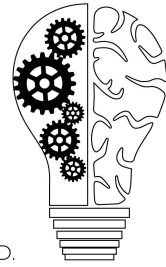


Episode 085: Free Will in Psychiatry & Psychotherapy Part 2

Matthew Hagele, M.A., David Puder, M.D.

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There are no conflicts of interest for this episode.

On this week’s episode of [The Psychiatry and Psychotherapy](#), we pick up where we left off in [the first episode](#).

In this article, we will describe some definitions of free will, explore determinism (the opposite of free will), cover some quotes by famous authors on the topic, and break down some statistics, and studies about it.

Determinism versus free will

Proponents of strict determinism (free will doesn’t exist) argue that the brain is making choices that are informed by our environment, genetics, and epigenetics. They believe we only become conscious of those decisions after they are already made. Therefore, we are not choosing our actions, they are chosen for us.

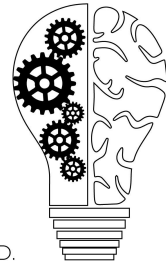
They also say that “science” has shown determinism is “true,” yet they don’t review all of the studies. Neuroscientists have conducted studies supporting determinism and other neuroscientists have critiqued those studies, even offering differing opinions. So, it’s not as clear cut as those determinists that often repeat, “science says this is how it works.”

For example, you can’t say the decision to hit your wife was not your choice, but was something in your genetics or your upbringing.

Many people who argue for determinism use the famous clock experiment as the cornerstone for their argument. In that study, patients wore EEGs hooked up to their motor cortex. These EEGs started to light up before the person had become consciously aware of their desire to make a basic choice, like when to raise their finger. This has led determinists to claim this study as proof that everything occurs in the brain before we are consciously aware of it.

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We believe this experiment is not the cornerstone to prove determinism because...

Raising your hand is a simplistic action and free will decisions are much more complex, like moral decisions, and use a multiplicity of brain areas. The integration of the brain areas in consciousness has choice. The decision to raise one's finger holds no emotional or moral weight or value, and the decision maker is not benefiting or being harmed by the decision. It wasn't even about choosing between two alternatives, but simply choosing *at which point* they would act. It's also worth noting that the subjects in the experiment are not choosing to act or not act in a larger sense, which is significant.

"The urge to act in this experiment occurs when normal random fluctuations in motor activity happen to cross a threshold, but that the earlier buildup neither reflects an unconscious intention, nor a commitment to act." (Schurger et al., 2012)

Schurger talks about how there may be a buildup that is not unconscious, and it's not a commitment to act, but it is ongoing in the brain and it precedes the decision to act.

The Blakemore study questions the underlying concept of what these readiness potentials represent. Blakemore believed that readiness potentials are just forward models that represent the brain trying to figure out what would happen if the individual did act, thus trying to predict what would happen in the future.

The works of Schurger and Blakemore mean that the entire clock experiment doesn't necessarily represent a choice at all.

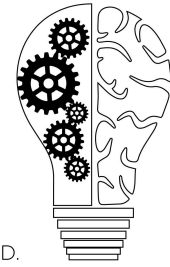
Importance of Belief in Free Will

Societal importance of belief in free will

Beyond arguments about the existence of free will, some scholars believe that simply believing in free will is harmful to society. **James B. Miles** is a proponent of this theory, and excerpts of his views are provided below. [Miles, J. B. \(2013\)](#)

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“Almost all of the work on free will published to date by social psychologists appears methodologically flawed, misrepresents the state of academic knowledge, and risks linking social psychology with the irrational” (205).

It’s a bold statement to say that all the free will studies to date are methodologically flawed. I still believe we should take it one article at a time to see *how* it’s methodologically flawed.

“Furthermore, the psychological literature appears almost wholly unaware that the possible existence of free will has already been disproved by logical philosophers. And it has long been recognized by certain scientists, legal theorists, and philosophers that far from having prosocial benefits, belief in free will acts to discriminate against the poor and racial minorities, may make justice impossible and even encourages contempt for and violence towards the weak” (206).

There are a lot of leaps of logic in that quote. Of course there are intelligent, well intentioned people on both sides who are philosophers that believe one way or the other. They come to their conclusions based on sequential thought processes that can be looked at. Most logical people consider if their premises are true or not.

He goes on to say there are scientists, legal theorists, and philosophers who have his same thought process. Unfortunately, he provides limited evidence to support this claim only citing one study by Bamfield and Horton in which 69%-83% of the sample believed poverty was a choice. Where are the other scientists and theorists? Additional resources would help with the shift from opinion to fact.

“It is incorrect to claim that the impossibility of free will has not been proven conceptually. It is true that science cannot prove the non-existence of free choice, because science is the search for what is, and not what is not, and similarly science cannot disprove the existence of gods, unicorns, or the Easter Bunny” (211).

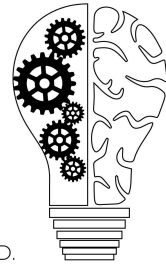
He then says the concept of free will both excuses and perpetuates societal inequalities.

“Free will becomes the legitimating excuse that is used to ignore the plight of the most unfortunate, as the world is not now examined to see if it is just but instead is simply assumed to be just” (213).

“Free will may just be the primary excuse many use to legitimize a contempt for the poor that would exist independent of their professed belief in free will, but free will assertion nonetheless

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provides the ethical fig leaf for such contempt that would be far harder to rationalize (and therefore tolerate) without the myth of free will. Therefore, the myth of free will does not just excuse indifference to poverty, it creates and maintains much of that poverty in the first place” (216).

The sum is greater than the parts...

New free will definitions

Harris and Miles are not the only voices in free will discussions. Alternative definitions of free will exist and we will cover them below (*in italics*) along with our responses (in plain text).

Free will is a blanket term, composed of self-control, rational choice, planning behavior, and active choice. It can be viewed as synonymous with self-regulatory behavior ([Baumeister 2011](#)). Free will has also been conceptualized as a form of self-organization. [Baumeister, R. F., & Vonasch, A. J. \(2011\)](#)

*“More to the point, however, each person can be understood as a self-organizing system of molecules and biological substances. In our view, **free will builds on the notion that individual living things are highly self-organized**, so that their actions emerge from inner processes that are to a relatively high degree independent of specific causes and inputs from the immediate environment” (44).*

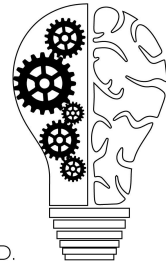
*“. . . free will can be diminished not just by impairing cognition but also by impairing emotion. This has profound implications, because it indicates that **whatever free will is, it is not localized to a single kind of process or brain function**. Free will as self-organization is what makes the whole more than the sum of its parts. Hence it is vulnerable to disruption by impairment of any of various parts.” (44).*

Science shows that one part of the brain can be damaged and it will influence or affect the ability to choose. But, even with brain damage, the ability to choose usually doesn't **go away completely**.

*“They proposed that human behavior is caused by brain processes; the brain consists of nerve cells that fire in mechanistic fashion, based on chemical and electrical processes; there is no room for indeterminacy or free will in the firing of particular nerve cells; therefore, human behavior cannot be free. **The fallacy in that argument is that it overlooks the strong***

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likelihood that new causal processes and principles emerge at higher levels of organization” (45).

Every species has programmed steps. Look at a bee. They find something brightly colored. They go down and touch it. If there’s nothing there, they fly on to the next thing. There are different processes that are programmed in them to accomplish their mission. Ants have rules of engagement on how they look for food and how they create paths. But as we get more complex, what I’ve found is that there is more agency, choice and learning behavior, and there’s an ability to adapt and morph into a totally different environment.

“Impulses to act may indeed originate outside of consciousness, and indeed they should, because initiating behavior is not the function of consciousness” (45).

