Public beliefs on the relationship between lying and memory

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ABSTRACT
In two studies, we surveyed the beliefs of undergraduate students (Study 1) and the general public (Study 2) about deceptive behavior, memory functioning, and the effects of lying on memory. We compared participants’ beliefs with the current memory and deception literature. Overall, participants in both studies believed that different types of lies (i.e. false denials, feigning amnesia, fabrication) would elicit different memory impairing effects, although they did not know what specific kind of memory impairment (e.g. forgetting, false memory). In line with previous experimental studies, participants experienced difficulties in retrieving memories after falsely denying or feigning amnesia. Moreover, participants believed that lying would impact other people’s memory such as that people would start to believe in their own lies. Meanwhile, they also indicated that these effects would be minimal for themselves. Interestingly, our results showed that false denials are used quite frequently in daily life. Finally, we found that undergraduate students’ beliefs about memory were in line with scientific evidence, while the general public continues to have erroneous beliefs about memory. When the general public plays a role in the courtroom (e.g. jury members), we recommend involving memory experts in the assessment of reliability of statements when lying was involved.

“Above all, don’t lie to yourself. The man who lies to himself and listens to his own lie comes to a point that he cannot distinguish the truth within him, or around him, and so loses all respect for himself and for others” - Fjodor Dostojevski, The Brothers Karamazov (1958)

Can people forget the truth after having lied? And can people start to believe in their own lies? According to Dostojevski, people can believe in their own lies and even forget the truth because of previous deceptive acts. Interestingly, Dostojevski’s assertion belongs to the many popular beliefs that people may have about how lying can impact memory. However, what is unknown presently is to what extent these beliefs align with the scientific literature on lying and memory. In the current set of studies, the principal goal was to examine individuals’ beliefs on how lying affects memory. We
will first start elaborating on how easily memory can be distorted and will then focus on what research tells us about the effects of lying on memory.

**The fallibility of memory**

A wealth of research has demonstrated that memory is reconstructive (Howe & Knott, 2015). Due to its reconstructive nature, two types of memory errors can occur: Omissions and commissions (e.g. Loftus, 2005). Forgetting is one of the best examples of an omission error, while remembering details or events that never occurred or occurred quite differently from what truly unfolded is an example of a commission error (i.e. false memories; Gallo, 2006).

What does the general public know about the functioning of memory? Interestingly, research has shown that misconceptions about how memory works abound among laypeople (Lynn et al., 2015; Magnussen et al., 2006; Patihis et al., 2014; Simons & Chabris, 2011). For example, Patihis et al. (2014) found that out of the 390 undergraduate students, 66.7% endorsed the statement that ‘memory of everything experienced is stored permanently in brain, even if we can’t access all of it’. Furthermore, many people hold the controversial belief that traumatic experiences are banished out of conscious awareness (Otgaar et al., 2019). Also, Simons and Chabris found that 63% of participants (945/1500) from the general public of the United States indicated that ‘memory works like a video camera’ (Simons & Chabris, 2011). Interestingly, a recent study found that 70.9% out of 198 participants agreed that ‘Human memory is not like a video camera because we cannot play back events exactly as they happened’ (Brewin et al., 2019). The authors alluded that the conceptions of the general public about how memory works might be more nuanced than previously thought (Brewin et al., 2020).

Taken together, general public beliefs about the functioning of memory are often-times not in par with the scientific evidence on memory (Lynn et al., 2015; Magnussen et al., 2006; Patihis et al., 2014). Having such erroneous beliefs on the functioning might be perilous as our memories are an integral part of our daily life and, in certain contexts, wrong beliefs might have adverse consequences. For example, a person undergoing treatment and believing in repressed memories might accept a therapist’s suggestion that their symptom profile is the result of repressed memories (e.g. Goodman et al., 2017). However, although there is quite some survey work on what people believe concerning the functioning of memory, what is currently lacking is what people believe on how lying might shape memory.

**Lying and memory**

Recent research strongly points towards the finding that lying can adversely impact memory (Otgaar & Baker, 2018). In general, lying is seen as intentionally providing incorrect information to deceive another and is exerted oftentimes to gain benefits or avoid losses (Abe, 2009). Lying has been shown to be quite prevalent in everyday life as people lie, on average, once or twice a day (DePaulo et al., 1996). Furthermore, research also suggests that the vast majority of lies are told by a few prolific liars and that most people do not tend to lie frequently (Halevy et al., 2014; Serota & Levine, 2015; Serota, Levina, & Boster, 2010; Verigin et al., 2019). Interestingly, research suggests that people
tell more self-centered (e.g. telling people that you quit your job, when you actually got fired, to avoid embarrassment) than other-centered (e.g. telling your friend that he/she looks well, when they do not, to protect their feelings) lies, and generally do so to avoid conflict or tension (DePaulo et al., 1996).

The detrimental impact of lying on memory has generally been studied focusing on three types of deceptive strategies: false denials, feigning amnesia, and fabrication (Otgaar & Baker, 2018). In these studies, participants generally are presented with certain stimuli (e.g. video, photo, virtual reality, etc.) or perform a mock-crime (e.g. rob and hit a dummy in a bar), then lie about details or the entire event, and after a delay come forward with the truth. When participants are instructed to falsely deny or feign amnesia, omission errors have been found to occur (Mangiulli et al., 2018; Van Oorsouw & Merckelbach, 2004, 2006; Otgaar et al., 2014, 2016; Romeo et al., 2019; Sun et al., 2009; Vieira & Lane, 2013). However, whereas feigning amnesia tends to lead to forgetting of the occurred event itself, falsely denying leads to a different type of forgetting, also known as denial-induced forgetting (DIF; Otgaar et al., 2014, 2016). For example, in studies examining the effects of false denials on memory, participants are interviewed after they viewed a certain video (e.g. electrician robbing a house). During this interview participants are asked to falsely deny details of the video. A recurrent finding is that falsely denying leads to forgetting that a falsely denied detail was previously discussed in the interview. That is, DIF involves that participants forget that they discussed details that they falsely denied in the interview while the memory for the video itself remains largely intact (but see Romeo et al., 2019). Finally, when people fabricate details or an entire alternative story, they tend to form false memories for their fabrications (Ackil & Zaragoza, 1998, 2011; Chrobak & Zaragoza, 2008). For example, in the study by Ackil and Zaragoza (1998) participants watched a short video about the experience of a boy on a summer camp. Afterwards, participants were interviewed about details in the video. However, some participants were instructed to answer all questions, even when uncertain. Of importance is that in the interview participants also received questions about details that never occurred in the video and, hence, had to fabricate. What the authors found was that participants formed false memories for their fabrications.

