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Beliefs in repressed memory and dissociative amnesia from a cross-cultural lens

Henry Otgaar, Yikang Zhang, Chunlin Li and Jianqin Wang

Abstract

Purpose – This study aimed to examine beliefs in repressed memory and dissociative amnesia from a cross-cultural perspective.

Design/methodology/approach – Chinese ($n = 123$) and Belgian student participants ($n = 270$) received several statements tapping into various dimensions of repressed memory and dissociative amnesia. Participants provided belief ratings for each of these statements. Because the field of psychoanalysis is less well developed in China, it was expected that Chinese participants would believe less in repressed memory and dissociative amnesia than their Belgian counterparts.

Findings – Overall, beliefs in repressed memory and dissociative amnesia were high among all participants. Although confirmatory analyses revealed that most belief ratings concerning statements did not statistically significantly differ between the two samples, Chinese participants did statistically believe less that therapy can recover lost traumatic memories than Belgian participants. Also, exploratory analyses showed that Chinese participants were more critical towards the idea that traumatic memories can be unconsciously repressed and that these memories can be accurately retrieved in therapy than Belgian participants. Many participants also confused repressed memory with plausible memory mechanisms such as ordinary forgetting.

Originality/value – The current study extends previous surveys on repressed memory and dissociative amnesia by comparing their beliefs in different cultures.

Keywords *Repressed memory, Dissociative amnesia, Memory wars, WEIRD, Culture*

Paper type *Research paper*

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Introduction

A controversial topic in psychological science concerns the question whether traumatic memories can be unconsciously repressed (McNally, 2012; Otgaar *et al.*, 2019). The rationale behind repressed memory is that because of the overwhelming nature of trauma such as sexual abuse, people mentally protect themselves by repressing or blocking the traumatic memory from conscious awareness. Although scientific evidence speaks against the existence of repressed memory, many people continue to harbour a strong belief in repressed memory (e.g. see for examples Dodier *et al.*, 2019a, 2019b; Patihis *et al.*, 2014; Otgaar *et al.*, 2022a, 2022b). In the current study, we examined potential cultural differences in believing in repressed memory.

The debate on repressed memory

In the 1990s, scientific interest in the topic of repressed memory exploded. A major reason for the increased interest came from legal cases in which people recovered memories of sexual abuse during therapy that they did not have before therapy (Loftus, 1994). Because

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of these traumatic memories, some of them filed complaints to the police and initiated legal proceedings (Piper *et al.*, 2008). Many clinicians reasoned that these recovered memories were formerly repressed and due to therapeutic techniques such as hypnosis were unearthed from the unconscious (Loftus, 1994; Patihis *et al.*, 2014). However, other scholars (mainly memory researchers) posited that these therapeutic interventions were suggestive, thereby increasing the likelihood that these recovered memories were in fact false memories. Furthermore, these scholars asserted that traumatic memories are not repressed but are actually well remembered and that failures to remember traumatic memories could be caused because of plausible alternative explanations such as a lack of disclosure or ordinary forgetting (Otgaar *et al.*, 2019; Otgaar *et al.*, 2022a, 2022b). This debate on the existence of repressed memory has also been termed the memory wars (Crews, 1995).

Some scholars have avowed that these memory wars have ended (Barden, 2016; McHugh, 2003; Paris, 2012). However, there are strong signs that the debate lingers on in academic, clinical and legal settings (Lynn *et al.*, 2023; McNally, 2022; Otgaar *et al.*, 2019). One indication that this debate continues is that instead of the term repressed memory, dissociative amnesia is now frequently used to denote unconscious memory loss for trauma but it is basically the same as repressed memory (Pope *et al.*, 2023). Dissociative amnesia is described as a mental disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), and its diagnosis criteria largely overlap with the tenets of repressed memory (Mangiulli *et al.*, 2022; Otgaar *et al.*, 2019; Pope *et al.*, 2023). Specifically, in both repressed memory and dissociative amnesia, psychological trauma such as sexual abuse is the root of the memory loss; traumatic memories are unconsciously stored; and traumatic memories can be successfully and accurately recovered at a later moment.

Although the embedding of dissociative amnesia in the DSM-5 might validate the idea behind unconscious traumatic memory loss, Mangiulli *et al.* (2022) recently conducted a critical review on all case studies on dissociative amnesia and examined whether these dissociative amnesia cases met the core features of the DSM-5. None of them did. Specifically, it was found that oftentimes, the purported memory loss was not a result of repression due to psychological trauma but the outcome of other plausible alternative mechanisms. To give some examples, in some cases, it could not be ruled out that the alleged memory loss might have been feigned or be the result of ordinary forgetting.

