD	Mean	SD	Mean	SD
	General Plausibility (ABMQ)							
Control	4.37	2.26	5.08	2.43	5.18	2.18	5.60	2.12
Description	4.92	2.88	5.82	1.83	5.00	1.68	4.80	2.04
Visualization	5.54	1.81	5.70	1.89	5.36	2.06	5.78	1.99
	Personal Plausibility (ABMQ)							
Control	2.75	2.55	3.00	2.35	3.36	2.29	2.90	1.85
Description	2.67	2.10	3.55	2.54	2.92	1.75	3.70	2.36
Visualization	4.23	1.92	3.00	2.58	2.46	1.69	3.30	1.70
	Belief (ABMQ)							
Control	1.38	0.74	2.08	1.85	2.11	1.05	1.20	0.42
Description	1.50	0.91	1.55	0.69	2.08	1.04	2.00	0.94
Visualization	2.15	1.21	1.90	1.45	1.55	1.21	2.30	1.57
	Memory (ABMQ)							
Control	1.00	0.00	0.00	0.00	1.09	0.30	1.00	0.00
Description	1.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00
Visualization	1.08	0.28	1.11	0.33	1.00	0.00	1.00	0.00
	Life Events Inventory (LEI)							
Control	1.38	0.52	1.75	1.36	1.82	1.40	1.30	0.68
Description	2.00	1.28	1.27	0.47	1.85	1.21	1.60	0.69
Visualization	1.38	0.65	1.50	0.71	1.40	0.69	1.40	0.69

the main effects and interactions of the variables while determining whether any differences at baseline confounded the results post-manipulation. Results of these analyses can be found in Appendix G. Differences were found for general plausibility, as the prevalence main effect shifted from being marginally significant ($F = 3.86$, $p = .052$) to significant ($F = 4.29$, $p = .040$), and the prevalence interaction moved closer to significance ($F = 1.75$, $p = .178$; vs. $F = 2.92$, $p = .058$). As a result of the discrepancies between these two measures, the covariate was included in the analysis for general plausibility to account for some of the variance in the dependent variable, thus increasing the statistical power and reducing experimental error. No differences were found when controlling for baseline scores on any other variable. Since including the covariate reduces the degrees of freedom and can reduce power if the covariate accounts for little variance, the ANOVA was employed for the remaining variables. Mean change scores and standard deviations can be found in Table 3. No differences were found for target event, and, accordingly, the events were pooled together for subsequent analyses (for a graphical depiction of the effects of the variables, refer to Appendix I).

A series of variables, including age, gender, and days between administration of the measures, were further examined; none of these variables significantly impacted the pattern of results. Significant scores were considered those less than $p = .05$, although trends less than or equal to $p = .11$ were also evaluated due to low statistical power. Effect sizes were calculated using Cohen's d, by dividing the difference between group means by their pooled standard deviation.

Table 3

Mean Change Scores and Standard Deviations for Adjusted Sample

	No Prevalence				Prevalence			
	Skin Sample		Bone Density		Skin Sample		Bone Density	
Exposure	Mean	SD	Mean	SD	Mean	SD	Mean	SD
General Plausibility (ABMQ)								
Control	-0.88	1.46	-0.33	1.23	1.09	1.92	0.50	1.90
Description	-0.55	2.02	0.45	1.75	0.46	1.56	-0.22	1.20
Visualization	-0.08	0.76	0.00	1.16	0.64	1.75	-0.56	2.60
Personal Plausibility (ABMQ)								
Control	-0.38	1.41	-0.17	1.03	0.55	1.97	-0.20	0.42
Description	0.36	1.57	0.36	2.20	0.54	1.13	0.30	1.16
Visualization	-0.62	1.95	0.10	0.74	0.91	1.38	1.30	2.21
Belief (ABMQ)								
Control	0.00	0.54	-0.42	0.79	0.10	1.19	0.60	0.84
Description	0.25	0.62	-0.27	0.47	-0.15	1.28	-0.25	1.49
Visualization	-0.38	1.19	-0.30	1.42	0.18	0.60	-0.78	1.56
Memory (ABMQ)								
Control	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Description	0.08	0.29	0.00	0.00	0.09	0.30	0.00	0.00
Visualization	-0.38	1.19	-0.30	1.42	0.18	0.60	-0.78	1.56
Life Events Inventory (LEI)								
Control	0.13	0.35	0.00	0.63	0.27	0.65	0.10	0.88
Description	0.27	1.10	-0.18	0.41	0.38	0.96	0.30	1.06
Visualization	0.08	0.79	-0.10	-0.99	0.50	1.08	-0.20	0.42

Note: baseline scores were included as a covariate in the analyses for general plausibility

Hypothesis 1

It was hypothesized that scores on the Life Events Inventory would replicate standard imagination inflation findings. No support was found for this prediction, as the ANOVA indicated that change scores did not differ significantly between any of the experimental groups (all $p > .05$).

Hypothesis 2

Second, it was predicted that the plausibility manipulation would lead to a substantial change in general and personal plausibility ratings. This hypothesis was supported, as analyses of both general and personal plausibility revealed a main effect for prevalence information, F (1, 125) = 3.96, $p < .05$, $d = .34$ and F (1, 124) = 5.70, $p < .05$, $d = .41$ respectively. The mean of the prevalence groups was at the 56th percentile of those who were not given the prevalence information for general plausibility, while the mean of the prevalence groups was at the 63rd percentile of those who were not given the prevalence information for personal plausibility. When collapsing across levels of exposure, examination of group means revealed that prevalence increased scores for both general plausibility (No Prevalence: $M = -.20$, $SD = 1.44$ vs. Prevalence: $M = .37$, $SD = 1.85$) and personal plausibility (No Prevalence: $M = -.06$, $SD = 1.57$ vs. Prevalence: $M = .57$, $SD = 1.50$).

Although the study was not meant to distinguish between the plausibility constructs, one primary difference did arise. Although the prevalence by exposure interaction did approach significance for both general plausibility, F (2, 122) = 2.921, $p = .058$, and personal plausibility, F (2, 124) = 2.247, $p = .110$, the nature of this trend varied between the two variables. Whereas for general plausibility the plausibility manipulation significantly impacted scores only in the control condition (with and without the plausibility manipulation), t (39) = 2.69, $p < .05$, for personal plausibility the plausibility manipulation significantly impacted only the visualization groups, t (42) = -2.77, $p < .01$ (see Figures 2 and 3). Although the other variables were not significantly impacted by the provision of prevalence information, providing individuals with prevalence information did elevate the mean scores numerically on all variables post-manipulation.

For general plausibility, the no prevalence conditions did result in progressively higher ratings for description and visualization, indicating that exposure impacted responses, although not significantly. For the prevalence conditions, the provision of the prevalence information alone did significantly impact ratings (control M = .81, SD = 1.89). When combined with either the description or visualization manipulation, however, there was little impact on general plausibility ratings (description M = .18, SD = 1.44; visualization M = .10, SD = 2.19).

For personal plausibility, although none of the manipulations elevated participants' ratings in the absence of prevalence information, (control M = -.25, SD = 1.16; description M = .36, SD = 1.86; visualization M = -.30, SD = 1.55), they did increase with greater exposure for those provided with the plausibility manipulation (control M = .19, SD = 1.47; description M = .43, SD = 1.12; visualization M = 1.10, SD = 1.79). Although the increase across exposure did not reach significance, a trend did emerge between the control and visualization groups, with ratings on visualization trending towards being statistically greater than those given for the control condition, t (40) = -1.80 p = .079.