Notably, not only does lying affect memory, lying has also been shown to affect people’s belief that an event took place (Otgaar & Baker, 2018). For example, studies have revealed that false denials and feigning amnesia led to decreases in the belief that certain events were experienced (Polage, 2019; Romeo et al., 2019). That is, participants were less likely to believe that certain experiences happened to them, even though they initially believed to have experienced them. Furthermore, research on fabrication has shown that people can increase their belief after lying (Polage, 2004). More specifically, studies have demonstrated that when people fabricated events that they previously indicated to be unlikely to have occurred, they can start to believe that the events actually did occur (Polage, 2004, 2012; but see also Riesthuis et al., 2020). Collectively, the results converge towards the idea that lying and memory are intimately related.

Possible discrepancies between what the general public believes about the effects of lying on memory and what scientific evidence has revealed can have consequences in different contexts such as the courtroom (Benton et al., 2006). For example, in many cases, legal professionals (e.g. judges, prosecutors) can only rely on testimonies which are often based on memory reports (Brainerd & Reyna, 2005). However, in legal cases,
lying is an omnipresent phenomenon. That is, victims, eyewitnesses, and suspects can lie for various reasons (e.g. shame, external pressure, etc.) suggesting that in these circumstances, memory errors as a consequence of lying are lurking (Lyon, 2007). In certain countries (e.g. United States of America), citizens play a vital role in the justice system by acting as jury members. Hence, if the jury holds erroneous beliefs about the relationship between lying and memory, this can lead them to accept unreliable statements or reject reliable statements, consequently leading to possible miscarriages of justice (Fisher & Cutler, 1995). Hence, the aim of the present research was to shed light on the beliefs of the general public concerning the effects of lying on memory.

The present studies

Since research shows that lying can adversely affect memory, the primary interest of the present studies was to examine the beliefs that people have regarding the effects of lying on memory (e.g. ‘People can believe in their own lies’). We also included statements about the functioning of memory (e.g. ‘Memory is not influenced by suggestion’), and questions concerning individual experiences with deceitful behavior (e.g. ‘On average, how many times do you lie a day?’). These latter statements and questions were included to obtain a complete picture of what people believe about issues such as memory and lying.

In two studies, undergraduate students’ (Study 1) and the general population’ (Study 2) beliefs concerning lying, memory, and the interaction of the two were measured using a survey. Specifically, the survey contained three sections on (i) deceptive behavior, (ii) memory functioning, and (iii) the relationship between lying and memory. The questions of the first two sections were based on previous research (DePaulo et al., 1996; Lynn et al., 2015; Magnussen et al., 2006; Patihis et al., 2014; Simons & Chabris, 2011). The last section was based on the current state of the literature on how lying can impact memory (Otgaar & Baker, 2018).

Study 1

Method

Participants

A total of 113 participants took part in our survey. Specifically, participants were first year undergraduate criminology students recruited from the course ‘Criminological Psychology’. Participants were recruited via online advertisements and their participation was voluntary. They were informed that participating would give insights into how research using psychology-related questionnaires is conducted. On average, the survey took 5.5 min. The study was approved by an ethics committee. Raw data are available on the Open Science Framework (OSF; https://osf.io/r5qvt/).

Materials

A questionnaire was constructed to tap into participants’ beliefs concerning the effects of lying on memory (see Appendix for complete questionnaire and its structure). The questionnaire was created in Qualtrics and consisted of three sections. Specifically, the first section was composed of eleven specific questions about participants’ deceptive
behavior and was based on earlier work (e.g. ‘People tend to be honest in daily life’) (DePaulo et al., 1996). The second section assessed the beliefs about memory functioning using four questions from previous research (e.g. ‘Everything we experience is stored permanently in the brain, even if we can’t access all of it’) (Lynn et al., 2015; Magnussen et al., 2006; Patihis et al., 2014; Simons & Chabris, 2011). These first two sections of the questionnaire were included for two reasons: First, and stated before, the answers to these statements might shed light on the type of participants that were recruited in terms of their deceptive behavior and beliefs about how memory works. Second, an additional benefit is that they could serve as filler questions to avoid participants from recognizing the purpose of the study.

The third section of the questionnaire was subdivided into two parts: (i) 19 questions that were specifically focused on participants’ beliefs about the effect of lying on memory (e.g. ‘People can easily separate the lie from the truth’) and (ii) eight questions examining participants’ personal experiences with the effects of lying on memory. (e.g. ‘Do you know if one of your memories is based on a lie you told?’). The questionnaire contained a total of 42 questions including multiple choice, open answer, and 5-point Likert scale (1=strongly disagree, 5=strongly agree) questions. The amount of questions that participants received depended on their given answers. For example, if participants responded ‘yes’ to the question ‘Do you know if one of your memories is based on a lie you told?’, then follow-up questions were asked regarding this experience. If they responded ‘no’ they skipped the follow-up questions.

Procedure
Participants were given the Qualtrics link to access the survey. On the first page, participants had to give their informed consent. Then participants received the questionnaire. At the end of the questionnaire, participants were thanked and debriefed.

Results
The results will be presented and discussed separately for each section concerning: (i) deceptive behavior, (ii) beliefs about memory, and (iii) the effects of lying on memory. Each section has a corresponding table containing the amount and percentage of participants agreeing and disagreeing with each statement. For our analyses, we looked at three categories: agree, neither agree nor disagree, and disagree. So, we collapsed under the label agree both the scores somewhat agree and strongly agree. Equally, we collapsed under the label disagree both the scores somewhat disagree and strongly disagree. The category neither agree nor disagree remained the same.1

Deceptive behavior
Our results showed that a large number of participants (65.5%; 74/113) claimed to lie on average once or twice a day. Additionally, 15% (17/113) of the participants indicated that they lie three to four times on a daily basis. A minority of participants (19.5%; 22/113) also indicated that they generally do not lie at all. However, when these people (n = 22) were asked whether they ‘always speak the truth?’, we found that all but one participant lie. This participant was excluded from responding to the questions regarding the reasons
why he or she lies. Despite the fact that 99.1% of the participants (112/113) indicated that they are dishonest at least sometimes, the majority of participants (78%; 88/113) agreed that ‘people tend to be honest in daily life’ (see Table 1).

Out of the 112 dishonest participants, the most frequently used deceptive strategy was falsely denying that something happened (56.3%; 63/112). Fabricating a new story was the second most used deceptive strategy (26.2%; 32/112). Only 6 participants (5.4%) indicated that they feigned amnesia most frequently as their deceptive strategy when they lied, while 11 participants (9.8%) indicated that they opt for a different deceptive strategy.2

Next, we examined the possible reasons for why participants would lie (see Table 1). Participants were queried about each reason to lie separately. The majority of participants agreed to the fact that they would lie to avoid conflict (79.5%; 89/112) and to avoid punishment (70.5%; 79/112). They generally disagreed with the idea that that they would lie if they were able to earn money with it (67%; 75/112). Participants did not know whether they would lie to create a positive impression of themselves as 36.6% of participants (41/112) disagreed with this statement, 20.5% participants (23/112) neither disagreed nor agreed, while 42.9% of participants agreed (48/112).