Moreover, there is evidence showing that therapists continue to discuss the existence of repressed memory with their patients. For example, Patihis and Pendergrast (2019) surveyed 2,326 US citizens and asked them whether they had ever undergone therapy and if so, whether their therapist discussed that they had a repressed memory. Nine percent of the sample indicated to have a therapist discussing the possibility of a repressed memory. Furthermore, 5% of the total sample reported to have a recovered memory of abuse during therapy that they were unaware of before therapy. This research has since then been replicated in an US undergraduate sample (Patihis *et al.*, 2022) and in a sample from the French general population (Dodier *et al.*, 2019a, 2019b). Apart from these survey studies which give us more generalizable but coarse-grained analyses, case studies exist detailing the sometimes troublesome practice of therapists suggesting to their patients that they were abused. A case in point is a recent Italian case in which a therapist was convicted because of implanting false memories of abuse in a young girl (Otgaar *et al.*, 2023; see also Dodier *et al.*, 2023). In this case, the therapist suggested to a young girl that she was abused by her father. Although she had no recollection of this experience at the start of the therapy, she gradually started to recover a memory of abuse perpetrated by her father. Another sign that the memory wars endure is research showing that people continue to strongly believe in repressed memory.

Believing in repressed memory

Since the 1990s, researchers have asked various cohorts of people about their belief in repressed memory. One of the reasons to showcase this belief in these groups is because it might explain why therapists engage in suggestive practices during treatment. That is, when therapists believe that traumatic memories become unconsciously blocked, they might suggestively delve into their patients' memory in an attempt to recover these blocked memories (Gore-Felton *et al.*, 2000). Yapko (1994a, 1994b) was one of the first surveying clinicians about their belief in repressed memory. He showed that 59% ($n = 513$) of clinicians believed that "events that we know occurred, but can't remember are repressed memories" (p. 231). Merckelbach and Wessel (1998) tested licensed psychotherapists and found that 98% ($n = 25$) were confident in the existence of repressed memory. Although in this period, a swath of critical papers were published about the controversial elements underpinning repressed memory (Loftus and Davis, 2006; McNally, 2005; Piper *et al.*, 2008; Rofé, 2008), this work did not completely abolish the belief in repressed memory.

For example, Kemp *et al.* (2013) showed that 89% ($n = 333$) of surveyed clinical psychologists endorsed the belief that traumatic memories of childhood abuse could be blocked for many years. Also, Patihis *et al.* (2014) showed that 60.3% ($n = 35$) of clinical practitioners and 69.1% ($n = 56$) of psychoanalysts believed that traumatic memories are frequently repressed. We recently collected all survey studies and found that overall 58% ($n = 4,745$) of the surveyed participants (e.g. students, psychologists) were to some extent confident that traumatic memories can be repressed (Otgaar *et al.*, 2019). Interestingly, when focusing on surveyed clinical psychologists, compared with the statistics from the 1990s (61%, $n = 719$), the percentage of participants who indicated to believe in repressed memory was even higher in the 2010s and onward (76%; $n = 1,586$).

Although these studies are informative in the sense that they show that the belief in repressed memory remains omnipresent, they also carry several limitations. First, in most of these studies, participants only received one item concerning repressed memory. However, repressed memory is a complex phenomenon which cannot be simply captured by one item (Brewin *et al.*, 2020). Therefore, in the past years, researchers started to provide participants several items tapping into different dimensions and variations of repressed memory to gauge their beliefs. For example, in a previous study, participants were asked whether traumatic memories are often repressed and if they agreed with this statement, follow-up questions were given asking whether traumatic memories are inaccessible and unconscious during repression (Otgaar *et al.*, 2020). We found that 89.5% ($n = 909$) of participants agreed that traumatic memories are frequently repressed and of these, 73.7% ($n = 670$) indicated that people are unaware of these memories during repression and 80.9% ($n = 735$) agreed that traumatic memories are unconscious during repression. Similar results were obtained by Dodier *et al.* (2022).

A second limitation of the single-item approach studying repressing memory by most of the aforementioned survey studies is that they omitted statements on dissociative amnesia and were thus unable to examine beliefs on dissociative amnesia. Recently, several studies have also asked student populations about their beliefs in dissociative amnesia (Mangiulli *et al.*, 2022; Otgaar *et al.*, 2023; Sauerland and Otgaar, 2022). Similar to survey studies regarding repressed memory, a significant majority of participants endorsed the existence of dissociative amnesia or the idea that traumatic memory could be unconsciously blocked and recovered at a later stage.