There are natural things underneath the surface—drives for sex, drives for self preservation, drives for the herd instinct. They’re probably most adaptive to not function in consciousness most of the time.

“As Glannon explains, many different degradations can contribute to loss of autonomy and free will. Thus, no one part can make the system work nor destroy or stop it” (45).

I think these situations are where someone who believes in determinism would bring up a case study where a person had a mass in his brain and then murdered someone else...therefore, did he lose his free will? Was it really the mass that caused it?

That’s not a psychological forensic evaluation.

You have to look at a person’s developmental history, choices, proclivities, if they had a history of violence before the mass, or if they had any substances in their brain when they completed the act. There are many potential influences, sure, but do you destroy the ability to self-regulate because you have different, nuanced beliefs or programs in your brain?

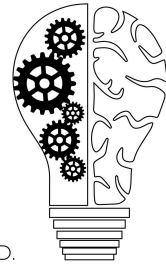
I have sessions with patients who commit violent acts against their significant other. I’ll ask them in session, “Why did you hit your wife?”

They always say something like, “Oh, I just lost control. I blacked out.”

I’ll change my question, “Why didn’t you kill them?” (It’s a dark thing to ask, but I learned how to deal with these types of outbursts from an anger expert at a conference.)

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The person always responds to me with something like, “Well, I didn’t want to go to jail.” So, even when they’re “blacked out,” they did apparently have some control.

The problem is that it’s sobering to think they have control. It would be easier to believe that we didn’t have control. But, such as in the case of my patients, each one has known they have enough control to stop hitting their spouse.

More philosophical definitions of free will should also be considered with the gradient definition offering a nuanced approach. These are from O’Connor, Timothy and Franklin, Christopher, "Free Will",

*“When an agent exercises free will over her choices and actions, her choices and actions are up to her. But up to her in what sense? As should be clear from our historical survey, two common (and compatible) answers are: (i) up to her in the sense that she is able to choose otherwise, or at minimum that she is **able not to choose or act** as she does, and (ii) up to her in the sense that she is the **source of her action**.”*

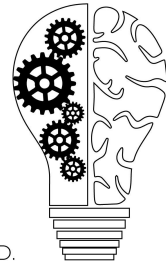
Some philosophers (Mele (2006, 129–34, and 2017, 212–16) and O’Connor (2005, 2009b)) believe both **freedom and linked responsibility are gradients which develop based on past decisions**. Current external influences may simply be the results of previously made and independent decisions.

For example, when I (Dr. Puder) was rowing every day before practice the coach would say, “Today is the day you choose to win the national championship. Today. Every stroke. Stroke by stroke. Pay attention. Focus. Concentrate. Every stroke you’re getting better.” He was proposing the idea that if you showed up in a certain way today, when you’re training, you will show up and be able to make that decision much easier when you actually compete. It’s during competition that you have already gone through that scenario of learning how to suffer and learning how to push through the pain and learning how to put everything on the line. We have so much more human capacity than we think we do. We have so much more capability to go harder than we think we do. It’s through training of extending yourself over and over again you get to a point where you’re making that good decision.

Another example of this is to look at the question of whether or not we should allow people to strengthen areas of their brain that are malevolent, like in the existence of (even staged) rape porn. After watching that over and over again, does that change the way that the brain is going to fire? I think it does. So, as you pair two things that weren’t meant to be paired together you

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strengthen those connections over a long period of time. Not only are you intrinsically changing yourself as you watch that and normalize it, you're also then giving out negative mirror neuron signals to people on what your intentions are. That, in turn, provokes disgust in the people you'd meet. When you gain pleasure through something that is not the way that you're actually going to interact in the world in a meaningful way and find long term happiness, it sets you up for poor decision making. Making a series of choices over time and creating habits does change how you will interact in future events. In that way, you will be able to change the future choices you will make, for better or worse.

Free will is difficult to define. Any definition we come up with will have a significant impact on how the concept is supported or challenged. The academic definitions of free will we have been considering may also differ from the definitions used in common conversation. Therefore, the above definitions are valuable starting points that will need to be further refined.

Models of free will

If free will exists in some form, does it have an evolutionary value, broad acceptance, or a physiologic basis?

According to some scholars, free will has an evolutionary value in forming societies and may also have a physiologic basis. [Baumeister, R. F., Crescioni, A. W., & Alquist, J. L. \(2011\)](#)

Evolutionary value

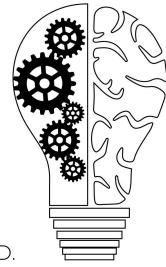
“Free will is not needed for doing whatever you feel like. Enlightened self-interest often means precisely resisting immediate impulses and temptations so as to obtain a greater good in the long run.”

There is value in being able to plan. There's something about delayed gratification that is so important for the human race to survive. For example...winter exists. How do you survive the winter? You prepare. You may prepare all spring for winter. The evolutionary value of free will is the ability to plan and demonstrate planning behavior. It's an active part of what we do to participate in free will.

Free will is composed of self-control, rational choice, planning behavior, and active choice. All components help an individual to live better in society and are further linked by physiological and conceptual similarities. Self-control or self-regulatory behavior is linked to self-control

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resources that can be depleted like a tank of gas (6). Deliberation and acting on choices also causes depletion of self-control resources (6). Rational/Intelligent choice also depends on willpower since *“Schmeichel et al. [43] showed that performance on tests of fluid intelligence was significantly and substantially impaired among people who had previously engaged in self-control.”* (6)

Free will *“does not depend on the assumption of random action, or of violations of, causality. Rather, it involves an evolved capacity to free oneself from natural and habitual patterns of response so as to be able to pursue enlightened self-interest in the complex context of human social life and culture”* (9).

For many people, there comes a time when you need to change your environment—you have to choose to change your environment. I (Dr. Puder) used to go to the juvenile hall for volunteer work during medical school every weekend. I would tell the guys there, “When you get out, the one choice you may have is who your friends are going to be. I can almost guarantee you if you go back to the same group of friends, you’ll probably come back here again, or be somewhere worse.”

Even when there’s a small choice we have to make, and sometimes it’s about changing our environment. How do we change habitual patterns of response? We have to choose to change our environment. We have to choose to find different resources, different mentors, [strength program](#), [a therapist](#), a diet coach, etc.

Physiologic Basis

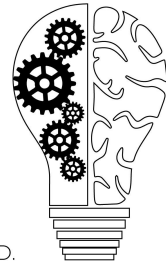
“Self-control appears to depend on glucose. People who have low glucose, and others who may have high glucose but whose bodies appear unable to utilize it efficiently, have various deficits in self-control” (8).

“Some studies have manipulated blood glucose by having research subjects drink a glass of lemonade, which by random assignment has been sweetened either with sugar (plenty of glucose) or with diet sweeteners (no glucose). The sugar drinks effectively counteracted the behavioral effects of ego depletion, whereas the diet drinks did not” (8).

By referring to ego depletion, they’re talking about losing the ability to choose—self-control. Sensorium is the total brain function and it fluctuates. It can cause us to be a little bit sharper early morning, maybe midday we experience a slump, if we take Benadryl, we’re going to be out

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of it. Many things influence our sensorium and in the same way if we negatively influence our sensorium, we may have less ego function, which is the ability to control ourselves. Our ability to choose is therefore purely static.

Here are more episodes on sensorium:

[Sensorium: Total Brain Function Optimization Part 1](#)

[Diet on Cognitive Function, Brain Optimization, Sensorium Part 2](#)

[Exercise as a Prescription for Depression, Anxiety, Chronic Stress \(like Diabetes\) and Sensorium](#)

[Sensorium: Medications, Drugs \(THC, Alcohol\), Medical Issues, Sleep, and Free Will](#)

Belief in free will

Shifting from free will itself to a belief in free will, it is still possible to see a societal value.