Interestingly, participants were convinced that other people lie for the above given motives. Participants were asked about the reasons why other people lie separately. The vast majority of participants agreed that other people lie to avoid conflict (87.6%; 99/113), if they are able to earn money with it (63.7%; 72/113), to create a positive impression of themselves (84.1%; 95/113), and to avoid punishment (86.7%; 98/113).

Beliefs about memory

To examine the beliefs of participants about the functioning of memory, we used four questions of previous survey studies about beliefs of memory (Lynn et al., 2015; Magnussen et al., 2006; Patihis et al., 2014; Simons & Chabris, 2011; see Table 2). Overall, the participants had a solid understanding about memory functioning as their responses were in line with scientific evidence. More specifically, our results showed that 97.3% of participants (110/113) agreed that ‘memory can be inaccurate’; 92.1% of participants (104/113) disagreed that ‘memory is like a computer/tape recorder/video camera, accurately recording events as they actually occurred’; 61.0% of participants (69/113) disagreed that ‘everything we experience is stored permanently in the brain, even if we can’t access all of it’; and 94.7% of participants (107/113) disagreed that ‘memory is not influenced by suggestion’.

Beliefs about the effects of lying and memory

With regards to the effects of lying and memory, participants overall agreed that lies can have adverse effects on memory (both belief and recollection) (see Table 3). More specifically, 97.3% of participants (110/113) agreed with the item that ‘people can believe in their own lies’; 85.9% of participants (97/113) agreed with the item that ‘people who repeatedly tell the same lie, will start to believe it is the truth’. Moreover, 74.3% of participants (84/113) agreed with the item that ‘our lies can shape our identity’.
Table 1. Study 1. Agreement and disagreement with statements concerning deceptive behavior.

| Statements                                                                 | Strongly disagree | Somewhat disagree | Neither disagree nor agree | Somewhat agree | Strongly agree | N    | M(SD)          |
|---------------------------------------------------------------------------|-------------------|-------------------|----------------------------|----------------|----------------|------|----------------|
| People tend to be honest in daily life                                    | 0                 | 13                | 12                         | 79             | 9              | 113  | 3,74(0,77)    |
| *I lie to avoid conflict                                                  | 3                 | 11                | 9                          | 62             | 27             | 112  | 3,88(0,97)    |
| *I lie when I am able to earn money with it                                | 45                | 30                | 17                         | 47             | 1              | 112  | 2,13(1,18)    |
| *I lie to create a positive impression of myself                          | 13                | 28                | 23                         | 59             | 20             | 112  | 3,67(1,02)    |
| *I lie to avoid punishment                                                | 1                 | 22                | 10                         | 77             | 19             | 112  | 3,50(0,99)    |
| Other people lie to avoid conflict                                        | 1                 | 1                 | 2                          | 7              | 0              | 113  | 4,03(0,69)    |
| Other people lie when able to earn money with it                           | 1                 | 9                 | 8                          | 21             | 1              | 113  | 4,04(0,71)    |
| Other people lie to create a positive impression of themselves            | 0                 | 4                 | 14                         | 69             | 26             | 113  | 4,13(0,67)    |

Note. n stands for number of participants and % stands for percentage of participants that indicated a specific agreement. N stands for total sample size. SD stand for standard deviation. The total participants is smaller for the studies with an “*” before the statement. This is because participants who indicated that they never lied were eventually excluded for these questions.

Table 2. Study 1. Agreement and disagreement with statements concerning belief and knowledge about memory functioning.

| Statements                                                                 | Strongly disagree | Somewhat disagree | Neither disagree nor agree | Somewhat agree | Strongly agree | N    | M(SD)          |
|---------------------------------------------------------------------------|-------------------|-------------------|----------------------------|----------------|----------------|------|----------------|
| Memory can be inaccurate                                                  | 1                 | 0                 | 0                          | 2              | 89             | 113  | 4,74(0,58)    |
| Memory is like a computer/tape recorder/video camera, accurately recording events as they actually occurred | 79                | 25                | 21                         | 1              | 1              | 113  | 1,46(0,87)    |
| Everything we experience is stored permanently in the brain, even if we can’t access all of it | 30                | 39                | 21                         | 20             | 3              | 113  | 2,35(1,13)    |
| Memory is not influenced by suggestion                                     | 86                | 76.1              | 18.6                       | 0              | 2              | 113  | 1,38(0,88)    |

Note. n stands for number of participants and % stands for percentage of participants that indicated a specific agreement. N stands for total sample size. SD stand for standard deviation.
Table 3. Study 1. Agreement and disagreement with statements concerning belief and knowledge about the effects of lying on memory.

| Statements                                                                 | Strongly disagree | Somewhat disagree | Neither disagree nor agree | Somewhat agree | Strongly agree | n  | %    | n  | %    | n  | %    | n  | %    | n  | %    | M(SD) |
|----------------------------------------------------------------------------|-------------------|-------------------|---------------------------|---------------|---------------|----|------|----|------|----|------|----|------|------|      |
| People can believe in their own lies                                       | 0.0               | 2.0               | 1.0                       | 51.0          | 59.0          | 52.2 | 113  |
| People can have childhood memories that are based on lies                  | 0.0               | 1.0               | 3.0                       | 27.0          | 50.0          | 44.2 | 59   |
| Our lies can shape our identity                                            | 0.0               | 4.0               | 3.0                       | 25.0          | 64.0          | 56.6 | 20   |
| People who repeatedly tell the same lie, will start to believe it is the truth | 0.0               | 3.0               | 2.7                       | 13.0          | 61.0          | 54.0 | 36   |
| People can easily separate the lie from the truth                          | 27.0              | 66.0              | 58.4                      | 16.0          | 4.0           | 3.5  | 0    |
| Different types of lies can impact memory differently                      | 0.0               | 1.0               | 0.9                       | 42.0          | 63.0          | 55.8 | 7    |
| People who deny that an event happened (even though the event actually did happen) are likely to forget that event | 3.0               | 35.0              | 31.0                      | 38.0          | 33.0          | 29.2 | 4    |
| People who pretend to have memory loss about an event are likely to forget that event | 6.0               | 46.0              | 40.7                      | 27.0          | 31.0          | 27.4 | 3    |

Note. n stands for number of participants and % stands for percentage of participants that indicated a specific agreement. N stands for total sample size. SD stand for standard deviation.
Furthermore, 96.4% of participants (109/113) agreed that ‘people can have childhood memories that are based on lies’; 62.0% of participants (70/113) agreed that ‘different types of lies can impact memory differently’; and 82.3% of participants (93/113) disagreed that ‘people can easily separate the lie from the truth’. However, when we asked participants about specific memory impairing effects caused by lying, we obtained mixed results. No strong preference was found about the specific memory impairing effects caused by the various lies. That is, participants responses about the item ‘people who deny that an event happened (even though the event actually did happen) are likely to forget that event’ were equally divided across the categories: disagree (33.6%; 38/113), neither disagree nor agree (33.6%; 38/113), and agree (32.7%; 37/113). Similar results were found for the statement ‘people who pretend to have memory loss about an event are likely to forget that event’ wherein 46% of participants (52/113) disagreed, 23.9% of participants (27/113) neither disagreed nor agreed, and 30.1% of participants (34/113) agreed.