Third, the large majority of survey studies on repressed memory have relied on samples from WEIRD countries (Western, educated, industrialized, rich and democratic, Muthukrishna *et al.*, 2020), such as the USA, the UK and the Netherlands. Only a few survey studies have included participants from other parts of the world. Specifically, Kagee and Breet (2015) tested psychologists from South Africa on their knowledge on repressed

memory, and the large majority of participants accepted the existence of repressed memory. [Sumampouw et al. \(2022\)](#) asked Indonesian police officers and psychologists about – amongst others – their belief in repressed memory. Interestingly, psychologists were more likely to endorse the notion of repressed memory than police officers (see also [Chung et al., 2022](#), for similar results in Malaysia).

Even though plenty of insights were offered by the studies mentioned, both from WEIRD and (limited) non-WEIRD populations, examining the beliefs in repressed memory in single cultures preclude the possibility to directly compare beliefs in repressed memory between WEIRD and non-WEIRD countries. Why this would be interesting to do is because from a theoretical perspective, sociocultural influences could be one of the antecedents for beliefs in repressed memory and dissociative amnesia ([Lynn et al., 2014](#)). Specifically, according to the sociocognitive model of dissociation, expectations on how traumatic memories are remembered could be linked to cultural differences. That is, the idea of repressed memory has its origins in psychoanalytic traditions ([Ellenberger, 1970](#)), and these traditions are heavily rooted in Europe. In contrast, although countries such as China teach psychoanalysis, its development is less elaborate relative to European countries ([Huang and Kirsner, 2020](#); [Qing-xu, 2000](#)). Furthermore, while psychoanalytic theories would postulate that traumatic memories are unconsciously blocked, Chinese philosophies such as the Confucian, Taoist and Buddhists schools of thought render different views concerning trauma. In these Chinese (and Eastern) traditions, values as accepting, tolerating and enduring traumatic experiences are prioritized ([Zheng and Gray, 2015](#)). Based on these observations, one might posit that beliefs in repressed memory (and dissociative amnesia) are more pronounced in Western samples than in Chinese samples.

The current study

In the current study, we compared beliefs in repressed memory and dissociative amnesia among a Chinese and Belgian sample. Participants received a collection of statements measuring different dimensions of repressed memory and dissociative amnesia and were instructed to provide agreement ratings to each statement. Our main hypothesis was that Chinese participants were less likely to endorse statements of repressed memory and dissociative amnesia than the Belgian sample.

We also had two exploratory aims. In line with previous studies ([Otgaar et al., 2019](#)), for some statements (e.g. “Memories of traumatic events, such as abuse, can be inaccessible for many years waiting to be recovered”), we added follow-up questions (e.g. “Memories of traumatic events are automatically made inaccessible by the brain until individuals are ready to recover the memory”) to obtain more information on what people mean when they endorse beliefs in repressed memory. Second, we also added several statements to explore whether people confuse repressed memory with ordinary memory mechanisms such as ordinary forgetting or the reconstructive nature of memory.

Method

Participants

Sample size planning. We expected that Chinese participants will agree less with statements concerning repressed memory and dissociative amnesia than Western participants. The smallest effect size of interest is then a 1-point difference between a score of 5 (somewhat agree) and a score of 4 (neither agree nor disagree). Based on this difference, we calculated Cohen’s *d* in which we used a difference of 1 and a standard deviation of 1.10. The standard deviation was based on the mean standard deviation obtained in a previous survey study using similar statements ([Otgaar et al., 2022a, 2022b](#)). We ran an *a priori* power analysis using G*Power 3.1 ([Faul et al., 2009](#)) for a two-tailed *t*-test

for the smallest effect size of interest: Cohen's $d = 0.91$ with $\alpha = 0.0017$ (adjusted for multiple testing), $1 - \beta = 0.95$, and an allocation ratio of 1. Results showed that a sample of 116 (58 for each group) participants would be sufficient. We pre-registered the present study at <https://osf.io/7xykm> and all data and materials can be found on https://osf.io/jcxdm/?view_only=. The study was approved by the standing ethical committee of KU Leuven and Fudan University.

Belgian sample. The Belgian sample consisted of 270 master students from Faculty of Law and Criminology, KU Leuven, following a master course on legal psychology. A total of 273 students completed the survey as part of their coursework, among which three failed to answer the attention check questions correctly and were removed from analyses. The mean age of the sample was 21.49 years with a standard deviation of 1.51. Seventy-five (27.8%) participants were male, 194 participants (71.9%) were female and one participant (0.4%) chose to not disclose their gender. Participants had to complete the survey during the first lecture of the course because in the course, lectures were – amongst others – given on trauma and memory.

Chinese sample. The Chinese sample contained 119 bachelor and master students at Fudan University. The bachelor students were following an introductory psychology course, and the survey was administered during the second lecture of the course. To make the two samples more comparable, we additionally recruited master's students from Faculty of Law, Fudan University. Participants could choose either course credits or a monetary payoff of as compensation. A total of 123 students completed the survey, among which, four failed to answer the attention check questions correctly and were removed from analyses. The mean age of the sample was 19.89 years with a standard deviation of 2.43. Thirty-three (27.7%) participants were male, 84 participants (70.6%) were female and two participants (1.7%) chose to not disclose their gender.