Figure 2

Effect of Prevalence across Levels of Exposure for General Plausibility

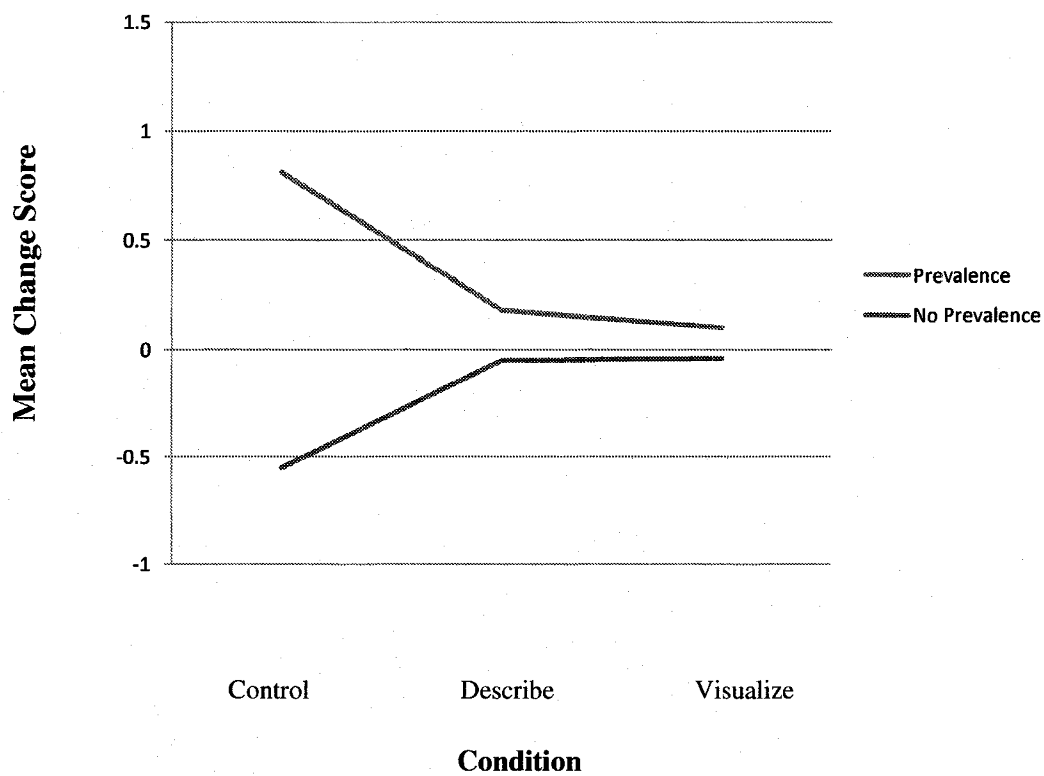
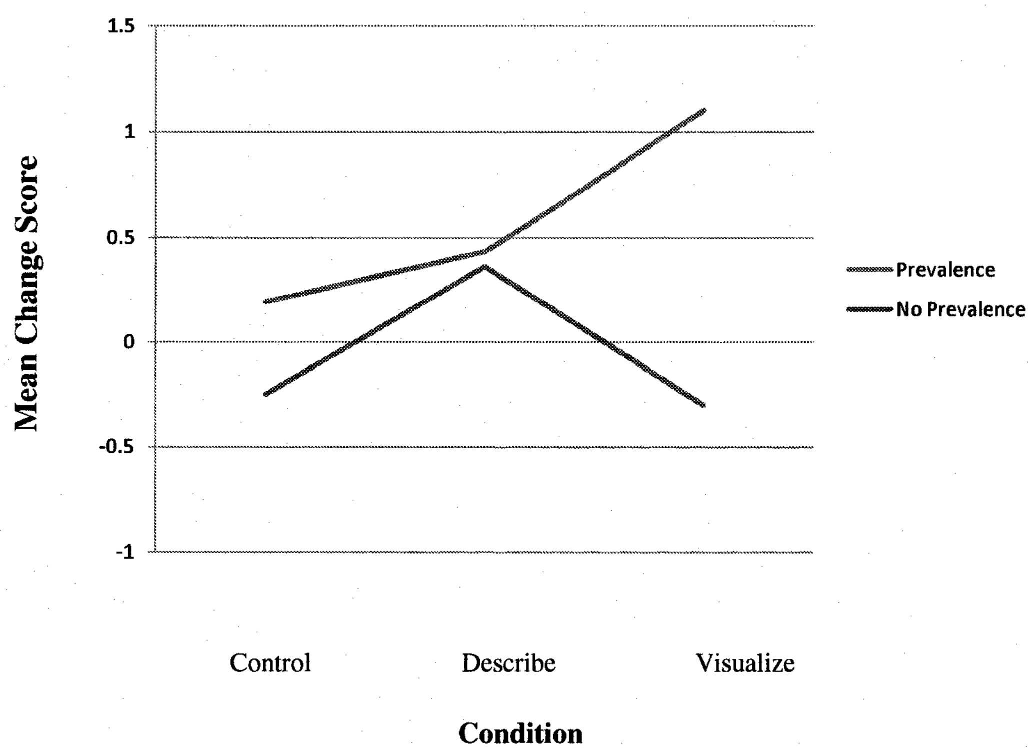


Figure 3

Effect of Prevalence across Levels of Exposure for Personal Plausibility



Hypothesis 3

It was further hypothesized that providing prevalence information would increase individuals' personal investment and might lead them to misinterpret this as belief. Moreover, it was predicted that when this manipulation was combined with higher levels of exposure there would be a more substantial increase in belief. There was no support for either prediction, as the analysis of variance revealed no significant differences on belief ratings between groups (all $p > .10$).

Hypothesis 4

Additionally, it was predicted that there would be an interaction between prevalence information and visualization, as it was thought that only when the prevalence information was followed by visualization would memory ratings increase. Again, no support was found for this prediction, as the analysis of variance revealed no significant differences between groups (all $p > .10$).

Analysis of Change Proportions

The proportion of participants whose ratings increased on the LEI and each ABMQ variable were analyzed using the logistic regression statistic. This is a more conservative analytic approach, which examines the proportion of individuals increasing in score, independent of the degree of change. This was done as previous studies have used this statistic to ensure that the results were not unduly influenced by large amounts of pre- post change in a small number of participants. Proportions of participants increasing can be found in Table 4. It should be noted, however, that although this looks at the individuals whose scores increased, it does not account for proportions of individuals who decreased in their ratings. Accordingly, change scores, as determined

Table 4

Proportion Increasing for Adjusted Sample

	No Prevalence		Prevalence	
	Skin Sample	Bone Density	Skin Sample	Bone Density
Exposure	Mean	Mean	Mean	Mean
	General Plausibility (ABMQ)			
Control	.25	.08	.64	.30
Description	.17	.55	.31	.20
Visualization	.23	.30	.45	.40
	Personal Plausibility (ABMQ)			
Control	.13	.31	.45	.00
Description	.33	.45	.46	.30
Visualization	.15	.10	.55	.60
	Belief (ABMQ)			
Control	.13	.00	.36	.40
Description	.33	.00	.23	.10
Visualization	.23	.20	.27	.20
	Memory (ABMQ)			
Control	.00	.00	.00	.00
Description	.08	.00	.08	.00
Visualization	.00	.00	.00	.00
	Life Events Inventory (LEI)			
Control	.13	.15	.18	.20
Description	.33	.00	.38	.20
Visualization	.31	.10	.36	.00

by the analysis of variance and covariance, provide a more clear illustration of the effects.

To understand and predict the effects of the variables on whether individuals' ratings increase post-manipulation, participants whose scores did not increase were coded as a 0, whereas individuals whose ratings did increase were coded as a 1. To analyze these scores, logistic regression analyses were conducted by entering the main effects for prevalence (present, absent) and exposure (none, description, visualization), and their interactions. Each factor was coded as categorical, producing overall interaction effects, and interaction contrasts (control vs. description and control vs. visualization). When interaction contrasts were found to be statistically significant, they were further explored using Chi Square tests.

For general plausibility, logistic regression revealed that there was a significant interaction between prevalence and exposure when contrasting the control group with the description group ($B = -2.11$, $SE = .99$, $Wald = 4.46$, $p < .05$). Although the provision of prevalence information increased the odds that the respondents would increase their ratings in comparison to those who were not given the prevalence information for the control and visualization groups, the provision of prevalence information decreased the odds that the ratings would increase for those in the description group. To further explore this interaction, a series of Chi Square tests were conducted. These analyses indicated that there were no significant differences between receiving prevalence information or not for the description and visualization groups. However, an association between providing prevalence information and whether individuals' scores increased post manipulation was identified for the control group, $\chi^2(1) = 5.46$, $p < .05$. This reflects the fact that 77% of the individuals whose scores increased post-manipulation in the control group were those who were provided with prevalence information. Overall, about 24% of individuals who responded in the control group increased when provided with prevalence information in comparison to approximately 7% of individuals who were not provided with prevalence information.

Turning to personal plausibility, while there were no differences in proportions of individuals who increased in their responding for personal plausibility for the control or description groups, a significant interaction emerged between prevalence and exposure when contrasting the control group with the visualization group ($B = 2.19$, $SE = 1.05$, $Wald = 4.33$, $p < .05$). Chi Square tests revealed that the use of prevalence information had a significant effect on whether individuals` ratings increased when completing the post manipulation measures for individuals in the visualization group, $\chi^2(1) = 9.50$, $p < .01$. This reflects the fact that 80% of the individuals whose scores increased post-manipulation in the visualization group were those who were provided with prevalence information. Overall, ratings for about 27% of individuals who responded in this group increased when provided with prevalence information in comparison to approximately 7% of individuals who were not provided with prevalence information.

For belief, logistic regression revealed trends towards interactions between prevalence and exposure when contrasting the control group with the description group ($B = -2.51$, $SE = 1.36$, $Wald = 3.39$, $p = .06$) and with the visualization group ($B = -2.39$, $SE = 1.33$, $Wald = 3.23$, $p = .07$). The provision of prevalence information did not impact ratings post-manipulation for individuals in the description group, and they increased minimally for the visualization group with about 2% more individuals increasing for those given the prevalence information than for those not provided with this information.