**Participants’ experiences with lying**

To examine participants’ personal experiences wherein lying affected their memory, we questioned participants whether they knew if one of their memories was based on a lie. We found that 22.1% of participants (25/113) reported to have a memory that was based on a lie they had told. Even though participants previously indicated that their most frequently used deceptive strategy were false denials, their memories that were based on a lie they told were mostly caused by fabrications (64%; 16/25). Only 7 participants (28%) indicated that the memory that was based on a lie was caused by false denials, 1 participant said it was caused by feigning amnesia and the last participant said it was caused by a different deceptive strategy. Interestingly, the majority of participants discovered that the memory was based on a lie because they remembered that they lied (52%; 13/25); 28.0% of participants (7/25) were told by someone else that it was a lie and 12% of participants (3/25) found out via evidence such as photos, videos, or text messages that it was a lie. Eight percent of participants (2/25) indicated that it was simply impossible to have happened. Out of the 25 participants that indicated to have a memory that was based on a lie, 5 of them indicated that it concerned a childhood memory.

**False Denials and Memory.** Participants were asked about their personal experiences with any memory impairing effects after having falsely denied. Out of the 113 participants, 73.5% of them (83/113) admitted that they once had falsely denied that something had happened to them (even though it did happen). Furthermore, of those 83 participants, 55.4% (46/113) indicated that they eventually came forward with the truth. The participants that eventually came forward with the truth, 23.9% (11/46) expressed to have difficulties in retrieving what truly occurred because of the initial false denials. However, some participants indicated that they did not come forward with the truth, and of them 5.4% (2/37) started to believe that the entire event never occurred.

**Feigning Amnesia and Memory.** Participants were asked about their personal experiences with any memory impairing effects after having feigned amnesia. Forty-two percent (48/113) of participants admitted that they once had feigned amnesia for something that had happened to them. Out of those 48 participants that had feigned amnesia,
37.5% (18/48) eventually came forward with the truth. Of the participants that eventually came forward with the truth, 27.8% (5/18) expressed to have difficulties in retrieving what truly occurred because of feigning amnesia. Twenty percent (6/30) of the participants that continued to feign amnesia for what had happened, eventually started to believe that they lost their memory for the occurred event.

Fabrication and Memory. Additionally, participants were asked about their personal experiences concerning any memory impairing effects after having fabricated. Sixty-three percent (72/113) of the participants admitted that they once had fabricated a new story for something that had happened to them. Exactly half of them (50%; 36/72) said that they eventually came forward with the truth. The participants that eventually came forward with the truth, 44.4% of them (16/36) expressed to have difficulties retrieving what truly occurred because they fabricated a new story. Some participants did not come forward with the truth. Out of those participants 13.9% of them (5/36) started to believe in their fabrications.

Discussion

In Study 1, we found that the majority of people told one or more lies a day. This is in contrast with previous research (Halevy et al., 2014; Serota & Levine, 2015; Serota, Levina, & Boster, 2010; Verigin et al., 2019) wherein a similar average of lies a day was found but most of these lies were told by a small subset of people. This suggests that lying is perhaps more common in daily life than previously thought. Moreover, participants believed that other people had more apparent motives for lying compared to themselves. Interestingly, the majority of participants did believe that people tend to be honest in general, revealing a discrepancy between their own behavior and what they believe in regard to deceptive behavior in general.

We also examined the beliefs of undergraduate students about memory functioning. We found evidence that the undergraduate students’ knowledge about certain aspects of memory functioning was in line with the scientific literature. This accords well with the results of Brewin et al. (2019) wherein they found that the understanding of the general public about memory was more nuanced than previously thought (but see also Otgaar et al., 2019).

Regarding the beliefs about the effects of lying on memory, we found that the large majority of participants agreed with the statement that memory can be differentially affected by different types of lies. Nonetheless, we also found that no clear pattern was detected about what participants specifically believed about the adverse effects of lying on memory. It seems that our participants realized that different lies might impact memory differently as the scientific literature suggests, but were unaware of how exactly.

One of the major findings of Study 1 was that participants indicated that most of their memories that were based on a lie were caused by fabrications. This is in line with the current literature wherein fabrications can lead to false memories (Ackil & Zaragoza, 1998, 2011). However, a more common memory impairing effect experienced by the participants among the three types of lies were omission errors. Experimental studies examining the effects of false denials and feigning amnesia support the experienced memory impairing effects such as forgetting (van Oorsouw & Merckelbach, 2004, 2006; Otgaar...
et al., 2014, 2016). However, research focused on fabrication has not demonstrated that it leads to omission errors but to commission errors (Ackil & Zaragoza, 1998, 2011). When examining the participants’ personal experiences with the effects of each specific lie on memory we found that only small subsets of participants indicated to start believing in their lies, irrespective of the type of deceptive strategy used. Overall, the participants indicated that the effects of lying on memory were more evident for other people compared to themselves.

A possible explanation for the results of Study 1 is that the participants were undergraduate students who, at the time of the study, attended the course ‘Criminological Psychology’ in which memory-related matters were discussed. In contrast to the study by Brewin et al. (2019), for this study the content of the course ‘Criminological Psychology’ was beneficial to the participant’s understanding of how memory works. To some extent, the topics discussed in this course might have affected our results, although not all the questions asked during the survey were subjected to discussion during that class (e.g., effects of lying on memory).

**Study 2**

In Study 2, we used the same survey adopted in Study 1 to investigate people’s beliefs about lying and memory. However, in Study 2 we recruited individuals from the general public by using Amazon Mechanical Turk (MTurk⁶). Furthermore, we increased our sample size.

**Method**

**Participants**

For Study 2 we calculated the sample size a priori for the questionnaire via Qualtrics survey sample size calculator (Smith, 2020).⁵ With a confidence level of 95%, a 4% margin of error, and a large population size, a sample size of 601 participants was required via MTurk⁶. Two attention checks were included in the questionnaire and the data from participants that failed both attention checks were excluded from the data analysis. Out of the 601 participants recruited, a total of 57 participants failed both manipulation checks. Hence, for the data analysis we used 544 participants (Mage = 35.6, SD = 10.0; 360 males, 183 females, 1 nonbinary). Demographic information is presented in Table 4. The survey took on average 9.5 min for which participants were rewarded one dollar. All participants received one dollar compensation regardless of their performance on the attention checks. The study was approved by an ethics committee. Raw data are available on the Open Science Framework (OSF; https://osf.io/r5qvt/).