Moynihan, A. B., Igou, E. R., & van Tilburg, W. A. (2017)

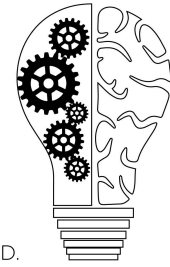
Belief in free will is important for individual and collective well-being. **Society benefits through regulation of inappropriate impulses**, and individuals benefit through “increased meaningfulness via feelings of belongingness.”

*“Therefore, **belief in free will may have developed further as an adaptation to meet the escalating demands of, opportunities intrinsic to, and facilitate a new form of human social living.** These beliefs and related psychological capacities would have helped people to override their automatic selfish impulses that demanded greater mental energy and self-regulatory resources.”*

For example, the nature of tribes influenced early humans. Being part of a tribe was important. In Africa, for example, one human was prey. A tribe could be a predator, though, because 50 people throwing rocks can chase away a lion. When we think of natural selection and evolution, there’s a ton of focus on the individual. In all actuality, for tens of thousands of years, humans survived based on their ability to act together as a tribe. Throughout history, people worked together from meaning—religion, the good of the tribe, astrology, etc., not based on pure self interest.

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It is difficult to show a manipulation in free will, but belief in free will is the subject of a growing set of literature. Though free will has been theorized as having societal and evolutionary value, a belief in free will can be experimentally linked to traits or actions which are either harmful or beneficial to society.

Discussions about the existence of free will have already been presented. However, **a belief** in free will shares similar cultural importance and is more readily manipulated and quantified.

Potential harms of belief in free will

According to Miles, there are potential harms of belief in free will.

As previously mentioned, Miles views belief in free will as significant due to its negative impact on society. His views have been challenged by later authors, but his argument introduces a consequential importance for belief in free will. If a belief in free will does truly lead to decreased empathy for the poor and fewer efforts to rectify societal woes and inequality, this belief is indeed dangerous and significant.

Thankfully, we have a direct response to Miles by [Vonasch, A. J., & Baumeister, R. F. \(2013\)](#)

“He [Miles] asserts that ‘to be freely choosing, an individual would have to be free from both deterministic effects and indeterministic effects’. To say that one’s behaviour must be completely free from all past influences in order to be free creates a straw man argument that essentially defines the phenomenon out of existence” (221).

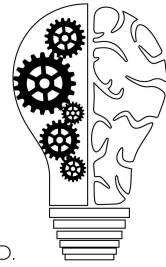
“Then again, he may actually mean that moral responsibility is impossible: ‘To be responsible for how they act they would have to be responsible for how they are, and to be responsible for how they are they would have had to have created themselves’. We do not believe that moral responsibility requires self-creation. Nor do we think that moral responsibility is an evil idea. In fact, belief in moral responsibility is probably a prerequisite for being upset over injustice, and Miles seems to be upset over injustice” (222).

Belief in free will is commonly measured using the Free Will and Determinism scale, which is reproduced below.

- The **majority of studies sampled for this presentation used the same Free Will and Determinism scale (FAD-plus)** for assessing belief in free will.
- This scale was originally developed in 1994 and updated to form the FAD-plus in 2011.

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- o This scale has broad acceptance and reliability.
- o The FAD-plus scale can be used to measure both state (manipulated) belief in free will and static belief in free will (still variable, but not actively manipulated).
- o The studies cited below will be divided into **static and manipulated categories**.

It's really important to mention something here—we often gloss over the method section in our reading. Having gone through the laborious task of developing a survey, [The Connection Index](#), I know how important it is to actually look at the questions being asked.

FAD scale – Free-will and Determinism Scale: Version 4B

(Paulhus, D.L., & Margesson, A. (1994). *Free-will and Determinism (FAD) scale*. Unpublished measure, University of British Columbia, Vancouver.)

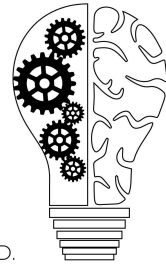
Using the scale below as a guide, write a number beside each statement to indicate how much you agree or disagree with it.

+	_____	+	_____	+	_____	+	_____	+	
	1		2		3		4		5
	totally				unsure				totally
	Disagree								Agree

1. I believe that my future has already been pre-determined by fate.
2. **People's biological makeup influences their talents and personality.**
3. Chance events seem to be the major cause of human history.
4. People have complete control over the decisions they make.
5. No matter how hard you try, you can't change your destiny.
6. **Bad behavior is caused by bad life circumstances.**
7. No one can predict what will happen in this world.
8. People must take full responsibility for any bad choices they make.
9. Fate already has a plan for each of us.
10. **Psychologists and psychiatrists will eventually figure out all human behaviors.**

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11. Life seems unpredictable – just like throwing dice or flipping a coin.
12. People can overcome any obstacles if they truly want to.
13. What will be, will be –there's not much you can do about it.
14. **Your genes determine your future.**
15. I like the idea that people can't be predicted.
16. **Criminals are totally responsible for the bad things they do.**
17. Whether we like it or not, mysterious forces seem to move our lives.
18. **Science has shown how your past environment created your current intelligence and personality.**
19. There are random events going on -- even at the level of atoms and molecules.
20. People do not choose to be in the situations they end up – it just happens. R
21. I hate it when scientists try to take the mystery out of life.
22. **Scientists will never be able to predict human behavior precisely. R**
23. Life is hard to predict because it is almost totally random.
24. We should avoid punishing people because many of them can't help doing what they do. R
25. I don't believe in destiny. R
26. **As with other animals, human behavior always follows the laws of nature.**
27. I don't believe in chance. R
28. Strength of mind can always overcome the body's desires.

Let's look at these biological determinism questions...

Interestingly, when I read these I didn't agree with all of them.

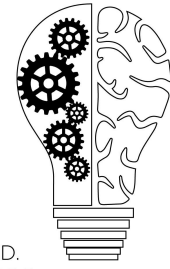
For example, free will statement number 4: "People have complete control over the decisions they make." Interesting statement, right? Do people have complete control over the decisions that they make? Sometimes I think we don't. So, I can't say I would completely agree with that.

Here's another one: "People must take full responsibility for any bad choices they make." Should people take full responsibility? Jocko Willink would say you should take full responsibility, right? And to what degree does taking responsibility allow you to grow and move past bad choices into good choices.

Here's another one: "People can overcome any obstacles if they truly want to." There may be a benefit of believing that, even if it's not completely true all the time. Right? So, if you don't believe that you can overcome an obstacle then you definitely will not overcome it if you don't even try. I think we can actually make some progress in that when we use certain types of therapy with our patients. Research has shown we can help them overcome mental obstacles.

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Let's look at this one: "Criminals are totally responsible for the bad things they do." Totally responsible? What does that mean? For the bad things they do? I agree to a large degree. Where would you put yourself as therapists? With as many people you've seen with questionable ability to make good decisions, do you agree or disagree with this statement?

I agree that people should be responsible for the bad things they do. But, I think there's a little bit of a wiggle room there, like if the person has had chronic traumatic encephalopathy and was on PCP and amphetamines, then they commit a murder. They probably wouldn't have committed the murder if they weren't on those drugs. What if someone slipped those drugs in a drink? Maybe that decreases some of the responsibility? But they still should go through the judicial system and be given a trial and lawyers should argue both sides and they should determine what the best outcome is.

Your decision in answering these could depend on your concept of justice as well. You can have a strong belief in free will and also believe that the goal of justice is not to punish, but to rehabilitate. And, so, we believe that we're trying to mold them into making better decisions in the future.

Based on the questions and answers, I can see some distortions in using language that's too strong. Interestingly, when you look at the average mean score for free will, in a group of people, it's about 3.84. If you look at the likert scale, 3.84 is around unsure to the middle "agree." Most people in this group that completed the survey were 100-200 graduates with European heritage only. (That's an interesting way of saying it's basically white undergraduate students.) They found that on average they scored a little bit on the positive side of free will.