Chi Square tests generated significant results for the control condition, indicating that there is an association between providing prevalence information and whether individuals' scores increased post manipulation, $\chi^2(1) = 6.93$, $p < .01$. This reflects the fact that 89% of the individuals whose scores increased post-manipulation in the control group were those who were provided with prevalence information. Overall, ratings for about 38% of individuals who responded in the control group increased when provided with prevalence information in comparison to approximately 5% of individuals who were not provided with prevalence information. However, as 2 of the expected cell frequencies (50%) were less than 5, the test may not be as precise as would be hoped.

No significant differences amongst groups were found for memory or for the ratings on the Life Events Inventory.

Hypothesis 5

The final hypothesis was that the ratings provided by individuals on the various constructs would provide further evidence for the nested model,which posits that GP $\geq$ PP $\geq$ BE $\geq$ ME. Mean responses to the ABMQ variables for target events were examined at baseline and post-manipulation. The theoretical assumptions were upheld both at baseline (GP: $M = 5.27$, $SD = 2.06$; PP: $M = 3.17$, $SD = 2.11$; BE: $M = 1.81$, $SD = 1.17$; ME: $M = 1.02$, $SD = 0.15$) and post-manipulation (GP: $M = 5.44$, $SD = 2.05$; PP: $M = 3.46$, $SD = 2.30$; BE: $M = 1.72$, $SD = 1.01$; ME: $M = 1.03$, $SD = 0.18$).

Chapter IV

DISCUSSION

Review of Purpose and Hypotheses

Review of Primary Research Questions

The purpose of the present study was to examine the impact of various levels of exposure to false childhood events and prevalence information both independently and additively on perceptions of autobiographical events. This study was designed to determine more specifically what is driving the effects found in the imagination inflation literature. Further through using the ABMQ, the study was aimed to help determine what aspects of remembering (event plausibility, autobiographical belief, and memory) are being impacted by different elements of this paradigm. Since the necessary number of subjects was not collected, thus reducing the power of the statistical tests, marginal effects were also considered in the analyses and interpretations.

Hypothesis 1

It was hypothesized that confidence ratings on the LEI would be greater for events that had been imagined than those that had not been imagined. This measure was included to replicate previous findings. However, no significant differences were found for either target event across the different exposure or prevalence conditions. Despite this finding, the means were in the correct direction for an effect of prevalence upon the LEI.

Although there were systematic differences between the current study and those previously conducted, as will be discussed below, these differences appear insufficient to explain the lack of significant findings with the LEI. Moreover, studies that have only implemented a plausibility manipulation in the absence of any imagery or exposure have also found differences in change scores on this measure (e.g., Hart & Schooler, 2006). This is a source of confusion as the LEI did not produce effects in the current study despite the fact that more than one condition was comparable to those that did produce significant results in prior studies.

One essential difference between the aforementioned studies and the current design is the inclusion of the ABMQ. Previous studies have relied on the LEI as an all-encompassing measure to rate individuals' confidence in having experienced past events. Since the LEI does not differentiate between event plausibility, autobiographical belief, or memory, but rather fuses them into a single confidence rating, it is difficult to know which of these constructs influenced the confidence measure and, accordingly, what their ratings were indicating in previous designs. The wording of the LEI, however, is comparable to the wording used to evaluate the construct of belief as measured by the ABMQ. When completing the baseline measures within this study, participants likely became familiar with the different constructs that they were being asked to address when evaluating their perceived past experiences. Accordingly, when completing the LEI, participants may not have perceived the question as a measure of confidence, but as an additional measure of belief. This interpretation is supported by the fact that the ratings on the LEI both at baseline and post-manipulation are comparable to those of belief. According to this argument, LEI based ratings are likely best to be interpreted as reflecting belief, as discussed below. Alternatively, the LEI has been argued to confound plausibility, belief, and memory ratings. Thus, making each construct explicit to raters at baseline may have undermined the ability of the LEI to detect changes. Nevertheless, these are preliminary interpretations, and further investigation is required to confirm this explanation.

Hypothesis 2

It was further hypothesized that the plausibility manipulation would impact both general and personal plausibility, as prior work has shown prevalence information to impact both variables. As predicted, providing individuals with information that indicated that it was likely that they experienced an event significantly impacted change scores on both general and personal plausibility. Accordingly, this reaffirms the findings of previous research, which asserts that indicating that an event was likely to have occurred to similar others in the population is sufficient to change how individuals perceive the plausibility of the event.

Although the study was not designed to distinguish between general and personal plausibility, a difference was found in the nature of the marginally significant interactions between prevalence and exposure on the two variables. For general plausibility, prevalence information had a significant effect on the control group. Conversely, analysis of personal plausibility indicated that prevalence information had a significant effect when combined with visualization, with a minimal impact on ratings for control and description. This may result as the description and visualization group target self-relevant details, whereas the prevalence information alone provides a more general argument for how individuals who are of a specific age range likely experienced the event. Accordingly, the provision of prevalence information alone may boost the notion that people, in general, may have undergone the event, whereas self-relevant visualization may enhance the notion that it was plausible that they, themselves, underwent the event.

Of note, however, is that the mean scores on general and personal plausibility decreased numerically post-manipulation for those who were not provided with the plausibility manipulation, with the exception of the description group on ratings of personal plausibility. Although not predicted, this indicates that the script information in the absence of prevalence information may have a negative impact on individuals' perceptions of the given event, as this may indicate to the individual that the event is seemingly unfamiliar and was not something that they likely experienced. Conversely, the mean ratings for the groups who did receive the prevalence information did increase numerically from baseline across conditions. This reaffirms the assertion made by Mazzoni et al. (2001) that individuals must first come to believe that an event is plausible and personally experienced before the final stage in their model in which they experience the event as if it were a real memory. Accordingly, the absence of the plausibility manipulation renders any additional manipulations ineffective, as evidenced in the current study.

Accordingly, although no differences were expected to arise between the different types of plausibility, as the provision of prevalence information has often impacted both in previous studies, these results suggest that the way that individuals internally evaluate these two constructs varies. Nevertheless, this is a tentative interpretation based on two non-significant trends. Further data collection is needed to clarify these findings.

Hypothesis 3 & 4

Although it was hypothesized that the primary effects of the imagination inflation design would be seen in inflation in autobiographical belief, no significant results were found for either prevalence information or the different levels of exposure. Additionally, it was hypothesized that memory ratings would increase when the plausibility manipulation was followed by the generation of vivid imagery. Again, no significant results were found.

This may indicate that the results obtained by previous imagination inflation studies were not reflecting autobiographical memories, or changes in estimated likelihood that events occurred, as previously asserted. Rather, inflation in confidence may have been due to increases in personal plausibility. This conclusion, however, is premature due to the limited sample utilized in the current study. Further investigation is thus warranted to determine if prevalence and exposure do impact other aspects of the nested model. Nevertheless, this reinforces the importance of using the Autobiographical Beliefs and Memory Questionnaire, as the LEI groups all possible effects into one variable rather than separating out the constructs to identify what the individual is endorsing.

The predictions asserting that autobiographical belief and memory would be impacted by the manipulations were generated on the premise that source monitoring errors would arise in the prevalence conditions with increased exposure. Based on the results, it appears that no source monitoring errors occurred. Two primary explanations can account for this finding. First, it is possible that prevalence information does not result in source monitoring errors and, as seen within this study, only impacts plausibility, at least in the short term. This finding may not have arisen in previous studies, as no prior study has utilized imagination while simultaneously distinguishing between the subcomponents of the nested model.

Another explanation to account for this is the lack of time between administering the experimental manipulation and the post-manipulation measures. Participants completed the measures directly after reading the narrative and engaging in the experimental tasks. This likely made it easy for individuals to attribute their knowledge of the event to the manipulation, as there would still be a strong association between the details provided and their source (Frost, Ingraham, & Wilson, 2007). Underwood and Pezdek (1998) assert that if the individual recalls information "soon after reading it, the recency of the encoding ensures that [both] the message and the source are available in memory" (p. 450); only with time do the message and the source become less associated. Accordingly, it is understandable why source confusion may not have occurred after such a short interval in the current study. Nevertheless, this does not explain why significant results were found in other studies that administered the measures directly after the experimental manipulation (Sharman, Mazonni, & Memon, 2005; Garry, Manning, Loftus, & Sherman, 1996).