**Materials**

As for the first study, we used the same questionnaire about lying and memory. However, we added two attention checks and demographical questions to examine the type of population. In total, the questionnaire consisted of a maximum of 51 questions, depending on the answers given by the participants. The demographical questions were placed at the start of the questionnaire. The attention checks were placed
throughout the questionnaire (see Supplementary materials for complete questionnaire and its structure). Multiple attention checks allowed us to exclude completely inattentive participants while preserving data when participants simply made a mistake (Abbey & Meloy, 2017). We used fair attention checks by notifying participants that their answers should be based on the text above or below. The attention checks were different wherein one required a written response and the other was a multiple choice question. Moreover, the attention checks were adapted to be in line with the theme of the overall questionnaire and, as a result, were novel (Thomas & Clifford, 2017).

### Table 4. Demographical information of Amazon mechanical turk sample.

| Characteristic                                      | n  | %    |
|-----------------------------------------------------|----|------|
| Gender                                              |    |      |
| Male                                                | 360| 66.2 |
| Female                                              | 183| 33.6 |
| Nonbinary                                           | 1  | 0.2  |
| Ethnicity                                           |    |      |
| Asian/Pacific Islander                              | 256| 47.1 |
| Black or African American                          | 37 | 6.8  |
| Hispanic or Latino                                  | 19 | 3.5  |
| Native American or American Indian                  | 7  | 1.3  |
| Other (specify)                                     | 7  | 1.3  |
| White                                               | 218| 40.1 |
| Education                                           |    |      |
| Less than a high school diploma                     | 3  | 0.6  |
| High school degree or equivalent                    | 80 | 14.7 |
| Bachelor’s degree (e.g. BA, BS)                     | 326| 59.9 |
| Master’s degree (e.g. MA, MS, MEd)                  | 115| 21.1 |
| Doctorate (e.g. PhD, MD, JD, EeD)                   | 9  | 1.7  |
| Other (specify)                                     | 11 | 2.0  |
| Employment Status                                   |    |      |
| Employed full-time (40 h or more per week)          | 392| 72.1 |
| Employed part-time (Fewer than 40 h per week)       | 63 | 11.6 |
| Homemaker                                           | 9  | 1.7  |
| Retired                                             | 9  | 1.7  |
| Self-unemployed                                     | 38 | 7.0  |
| Student                                             | 7  | 1.3  |
| Unemployed                                          | 3  | 0.6  |
| Unemployed and currently looking for work           | 19 | 3.5  |
| Unemployed and not currently looking for work       | 4  | 0.7  |
| Profession                                          |    |      |
| Agriculture, food, and/or natural resources         | 13 | 2.4  |
| Architecture and construction                       | 15 | 2.8  |
| Arts, audio/video technology, and/or communications| 26 | 4.8  |
| Business management and/or administration           | 36 | 6.6  |
| Education and/or training                           | 57 | 10.5 |
| Finance                                             | 46 | 8.5  |
| Government and/or public administration             | 10 | 1.8  |
| Health science                                      | 25 | 4.6  |
| Hospitality and/or tourism                          | 13 | 2.4  |
| Human services                                      | 11 | 2.0  |
| Information technology                              | 139| 25.6 |
| Law, public safety, corrections, and/or security    | 2  | 0.4  |
| Manufacturing                                       | 48 | 8.8  |
| Marketing, sales, and/or service                    | 35 | 6.4  |
| Other (specify)                                     | 33 | 6.1  |
| Science, technology, engineering, and/or mathematics| 23 | 4.2  |
| Transportation, distribution, and/or logistics      | 12 | 2.2  |
Procedure
All participants were recruited via MTurk and directed to the Qualtrics questionnaire. Participants were informed that they would receive a code at the end of the questionnaire which they had to fill in on MTurk to receive payment. Before the questionnaire, participants gave their informed consent to participate in the study. Next, they had to answer the demographical questions. Afterwards, participants received the questionnaire about lying and memory. At the end of the questionnaire, participants were thanked and debriefed about the goal of the study.

Results
The scoring adopted in this second study was identical as in Study 1.

Deceptive behavior
In line with Study 1 (65.5%; 74/113), we found that the majority of the participants (53.7%; 292/544) reported to lie on average one to two times a day. Moreover, 12.7% of participants (69/544) indicated that on average they lie more than three times a day. However, a substantial number of participants (33.6%; 183/544) responded that on average they lie zero times a day. We examined whether this was an inherently honest group with a follow-up question (i.e. 'Do you always speak the truth?'). An additional 62 (33.9%) participants said that they do not always speak the truth.

Although the majority of participants claimed to be dishonest (77.8%; 423/544), 72.6% (395/544) of the participants agreed that ‘people tend to be honest in daily life’ (see Table 5). This is similar to the findings in Study 1 wherein participants believed that people can be honest while also personally indicating that they lie on a daily basis. Importantly, a large number of participants (66.1%; 121/183) indicated that they always speak the truth. This subset of completely honest participants was excluded from questions about the most frequently used type of deceptive strategy and their reasons to lie.

The participants that lied on average at least twice a day (361/544) and the participants that not always spoke the truth (62/183) were asked which deceptive strategy they most frequently used when they lied ($n = 423$). Falsely denying that something happened was again the most frequently used deceptive strategy among participants (42.3%; 179/423). Feigning amnesia (25.8%; 109/423) and fabrication (24.1%; 102/423) were the second and third most frequently used deceptive strategy.

We also asked participants about their incentives to lie. The questions about the specific reasons to lie were asked separately. We found that 82.3% of them (348/423) would lie to avoid conflict, 55.4% of them (234/423) to create a positive impression of themselves, and 63.1% of them (267/423) to avoid punishment. Participants tended to disagree that they would lie if they were able to earn money with it (49.5%; 209/423). Interestingly, the results showed that the majority of participants agreed that other people lie to avoid conflict (78.5%; 427/544), to create a positive impression of themselves (83.7%; 455/544), to avoid punishment (84.6%; 460/544), and if they were able to earn money with it (71.5%; 389/544). As seen in Study 1, this suggests that participants believed that other people are more strongly motivated to lie for those reasons (see Table 5).
With respect to memory functioning (see Table 6), our results showed that 71.7% (390/544) of the participants agreed that ‘memory can be inaccurate’ and 48.4% (263/544) of the participants disagreed that ‘memory is not influenced by suggestion’. However, we also found that 47.1% (256/544) of the participants agreed that ‘memory is like a computer/tape recorder/video camera, accurately recording events as they actually occurred’ and 60.3% (328/544) agreed that ‘everything we experience is stored permanently in the brain, even if we can’t access all of it’. Although many participants were skeptical about the functioning of memory by agreeing that memory can be inaccurate and can be influenced by suggestion, a majority of participants still held flawed beliefs about memory functioning which is in contrast with what we found in Study 1.