SCORING KEY

Reverse the scoring on items marked with an 'R'. Then add up all 7 items for each of the four subscales.

Two forms of Determinism

Fate: items 1, 5, 9, 13, 17, 21, 25R

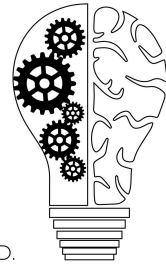
Scientific Causation: items 2, 6, 10, 14, 18, 22R, 26

biological: 2, 14, 26

environmental: 6, 18

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Two forms of Non-Determinism

Randomness: items 3, 7, 11, 15, 19, 23, 27R

Free Will: items 4, 8, 12, 16, 20R, 24R, 28

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Norms based on sample of 102 UBC undergraduates (European-heritage only). The values are item means across 7 items so that the minimum score is 1.0 and the maximum is 5.0 for each subscale.

	Mean	S.D.	Alpha	Test-retest (2-month)
Fate	2.44	.76	.84	.90
Science	2.60	.52	.61	.79
Chance	3.43	.54	.63	.83
Free will	3.84	.51	.68	.80

- [Paulhus, D. L., & Carey, J. M. \(2011\). The FAD-Plus: Measuring lay beliefs regarding free will and related constructs. *Journal of personality assessment*, 93\(1\), 96-104.](#)

FAD-PLUS: FREE WILL AND DETERMINISM

For each statement below, choose a number from 1 to 5 to indicate how much you agree or disagree.

+ 1

+ 2

+ 3

+ 4

+5

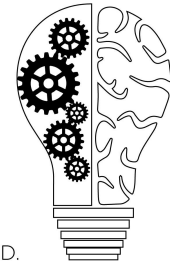
Strongly disagree

Strongly agree

1. I believe that the future has already been determined by fate.

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2. People's biological makeup determines their talents and personality.
3. Chance events seem to be the major cause of human history.
4. People have complete control over the decisions they make.
5. No matter how hard you try, you can't change your destiny.
6. Psychologists and psychiatrists will eventually figure out all human behavior.
7. No one can predict what will happen in this world.
8. People must take full responsibility for any bad choices they make.
9. Fate already has a plan for everyone.
10. Your genes determine your future.
11. Life seems unpredictable—just like throwing dice or flipping a coin.
12. People can overcome any obstacles if they truly want to.
13. Whatever will be, will be—there's not much you can do about it.
14. Science has shown how your past environment created your current intelligence and personality.
15. People are unpredictable.
16. Criminals are totally responsible for the bad things they do.
17. Whether people like it or not, mysterious forces seem to move their lives.
18. As with other animals, human behavior always follows the laws of nature.
19. Life is hard to predict because it is almost totally random.
20. Luck plays a big role in people's lives.
21. People have complete free will.
22. Parents' character will determine the character of their children.
23. People are always at fault for their bad behavior.
24. Childhood environment will determine your success as an adult.
25. What happens to people is a matter of chance.
26. Strength of mind can always overcome the body's desires.
27. People's futures cannot be predicted.

Subscales

Free Will: 4, 8, 12, 16, 21, 23, 26

Scientific Determinism: 2, 6, 10, 14, 18, 22, 24

Fatalistic Determinism: 1, 5, 9, 13, 17

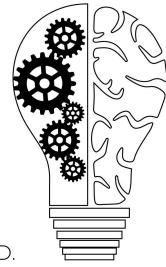
Unpredictability: 3, 7, 11, 15, 19, 20, 25, 27

Belief in free will is universalizable and not specific to a certain culture

- Most studies referenced in this presentation rely on sample populations of North American groups sharing a relatively homogenized culture. However, some studies specifically address the

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potential for **cultural difference affecting beliefs in free will.**

These studies showed **no statistically significant difference between the cultures tested.**

- Additional studies also demonstrated belief in free will as a **cultural norm** since manipulations to increase belief in free will showed statistically similar outcomes to control groups with no manipulation of belief in free will.
- Efforts to decrease belief in free will within these studies produced statistically significant differences between both decreased belief in free will and both control and increased belief in free will groups.

In short, when you manipulate someone to doubt free will, their scores do differ, and they differ not only from those who were encouraged to believe in free will, but they also differ from those who were not manipulated at all.

Another interesting thing is that this idea translates cross culturally.

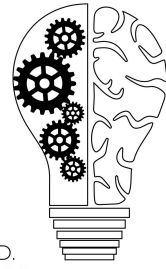
- Participants from the U.S., Hong Kong, India, and Colombia believed in an indeterministic universe (human agency and free will exists). [Sarkissian, H., Chatterjee, A., De Brigard, F., Knobe, J., Nichols, S., & Sirker, S. \(2010\)](#)
 - *“The present paper extends previous research by presenting a cross-cultural study examining intuitions about free will and moral responsibility in subjects from the United States, Hong Kong, India and Colombia. The results revealed a **striking degree of cross-cultural convergence**. In all four cultural groups, the majority of participants said that (a) our universe is indeterministic and (b) moral responsibility is not compatible with determinism” (346).*

So...now we know a little bit about this measure and how the measure is kind of represented in different groups of people. Now we can see there are some commonalities...

- The **majority believed in an indeterministic universe**, and “There was no significant difference between the responses from participants in these different cultural groups ($\chi^2(3, N = 229) = 6.098, p = .107$, two-tailed).”
- The majority also believed in a **deterministic universe was incompatible with moral responsibility**, and “There was no significant difference between the responses from participants in these different cultural groups ($\chi^2(3, N = 226) = 2.135, p = .545$, two-tailed).”
 - Manipulation to support a belief in free will showed no significance between a belief in free will and the control group. [Baumeister, R. F., Masicampo, E. J., & DeWall, C. N. \(2009\)](#)

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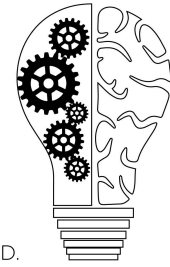
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- Participants reading neutral statements showed similar willingness to help as those reading pro-free will statements. Therefore, **belief in free will appears to be the societal norm.**
 - “participants in the determinism condition ($M = 5.33, SD = 1.52$) were less willing to help than were participants in the free will condition ($M = 6.27, SD = 1.19$), $F(1, 61) = 4.84, p = .03$, and less helpful than participants in the neutral control condition ($M = 6.23, SD = 1.28$), $F(1, 61) = 4.99, p < 0.03$. **There was no difference between the neutral control and the free will conditions, $F < 1, ns$.**”
- Manipulation of belief in free will is largely based on reading pro or anti free will passages and comparing FAD-plus scores before and after the manipulation.
 - The majority of papers used in this presentation adapted their belief in free will manipulation methods from a 2008 paper by [Vohs and Schooler](#)
 - Participants were instructed to read a series of passages either promoting belief in free will (*The Astonishing Hypothesis* by Francis Crick), fighting belief in free will (collection of statements from scientists claiming free will is impossible), and neutral (passages from a chapter on consciousness)
 - The general structure was adapted with a variety of pro or anti free will passages which were placed on separate pages of a notebook which participants read and reflected on for a set time.
 - To ensure the success of the manipulation, participants completed the FAD-plus before and after the manipulation step.
 - Increasing a belief in free will does not decrease sympathy for poverty [Vonasch, A. J., & Baumeister, R. F. \(2013\)](#)
 - Recruitment: Amazon Mechanical Turk (105 w/ 15 excluded after failing comprehension checks)
 - Method: Free Will and Determinism Scale w/ **added questions about income inequality, causes of poverty, Belief in a Just World Scale, and agreeableness**
 - Results: “Most of the people described as ‘poor’ today have only themselves to blame for not having a higher income” (223).
 - People espousing a **high belief in personal free will were marginally less likely to agree with the above statement** ($r = -.197, p = .062$)
 - belief in a just world was a strong predictor of this item ($r = .458, p < .001$)

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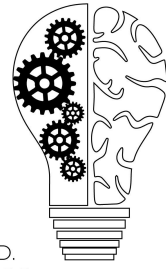
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(This is interesting because you may think that people who believe in free will believe that people have a choice and that they're poor because they have a choice. But, actually, what we find is that people who scored higher in free will actually did not agree with this statement. This directly disputes some of the claims made by Miles.)