Analysis of Change Proportions

The effects found when analyzing the proportions of participants who increased in ratings for general plausibility generally reflected the results obtained from the change score analyses. When comparing individuals at the different levels of exposure with and without the provision of prevalence information, both analyses indicated a significant difference for individuals in the control group. Similarly, for personal plausibility, both analyses indicated a significant difference between individuals in the visualization group when comparing those who were and who were not provided with prevalence information. This reinforces that the results obtained in the analysis of variance were not unduly influenced by a few individuals' indicating large margins of change. Additionally, for both analyses, no differences were found between groups on ratings of memory or on the LEI.

However, the analysis for the logistic regression did differ from the findings from the ANOVA for belief. Whereas change scores were not significantly different between any of the groups on belief ratings, the logistic regression and subsequent Chi Square tests demonstrated a significant difference between individuals in the control condition who were and were not provided with prevalence information. This may suggest that although people did increase their ratings post-manipulation, these changes were minimal. Further, the logistic regression only looked at individuals who increased in score, and did not take into account individuals whose scores fluctuated in the opposite direction. Accordingly, although a significant amount of people in the control condition may have increased their ratings post-manipulation when provided with prevalence information, when their ratings were combined with the ratings that decreased post-manipulation, no overall change was found.

Hypothesis 5

This study does, however, reinforce the predictions of the nested model. Although change scores varied across the different levels of the nested model, the actual baseline and post-manipulation scores for memory when the target events were combined were less than or equal to those of belief, which were less than or equal to those of personal plausibility, which, in turn, were less than or equal to those of general plausibility. In addition to providing support for the nested model, this also indicates an additional consideration to take when interpreting the results, as there is more room for scores to increase on constructs such as belief and memory, which were initially rated low, whereas constructs that were initially rated as more likely have less room for upward movement in subsequent ratings.

Limitations

It is difficult to compare the present study to previous studies, as prior work in the imagination inflation literature has only utilized the LEI. However, in looking at this variable, it is still of interest to understand differences between the current study and those previously conducted to understand what may have impacted the current results. For one, systematic methodological differences, such as including the "Where's Waldo" distracter task, may have affected individual ratings. Although this was meant to control for time for processing amongst the different conditions, any time that could have been utilized to deliberate over the nature of the target events was thus obstructed. In other studies, participants have been able to freely process the information presented prior to making post-manipulation ratings. Further research would be needed to evaluate the impact of this task on the dependent variables.

Although other differences can be found between the current procedure and those in other studies that evaluated confidence ratings on the LEI, such as providing different rationales for completing the time two measures, many of these differences are also apparent amongst previously published studies and yet significant results are reported therein. Of note, however, is that sample sizes in the present study were relatively small, which may have hindered the ability to detect significant results. Still, other studies have used fewer participants and have still obtained significant results (e.g. Garry, Manning Loftus, & Sherman, 1996). As well, whereas other studies have provided individuals with more than one event and have analyzed the aggregate scores, the current study only exposed individuals to one target event. Accordingly, other studies are more likely to indicate statistical increases. However, the influence of imagining single versus multiple events upon imagination inflation results is not too well understood. Nevertheless, research by Mazzoni & Memon (2003), Mazzoni, Loftus, & Kirsch (2001), and Scoboria et al (2006) do provide evidence that using a single target event can also produce significant results.

A potential disadvantage to the current design was that individuals had to generate the explanations and visualizations out loud in a one-on-one situation with the research assistant. This may have affected some individuals' responses due to any stress or anxiety elicited by the demands of the situation. This, in turn, may have affected some participants' level of engagement with the task, as they may have been distracted by these extraneous factors. Determining whether a one-on-one paradigm or providing individuals with the same instructions in written form (Sharman, Manning, and Garry, 2005) has different effects on individuals warrants further investigation.

Future Directions

As aforementioned, this study reveals several potential lines of research that would be valuable. For one, further investigation is required to determine whether the LEI and belief measure on the ABMQ tap the same construct. This can be investigated by implementing a single design that varies in the measures administered to participants. By determining the impact of the same manipulation on the presentation of the LEI alone, the LEI with the ABMQ, and the AMBQ alone, the nature of what is being evaluated by individuals can be interpreted in greater detail. As well, it would be of value to determine the different ways in which individuals internally evaluate general and personal plausibility, as the tentative interpretation presented within this study was based on two non-significant trends. Further data collection is needed to separate how the information is processed in regard to these two constructs. As well, follow up questions elaborating on the questions in the ABMQ, perhaps asking individuals why they rated each construct as they did, would be extremely beneficial.

Further, to determine whether descriptions, visualizations, and/or plausibility can lead to source monitoring errors and, accordingly, changes in belief or memory, incorporating the ABMQ in a study that allows greater time between the manipulations and post-manipulation measures is needed.

Additionally, individuals' fluency in generating their descriptions and visualizations may impact their perception of whether it was likely that they encountered the event post manipulation. For individuals who had more difficulty generating a scenario, it is likely that they would deem it less likely to have occurred than an individual who is able to construct the scenario with relatively little effort. Similarly, individual differences in participants' abilities to describe or visualize events may have influenced the findings. The degree to which individuals are able to engage more fully in the description or visualization may impact the degree to which the manipulation impacts their responding. Accordingly, analyzing individuals who were more efficient at engaging in the description or visualization tasks may result in different outcomes. This is worthy of further investigation, and could be accomplished by analyzing the recordings of the sessions and coding items such as how long it takes individuals to begin their narrative, narrative length, amount and complexity of self-relevant details (Desjardins &

Scoboria, 2007), and other elements such as visual, auditory, and emotional features (Rubin, Schrauf, & Greenberg, 2003)

As well, as aforementioned, determining whether a one-on-one paradigm or providing individuals with the same instructions in written form has different effects on individuals warrants further investigation. Again, this can be conducted through designing a study that contains identical procedures and manipulations, except for the manner in which the visualization task is conducted.

This study demonstrates that the imagination inflation procedures are more intricate than have previously been acknowledged. The results generated within the imagination inflation design do not appear to be straightforward but, rather, can be impacted by a range of factors, with plausibility being an essential element which must develop before other processes, such as belief and memory, can be enhanced. However, it is apparent that the different elements within the imagination inflation design do impact different processes, and further research is needed to clarify these elements.

This has several implications, as telling individuals that they likely did experience an event in either therapy or legal/forensic settings could impact how they perceive the situation, especially when followed by additional manipulations. Clinically, practitioners must understand the implications of the techniques that they implement during sessions. For example, practitioners should be aware that prompting individuals who cannot remember whether an event such as sexual abuse occurred by telling them that it is likely, given their symptoms, that they did experience the event, is likely to alter the client's perception of the event. Similarly, in legal and forensic domains, prosecutors should be aware that eliciting responses by asserting that all the evidence points to an event having played out a certain way, or encouraging jurors to vividly imagine events also likely alters the perceptions of the event in question. Additionally, interviewers and legal professionals may also be interested in the distinction between plausibility, belief, and memory to verify what type of "memory" forms the basis for witness' recall.

Further investigation is warranted to determine whether prevalence information and different levels of exposure to events do impact areas other than plausibility. Additional work is also needed to understand the implications of enhanced plausibility upon subsequent decision making. Given the wide variety of methods implemented within various therapeutic techniques and the nature of both interviews and interrogations in legal settings, this research is essential to further understand the different components and implications of imaginative manipulations.

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Appendix A

Number of Participants per Cell for Adjusted Sample

	No Prevalence		Prevalence	
	Skin Sample	Bone Density	Skin Sample	Bone Density
Exposure	n	n	n	n
General Plausibility (ABMQ)				
Control	8	12	11	10
Description	11	11	13	9
Visualization	13	10	11	9
Personal Plausibility (ABMQ)				
Control	8	12	11	10
Description	11	11	13	10
Visualization	13	10	11	10
Belief (ABMQ)				
Control	8	12	10	10
Description	12	11	13	8
Visualization	13	10	11	9
Memory (ABMQ)				
Control	8	13	11	10
Description	12	11	11	10
Visualization	13	9	11	7
Life Events Inventory (LEI)				
Control	8	11	11	10
Description	11	11	13	10
Visualization	12	10	10	10

Appendix B

Life Events Inventory (LEI)

LIFE EVENTS INVENTORY

This questionnaire is to establish the frequency with which certain events occur before the age of ten. Please indicate on the scale how confident you are that a certain event did or did not happen **before you were six years old:**

		Definitely **did not** happen						Definitely **did** happen	
1.	Losing a toy	1	2	3	4	5	6	7	8
2.	Seeing or hearing a real ghost	1	2	3	4	5	6	7	8
3.	Having a baby tooth removed by a dentist	1	2	3	4	5	6	7	8
4.	Receiving a bone density screening	1	2	3	4	5	6	7	8
5.	Choking on a small object	1	2	3	4	5	6	7	8
6.	Having a skin sample taken by a nurse at school	1	2	3	4	5	6	7	8
7.	Receiving a rectal enema	1	2	3	4	5	6	7	8
8.	Breaking a window with your hand	1	2	3	4	5	6	7	8
9.	Getting loss in a mall	1	2	3	4	5	6	7	8
10.	Calling 911	1	2	3	4	5	6	7	8

Appendix C

Autobiographical Beliefs and Memory Questionnaire (ABMQ)

Childhood Event Inventory

Below are some events that may or may not happen to people **before the age of 6**. Please answer four questions about each event.