**Beliefs about memory**

With respect to memory functioning (see Table 6), our results showed that 71.7% (390/544) of the participants agreed that ‘memory can be inaccurate’ and 48.4% (263/544) of the participants disagreed that ‘memory is not influenced by suggestion’. However, we also found that 47.1% (256/544) of the participants agreed that ‘memory is like a computer/tape recorder/video camera, accurately recording events as they actually occurred’ and 60.3% (328/544) agreed that ‘everything we experience is stored permanently in the brain, even if we can’t access all of it’. Although many participants were skeptical about the functioning of memory by agreeing that memory can be inaccurate and can be influenced by suggestion, a majority of participants still held flawed beliefs about memory functioning which is in contrast with what we found in Study 1.

**Beliefs about the effects of lying and memory**

As in Study 1, our results demonstrated that participants overall agreed that lies can have adverse effects on memory (see Table 7). More specifically, 80.3% (437/544) of participants agreed that ‘people can believe in their own lies’; and 77.4% (421/544) of participants agreed that ‘people who repeatedly tell the same lie, will start to believe it is the truth’. Also, 74.3% (404/544) thought that ‘our lies can shape our identity’.

Furthermore, 74.8% (407/544) of the participants agreed that ‘people can have childhood memories that are based on lies’; 76.1% (414/544) of the participants agreed that ‘different types of lies can impact memory differently’. When asked about specific memory impairing effects caused by lying, 54% (294/544) of the participants agreed...
Table 6. Study 2. Agreement and disagreement with statements concerning belief and knowledge about memory functioning.

| Statements                                                                 | Strongly disagree | Somewhat disagree | Neither disagree nor agree | Somewhat agree | Strongly agree | N       | M(SD)  |
|---------------------------------------------------------------------------|-------------------|-------------------|---------------------------|----------------|----------------|---------|--------|
| Memory can be inaccurate                                                 | 19                | 3.5               | 49                        | 9.0            | 86             | 15.8    | 212    | 39.0    | 178             | 32.7         | 544             | 3.88 (1.07) |
| Memory is like a computer/tape recorder/video camera, accurately recording events as they actually occurred | 82                | 15.1              | 127                       | 23.3           | 79             | 14.5    | 182    | 33.5    | 74              | 13.6         | 544             | 3.07 (1.31) |
| Everything we experience is stored permanently in the brain, even if we can’t access all of it | 32                | 5.9               | 84                        | 15.4           | 100            | 18.4    | 222    | 40.8    | 106             | 19.5         | 544             | 3.53 (1.14) |
| Memory is not influenced by suggestion                                    | 106               | 19.5              | 157                       | 28.9           | 104            | 19.1    | 126    | 23.2    | 51              | 9.4          | 544             | 2.74 (1.27) |

Note. n stands for number of participants and % stands for percentage of participants that indicated a specific agreement. N stands for total sample size. SD stand for standard deviation.

Table 7. Study 2. Agreement and disagreement with statements concerning belief and knowledge about the effects of lying on memory.

| Statements                                                                 | Strongly disagree | Somewhat disagree | Neither disagree nor agree | Somewhat agree | Strongly agree | N       | M(SD)  |
|---------------------------------------------------------------------------|-------------------|-------------------|---------------------------|----------------|----------------|---------|--------|
| People can believe in their own lies                                      | 12                | 2.2               | 31                        | 5.7            | 64             | 11.8    | 276    | 50.7    | 161             | 29.6         | 544             | 4.00 (0.92) |
| People can have childhood memories that are based on lies                 | 3                 | 0.6               | 45                        | 8.3            | 89             | 16.4    | 247    | 45.4    | 160             | 29.4         | 544             | 3.95 (0.92) |
| Our lies can shape our identity                                           | 11                | 2.0               | 30                        | 5.5            | 99             | 18.2    | 261    | 48.0    | 143             | 26.3         | 544             | 3.91 (0.92) |
| People who repeatedly tell the same lie, will start to believe it is the truth | 9                 | 1.7               | 32                        | 5.9            | 82             | 15.1    | 274    | 50.4    | 147             | 27.0         | 544             | 3.95 (0.90) |
| People can easily separate the lie from the truth                         | 36                | 6.6               | 136                       | 25.0           | 135            | 24.8    | 157    | 28.9    | 80              | 14.7         | 544             | 3.20 (1.16) |
| Different types of lies can impact memory differently                     | 6                 | 1.1               | 22                        | 4.0            | 102            | 18.8    | 303    | 55.7    | 111             | 20.4         | 544             | 3.90 (0.80) |
| People who deny that an event happened (even though the event actually did happen) are likely to forget that event | 21                | 3.9               | 87                        | 16.0           | 142            | 26.1    | 220    | 40.4    | 74              | 13.6         | 544             | 3.44 (1.04) |
| People who pretend to have memory loss about an event are likely to forget that event | 31                | 5.7               | 104                       | 19.1           | 141            | 25.9    | 204    | 37.5    | 64              | 11.8         | 544             | 3.31 (1.08) |

Note. n stands for number of participants and % stands for percentage of participants that indicated a specific agreement. N stands for total sample size. SD stand for standard deviation.
that ‘people who deny that an event happened (even though the event actually did happen) are likely to forget that event’; and 49.3% (268/544) of the participants agreed that ‘people who pretend to have memory loss about an event are likely to forget that event’. However, a remarkable number of participants did not know about the specific memory impairing effects caused by lying. That is, approximately 26% of the participants neither disagreed nor agreed with either statement. While in Study 1 participants were certain that people have difficulties separating the lie from the truth (82.3%; 93/113), participants of Study 2 did not know whether ‘people can easily separate the lie from the truth’ wherein 31.6% (172/544) of participants disagreed; 24.8% (135/544) of participants neither disagreed nor agreed; and 43.6% (237/544) of participants agreed.

Participants’ experiences with lying
As in Study 1, we examined what participants’ personal experiences were with the effects of lying on their memory. We found that 37.3% of the participants (203/544) had a memory that was based on a lie they had told. Moreover, 42.9% of the participants (87/203) indicated that this memory that was based on a lie was provoked by false denials; 31.5% of the participants (64/203) indicated that it was caused by feigning amnesia; 22.7% of the participants (46/203) claimed that it was generated via fabrications; and 3% of the participants (6/203) revealed that another deceptive strategy was the causal factor.9 This is in contrast to the results of Study 1, wherein participants were more inclined to have memories based on lies that were caused by fabrication. Interestingly, as in Study 1 (52%; 13/25), the majority of the participants (66%; 134/203) discovered the memory was based on a lie because they remembered that they lied; 23.7% of the participants (48/203) were told by someone else that it was a lie; 8.9% of participants (18/203) discovered this via evidence such as photos, videos, or text messages that it was a lie; and 1.5% of the participants (3/203) indicated that it was simply impossible to have happened. Notably, out of the 203 participants that indicated to have a memory based on a lie, 108 of them (53.2%) indicated that they had childhood memories that were based on a lie.