- “believers in personal free will tended to disagree with the assertion that people were ‘fated to live in poverty’ ($r = -.258, p < .05$)” (224).
- “ We found no relationship between free will beliefs and sympathy towards a person who works part time by choice and therefore lives in poverty ($r = -.130, p = .220$), but we found that people with **high beliefs in free will actually felt more sympathy than others towards a person who works part time and lives in poverty** but is constantly searching for a better job ($r = .379, p < .001$)” (224).
- “More to the point, people with higher beliefs in free will were more likely to say that ‘personal choice’ is a cause of poverty ($r = .233, p < .05$). However, people with **high belief in free will were no less likely than others to feel sympathy towards a person who chose to be poor** ($r = -.130, p < .05$), and they actually felt more sympathy towards the person working hard to try to get out of poverty ($r = .379, p < .001$)” (224).
- “We only found a **relationship between belief in a just world and the general free will subscale ($r = .222, p < .05$), which measures beliefs about people’s free will in general, rather than one’s own free will**” (225).
- Increasing a belief in free will decreases racial prejudice [Zhao, X., Liu, L., Zhang, X. X., Shi, J. X., & Huang, Z. W. \(2014\)](#)
 - Study in China:
 - Participants: 34 college students self-identifying as Han Chinese
 - Methods: Chinese translation of FAD-Plus with the exclusion of one item due to technical wording, and a feeling thermometer based on Dasgupta and Greenwald was used to assess explicit feelings toward Uyghur Chinese [1-100].
 - Priming adapted from Vohs and Schooler (2008) and confirmed by Free Will and Determinism Scale.
 - Results: “The results showed that the participants in the condition of belief in free will reported **significantly warmer temperatures towards Uyghur Chinese** ($M = 73.82, SD = 15.57$) compared to the participants in the disbelief in free will condition ($M = 60.29, SD = 16.05$), $t(32) = -2.50, p = 0.018$, Cohen’s $d = 0.86$ ”
 - Study in U.S.:

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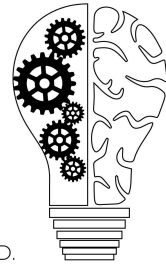
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- Participants: 63 individuals selected on a flight who self-reported as white
- Methods: Pro-Black Attitudes Questionnaire with likert scales [1-5]
 - Priming adapted from Vohs and Schooler (2008) and confirmed by Free Will and Determinism Scale.
- Results: “The results revealed that, in the condition of belief in free will (M = 3.10, SD = 0.53), the participants expressed greater pro-black attitudes than did those in the condition of disbelief in free will (M = 2.62, SD = 0.63), $t(61) = -3.28$, $p = .002$, Cohen’s $d = 0.82$ ”
 - Authors connected decrease in belief in free will, following a natural disaster, with increase in racial prejudice as seen in the social fallout from Hurricane Katrina.
 - Unfortunately, neither study used a control group, but other studies support the concept of redundancy between a control group and pro-belief in free will manipulation.
 - Increasing a belief in free will leads to an increase in setting goals which are also more meaningful, personally relevant, and on a longer time-frame. [Crescioni, A. W., Baumeister, R. F., Ainsworth, S. E., Ent, M., & Lambert, N. M. \(2016\)](#)
 - Participants: 117 people participated for some course credit
 - Methods: Manipulation was adapted from Vohs and Schooler, 2008 with three arms where assigned sentences were pro free will, anti free will, or neutral. Participants then completed the Brief Mood Introspection Scale to control for emotional influence. Finally, **participants created a list of three things they would like to do**. These lists were anonymized and coded for indicators of meaningful goals as well as goal-directed content. Agreement between judges showed high reliability (kappa ranging from 0.81-0.86).
 - Results: “participants in the **free will condition described more goal-directed content than participants in the disbelief in free will condition**, $F(1, 114) = 5.86$, $p = .02$, $\eta^2 = .05$. Participants in the **free will condition also expressed more goal-directed content than control participants**, $F(1, 114) = 10.65$, $p < .01$, $\eta^2 = .09$ ”

Another note here—it’s important to know that your beliefs will determine what you do. So, if you don’t believe that you can make a change, that you can follow and pursue a goal and achieve that outcome you desire, you may not even try. I think about the INCEL culture and how they believe they will never be able to get married. I even had a patient that actually believed that about himself, and as we progressed in therapy, he became more open and less rigid in his thinking. He started going on dating apps and he

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started dating and he had some good dates. He's progressing in that path towards his goal of being married and having kids. That's what he really wants. He didn't believe he had the free will to determine his own fate, and now he does.

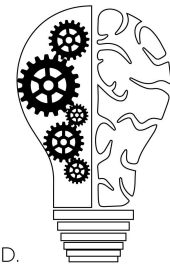
- Participants induced to **disbelieve in free will did not differ from participants in the control condition**, $p = .4$, $\eta^2 < .01$. Thus, bolstering belief in free will caused people to set more goals than either neutral controls or participants who were induced to disbelieve free will
- Participants in the **pro-free-will condition provided more meaningful responses than participants in the disbelief in free will condition**, $F(1, 114) = 5.76$, $p = .02$, $\eta^2 = .05$. Additionally, we again found that pro-free-will participants provided more meaningful responses than control participants, $F(1, 114) = 10.21$, $p < .01$, $\eta^2 = .08$
- Decreasing a belief in free will leads to a perception that life is less meaningful [Crescioni, A. W., Baumeister, R. F., Ainsworth, S. E., Ent, M., & Lambert, N. M. \(2016\)](#)
 - **Participants:** 27 students participated for partial course credit
 - **Methods:** Manipulation adapted from Vohs and Schooler (2008) with participants asked to rewrite either pro or anti free will sentences in their own words. Manipulation was confirmed with the FAD-plus and the **Kunzendorf no Meaning Scale** where higher scores mean life is more meaningless (KNMS).
 - **Results:** "An additional ANOVA was conducted to compare scores on the KNMS between the free will and determinism conditions. **Participants in the determinism condition (M = 1.7, SD = .68) perceived life to be significantly less meaningful than did participants in the free will condition (M = 1.28, SD = .23), F(1, 26) = 5.247, p = .03.** The effect size was large (Cohen, 1988), $d = 0.82$."

This study demonstrates the power of beliefs. If you walk around believing that you're stupid, ugly and an idiot and worthless, it's really is going to make you interact in the world differently. You're going to be depressed and you're going to have a harder time making friends, but we can put those thoughts on trial. Our thoughts are open to suggestion, and our belief and our outcomes are determined by our thoughts.