The first question has to do with how plausible it is that events like this happen to people in general. The second question asks how plausible it is that events like this could have happened to you. There are many events that may happen to some people in general but are not plausible for you (e.g. it is very plausible that many people got stung by a hornet when they were younger, regardless of whether they remember it; however, you may have grown up in an area of the world with no hornets and so it is unlikely that this could have happened to you, whether or not it did)

Also, many things happen that people do not remember having happened. People can know something happened to them, without remembering the event (for example, you probably know where you were born, even though you don't remember being born). Therefore, the third question asks your belief as to whether you think the event happened to you while the fourth question asks whether you actually remember this event.

Lastly, please keep in mind that all the following events ask questions about events that happen at or before the age of 6...

Event 1. Losing a toy, at or before the age of 6.								
	Not at all Plausible							Extremely Plausible
A. How plausible is it that at least some people, before the age of 6, lose a toy?	1	2	3	4	5	6	7	8
	Not at all Plausible							Extremely Plausible
B. How plausible is it that you personally, before the age of 6, could have lost a toy?	1	2	3	4	5	6	7	8
	Definitely did not Happen							Definitely did happen
C. How likely is it that you personally, before the age of 6, did in fact lose a toy?	1	2	3	4	5	6	7	8
	No memory of event at all							Clear and complete memory of event
D. Do you actually remember losing a toy before you were the age of 6?	1	2	3	4	5	6	7	8

Event 2. Seeing or hearing a real ghost, at or before the age of 6.

	Not at all Plausible							Extremely Plausible
A. How plausible is it that at least some people, before the age of 6, see or hear a real ghost?	1	2	3	4	5	6	7	8
	Not at all Plausible							Extremely Plausible
B. How plausible is it that you personally, before the age of 6, could have seen or heard a real ghost?	1	2	3	4	5	6	7	8
	Definitely did not Happen							Definitely did happen
C. How likely is it that you personally, before the age of 6, did in fact see or hear a real ghost?	1	2	3	4	5	6	7	8
	No memory of event at all							Clear and complete memory of event
D. Do you actually remember seeing or hearing a real ghost before you were the age of 6?	1	2	3	4	5	6	7	8

Event 3. Having a tooth extracted by a dentist, at or before the age of 6.

	Not at all Plausible							Extremely Plausible
A. How plausible is it that at least some people, before the age of 6, have a tooth extracted by a dentist?	1	2	3	4	5	6	7	8
	Not at all Plausible							Extremely Plausible
B. How plausible is it that you personally, before the age of 6, could have had a tooth extracted by a dentist?	1	2	3	4	5	6	7	8
	Definitely did not Happen							Definitely did happen
C. How likely is it that you personally, before the age of 6, did in fact have a tooth extracted by a dentist?	1	2	3	4	5	6	7	8
	No memory of event at all							Clear and complete memory of event
D. Do you actually remember having a tooth extracted by a dentist before you were the age of 6?	1	2	3	4	5	6	7	8

Event 4. Receiving a bone density screening, at or before the age of 6.								
	Not at all Plausible							Extremely Plausible
A. How plausible is it that at least some people, before the age of 6, receive a bone density screening?	1	2	3	4	5	6	7	8
	Not at all Plausible							Extremely Plausible
B. How plausible is it that you personally, before the age of 6, could have received a bone density screening?	1	2	3	4	5	6	7	8
	Definitely did not Happen							Definitely did happen
C. How likely is it that you personally, before the age of 6, did in fact receive a bone density screening?	1	2	3	4	5	6	7	8
	No memory of event at all							Clear and complete memory of event
D. Do you actually remember receiving a bone density screening before you were the age of 6?	1	2	3	4	5	6	7	8

Event 5. Choking on a small object, at or before the age of 6.								
	Not at all Plausible							Extremely Plausible
A. How plausible is it that at least some people, before the age of 6, choke on a small object?	1	2	3	4	5	6	7	8
	Not at all Plausible							Extremely Plausible
B. How plausible is it that you personally, before the age of 6, could have choked on a small object?	1	2	3	4	5	6	7	8
	Definitely did not Happen							Definitely did happen
C. How likely is it that you personally, before the age of 6, did in fact choke on a small object?	1	2	3	4	5	6	7	8
	No memory of event at all							Clear and complete memory of event
D. Do you actually remember choking on a small object before you were the age of 6?	1	2	3	4	5	6	7	8

Event 6. Having a skin sample taken by a nurse at school, at or before the age of 6.

	Not at all Plausible							Extremely Plausible
A. How plausible is it that at least some people, before the age of 6, have a skin sample taken by a nurse at school?	1	2	3	4	5	6	7	8
	Not at all Plausible							Extremely Plausible
B. How plausible is it that you personally, before the age of 6, could have had a skin sample taken by a nurse at school?	1	2	3	4	5	6	7	8
	Definitely did not Happen							Definitely did happen
C. How likely is it that you personally, before the age of 6, did in fact have a skin sample taken by a nurse at school?	1	2	3	4	5	6	7	8
	No memory of event at all							Clear and complete memory of event
D. Do you actually remember having a skin sample taken by a nurse at school before you were the age of 6?	1	2	3	4	5	6	7	8

Event 7. Receiving a rectal enema, at or before the age of 6.

	Not at all Plausible							Extremely Plausible
A. How plausible is it that at least some people, before the age of 6, receive a rectal enema?	1	2	3	4	5	6	7	8
	Not at all Plausible							Extremely Plausible
B. How plausible is it that you personally, before the age of 6, could have received a rectal enema?	1	2	3	4	5	6	7	8
	Definitely did not Happen							Definitely did happen
C. How likely is it that you personally, before the age of 6, did in fact receive a rectal enema?	1	2	3	4	5	6	7	8
	No memory of event at all							Clear and complete memory of event
D. Do you actually remember receiving a rectal enema before you were the age of 6?	1	2	3	4	5	6	7	8

Event 8. Breaking a window with your hand, at or before the age of 6.								
	Not at all Plausible							Extremely Plausible
A. How plausible is it that at least some people, before the age of 6, break a window with their hand?	1	2	3	4	5	6	7	8
	Not at all Plausible							Extremely Plausible
B. How plausible is it that you personally, before the age of 6, could have broken a window with your hand?	1	2	3	4	5	6	7	8
	Definitely did not Happen							Definitely did happen
C. How likely is it that you personally, before the age of 6, did in fact break a window with your hand?	1	2	3	4	5	6	7	8
	No memory of event at all							Clear and complete memory of event
D. Do you actually remember breaking a window with your hand before you were the age of 6?	1	2	3	4	5	6	7	8

Event 9. Getting lost in a shopping mall, at or before the age of 6.								
	Not at all Plausible							Extremely Plausible
A. How plausible is it that at least some people, before the age of 6, get lost in a shopping mall?	1	2	3	4	5	6	7	8
	Not at all Plausible							Extremely Plausible
B. How plausible is it that you personally, before the age of 6, could have gotten lost in a shopping mall?	1	2	3	4	5	6	7	8
	Definitely did not Happen							Definitely did happen
C. How likely is it that you personally, before the age of 6, did in fact get lost in a shopping mall?	1	2	3	4	5	6	7	8
	No memory of event at all							Clear and complete memory of event
D. Do you actually remember getting lost in a shopping mall before you were the age of 6?	1	2	3	4	5	6	7	8

Event 10. Calling 911, at or before the age of 6.

	Not at all Plausible							Extremely Plausible
A. How plausible is it that at least some people, before the age of 6, call 911?	1	2	3	4	5	6	7	8
	Not at all Plausible							Extremely Plausible
B. How plausible is it that you personally, before the age of 6, could have called 911?	1	2	3	4	5	6	7	8
	Definitely did not Happen							Definitely did happen
C. How likely is it that you personally, before the age of 6, did in fact call 911?	1	2	3	4	5	6	7	8
	No memory of event at all							Clear and complete memory of event
D. Do you actually remember calling 911 before you were the age of 6?	1	2	3	4	5	6	7	8

Appendix D

Script and Prevalence Information

Dual Energy X-Ray Absorpitometry (DEXA) Screenings

A DEXA (Dual Energy X-ray Absorpitometry) screening is a relatively simple procedure conducted to determine the strength of ones bones relative to individuals who have healthy bones. This is, primarily, done in order to determine if the patient's bones are at greater risk for breaking than normally. The procedure is conducted by a radiology technician, and a family member may accompany the patient, providing there is no risk due to minor exposure to x-rays (such as pregnancy).