Materials and procedure

Statements regarding repressed memory and dissociative amnesia. The survey included 30 statements from Study 3 of Otgaar *et al.* (2022a, 2022b), among which 8 statements were assessing beliefs regarding repressed memories, 18 statements were more focused on dissociative amnesia and 4 remaining statements asked about memories about emotions [1]. Following Otgaar *et al.* (2022a, 2022b), some statements were presented as follow-up questions and would only appear if participants indicated they agree with the previous statement to a certain extent (i.e. >4 on a 7-point scale). In addition to these 30 statements, we also added one more statement probing repressed memory ("Traumatic memories are often unconsciously repressed") and four questions examining how participants consider the relationships between repressed memory and ordinary forgetting as well as reconstruction. All statements were rated on a 7-point scale from 1 = strongly disagree to 7 = strongly agree. The Chinese version of the statements was translated by Y.Z., C.L. and J.W. (all native Chinese speakers). Any disagreements regarding translation were solved by discussion. All the items in both English and Chinese are presented on <https://osf.io/jcxdm/>.

Procedure

After giving informed consent, participants first filled in demographic questions including age, gender, nationality, education level and major (if education level was bachelor or above). Then, they were presented with a question asking their knowledge about dissociative amnesia ("Do you know about dissociative amnesia?", Option: "Yes, very familiar", "Yes, a little", "No"). For participants who indicated that they do not know about dissociative amnesia, the block of 18 questions asking their beliefs about dissociative amnesia were skipped, and the remaining statements probing belief about repressed

memory, emotional memory and alternative explanations were presented. If participants indicated that they know that phenomenon, all items were presented (see for the items: <https://osf.io/jcxdm/>). This was done to avoid asking participants to respond to questions that make no sense to them.

After responding to the statements probing repressed memory and dissociative amnesia, participants answered four questions about their knowledge of psychoanalysis and Confucius thoughts on a 7-point scale (1 = Not at all familiar, 7 = Extremely familiar). The four questions were (1) "Have you ever heard of Freud?"; (2) "Have you ever heard of Confucius?"; (3) "Have you read any theories from the Freudian school of psychoanalysis?"; (4) "Have you ever read any books/texts introducing the Confucius school of thoughts?"

Results

Confirmatory analyses: belief ratings in repressed memory and dissociative amnesia

We preregistered to use Welch's tests to compare belief ratings between Chinese and Belgian participants. However, because of violations of normality, we conducted Mann-Whitney *U* tests. We also corrected for multiple testing, and because we had eight statements on repressed memory, we used an alpha level of $0.05/8 = 0.006$. Our results did not detect any statistically significant differences between the Chinese and Belgian participants in terms of repressed memory beliefs (see Table 1). For the statement "Repressed memories of traumatic events can be retrieved in therapy accurately", we did obtain a difference with a *p*-value of 0.008 but because of our more stringent correct *p*-value, this was not deemed statistically significant.

We also examined whether Chinese and Belgian students differed in their endorsement ratings regarding dissociative amnesia. Because we used 14 statements measuring dissociative amnesia, we corrected for multiple testing leading to an alpha level of $0.05/14 = 0.004$. Here too, because of violations of normality, we performed Mann-Whitney *U* tests. No statistically significant effects emerged, except for one statement (see Table 1). That is, Chinese participants statistically significantly believed less that "therapy can help people with dissociative amnesia to recover their buried memories". Interestingly, a chi-square analysis showed that Chinese participants were less familiar with the concept of dissociative amnesia than Belgian participants [$\chi^2(2) = 13.42, p = 0.001, \text{Cramer's } V = 0.19$].

Exploratory analyses

We conducted several exploratory analyses. Firstly, we explored whether our findings concerning beliefs in repressed memory and dissociative amnesia would change when we only included participants who were familiar with Freud or Confucius. To do this, we computed a mean score for the Freud- and Confucius-related questions by summing up the respective Freud (or Confucius) questions and dividing them by two. Then, scores of or above 4 were categorized as having knowledge on Freud (or Confucius) and scores below 4 were labelled as having no knowledge on Freud (or Confucius). When we re-analysed all data including only participants with or without knowledge in Freud (or Confucius), belief ratings again did not statistically differ between the Chinese and Belgian sample for the repressed memory statements. For the dissociative amnesia statements, results also did not change when we only included participants with knowledge on Freud. Similarly, when we only included participants with knowledge on Confucius, no statistically significant effects emerged.