False Denials and Memory. Participants were asked about their personal experiences with any memory impairing effects after having falsely denied. Exactly half of the participants (50%; 272/544) admitted that they once had falsely denied that something had happened to them (even though it did happen). Furthermore, of those 272 participants, the majority (62.9%; 171/272) indicated that they eventually came forward with the truth. Note that 60.8% of the participants (104/171) that eventually came forward with the truth claimed to eventually have difficulties in retrieving what truly occurred because of the initial false denials. There were participants that did not come forward with the truth after having falsely denied (n = 101) and 20.8% of them (21/101) started to believe that the entire event never took place.

Feigning Amnesia and Memory. Participants were asked about their personal experiences with any memory impairing effects after having feigned amnesia. Forty-one percent (226/544) of participants admitted that they once had feigned amnesia that something had happened to them. Furthermore, of those 226 participants, the majority (67.7%; 153/226) indicated that they eventually came forward with the truth. Of the participants that eventually came forward with the truth, 64.1% (98/153) revealed to have
difficulties in retrieving what truly occurred because they initially pretended to have memory loss. Of the participants that continued to feign amnesia for what had happened, 26% (19/73) started to believe that they lost their memory for the occurred event.

**Fabrication and Memory.** Participants were asked about their personal experiences concerning any memory impairing effects after having fabricated. Specifically, 56.5% of the participants (303/544) admitted that they once had fabricated a new story for something that had happened to them. Furthermore, of those 303 participants, the majority (61.1%; 185/303) indicated that they eventually came forward with the truth. Finally, 57.3% (106/185) of the participants that eventually came forward with the truth, claimed to have difficulties in retrieving what truly occurred because of their fabrications, while 26.3% (31/118) of participants that stuck to their fabricated story started to believe in it.

**Discussion**

As in Study 1, our findings imply that the majority of people lie on average 1 or more times a day and that this is not caused by a few prolific liars. That is, in contrast to previous studies (Halevy et al., 2014; Serota & Levine, 2015; Serota, Levina, & Boster, 2010; Verigin et al., 2019), the notion that lying is not that common among the general public might be inaccurate. Moreover, we found again a discrepancy in that the participants believed that people are generally honest in daily life while indicating to be dishonest on a daily basis themselves. Additionally, the general public also tended to believe that other people were more likely to lie for the given reasons (i.e. avoid punishment, avoid conflict, earn money, to create a better impression of oneself) than they themselves.

We also examined the belief of the general public concerning how memory works. What we found was that, although many participants were skeptical about the functioning of memory by agreeing that memory can be inaccurate and influenced by suggestion, the majority of the participants still held flawed beliefs such as that our memory can store every experience like a video camera. This is to some extent in line with the study by Patihis et al. (2014), wherein 85.9% of undergraduate students agreed that ‘memory can be unreliable’ while also showing that 66.7% of undergraduates agreed that ‘memory of everything experienced is stored permanently in brain, even if we can’t access all of it’. In line with previous research (Lynn et al., 2015; Magnussen et al., 2006; Patihis et al., 2014; Simons & Chabris, 2011), our findings suggest that laypeople continue to have mistaken beliefs about the workings of memory.

One of the major findings of Study 2 is that the general public believed that various types of lies exert different effects on memory. However, the participants did not know how exactly each deceptive strategy would impair memory. That is, the general public acknowledged that the relationship between lying and memory can be complex, but was uncertain about how exactly it worked. This is similar to the findings about the general public’s belief about memory functioning (Patihis et al., 2014), wherein people recognized that memory can be unreliable, yet still held flawed beliefs about for example repressed memories.

Moreover, we found that, in contrast to Study 1, the general public had more memories based on lies caused by false denials instead of fabrication. Research suggests that false denials are more likely to provoke omission errors than commission errors (Otgaar et al., 2014, 2016). Based on participants’ personal experiences, it seems that adopting the false
denials strategy might exert different memory effects such as false memories. Moreover, as in Study 1, our results indicated that memory impairing effects, such as forgetting, are more prevalent than commission errors, independent of the type of deceptive strategy that is adopted.

A noteworthy finding is that participants indicated that the impact of lying on memory is more detrimental for others than for themselves, as in Study 1. That is, participants claimed that other people can believe in their own lies, even for childhood events, and that this would happen if a lie is repeated. Additionally, they indicated that other people struggle to separate the lie from the truth. However, participants’ personal experiences with the effects of each specific lie on their memories suggests that their own lies do not exert such effects on their own memory. This favorable perception of themselves was observed again when we examined the reasons for why the participants lied themselves compared to the participants’ perception of the reasons why other people lie.

**General discussion**

Recent evidence has shown that different types of lies can impact memory differentially (Otgaar & Baker, 2018). That is, false denials and feigning amnesia can lead to omission errors (van Mangiulli et al., 2018; Oorsouw & Merckelbach, 2004, 2006; Otgaar et al., 2014, 2016), while fabrication can elicit false memories (Ackil & Zaragoza, 1998, 2011; Chrobak & Zaragoza, 2008). Moreover, false denials and feigning amnesia tend to decrease belief whereas fabrication can increase belief (Polage, 2004, 2012, 2019; Romeo et al., 2019). The main interest of the present studies was to examine whether the general public’s beliefs concerning the effects of lying on memory were in line with the scientific evidence on how lying can affect memory. Additionally, we assessed our participants’ beliefs concerning the functioning of memory and queried their deceptive behavior.

One of the most notable findings was that the majority of participants experienced an increase of omission errors caused by their lies, while only a few participants indicated that they started to believe in their own lies, irrespective of the type of deceptive strategy adopted. This is interesting for two reasons. On the one hand, it suggests that individuals’ experiences with the act of lying might actually reflect what experimental studies regarding false denials and feigning amnesia showed, namely that those deceptive strategies can lead to forgetting (Mangiulli et al., 2018; Otgaar et al., 2014, 2016; Romeo et al., 2019; Van Oorsouw & Merckelbach, 2004, 2006; Sun et al., 2009). On the other hand, it indicates a discrepancy between the personal experiences of participants with fabrication and its effects on memory and the scientific evidence (Ackil & Zaragoza, 1998, 2011). That is, participants indicated to experience more forgetting than starting to believe in their own lies, while studies typically show that fabrication leads to false memory formation. An explanation for the difference between the participants personal experiences and the forced fabrication literature (Ackil & Zaragoza, 1998, 2011; Chrobak & Zaragoza, 2008) can be that in experimental studies participants are oftentimes forced to fabricate without an incentive to do so. A recent study (Kouchaki & Gino, 2016) showed that when participants decided themselves to engage in dishonest behavior, their memories for their deceitful actions became less vivid and clear. Hence, it is possible that when participants
fabricate in daily life, they tend to have a clear motive resulting in forgetting of the dishonest behavior, instead of starting to believe in their own lies. Arguably, future research should delve into incentivized and forced fabrications in order to better establish their impact on memory.