The DEXA bone density test takes between 10 and 30 minutes, depending on the equipment used and the parts of the body being examined. The patient is asked to undress and to remove any objects from the body (jewelry, watches, wallets, etc.), and put on a hospital gown. Then, the patient lies on a padded table with an x-ray generator below and a detector (an imaging device) above. The patient is asked to lie extremely still during the procedure. The DEXA machine sends a thin, invisible beam of low-dose x-rays through the patient's bones via two energy streams, one that is absorbed by soft tissue and the other by bone; the detector is slowly passed over the area being examined, generating images on a computer monitor. The DEXA procedure is safe, and there is no discomfort or adverse reactions afterwards.

[Script ends here for non-prevalence groups – prevalence information follows]

Bone density screenings have been performed in the United States and Canada for more than 50 years. As medical science advanced in the 1950s and 1960s, more efficient methods for detecting weaknesses in bone density were developed. Due to these advances, the rate of diagnoses of brittle bone disease in children jumped from 2% to 10% in the 1960's. However little was known about what factors put children at risk for developing weak bones. Because there were so many injuries and so little research performed, great efforts were taken to better understand this disease in hopes of lowering the prevalence in the population. The Canadian Academy of Pediatrics recommended in 1975 that bone density screenings for brittle bone disease be conducted routinely in children. This was due in part to the new knowledge that came about in the late 60's in regards to the prevalence of brittle bone disease and its complications in children as they matured. It was thought that early detection of this disease could prevent future problems, including the prevention of skeletal deformities.

One method which became widely used as a screening and diagnostic device was the DEXA (Dual Energy X-ray Absorpitometry) technique. The use of DEXA for bone density screenings became very common. The Canadian Medical Association states that approximately 85% of all children born in Ontario between 1991 and 1994 had this routine procedure performed on them, a statistic that is confirmed by billing records submitted to OHIP during that period. The procedures were also described as "quite common" in other provinces. Parents were encouraged to have their children receive this screening procedure after the age of 3 (when the skeletal system is sufficiently developed to conduct the procedure safely), but before the age of 5.

There were few side effects after the procedure was performed. However, some parents considered the exposure to x-rays too high a risk for their children, and the benefit too small. Risk factors for brittle bone disease were identified in 1994, so that all children no longer needed to be tested. Furthermore, the risk of developing brittle bone disease dropped significantly, suggesting that environmental factors had been responsible for higher prevalence rates in the 1960s and 1970s. By the mid 1990s, the practice of routinely giving children DEXA screenings had mostly ceased, and OHIP stopped reimbursing for the procedure in 1995.

Papilloma Virus Screenings

The Human Papilloma Virus (HPV) is associated with the development of common warts. Although the virus is only contagious when there are actual warts on the skin's surface, once infected, the virus remains in their body. The screening for HPV is a relatively simple procedure conducted to determine whether an individual carries the virus, regardless of whether there are any physical symptoms apparent. Either a doctor or a nurse can conduct this screening.

The procedure is performed in an outpatient setting and takes between 10 to 15 minutes. The skin is first thoroughly cleaned using an antiseptic cloth to reduce the risk of infection. The medical professional then numbs the area by making a small injection of a local anesthetic. A sample of skin is then taken by a biopsy from the numb area of the skin. Finally, a Band-Aid dressing is used to cover the biopsy site, and the area should be kept dry for 12-24 hours. Generally, the skin heals easily within one to two weeks. After the biopsy the skin sample is processed in a laboratory and the results are made available to the doctor or referring source within two weeks. The HPV Screening procedure is safe, and there is little to no discomfort or adverse reactions afterwards.

[Script ends here for non-prevalence groups – prevalence information follows]

Warts are a common skin affliction that many individuals are susceptible to both in childhood and as an adult.

Caused by the Human Papilloma Virus (HPV), warts can take various forms, usually appearing as small contusions, bumps, or, at times, as thick spots in more hard-wearing areas. Although they can occur in several places, warts are typically contracted on either the skin of the hands or the soles of the feet. Although some people are more naturally resistant to the HPV viruses, warts on the skin are often easily transmitted to others upon contact. This can include either direct contact or from sharing objects with an individual who has warts.

Because of the potential invisibility of the wart virus and the fact that young children often share toys and other objects, school boards across Canada, in conjunction with Government Health Officials, piloted a Papilloma Virus screening as a preventative measure for children entering the school system. The procedure, which was conducted prior to the beginning of the school year, consisted of having a school nurse take a small sample of skin from the index finger of each child. The sample was to be analyzed to determine if the child had had exposure to the virus. The entire process was very quick and relatively painless.

If an individual tested positive, this information was noted on their school record, and teachers were required to check each of these children's hands every morning before they would enter the classroom. If a wart was visible on the hand of any given individual, the affected area was to be covered with a bandage in order to reduce the risk that they would spread it to other children.

This program was in place from 1983-1993, after which point it was terminated due to a lack of justification for its use. Only about 0.5% of all children entering school ever tested positive for the virus. Records from OHIP and BC Health indicate that over 93% of parents agreed to have their children screened for the virus. However, once accumulated data showed that the number of children entering school with the virus was minimal, they discontinued their funding of the program.

Appendix E

Diabetes Narrative

Personal Story.

Diabetes.

Every parent breathes a sign of relief at the birth of a healthy baby. If only we could keep our children that way.

At first glance, many kids seem perfectly fit. However, in between the chicken pox and common colds, the skinned knees and bouts of bruised feelings, a chronic condition can invade their young bodies like an uninvited guest who does not know when to leave.

Every year more than 13,000 American children are diagnosed with juvenile, or Type 1, diabetes. In Type 1 diabetes, the pancreas does not produce insulin needed by body cells to use glucose - a form of sugar produced when food is digested - as fuel for energy. Without insulin, glucose builds up in the bloodstream and overflows into the urine. These children must replace natural insulin levels every day with multiple injections or by wearing pumps that continuously deliver small increments of insulin through a small tube or needle inserted under the skin.

Once children develop diabetes, they never outgrow it. And every family remembers when diabetes enters their lives. "It is, I think, a more memorable day than my birthday," says Melissa, 17. She was diagnosed Sept. 16, 1992 - her third day of fourth grade.

Melissa had been excited about that school year and had gotten the teacher she wanted. Then her mother, Renee, showed up at class with the principal. Melissa was going to Children's Hospital of Philadelphia. Renee had mentioned to a friend, who was a pediatric nurse, that Melissa had been experiencing excessive thirst and frequent urination - two common symptoms of diabetes. She took a sample of her daughter's urine to their pediatrician's office for testing to confirm her suspicions.

When 9-year-old Melissa first heard she had diabetes, she asked, "Does this mean I'm going to die?"

"No, but it means you're going to live differently," the pediatrician replied.

Melissa spent five days at CHOP where her family's diabetes education began.

"It's not going to go away and ... no one can really understand," says Melissa, who controls her diabetes with an insulin pump. "No one can know what it's like to live with [diabetes]."

Diabetes makes Melissa feel different. "I'll never be them. I'll never be that normal kid over there. I can't go back to how things were." Melissa remembers when she did not have diabetes.

However, she adds, "a lot of my childhood memories are of having diabetes." Such as:

- The well-meaning parents who skipped over her at birthday parties when they passed out cupcakes …
- The substitute teacher in sixth grade who sent her out in the hall in tears to finish her lunch one day …
- The times she was late getting to the school cafeteria because she had to check her blood sugar first and could not sit with her friends …
- The sleepovers where her friends snacked on popcorn and soft drinks while she could only watch …
- The meals where she patiently waited at the dinner table for her blood sugar to drop so she could eat.

"You just can't take a vacation from it," says Melissa. "No matter what you're feeling, you have to deal with it. And you have to deal with it responsibly. To this day, I don't think I've ever lied about what my blood sugar was. I wouldn't have felt right."

Despite carefully monitoring her glucose levels, Melissa – like anyone else with diabetes – still has fluctuating blood sugars. "You feel like you're failing," she said. "I know now that it's not anything I did wrong."

Often, however, Melissa kept her frustrations to herself. "A lot of times, I didn't share all that I was feeling … I think there were times when it was harder than I was admitting to," Melissa confesses. "I really don't want to do this anymore, but I know I have to."

Kids who manage their diabetes responsibly have an additional burden, notes Melissa's mother, Renee. "They feel like they can't let their parents down." However, fluctuating blood sugars can be more than a potential source of disappointment to a child's parents.

Sometimes, Melissa admitted, she feels like an added burden to her family. "It's not like [your] parents can just say, 'Oh, no, you're not,'" she said, "and [the feeling] just goes away."

Melissa took complete charge of managing her diabetes when she started using an insulin pump several years ago. "I didn't understand how the pump worked," her mother Renee confesses. She also relinquished keeping detailed records of her daughter's blood sugars. "I think it's harder to let go when you're still doing the record keeping," she adds.