Secondly, because of the absence of statistically significant differences between the Chinese and Belgian sample, we calculated Bayes' Factors with a Cauchy prior of 0.707

Table 1 Repressed memory and dissociative amnesia statements and belief ratings/percentages

<i>Item</i>	<i>Statements</i>	<i>Endorsed belief % (n)</i>	<i>Chinese Mean (SD)</i>	<i>Belgian Mean (SD)</i>	<i>Chinese % (n)</i>	<i>Belgian % (n)</i>
1	Traumatic memories are often unconsciously repressed	90.1 (328)	5.08 (1.34)	5.35 (0.96)	82.9 (92)	93.3 (236)
2	Repressed memories of traumatic events can be retrieved in therapy accurately	81.6 (262)	4.56 (1.35)	4.90 (1.01)	68.1 (64)	87.2 (198)
3	Hypnosis can accurately retrieve memories of events that did happen but were previously not known to the client/patient	51.5 (134)	4.23 (1.24)	3.93 (1.28)	60.8 (48)	47.5 (86)
4	Memory of everything experienced is stored permanently in the brain, even if we cannot access all of it	63.3 (213)	5.33 (1.54)	4.10 (1.55)	81.3 (87)	55.3 (126)
5	A poor memory for childhood events is indicative of a traumatic childhood	30.6 (103)	3.77 (1.68)	3.06 (1.45)	44.5 (49)	23.8 (54)
6	When someone has a memory of a trauma while in hypnosis, it objectively must have occurred	17.7 (53)	3.38 (1.28)	3.02 (1.14)	26.8 (26)	13.3 (27)
7	Unconscious memories of trauma, such as abuse, can lead to depressive symptoms	95.6 (348)	5.46 (1.04)	5.57 (0.93)	93.7 (104)	96.4 (244)
8	Memories of traumatic events, such as abuse, can be inaccessible for many years waiting to be recovered	90 (306)	5.35 (1.11)	5.10 (1.09)	92.2 (95)	89 (211)
1	Dissociative amnesia is an essential human response to traumatic events, such as combat, crimes, natural disasters, rape and childhood abuse	90 (90)	5.00 (1.05)	5.14 (1.13)	93.3 (14)	89.4 (76)
2	It is possible that most of the time memories that were previously blocked resurface after recovering from dissociative amnesia	88.4 (84)	5.16 (1.17)	5.22 (1.10)	92.3 (12)	87.8 (72)
3	People suffering from dissociative amnesia can develop one or more new identities	72.9 (62)	5.21 (0.92)	4.44 (1.26)	89.5 (17)	68.2 (45)
4	People suffering from dissociative amnesia forget how to use common objects, such as forks, computers or cars	13.3 (12)	2.90 (1.24)	2.86 (1.25)	18.8 (3)	12.2 (9)
5	People who commit severe and violent crimes can develop dissociative amnesia for those events	87.2 (82)	5.05 (1.27)	4.97 (1.10)	86.7 (69)	87.3 (69)
6	People suffering from dissociative amnesia are unaware of their amnesia	52.9 (45)	4.26 (1.56)	4.01 (1.27)	56.3 (9)	52.2 (36)
7	People suffering from dissociative amnesia cannot recall their own birthday	8 (7)	3.21 (1.36)	2.62 (1.10)	18.8 (3)	5.6 (4)
8	Growing up in an emotionally abusive environment leads people to developing dissociative amnesia	85.4 (82)	5.11 (0.88)	4.96 (1.15)	89.5 (17)	84.4 (65)
9	People with dissociative amnesia do not remember most of their life	10.9 (11)	3.47 (1.22)	2.59 (1.03)	29.4 (5)	7.1 (6)
10	People with dissociative amnesia usually have impairments in all aspects of functioning	15.9 (13)	3.00 (1.41)	3.17 (1.16)	22.2 (4)	14.1 (9)

(continued)

Table 1

Item	Statements	Endorsed belief % (n)	Chinese Mean (SD)	Belgian Mean (SD)	Chinese % (n)	Belgian % (n)
11	Therapy can help people with dissociative amnesia to recover their buried memories	98.1 (102)	5.11 (0.81)	5.71 (0.79)	100 (14)	97.8 (88)
12	Dissociative amnesia is an innate capacity of the brain to expel traumatic memories from consciousness	97.9 (92)	5.58 (0.90)	5.42 (0.92)	100 (16)	97.4 (76)
13	Dissociative amnesia can be viewed as a blocking mechanism	98.1 (101)	5.74 (0.81)	5.63 (0.86)	100 (18)	97.6 (83)
14	Dissociative amnesia is a natural phenomenon that has been documented throughout history	58.6 (41)	4.26 (1.41)	4.15 (1.19)	58.8 (10)	58.5 (31)