Another important finding is that, in both studies, participants exhibited a general consensus that different types of lies can impact memory differently, despite knowing the specific mnemonic effects of such deceptive strategies. Hence, our results show that participants’ general beliefs on lying and memory mirrored those provided by the scientific literature (Otgaar & Baker, 2018). However, our participants did not know what the exact adverse effects were of lying on memory. Moreover, the participants rated the effects of lying on memory differently for others compared with themselves. That is, in general, our participants agreed that the impact of lying on memory was more severe for others than for themselves in that for example others would start to believe their lies while they would not. One explanation for this can be that participants have more information about their own experiences with lying and memory than the experiences of others (Akehurst et al., 1996). Our results also showed that the participants in both studies indicated that they discovered that their memories were based on a lie because they actually remembered that they have lied. This means that participants remember that they lied, and thus indicated that the effects of lying on their own memory were minimal. On the contrary, when people lack this information they might infer that lies do impact others’ memory more rigorously. Another explanation for why our participants indicated that the adverse effects of lying on memory are stronger for others compared with themselves, can be given by the better-than-average effect (Alicke et al., 1995). This effect suggests that people overestimate their abilities in many social and cognitive domains, especially when comparing themselves to an unidentified group (e.g. average college student). In the current studies, the participants constantly evaluated themselves and other people about deceptive behaviors but also in relation to how lying might impair memory. We found for both deceptive behavior and the effects of lying on memory that the participants tended to perceive themselves favorably compared with the others.

We also examined the type of deceptive strategy most frequently used by the participants. We observed that the undergraduate students and the general public tend to use false denials most frequently as their deceptive strategy. Interestingly, according to a study by van Oorsouw and Giesbrecht (2008), when participants are allowed to freely choose a deceptive strategy to minimize their involvement in a mock crime, all their participants decided to fabricate an alternative story for the event as their deceptive strategy. Hence, this might suggest that in crime-related circumstances people might opt for fabrication as deceptive strategy to use, while they would rather choose to falsely deny in daily life. However, it is also possible that false denials are more prevalent than previously given credit for. That is, London et al. (2008) showed that in child sexual abuse cases, victims rarely deny the event when they contact the authorities suggesting that false denials are not that commonly used (but see also Lyon et al., 2020). However, our results point towards the idea that in everyday life people lie one or multiple times a day, and often tend to use false denials as their deceptive strategy as opposed to fabrication or feign amnesia.
Although the majority of participants in both studies indicated that they were dishonest in daily life, they also believed that, in general, people tend to be honest. However, they also indicated that other people were more motivated to lie, for example if they were able to earn money with it. This discrepancy might be explained by the tenets of Attribution Theory (Böhm & Pfister, 2015; Heider, 1958; Kelley, 1967) which posits that behaviors of others are oftentimes judged to be caused by internal characteristics of an individual such as their motivations or beliefs (i.e. dispositional attribution). That is, for example, when someone fails an exam and people assume that it happened because he/she is lazy and never studies. On the other hand, individuals are more inclined to judge their own behavior based on external elements such as situational factors (i.e. situational attribution). For example, when a student fails a test and explains that it happened because he/she was feeling ill that day. It is possible, therefore, that participants judged the questions about the amount of lies that are told a day based on situational attributions suggesting that they lie on a daily basis for situational factors. Participants might not have considered these types of daily lies to indicate that they are dishonest and consequently used the same criteria to judge whether other people are also honest in daily life. However, it is likely that the questions about the reasons to lie were considered to be judged on dispositional attributions and therefore participants attributed them more strongly to other people.

One of the major differences between undergraduate students and the general public pertained to their personal experiences with the effects of lying on memory. Specifically, regardless of the type of deceptive strategy used, a larger portion of the general public indicated that they experienced adverse memory effects caused by their lies (e.g. forgetting and believing in their own lies) as compared with the undergraduate participants. A possible explanation can be that the general public more often experienced the effects of lying on memory because they were on average older than the undergraduate participants. So, the general public might have encountered more situations during their life wherein they lied and, as a consequence, experienced more often the adverse effects of lying on memory.

Moreover, our data showed that the undergraduate students and the general public have distinct beliefs about how memory works. That is, the undergraduate students’ responses were in accordance with the memory literature (Howe & Knott, 2015), while the results of Study 2 revealed that the general public continues to have incorrect beliefs about memory. Previous research suggested that certain beliefs of the general public on memory are more nuanced than previously postulated (Brewin et al., 2020; but see also Otgaar et al., 2019). Although our results of Study 1 point towards the idea that the student population has a more refined understanding of memory, the findings of Study 2 imply that misunderstandings about memory seem to persist in the general public.

In conclusion, our results indicated that participants grasped the notion of an intricate relationship between the effects of lying on memory, but lacked essential information about the specific contaminating effects. Moreover, our findings suggest that people tend to believe that the adverse effects of lying on memory are more severe for others’ compared with themselves. Note that our data can be informative to legal professionals and, more generally, law enforcement. Especially in some jurisdictions (e.g. United States of America), the general public is called upon to be part of the
legal system as jury members. In the courtroom, a vital component is to assess the reliability of statements, for example when people come forward with the truth after having lied. When jury members have preconceived notions about the effects of lying on memory, such as that those effects are more severe for others or uncertainty about the specific consequences, it can lead to possible rejections of reliable statements or admittance of unreliable statements (Fisher & Cutler, 1995). Hence, based on our results, we suggest that memory experts are needed to assess the reliability of statements. Finally, in line with experimental studies on the effects of false denials and feigning amnesia on memory, we found that participants experienced difficulties in retrieving memories after falsely denying or feigning amnesia, showing that it can indeed lead to forgetting.

Notes
1. Tables are provided with individual scores for each level of (dis)agreement.
2. Different deceptive strategies were given in written text by the participants. The majority of written responses coincided with fabricating a new story. However, we did not include this with fabrication as the participants thought they were different deceptive strategies.
3. The different deceptive strategy aligned most with fabricating a new story. However, we did not include this with fabrication as the participant indicated that it was a different deceptive strategy.
4. MTurk is an online crowdsourcing platform to recruit remote workers that complete Human Intelligence Tasks (HITs) such as psychological experiments or surveys.
5. We did not calculate an a priori sample size for Study 1 because we recruited the participants from the “criminological psychology” lecture. Hence, we simply recruited as many participants possible in Study 1.
6. MTurk participants were recruited by posting a hit named “Answer questions about your beliefs and knowledge about lying”. The requirements for MTurk participants were a HIT approval rate of 98% and more than 5000 HITs approved.
7. One participant responded that he/she was 120 years old. This was the maximum age. This was either a typo or the participant did not want to give his/her real age. For the mean age, hence, we excluded this participant.
8. Thirty-three participants claimed that they used a different deceptive strategy. However, analyzing their written responses did not reveal different deceptive strategies than the already given options. Thus, we excluded these participants because they indicated that they were different deceptive strategies. However, the rank order of the three deceptive strategies did not change when taking these written responses into account.
9. Again, other deceptive strategies coincided most with fabrication. However, we did not include these participants because they indicated that they were different deceptive strategies.

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