Despite her independence in managing her condition, Melissa realizes she still needs occasional help. When her class went on an overnight trip in the fall, Melissa's blood sugar plummeted during the night. When her blood sugar drops, she says, "I feel shaky and can't think straight."

Her best friend and roommate brought Melissa her glucometer to check her blood sugar and got her juice to raise her glucose level. “I’m so used to someone being there,” Melissa admits.

When she enrolls in college, the learning curve will start over. “How am I going to be able to do this?” Melissa wonders.

Appendix F

Informed Consent

UNIVERSITY OF WINDSOR

CONSENT TO PARTICIPATE IN RESEARCH

Title of Study: **Comparing Perceptions of Medical Narratives and Attentional Abilities.**

You are asked to participate in a research study conducted by Dr. Alan Scoboria and Dana Shapero, MA Candidate, from the Department of Psychology at the University of Windsor. This research is not presently funded by any granting agency.

If you have any questions or concerns about the research, please feel to contact Dana Shapero at shapero@uwindsor.ca, or Dr. Scoboria at 519-253-3000, x4090, email: scoboria@uwindsor.ca.

PURPOSE OF THE STUDY

The purpose of this study is to examine the relationship between individuals' perceptions of different medical narratives and their performance on various attentional exercises.

PROCEDURES

If you volunteer to participate in this study, we would ask you to do the following things:

- You will log into a web site, and answer questions a number of childhood events.
- You will come in person 2 weeks later, at which time you will:
    - Read articles, and rate the quality of the writing of the articles.
    - Complete a series of questionnaires.
    - Write briefly about each of the articles you read.
    - Complete a series of attentional activities

The study will take 1 hour to complete; 15 minutes for session 1, and 45 minutes for session 2. The study will take part via a web page (Session 1), and in person (Session 2). Session 2 will take place in a computer lab at the University of Windsor. Upon completion of the experimental session, your involvement in the study will be complete.

POTENTIAL RISKS AND DISCOMFORTS

There are no foreseeable risks, discomforts, or inconveniences, be they physical, psychological, emotional, financial, or social, associated with this research.

POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

This research will aid us in understanding how college students understand different types of medical information. Participants may benefit from increased knowledge regarding this issue, which will be provided during the debriefing at the end of the experimental session.

PAYMENT FOR PARTICIPATION

Participants will not receive any financial compensation for their involvement. Participants are eligible for up to two (2) bonus points for their involvement through the psychology participant pool, if in an eligible psychology course.

CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. You will be asked to provide identifying information, so that the data from the two sessions can be linked. Once you have completed the study, identifying information will be removed. Your responses will therefore be anonymous once the study is complete.

Upon completion, the information you provide will not be associated with any identifying information. Once the data is collected, there is no method by which we can link your data to you personally. Informed consent forms and data will be stored separately in a locked filing cabinet; these forms will be retained for six years and then will be destroyed. Any reports or publications produced from this research will be general in nature, and will not specifically refer to any individual participant's responses. Paper records of data will be destroyed after they are entered into an electronic file. No information regarding your participation in this study will be released, with the exception of informing the participant pool coordinator so that you may receive course credit as discussed above.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you do not want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so; you will still receive credit for your participation if you have started to take part in the study. You may choose to remove your data from the study.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

Research findings will be made available to all interested parties upon completion, on the Research Ethics Board web site (www.uwindsor.ca/REB). These results will be available as of December 01, 2007.

SUBSEQUENT USE OF DATA

At times it may be necessary to analyze data in conjunction with data from other studies. I agree that this data can be used in subsequent studies.

Do you give consent for the subsequent use of the data from this study? ☐ Yes ☐ No

RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. If you have questions regarding your rights as a research subject, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario, N9B 3P4; telephone: 519-253-3000, ext. 3916; e-mail: lbunn@uwindsor.ca.

SIGNATURE OF RESEARCH SUBJECT/LEGAL REPRESENTATIVE

I understand the information provided for the study **Comparing Perceptions of Medical Narratives and Attentional Abilities** as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

____
Name of Subject

____________________________________ __________________
Signature of Subject Date

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

____________________________________ __________________
Signature of Investigator Date

UNIVERSITY OF
WINDSOR

CONSENT FOR AUDIO TAPING

Research Subject Name: ________________________________

Title of the Project: **Comparing Perceptions of Medical Narratives and Attentional Abilities**

I consent to the audio-taping of the procedures involved in this study.

I understand these are voluntary procedures and that I am free to withdraw at any time by requesting that the taping be stopped. I also understand that my name will not be revealed to anyone and that taping will be kept confidential. Tapes are filed by number only and store in a locked cabinet.

I understand that confidentiality will be respected and the viewing of materials will be for professional use only.

____________________________ ____________________

(Signature of Research Subject) (Date)

Appendix G

Analysis of Variance and Analysis of Covariance for Adjusted Dataset

Analysis of Variance Tests

Test of Between-Subjects Effects for General Plausibility Ratings (for Target Event)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	20.05(a)	5.00	4.01	1.46	0.21
Intercept	0.73	1.00	0.73	0.26	0.61
Prevalence	10.62	1.00	10.62	3.86	0.52
Exposure	0.22	2.00	0.11	0.04	0.96
Prevalence x Exposure	9.62	2.00	4.81	1.75	0.18
Error	335.17	122.00	2.75		
Total	356.00	128.00			
Corrected Total	355.22	127.00			

a R Squared = .06 (Adjusted R Squared = .02)

Test of Between-Subjects Effects for Personal Plausibility Ratings (for Target Event)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	28.21(a)	5.00	5.64	2.44	0.04
Intercept	8.43	1.00	8.42	3.65	0.06
Prevalence	13.16	1.00	13.16	5.69	0.02
Exposure	5.12	2.00	2.56	1.11	0.33
Prevalence x Exposure	10.38	2.00	5.19	2.25	0.11
Error	286.41	124.00	2.31		
Total	323.00	130.00			
Corrected Total	314.62	129.00			

a R Squared = .09 (Adjusted R Squared = .05)

Test of Between-Subjects Effects for Autobiographical Belief Ratings (for Target Event)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6.72(a)	5.00	1.35	1.19	0.33
Intercept	1.67	1.00	1.67	1.48	0.23
Prevalence	0.91	1.00	0.91	0.80	0.37
Exposure	2.55	2.00	1.28	1.13	0.33
Prevalence x Exposure	3.33	2.00	1.66	1.47	0.23
Error	136.51	121.00	1.13		
Total	145.00	127.00			
Corrected Total	143.23	126.00			

a R Squared = .05 (Adjusted R Squared = .01)

Test of Between-Subjects Effects for Memory Ratings (for Target Event)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	0.13(a)	5.00	0.03	1.08	0.38
Intercept	0.01	1.00	0.01	0.30	0.58
Prevalence	0.01	1.00	0.01	0.36	0.55
Exposure	0.10	2.00	0.05	2.14	0.12
Prevalence x Exposure	0.01	2.00	0.01	0.27	0.77
Error	2.86	120.00	0.02		
Total	3.00	126.00			
Corrected Total	2.99	125.00			

a R Squared = .04 (Adjusted R Squared = .00)

Test of Between-Subjects Effects for LEI Ratings (for Target Event)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.82(a)	5.00	0.36	0.53	0.75
Intercept	2.17	1.00	2.17	3.17	0.08
Prevalence	1.22	1.00	1.22	1.79	0.18
Exposure	0.33	2.00	0.16	0.24	0.79
Prevalence x Exposure	0.18	2.00	0.09	0.13	0.88
Error	82.91	121.00	0.69		
Total	87.00	127.00			
Corrected Total	84.72	126.00			

a R Squared = .02 (Adjusted R Squared = -.02)

Analysis of Covariate Tests

Test of Between-Subjects Effects for General Plausibility Ratings (for Target Event)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	76.03(a)	6.00	12.67	5.49	0.00
Intercept	53.47	1.00	53.47	23.17	0.00
Time 1 GP Rating	55.98	1.00	55.98	24.26	0.00
Prevalence	9.89	1.00	9.89	4.29	0.04
Exposure	0.07	2.00	0.03	0.01	0.99
Prevalence x Exposure	13.48	2.00	6.74	2.92	0.06
Error	279.19	121.00	2.31		
Total	356.00	128.00			
Corrected Total	355.22	127.00			

a R Squared = .21 (Adjusted R Squared = .18)