Notes: The repressed memory ratings are based on $n = 270$ (Belgian sample) and $n = 119$ (Chinese sample). The dissociative amnesia ratings are based on $n = 92$ (Belgian sample) and $n = 19$ (Chinese sample). Percentages in italics designate statistically significant differences between the Chinese and Belgian samples ($ps < 0.006$)

Source: Authors' own creation

(see Table 2). As can be noticed from the table, for most comparisons, our data supported the null hypothesis that there was no difference in belief ratings between the two samples. However, for three items (“Traumatic memories are often unconsciously repressed”, “Repressed memories of traumatic events can be retrieved in therapy accurately” and “Therapy can help people with dissociative amnesia to recover their buried memories”), our

Table 2 Bayes' factors between the Chinese and Belgian sample in terms of repressed memory and dissociative amnesia

Item	Statements	Bayes' factor BF ₀₁
1	Traumatic memories are often unconsciously repressed	0.41
2	Repressed memories of traumatic events can be retrieved in therapy accurately	0.09
3	Hypnosis can accurately retrieve memories of events that did happen but were previously not known to the client/patient	24.92
4	Memory of everything experienced is stored permanently in the brain, even if we cannot access all of it	145.51
5	A poor memory for childhood events is indicative of a traumatic childhood	44.43
6	When someone has a memory of a trauma while in hypnosis, it objectively must have occurred	30.53
7	Unconscious memories of trauma, such as abuse, can lead to depressive symptoms	3.12
8	Memories of traumatic events, such as abuse, can be inaccessible for many years waiting to be recovered	25.17
1	Dissociative amnesia is an essential human response to traumatic events, such as combat, crimes, natural disasters, rape and childhood abuse	2.58
2	It is possible that most of the time memories that were previously blocked resurface after recovering from dissociative amnesia	3.31
3	People suffering from dissociative amnesia can develop one or more new identities	12.60
4	People suffering from dissociative amnesia forget how to use common objects, such as forks, computers or cars	4.22
5	People who commit severe and violent crimes can develop dissociative amnesia for those events	4.77
6	People suffering from dissociative amnesia are unaware of their amnesia	6.24
7	People suffering from dissociative amnesia cannot recall their own birthday	10.80
8	Growing up in an emotionally abusive environment leads people to developing dissociative amnesia	5.51
9	People with dissociative amnesia do not remember most of their life	15.35
10	People with dissociative amnesia usually have impairments in all aspects of functioning	2.42
11	Therapy can help people with dissociative amnesia to recover their buried memories	0.05
12	Dissociative amnesia is an innate capacity of the brain to expel traumatic memories from consciousness	5.96
13	Dissociative amnesia can be viewed as a blocking mechanism	5.38
14	Dissociative amnesia is a natural phenomenon that has been documented throughout history	4.96

Source: Authors' own creation

data seemed to favour more the hypothesis that the Belgian participants had stronger endorsement rates than the Chinese participants.

Indeed, when we looked at alternative way on whether participants endorsed beliefs in repressed memory and dissociative amnesia, we found converging evidence for our Bayesian analyses. In this alternative way, the idea is to categorize participants into having or having no belief in these memory phenomena. So, ratings of 1–3 were labelled as no belief, while ratings 5–7 were marked as belief. We first examined overall belief percentages in repressed memory and dissociative amnesia. Concerning repressed memory, participants did not uniformly strongly believe in all aspects related to repressed memory. For example, the highest percentages were found for the statements that unconscious memory of trauma can lead depressive symptoms (95.6%, $n = 348$) and that traumatic memories can be unconsciously repressed (90.1%, $n = 328$). In contrast, statements that included hypnosis were oftentimes less likely to be believed (see [Table 1](#)).

More interestingly, using chi-square statistics, when we examined these percentages between the Chinese and Belgian sample, some of the repressed memory beliefs statistically significantly differed between the two samples (see [Table 1](#)). In line with our hypothesis and the formed Bayesian analyses, fewer Chinese participants endorsed the belief that traumatic memories can be unconsciously repressed than their Belgian counterparts. This was also the case for the statement that repressed memories can be accurately retrieved in therapy. For three other items (4, 5 and 6), more Chinese participants endorsed beliefs on issues related to memory and trauma than Belgian participants. No statistically significant differences emerged between Chinese and Belgian participants concerning the dissociative amnesia statements. Note that the Bayesian analyses were not pre-registered.

We also explored how these findings would differ when concentrating only on participants with knowledge on Freud or Confucius. For the repressed memory statements, we found the following. When only participants were incorporated with knowledge on Freud, belief rates for four statements remained statistically significant between the samples (repressed memory items: 1, 2, 4 and 5). Including participants with knowledge on Confucius, belief rates for three statements continued to be statistically significantly different between the sample (repressed memory items 4, 5 and 6; see [Table 1](#)). For the dissociative amnesia, only for participants with knowledge on Confucius, one statement (dissociative amnesia item 9) still statistically significantly differed between the two samples.