- Decreasing a belief in free will reduces willingness to help [Baumeister, R. F., Masicampo, E. J., & DeWall, C. N. \(2009\)](#)
 - **Participants:** 64 undergraduate students completing a course requirement
 - **Methods:** Priming/manipulation adapted from Vohs and Schooler (2008) with 15 individual sentences (pro, anti, and neutral). Participants had 1 minute to read

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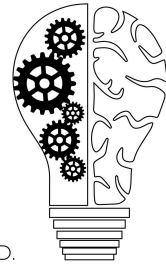
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- each sentence and then completed a Brief Mood Introspection Scale. The FAD was used for manipulation confirmation.
- **Results:** “**Prosocial tendencies** (as indicated by willingness to help) **were reduced among participants who were induced to believe in determinism** and disbelieve in free will. They were less willing to help across an assortment of situations and opportunities, as compared to participants who were induced to believe in free will and as compared to a neutral control group.”
 - “**participants in the determinism condition (M = 5.33, SD = 1.52) were less willing to help than were participants in the free will condition (M = 6.27, SD = 1.19), F(1, 61) = 4.84, p = .03, and less helpful than participants in the neutral control condition (M = 6.23, SD = 1.28), F(1, 61) = 4.99, p < 0.03. There was no difference between the neutral control and the free will conditions, F < 1, ns.**”
 - Decreasing belief in free will leads to impulsive selfishness [Protzko, J., Ouimette, B., & Schooler, J. \(2016\)](#)
 - **Participants:** 144 participants were selected through Amazon Mechanical Turk and paid \$0.50 for their time.
 - **Methods:** Participants completed a [Positive and Negative Affect Schedule](#) followed by reading pro or anti free will passages. They were then asked to summarize the passages they read. Manipulation checks were done by having participants rate their belief in free will on a scale of 1-100.
 - Participants engaged in a Public Goods Game (PGG) where they were given \$0.50 and the option to **anonymously contribute to a public pot which would be doubled and split equally among four members**. The participants believed they could receive as little as \$.25 or as much as \$.75 as a bonus, but there were actually all given \$0.88 bonus just for playing. The process was then manipulated to limit the amount of deliberation time participants had before contributing to the pot.
 - **Results:** “The current study uses an economic contribution game under varying time constraints to elucidate whether reducing belief in free will allows one to justify negative behavior or if the effects occur at a more intuitive level of processing. Here we show that **although people are intuitively cooperative, challenging their belief in free will corrupts this behavior**, leading to impulsive selfishness. If given time to think, however, people are able to override the initial inclination toward self-interest induced by discouraging a belief in free will.”
 - “Specifically, **when given time to think, participants did not differ in their contributions as a function of whether they were exposed to**

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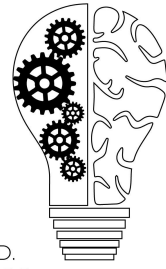
anti-free will message; both groups donated around \$.34 (SD = 17.809). When confronted with decisions they must make on impulse, however, participants contributed 30% less to the public pot after having their belief in free will challenged (\$.28, SD = 21.074 v. \$.40, SD = 14.482; $d = .67$, 95% CI = 1.14 to .2”

It’s amazing that all these studies are pointing in the same direction. When you decrease belief in free will, people focus on self preservation. With our brain becoming more advanced in certain areas (especially the verbal areas and frontal lobe) we have developed an ability to work together in unique ways as a team and to also overcome environmental factors which are complex and changing. When you start decreasing the belief in the ability to have free will, you go back to being individualistic -- more selfish.

- Decreasing a belief in free will leads to increased cheating [Vohs K. D., Schooler J. W. \(2008\)](#)
 - Study 1:
 - Participants: 30 undergraduate students
 - Methods: Participants were instructed to read a series of passages either promoting belief in free will (*The Astonishing Hypothesis* by Francis Crick), fighting belief in free will (collection of statements from scientists claiming free will is impossible), and neutral (passages from a chapter on consciousness). Manipulation check was performed using the FAD scale. PANAS was used to ensure statements did not alter participants’ mood.
 - Participants were told to solve mental-math problems and record their answers on a computer. **The computer had a “glitch” and would show the correct answer after each question.** However, participants were told they could press the space bar to avoid seeing the answer after each question.
 - Results: “Analysis of the main dependent measure, degree of cheating, revealed that, as predicted, **participants cheated more frequently after reading the anti-free-will essay** (M = 14.00, SD = 4.17) than after reading the control essay (M = 9.67, SD = 5.58), $t(28) = 3.04$, $p < .01$ ”
 - Study 2:
 - Participants: 122 undergraduate students

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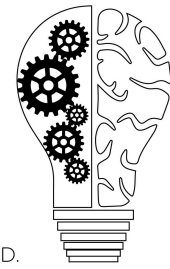
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- Methods: The second study made cheating more active and involved similar priming and manipulation checks before administering practice questions from the GRE without supervision. A mood check was also completed with PANAS
 - 5 total conditions, with the possibility to cheat in 3 of those conditions which. Each cheating condition was manipulated to promote free will, determinism, or neutral beliefs.
 - Participants were divided into individual carrels and told to complete their tests in 15 minutes (without supervision) before **grading their own tests and paying themselves \$1 for every correct answer** from a pile of coins.
- Results: “Planned contrasts revealed that **participants who had read the determinism statements and who were allowed to pay themselves for correct answers walked away with more money than the others**, $t(114) = 4.48, p < .01$ (see Fig. 1). None of the other groups differed from each other, $t_s < 1$ ”
- Decreasing a belief in free will leads to social conformance [Alquist J. L., Ainsworth S. E., Baumeister R. F. \(2013\)](#)
 - Participants: 56 undergraduate students in a psychology course completed the trial independently (data from 54 was included)
 - Methods: Manipulation was adapted from Vohs and Schooler (2008) with the addition of having participants rewrite the pro, anti, or neutral prompts in their own words. **Conformity was measured by having participants rate the quality of abstract art while having access to random ratings of “previous participants”** and determining how close their ratings aligned with these random and fictitious ratings. Manipulation was confirmed with FAD-plus.
 - Results: “**Participants in the anti-free will condition conformed significantly more (M=34.58, SD=4.27) than participants in the pro-free will condition (M=30.41, SD=4.10), $F(2, 51)=9.47, p<.01$.** Participants in the anti-free will condition also conformed significantly more than participants in the control condition (M=29.82, SD=3.55), $F(2, 51)=8.10, p<.01$. **There was no significant difference in conformity between the control condition and the pro-free will condition, $F(2, 51)=.18, p=.68$ ” (82).**

When belief in free will decreases, it increases social conformity—you’re not thinking for yourself. You’re not analyzing how you want to interact in the world as an individual. The best teams are the ones with

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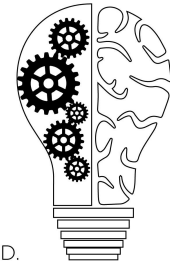
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the most open lines of communication. And conformity can actually cause more errors, more issues—especially in medical teams.

- Decreasing a belief in free will leads to impulsive antisocial tendencies [Rigoni D., Kuhn S., Gaudino G., Sartori G., Brass M. \(2012\)](#)
 - Participants: 40 right-handed participants between the ages of 20 and 31 years old.
 - Methods: Manipulation was adapted from Vohs and Schooler (2008) with 15 different sentences appearing on a screen for 45 seconds either pro or anti free will. FAD was used to confirm the manipulation. PANAS was used for a mood check.
 - Each arm of the study completed **three marble trials**. One trial was a control with a **red** marble rolling down a ramp where participants noted when the marble turned yellow. The additional trials included green and white marbles. The **green** marble trials were conducted first and rewarded rapid response to stop the marble from rolling off the ramp and triggering a negative noise. This trial was followed by the **white** marble which rolled more slowly and had no negative noise. The participants were told to provide an even number of trials where they stopped the white marble or just allowed it to roll off the ramp. In this white trial, participants were asked to note the time when they decided to either stop the marble or not. The accuracy of their reported timing was measured through their accuracy in the initial red marble timing task.
 - Results: “There were no differences in average [reaction times] and proportions of successful go trials between the two groups, suggesting that they performed equally well in the primary task – i.e. **green** marble condition” (1488).
 - “Crucially, however, **the no-free will group was less likely to intentionally inhibit the response in the decision [white marble] trials**, as compared to the control group. Since the task was designed to encourage fast responses, intentional inhibition required self-control. . . . **Our interpretation is that the reduced intentional inhibition in the no-free will group reflects degraded self-control**” (1488).
- Decreasing a belief in free will decreases behavior adjustment after error [Rigoni D., Wilquin H., Brass M., Burle B. \(2013b\)](#)
 - Participants: 44 university students were paid 15 euros for their participation
 - Method: Manipulation was adapted from Vohs and Schooler (2008) with an anti free will and control group reading one passage each on their respective topics.