Test of Between-Subjects Effects for Personal Plausibility Ratings (for Target Event)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	42.00(a)	6.00	7.00	3.16	0.01
Intercept	22.07	1.00	22.07	9.96	0.00
Time 1 GP Rating	13.79	1.00	13.79	6.22	0.01
Prevalence	11.84	1.00	11.84	5.34	0.02
Exposure	5.79	2.00	2.89	1.31	0.28
Prevalence x Exposure	8.02	2.00	4.01	1.81	0.16
Error	272.62	123.00	2.22		
Total	323.00	130.00			
Corrected Total	314.62	129.00			

a R Squared = .13 (Adjusted R Squared = .09)

Test of Between-Subjects Effects for Autobiographical Belief Ratings (for Target Event)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	55.10(a)	6.00	9.18	12.40	0.00
Intercept	27.13	1.00	27.13	36.65	0.00
Time 1 GP Rating	48.26	1.00	48.26	65.18	0.00
Prevalence	1.54	1.00	1.54	2.08	0.15
Exposure	0.99	2.00	0.49	0.67	0.51
Prevalence x Exposure	1.21	2.00	0.60	0.81	0.45
Error	88.12	119.00	0.74		
Total	145.00	126.00			
Corrected Total	143.21	125.00			

a R Squared = .39 (Adjusted R Squared = .35)

Test of Between-Subjects Effects for Memory Ratings (for Target Event)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	0.43(a)	6.00	0.07	3.30	0.01
Intercept	0.31	1.00	0.31	14.17	0.00
Time 1 GP Rating	0.29	1.00	0.29	13.84	0.00
Prevalence	0.00	1.00	0.00	0.20	0.65
Exposure	0.06	2.00	0.03	1.45	0.24
Prevalence x Exposure	0.00	2.00	0.00	0.02	0.98
Error	2.57	119.00	0.02		
Total	3.00	126.00			
Corrected Total	2.99	125.00			

a R Squared = .14 (Adjusted R Squared = .09)

Test of Between-Subjects Effects for LEI Ratings (for Target Event)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7.63(a)	6.00	1.27	1.98	0.07
Intercept	7.98	1.00	7.98	12.42	0.00
Time 1 GP Rating	5.81	1.00	5.81	9.05	0.00
Prevalence	1.54	1.00	1.54	2.39	0.13
Exposure	0.68	2.00	0.34	0.53	0.59
Prevalence x Exposure	0.28	2.00	0.14	0.22	0.80
Error	77.09	120.00	0.64		
Total	87.00	127.00			
Corrected Total	84.72	126.00			

a R Squared = .09 (Adjusted R Squared = .05)

Appendix H

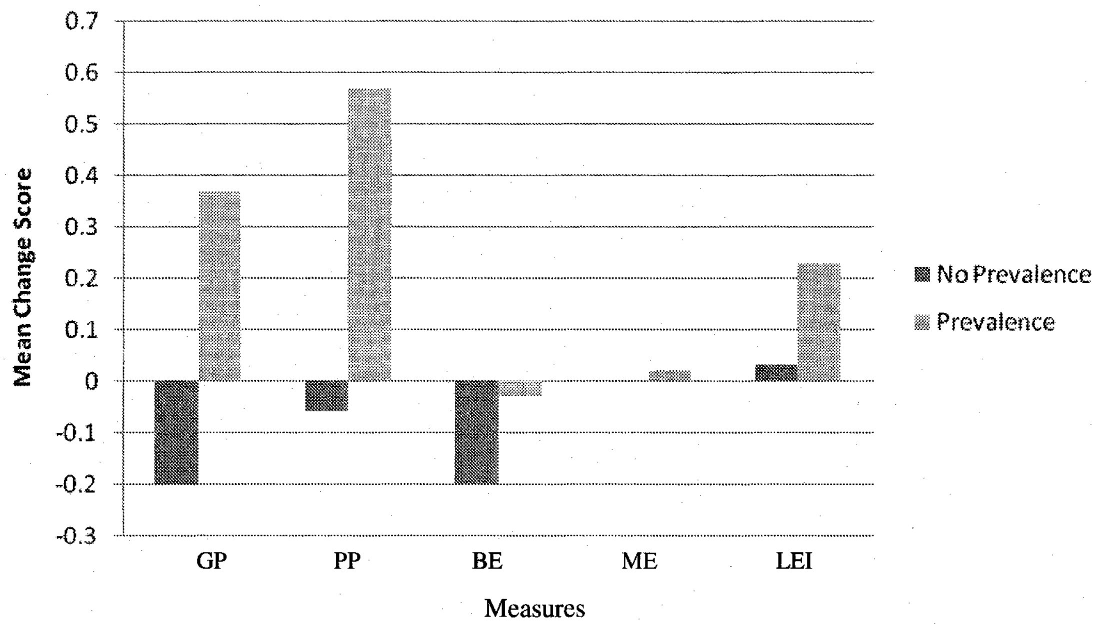
Time 2 Scores and Standard Deviations for Adjusted Sample

	No Prevalence				Prevalence			
	Skin Sample		Bone Density		Skin Sample		Bone Density	
Exposure	Mean	SD	Mean	SD	Mean	SD	Mean	SD
General Plausibility (ABMQ)								
Control	3.50	2.07	5.08	2.39	6.27	1.68	6.10	2.23
Description	4.73	2.19	6.27	1.49	5.46	1.94	4.89	2.15
Visualization	5.46	2.07	5.70	2.16	6.00	1.48	5.22	2.17
Personal Plausibility (ABMQ)								
Control	2.37	2.13	3.00	2.63	3.91	2.26	2.70	2.00
Description	3.18	2.09	3.91	2.95	3.46	1.89	4.00	2.71
Visualization	3.62	2.06	3.10	2.60	3.36	2.16	4.60	2.59
Belief (ABMQ)								
Control	1.38	0.74	1.75	1.60	2.22	1.30	1.80	0.92
Description	1.75	0.97	1.27	0.47	1.93	1.04	1.88	1.13
Visualization	1.77	1.09	1.60	0.84	1.73	1.01	1.67	0.71
Memory (ABMQ)								
Control	1.00	0.00	1.00	0.00	1.09	0.00	1.00	0.00
Description	1.08	0.29	1.00	0.00	1.09	0.30	1.00	0.00
Visualization	1.00	0.00	1.11	0.33	1.00	0.00	1.00	0.00
Life Events Inventory (LEI)								
Control	1.50	0.76	1.45	0.82	2.09	1.87	1.40	0.69
Description	2.09	1.58	1.09	0.30	2.23	1.01	1.90	0.99
Visualization	1.50	0.67	1.40	0.69	1.90	0.00	1.20	0.63

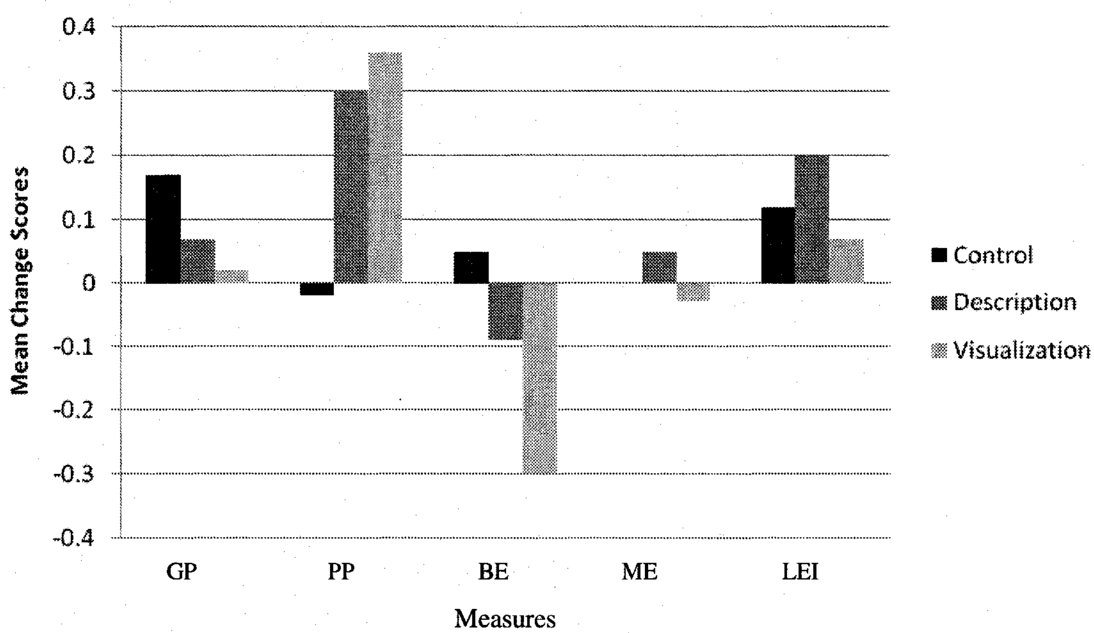
Appendix I

Graphical Depiction of the Effects of the Manipulations

Impact of Prevalence on Change Scores



Impact of Exposure on Change Scores



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