Thirdly, we examined the percentages of participants who endorsed beliefs in the five follow-up questions (see [Table 3](#)). As can be seen, percentages ranged between 46.6% and 95.2%. Fourthly, we analysed the four questions in which alternative views on repressed memory were mentioned (see [Table 4](#)). The table shows here that many participants likely mean something else when they indicate to endorse a belief in repressed

Table 3 Beliefs in follow-up questions concerning repressed memory or dissociative amnesia

Item	Statement	Endorsed belief % (n)
8-1	Memories of traumatic events are automatically made inaccessible by the brain until individuals are ready to recover the memory	46.6 (117)
11-1	Therapists should look for any type of psychological stressor in their patients' life	95.2 (80)
12-1	The brain expels traumatic memories automatically without people consciously being aware of it	88.5 (77)
13-1	The inability to remember the past is a psychological form of coping with the trauma	93.8 (90)
14-1	Dissociative amnesia, like other psychological phenomena (e.g. hallucinations, depression, anxiety and dementia), appears in written books throughout ages	83.9 (26)

Source: Authors' own creation

Table 4 Beliefs in alternative views on repressed memory

Item	Statement	Endorsed belief % (n)
1	It is possible that people who claimed to have retrieved repressed memories in fact only reconstructed their previous experience of the event	92.4 (254)
2	When people forget details of a traumatic event, they have repressed the traumatic details	50.8 (129)
3	When people do not remember a past event as traumatic but later reappraise it as traumatic, it means that they have repressed a traumatic memory previously	42.2 (136)
4	Traumatic events can be simply forgotten by an individual without the influence of additional unconscious psychological mechanisms	54.1 (165)

Source: Authors' own creation

memory. For example, half of the participants (50.8%) seemed to confuse ordinary forgetting with repressed memory.

Discussion

The core aim of the current study was to examine beliefs in repressed memory and dissociative amnesia from a cross-cultural lens. Chinese and Belgian participants received several statements tapping into dimensions of repressed memory and dissociative amnesia. Their task was to provide endorsement ratings to these statements. The following key findings emerged.

First, our confirmatory analyses on belief ratings concerning repressed memory and dissociative amnesia between Chinese and Belgian participants, we only found that Chinese subjects were less likely to believe that therapy can recover buried memories than Belgian subjects. For the rest of the statements, no statistically significant differences emerged. This seems to suggest that beliefs in repressed memory between a Western and Asian culture are highly similar if not the same. However, caution should be exerted to this finding. Specifically, ratings concerning repressed memory and dissociative amnesia were frequently around the midrange of the scale (around 4). This might indicate that many participants did not have any profound belief or disbelief in repressed memory or dissociative amnesia. Indeed, when we split participants in belief versus no belief in repressed memory, fewer Chinese participants believed that trauma can be unconsciously repressed and that unconscious traumatic memories can be accurately recovered in therapy than Belgian participants. These results were supported by our exploratory Bayesian analyses evincing as well that Belgian participants believed more in these dimensions concerning repressed memory than Chinese participants.

Of course, the findings that Chinese participants were less confident in certain issues on repressed memory than Belgian participants should be treated with care as they were conducted in an exploratory fashion. Also, even though we found statistical differences between the two samples in the exploratory analyses, another important message that many Chinese participants still believed in repressed memory (e.g. 82.9%) should not be lost in this communication. So, even though there might be differences in repressed memory between the two samples, beliefs in repressed memory were quite profound in our Chinese sample. Furthermore, apart from the several statistical differences, the majority of our analyses did not show any statistically significant differences regarding repressed memory and dissociative amnesia between the Chinese and Belgian sample. In general, this implies that certain beliefs related to repressed memory and dissociative amnesia are invariant and high across countries. This was also shown by the answers to the follow-up questions that we asked concerning repressed memory and dissociative amnesia. More

precisely, when we asked participants more in-depth questions on what they mean with repressed memory, many continued to endorse these in-depth questions.

Second, part of our reasoning was that contemporary Chinese culture is less psychoanalytically focused than their Western counterpart which could lead to fewer beliefs in repressed memory and dissociative amnesia. We attempted to measure this by asking participants on whether they were familiar with and/or read Freudian (and Confucian) literature. However, when we analysed our results zooming in on participants with knowledge on Freud or Confucius, our pattern of results did not strongly deviate. This finding might go against the idea that topics such as dissociative amnesia and repressed memory have an underlining sociocultural origin (Lynn *et al.*, 2014). However, in retrospect, our measurement of knowledge on Freudian and Confucian literature might be considered a crude measure. Future research might focus on obtaining more objective knowledge on what type of educational recourses Chinese students receive on Freudian and Confucian literature and its link with traumatic memory. For example, future research could attempt to gather the exact courses that psychology students receive on traumatic memory, Freud and Confucius and that these students are tested on their beliefs of repressed memory and dissociative amnesia.