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Manipulation checks were accomplished with FAD-plus and a PANAS check was employed.

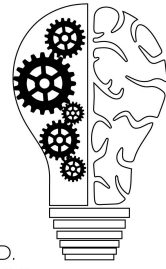
- A **Simon task** (prompting right or left-handed keystrokes with specific colors then presented on the opposite side of the screen to create conflict) was used to assess sequential effects of errors. **Typically, reaction times (RTs) are slower following errors.**
- **Results:** “Importantly we found a significant *session x previous trial x group* interaction ($F(1,38) = 5, p < .05, \eta^2 = .12$), with **reduced post-error slowing after the belief manipulation in the no-free will group** (36.99 ms \pm 28.09 vs. 21.75 ms \pm 29.92), but not in the control group (27.42 ms \pm 43.65 vs. 34.78 ms \pm 40.39)”

People in the free will group slowed down to reevaluate after they made a mistake. Patients with schizophrenia and children with ADHD often also slow down more—it’s a frontal lobe function to be able to stop and reanalyze your errors. Of course, medications can be given to help people with psychiatric issues. But, the post-error slowing was reduced in the no-free-will group and the free will group demonstrated slowing down, which is so important to reevaluate after you make a mistake.

- “A correlation analysis was performed to test the hypothesis that the reduction of the post-error slowing effect was related to the change of the belief in intentional control in the no-free will group. **A strong correlation was found in the no-free will group** ($r = .73, n = 20, p < .0001$), **but not in the control group** ($r = .33, n = 20, p = .15$) (Fig. 2). This finding indicates that the decrease of the post-error slowing in the no-free will group was more pronounced in participants showing diminished belief in intentional control after the belief manipulation” (266-267).
- Post-error slowing was reduced in the no-free will group, this means that after making a mistake, they did not slow down (which is usually done by control processes). This is also seen in patients with schizophrenia and children with ADHD. **Weakened belief in free will (intentional control) decreases the chance they will monitor their performance.**
- Decreasing a belief in free will increases aggressive behavior [Baumeister R. F., Masicampo E. J., Dwall C. N. \(2009\)](#)
 - **Participants:** 56 undergraduates participated to fulfill a course requirement. Data from 49 of them was included.

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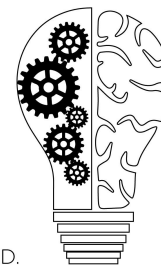


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- Methods: Manipulation method was adapted from Vohs and Schooler (2008) but did not include a neutral control. Participants read 15 sentences at 1 sentence per minute in either pro or anti free will booklets.
 - Participants were told they would be forming groups based on the desires of other participants. In other words, **you had to be chosen in order to be part of a group**, but the process was anonymous. Half of the participants were randomly accepted and **the other half were randomly rejected**. Participants then completed the belief in free will manipulation before beginning the aggression measure.
 - Participants were asked to **prepare food for a partner who had rejected them and didn't like spicy food**. The amount of hot salsa they put on the plate was a measure of aggression.
- Results: “ANCOVA revealed that participants who had read the **deterministic sentences gave their partners more of the unwelcome hot sauce (M = 17.8 mg, SD = 16.3) compared to participants who read the sentences supporting free will (M = 9.4, SD = 11.6), F(1, 48) = 6.95, p = .01**. Thus, inducing disbelief in free will led to more aggression as compared to inducing belief in free will” (266).
 - “The acceptance versus rejection manipulation did not contribute significantly to aggressive behavior, either as main effect, $F < 1$, ns, or in interaction with the free will manipulation, $F(1, 45) = 1.19$, ns” (267).
- The following studies examined **trait or static belief in free will** and did not attempt to manipulate belief in free will.
 - A static belief in free will is associated with better job performance [Stillman, T. F., Baumeister, R. F., Vohs, K. D., Lambert, N. M., Fincham, F. D., & Brewer, L. E. \(2010\)](#)
 - Participants: 65 adults from a day-labor agency
 - Methods: belief in free will measured with the Free Will Subscale of the FAD.
 - “In Study 2, **job performance was evaluated objectively and independently by a supervisor**” on categories of work effort, reliability, consistency, positive social impact, and general assessment.
 - Results: “The **relationship between belief in free will and overall job performance was significant** ($r = .30$, $p = .014$). In addition, **belief in free will was positively correlated with four of the five measures of workplace performance** (see Table 2): work effort ($r = .33$, $p = .008$), consistency ($r = .27$, $p = .03$), positive social impact, ($r = .35$, $p = .005$), and general assessment ($r = .30$, $p = .016$).”

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- “No other independent variable predicted any job performance measure (r values $< .19$), though this could be partially because of the small sample size.”

Table 2. Correlations, Means, and Standard Deviations Among Independent and Dependent Variables for Study 2

	Free Will Belief	Life Satisfaction	Protestant Work Ethic	Vitality	Work Effort ^a	Reliability ^a	Consistency ^a	Social Impact ^a	General ^a	Overall ^a
<i>M</i>	79.75	21.00	48.00	31.73	5.62	5.31	5.00	5.65	5.09	26.66
<i>SD</i>	13.97	6.75	11.20	8.03	1.61	1.56	1.89	1.40	1.89	7.80
Free will belief		.32*	.17	.05	.33**	.18	.27*	.35**	.30*	.30*
Life satisfaction			.18	.26	-.08	.07	.04	.00	.08	.03
Protestant ethic				.70**	-.03	.05	.05	.19	.02	.06
Vitality					-.11	-.07	-.01	.06	-.07	-.05
Work effort ^a						.75**	.81**	.78**	.88**	.90**
Reliability ^a							.93**	.78**	.90**	.94**
Consistency ^a								.78**	.94**	.96**
Personality ^a									.82**	.88**
General ^a										.98**

Note: Free will belief measured by full Paulhus and Margesson (1994) Free Will and Determinism Scale.

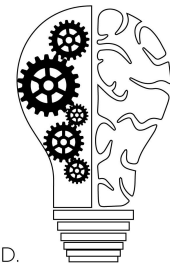
^a Measure of job performance.

* $p < .05$. ** $p < .01$.

- A static belief in free will is associated with less prejudice [Zhao, X., Liu, L., Zhang, X. X., Shi, J. X., & Huang, Z. W. \(2014\)](#)
 - Participants: 70 college student who self-identified as **Han Chinese**
 - Methods: belief in free will measured with FAD-plus (translated into Chinese) among Han Chinese participants.
 - As a measure of prejudice, the social distance between Han Chinese and Tibetan Chinese was measured. **Social distance was measured with a version of the Bogardus Social Distance Scale** and the inverse was then plotted against belief in free will with ($Beta = -0.316$, $t(65) = -2.67$, $p = .010$, $R^2 = 0.10$)
 - Results: The mean score for belief in free will was 4.77 ($SD = 0.97$), and the mean social distance score was 2.90 ($SD = 1.19$). These results revealed a **significant negative correlation between belief in free will and prejudice against the Tibetan Chinese** ($r = -0.316$, $p = .010$). A regression analysis confirmed our prediction that greater Han Chinese beliefs in free [will] would significantly predict less prejudice against Tibetan Chinese ($Beta = -0.316$, $t(65) = -2.67$, $p = .010$, $R^2 = 0.10$).
- A static belief in free will is associated with lower social conformance [Alquist J. L., Ainsworth S. E., Baumeister R. F. \(2013\)](#)
 - Participants: 39 participants were recruited through Amazon Mechanical Turk