Third, in the current study, we included several statements intended to measure alternative views on repressed memory and dissociative amnesia. For example, we asked participants whether they equated ordinary forgetting with repressed memory. Interestingly, a high percentage of participants (92.4%) indicated that the retrieval of repressed memories might actually be due to memories being reconstructed over time. Also, about half of participants equated the ordinary forgetting of memories to the repression of memories. What these findings tell us is that at least in certain participants, repressed memory is confused with ordinary memory mechanisms such as ordinary forgetting or the reconstructive nature of memory. Furthermore, these findings imply that among participants who self-report to believe in repressed memory, there may exist distinct subgroups that hold vastly different beliefs when being examined closely. One subgroup consists of people who strongly endorse the notion that traumatic memories are unconsciously repressed and inaccessible (see also Otgaar *et al.*, 2020). Another subgroup likely contains people who actually have correct knowledge about the functioning of memory but confuse it with repressed memory. Future research might dig into the potential discovery of such subgroups. Another explanation for our finding that participants seemed to confuse forgetting with repressed memory has nothing to do with a confusion between these two concepts. That is, some participants who endorsed this item might believe that repression is just one mechanism leading people not to report an experienced event [2].

Fourth, our exploratory analyses showed that more Chinese participants believed in certain statements than Belgian participants. These statements referred to issues on that all of our memories are permanent, that worse memory of one's childhood is indicative of childhood trauma and the link between hypnosis and trauma in which hypnosis is used to recover repressed memories of trauma. These results confirm earlier suggestions that when conducting survey research on repressed memory, it is advisable to include more items related to repressed memory to capture a fuller picture on what people truly believe about trauma, memory and repression (Brewin *et al.*, 2020).

Our study suffers from several limitations. Firstly, only participants who indicated to know what dissociative amnesia is received statements on dissociative amnesia. Our results showed that many participants did not know what dissociative amnesia was leading to a reduction in sample size, limiting the statistical power of some analyses. With this knowledge in mind, in future studies, researchers might recruit even more participants to address this high attrition. Or these studies might involve qualitative methodologies dissecting beliefs about repressed memory with in-depth interviews. Secondly, the current study concentrated on student samples while much concern has been raised that therapists believe in repressed memory. Therefore, survey studies on repressed memory might include clinical psychologists and/or therapists. Thirdly, our studies involved students

as participants which are more educated than the rest of the population. Therefore, our findings cannot be directly generalized to the rest of the population. Future research could attempt to recruit a wider variety of participants from the general population.

From a practical perspective, the finding that for some statements, Chinese participants were less likely to believe in repressed memory than Belgian participants should not be seen as too optimistic. First, and has been mentioned earlier, endorsement rates among both samples concerning issues related to repressed memory and dissociative amnesia were still rather high. Misconceptions about the functioning of memory might have drastic consequences, especially when they appear in clinical or legal contexts. Specifically, when therapists adhere to such misconceptions such as repressed memory, there is a chance that they will suggest their patients that they have repressed memories of abuse, which could end up in false accusations and even wrongful convictions. Second, there is data showing that some Chinese wrongful convictions were related to reliance on memory aberrations (Wang *et al.*, 2018). What these data show is that it is vital that science-based knowledge is present in groups such as legal professionals and clinicians to evaluate the authenticity of memory reports more critically. One promising way to increase scepticism is by providing education on the science of memory. Specifically, we have shown in recent studies that when students received education on the science of memory, they became more critical towards topics such as repressed memory and repressed memory (Otgaar *et al.*, 2023; Sauerland and Otgaar, 2022).

To conclude, our study is the first examining beliefs in repressed memory from a cross-cultural angle. Considering the fact that most of psychological research has been conducted in Western societies (Muthukrishna *et al.*, 2020), our study adds to a growing body of research examining the functioning of memory and its applied relevance in Asian countries (Maulina *et al.*, 2021; Sumampouw *et al.*, 2020). Although we found that across Chinese and Belgian participants beliefs in repressed memory and dissociative amnesia were high, for some statements, there is evidence revealing that Chinese participants believe less in certain aspects of repressed memory than Belgian participants. Examining possible differences and commonalities between different cultures will benefit the theoretical and applied relevance of studying the functioning of memory.

Notes

1. The data of the memory for emotions are not discussed in this article and can be found on: <https://osf.io/jcxdm/>.
2. We thank an anonymous reviewer for this alternative explanation.

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