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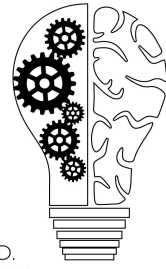
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- Methods: belief in free will was measured with the FAD-plus. A **conformity scale** was used which is an 11-item self-report tool measuring tendencies to conform to those around them.
- Results: “There was a **significant negative correlation between belief in free will (M=3.54, SD=.75) and conformity (M=2.46, SD=.56), $r(37)=-.34, p=.03$** . Participants who expressed a stronger belief in free will reported conforming less than participants with a weaker belief in free will” (81).
- A static belief in free will is associated positively with life satisfaction [Li, C., Wang, S., Zhao, Y., Kong, F., & Li, J. \(2017\)](#)
 - Study 1
 - Participants: 1,660 10th-grade students from highschoools in Chengdu, China
 - Methods: Participants complete a Chinese translation of the Free Will subscale of the FAD-plus, the Satisfaction with Life Scale (SWLS), the Positive and Negative Affect Schedule (PANAS) for a mood check, and the NEO-FFI as a self-report measure of the Big Five personality traits.
 - Results: “Critically, the **belief in free will was positively correlated with life satisfaction** and PA [positive affect] but negatively correlated with NA [negative affect].” belief in free will has a 0.22 correlation with PA ($p<0.01$) and a -0.13 correlation with NA ($p<0.01$).
 - “Importantly, when predicting life satisfaction and PA, **belief in free will explained additional variance beyond other predictors (i.e., 1% and 1%, $ps < 0.001$)**. However, the belief in free will no longer contributed significantly to NA ($p = 0.31$).”
 - Study 2
 - Participants: 639 10th grade students from highschoools in Chengdu, China
 - Methods: Participants complete a Chinese translation of the Free Will subscale of the FAD-plus, the Satisfaction with Life Scale (SWLS), the Positive and Negative Affect Schedule (PANAS) for a mood check, and the NEO-FFI as a self-report measure of the Big Five personality traits.
 - A philosophical question was added which described both a deterministic and an indeterministic universe. Participants were asked which universe was more like ours and classified as either believers in determinism or free will.

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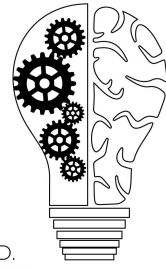
- **Results:** “Then, we compared the scores on the free will subscale of the FAD-Plus between free will believers and determinism believers. **Indeed, compared with determinism believers, free will believers scored significantly higher**, $t(637) = 2.50$, $p < 0.01$, Cohen’s $d = 0.28$ ”
 - “That is, **the belief in free will measured by the FAD-Plus was positively correlated with life satisfaction** ($r = 0.22$, $p < 0.001$) and PA ($r = 0.22$, $p < 0.001$) but was negatively correlated with NA ($r = -0.08$, $p = 0.047$).”
 - “Compared with determinism believers, **free will believers scored higher in life satisfaction** [$t(637) = 1.89$, $p = 0.06$, Cohen’s $d = 0.20$] **and PA** [$t(637) = 2.12$, $p = 0.03$, Cohen’s $d = 0.24$], **and lower in NA** [$t(637) = 3.28$, $p < 0.001$, Cohen’s $d = 0.34$].”

The effect size in this is not large—it’s .28. It’s the same effect size we would see in a lot of antidepressant trials. So, maybe we need to give a little vitamin “free will” to people. Of course, it’s a lot more nuanced than that because there’s no placebo.

- A static belief in free will is associated with more gratitude, greater life satisfaction, lower levels of perceived stress, and a higher commitment in relationships. [Crescioni, A. W., Baumeister, R. F., Ainsworth, S. E., Ent, M., & Lambert, N. M. \(2016\)](#)
 - Study 1
 - **Participants:** recruitment was mixed between Amazon Mechanical Turk users given \$0.10-0.20 and undergraduate students given some course credit.
 - **Methods:** FWB was measured with either FAD, FAD-plus, or Free Will Determinism scales. Additional measures of general self-efficacy (GES), perceived stress scale (PSS), mindfulness (MAAS), subjective happiness scale (SHS), relationship satisfaction, commitment (dedication subscale of Stanley and Markman’s (1992) commitment measure, meaning in life questionnaire (MLQ-10), gratitude questionnaire-6 (GQ6), and satisfaction with life scale (SWLS).
 - **Results:** belief in free will has a 0.56 correlation with **subjective happiness** ($p < 0.01$), 0.31 correlation with **meaning** ($p < 0.01$), 0.32 correlation with **gratitude** ($p < 0.01$), 0.59 correlation with **life satisfaction** ($p < 0.01$), 0.35 correlation with **self-efficacy** ($p < 0.05$), 0.27

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correlation with **forgiveness** ($p < 0.01$), and 0.21 correlation with **relationship satisfaction** ($p < 0.05$)

▪ Study 2

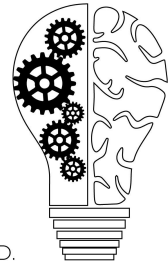
- Participants: 78 people recruited through Amazon Mechanical Turk and given \$0.15.
- Methods: Participants completed the FAD-plus, Internal Control Index, and the implicit person theory measure.
 - They also completed the satisfaction with life scale (SWLS), general self-efficacy scale (GES), and gratitude questionnaire-6 (GQ6).
- Results: “There was a **small-to-moderate positive correlation between belief in free will and locus of control**, $r(78) = .28$, $p = .02$, such that participants who believed more strongly in free will also tended to have a more internal locus of control”
 - “Apart from correlations between each criterion variable and the free will belief subscale, the only **significant correlation that emerged was a negative correlation between fatalism and gratitude**, $r(78) = -.26$, $p = .02$ ”
 - “Four multiple regressions were conducted predicting satisfaction with life, gratitude, self-efficacy, and perceived meaning in life. Each model included free will belief, internal locus of control, and implicit person theory as predictors. The overall regression models predicting life satisfaction, $F(77) = 6.30$, $p < .01$, gratitude, $F(77) = 18.53$, $p = .01$, self-efficacy, $F(77) = 17.76$, $p < .01$, and meaning in life, $F(77) = 8.18$, $p < .01$, were each significant.”
 - “**Belief in free will had stronger correlations with life satisfaction, gratitude, self-efficacy, and meaningfulness of life than did implicit theories and locus of control.** The contribution of free will beliefs remained significant and indeed quite substantial after controlling for the other variables.”

In summary

We pay a lot of attention to locus of control in psychotherapy. We need to know how people view the world. Do they believe they have some free will? It is going to make someone's life a

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little bit better to believe that they can control their outcomes. Our patients' beliefs matter because what they believe changes the way that they interact in the world.

As we do psychotherapy, we want to move people into a set of beliefs that are more in alignment with what is going to lead them to live a thriving life. I'm concerned that some people have a mechanistic, purely biological perspective, and how does that influence the patients? Does that cause harm? I think that as therapists, we have to be careful if we have a more deterministic viewpoint on the world. If we believe in determinism, how do we communicate that in such a way that doesn't squelch someone's belief that they can set goals and create meaningful change?

I think it's important to understand this concept. It's not something I got in training. I'm personally curious about it. And I'm looking forward to part 3. We're going to look at how free will and mental health interact. We're going to talk about some of the practical differences between free will and decision making capacity, which is something that's often placed in the realm of psychiatry. Psychiatrists are often called to assess decision making capacity in a variety of scenarios. We're also going to talk about some different concepts of free will and how free will can relate to things like psychoses. We will even cover some studies on the importance of neuro essentialism and how much of an effect it has on both patients and mental health professionals.